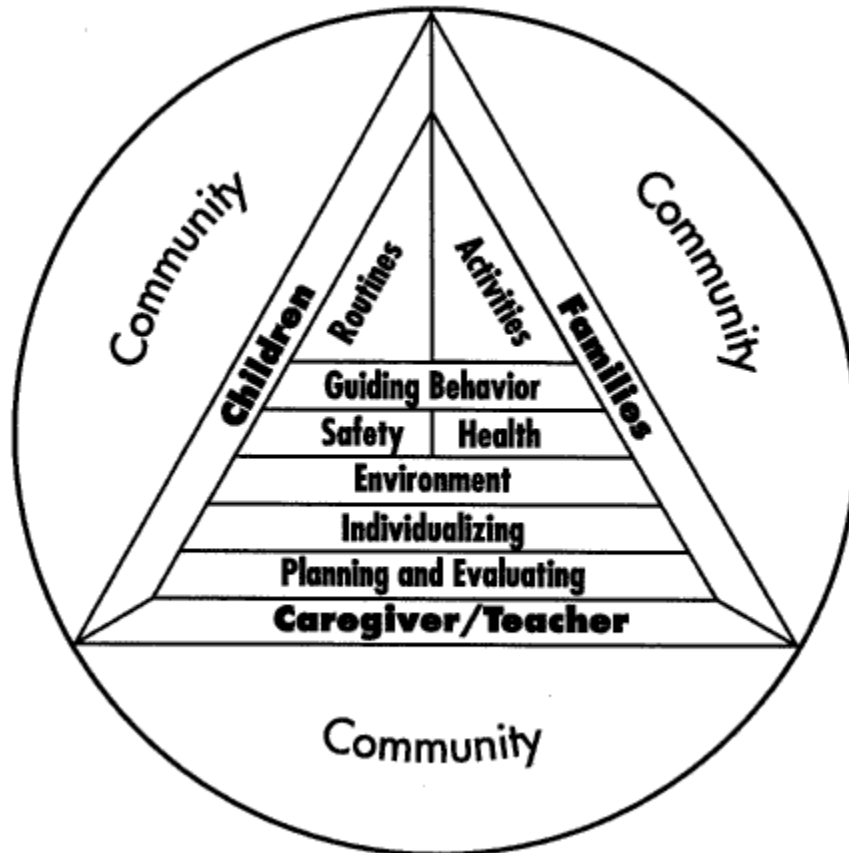


Pohnpei Department of Education

Curriculum Frameworks



**Developed by the Pohnpei Department of Education
With support of the
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Director's Message

The Pohnpei Department of Education's Strategic Plan 2008 – 2012 set forth a standards based approach to education for the department. It also identified need for improvements in linkages of standards to curriculum and instruction and the system of support to teachers. Of concern was that while the department was strong in having content standards and Standards Based Assessment (SBA) in place, there were no clear processes and procedures and guides for turning the standards into curriculum, aligning instructional strategies to maximize learning against the standards, and adequate classroom based formative and summative assessment that help teachers know how well their students are learning against the standards. The Curriculum Frameworks are designed to assist the department with implementing its standards based education system through its curriculum, instructional programs and in class assessment and ultimately increasing student levels of learning and achievement.

The curriculum frameworks:

- Brings together our core content standards for language arts, social studies, mathematics and science into one readily assessable document,
- Defines our philosophy of education as constructivist [children learn best when they actively construct knowledge and understanding],
- Provides an overview of critical issues in teaching and learning; assessment and evaluation, and professional development including best practices,
- Promotes self assessment and self evaluations at the individual, school and department level through a series of rating tools, and
- Reviews and recommends web sites that support standards based education and provides linkages to lesson plans, resource materials, online professional development and best practices in instruction, assessment/evaluation, planning and professional development.

The Curriculum Frameworks provides pathways for the department to improve both its direct instruction and support services. However, the implementation of the Curriculum Frameworks depends on all teachers, principals and support staff working in cooperation with each other as well as with our parents, the community and all who have a stake in providing a continuously improving education system that meets of the needs of individual students and the broader economic and social development aspirations of the citizens of Pohnpei.

The department has established an action and assessment plan for its Curriculum Frameworks that defines the roles of teachers, principals, and central office staff in implementation of the Curriculum Frameworks. A fundamental feature of the action plan is transparency of the education system. All levels of the education system will be periodically reporting on progress in their implementation of the Curriculum Frameworks.

The development of the Curriculum Frameworks was a department wide effort and its implementation will require the same level of cooperation and effort. Working together we can enhance our education system to provide the framework for our children to reach their full potential.

Joseph Villazon
Pohnpei State Director of Education

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1: Introduction

What are curriculum frameworks?

Curriculum frameworks are documents that set forth how standards guide all activities of a school system in improving student learning and achievement. They address how standards based education systems link standards, curriculum, instruction (including preferred instructional strategies and materials), assessment and professional development in a cycle that promotes continuous improvement of student learning and achievement and improvement of the education system.

Curriculum frameworks provide a practice guide for teachers, principal, central office staff, community and other stakeholders to understand the linkages within and across the education system. They also provide a framework for processes and procedures that allow the education system to focus on students and student learning and achievement.

Why this curriculum framework?

In the development of the Pohnpei Department of Education's (PDOE's) Strategic Plan 2008 – 2012 specific strategic goals were set to 1: Revise curriculum and standards to allow the education system to support a strong and vibrant local culture while preparing students to participate in the global economy and 2: Enhance instructional programs and services to allow students to perform at grade level. Additional goals and objectives were set to enhance the assessment processes and professional development and the system of support to teachers.

These Curriculum Frameworks are to provide the framework under which the different goals and objectives directly affecting standards, curriculum, instruction and assessment of the strategic plan can be implemented in a consistence and coherent manner.

Additional purposes of these curriculum frameworks are to allow easy access (print and electronic formats) to the content standards for core subjects (language arts, social studies, mathematics and science) in one document along with supporting information needed for quality implementation of the standards.

What are content standards?

Content standards are specific statements of what students should know, think and to do at each stage of his/her schooling. Content standards may also address the issue what students may value. Content standards should be explicit goals to help ensure rigorous academic content is taught in school. Content standards are often expressed in a series of strands within a broader subject area framework that identify critical areas of development that may be carried across multiple grades.

What is a standard based education system?

Standard based education is focused on a common understanding of what students should know, think, be able to do and value. Elements of standards based education include uniform curriculum and aligned instruction & assessment that support a cycle of continuous improvement of the school system. Professional development of teachers and principals is based on evaluation of the school system, teacher observations and analysis of student achievement results and supports and enhances the ability of the system to continually improve.

Quality in a standards based education system is based on the level of student achievement and learning against the established standards.

What is the purpose of the Pohnpei State Department of Education's curriculum frameworks?

The purpose of the Pohnpei Department of Education's (PDOE) curriculum framework is to provide:

- One stop access to the school system's content standards for language arts, mathematics, social studies and science in a common format.
- The PDOE's philosophy of standards based education.
- Expanded information on what teachers need to know about the standards and provide the essentials of the standards and expectations for student learning at each grade level.
- Linkages between content standards, curriculum, instruction, assessment and professional development.
- Linkages between content standards and lesson plans.
- Best practices in teaching, learning and assessment that support student achievement and learning and how these practices fit into a system of continuous improvement.
- Best practices in professional development.
- Linkages to other resources including websites that support quality teaching and learning and as sources for lesson planning and instructional materials.

What are characteristics of a quality standard based education system?

While there are many characteristics of a quality standard based education system a few key characteristics may be noted.

- Quality is determined by how well students are meeting or exceeding the standards for their grade/development level.
- Evidence (assessment & evaluation results) form the basis for discussions on quality and how well students are achieving. Student results are shared with parents and the community.

- There is an ongoing dialogue at all levels of the education system on student learning and achievement and how that learning and achievement can be improved. This is especially true among teachers but is also the frame of reference for principals and central office staff.
- Teachers know how their daily instruction is linked to standards and that linkage is clarified in their lesson plans and planning.
- Teachers are aware, through in class formative and summative assessment, how well their students are meeting expectations for student learning.
- Summative assessment is used at all levels of the education system to guide decision making and resources allocation.
- Teachers are aware of different subject area content standards and seek ways to link student understanding and learning across subject area.
- Teachers have detailed knowledge not only of what students are expected to learn at their own grade level, but have detailed knowledge of what students should know, think and be able to do when they begin grade level instruction, they are also committed to ensuring that at the end of the school year their students are prepared for the next stage in their learning.
- Teachers with support of principals and central office staff are continually seeking instructional methods and materials and ways to enhance student learning.
- Students are actively engaged in the learning process through active and cooperative learning activities.
- Parents know their roles and responsibilities in enhancing their child's learning.
- Support services provided by principals and central office are constant and ongoing and directed at enhancing student learning.

What standards do teachers need to know?

At a minimum, teachers need to know the content standards for the subjects and grades they teach. They also need to understand the expectations for student learning at grades both below and above the level at which they teach. For those teachers who teach only one or two subjects they must also be aware of what students are studying and learning in other subjects and how what they teach can reinforce what is being taught in other classes.

What is the basic philosophy of the PDOE education system?

The PDOE supports a constructive approach to learning. That is, individuals learn best when they actively construct knowledge and understanding. Educators must also understand how children development and provide appropriate learning environments at different developmental stages.

Theoretical background for this approach may be found in the works of Jean Piaget and Lev Vygotsky. Piaget takes a cognitive constructionist approach while Vygotsky approach is from a social stand point.

Piaget developed a model with four stages of cognitive development.

Sensorimotor stage	Preoperational stage	Concrete operational stage	Formal operational stage
The infant constructs and understanding of the world by coordinating sensory experiences with physical actions. An infant progresses from reflexive, instinctual action at birth to the beginning of symbolic thought toward the end of the stage.	The child begins to represent the world with words and images. These words and images reflect increased symbolic thinking and go beyond the connection of sensory information and physical action.	The child can now reason logically about concrete events and classify objects into different sets.	The adolescent reasons in more abstract, idealistic, and logical ways.
Birth to 2 years of age	2 to 7 years of age	7 to 11 years of age	11 years of age through adulthood

It needs to be noted that little research has been conducted on the social development of Micronesian children.

A comparison of Piaget’s cognitive and Vygotsky’s social approaches follow.

Topic	Vygotsky	Piaget
Sociocultural contexts	Strong emphasis	Little emphasis
Stages	No general stages of development proposed	Strong emphasis on stages (sensorimotor, preoperational, concrete operational, and formal operational)
Key processes	Zone of proximal development, languages, dialogue, tools of the culture	Schema, assimilation, accommodation, operations, conservation, classification, hypothetical-deductive reasoning
Role of language	A major role; language plays a powerful role in shaping thought	Minimal; cognitive primarily directs language
View on education	Education plays a central role, helping children learn the tools of the culture	Education merely refines the child’s cognitive skills that already have emerged
Teaching implications	The teacher is facilitator and guide, not a director; establish many opportunities for students to learn with the teacher and more-skilled peers	Also views the teacher as a facilitator and guide, not a director; provide support for children to explore their world and discover knowledge

Teachers must be aware of the cognitive and social constructive approaches to education and make sure they influence how they teach and what they expect of their students. Teachers who are not education majors should consider taking a formal educational psychology course to gain valuable insights into what instructional strategies to use and why some strategies are more effective than others (and why some strategies are more or less effective at different stages of development).

2: Standards

The following sections provide the PDOE content standards in language arts, social studies, mathematics and science. The language arts and social studies standards were developed by the PDOE with assistance of the Pacific Resources for Education and Learning (PREL) organization and are based on the FSM Language Arts and Social Studies standards. The mathematics and sciences sections represent the Federated States of Micronesia (FSM) national content standards. PDOE teachers and staff participated in development of the mathematics and science standards.

The language arts and social studies content standards provide detail regarding vision, assumptions and purposes of the standards.

As part of the development process for the Curriculum Frameworks, a stakeholders’ workshop was held at Misko Beach in April 2009. The workshop addressed fundamental issues regarding what are content standards and best practices in instruction, assessment and professional development. Additionally, a series of “Understanding the Standards” put together by teachers, principals, central office staff, and stakeholders involved in the process to help clarify, what teachers need to know about the standards, and what is essential thinks teachers and students need to know, think, do and value about the standards. This expansion on the standards is included in the appendix.

Standards Overview

While similar in format, there are differences between the approaches used by the language arts and social studies standards and those employed by mathematics and science. The following is a brief overview of the content standards.

<u>Language arts</u> approaches it standards through three overriding strands with each strand addressing a series of sub strands	<u>Social studies</u> approaches it standards through five overriding strands with each strand addressing a series of sub strands	<u>Mathematics</u> approaches it standards through four overriding standards with each standard addressing a series of sub standards	<u>Science</u> approaches it standards through five overriding standards with each standard addressing a series of sub standards
1. Reading 2. Writing 3. Oral and visual communications	1. Culture 2. Geography 3. History 4. Economics 5. Civics	1. Number, operations and computation 2. Geometry, measurement, transformation 3. Patterns and algebra 4. Statistics and probability	1. Science as inquiry 2. Physical science and technology 3. Earth and space 4. Life and environmental science 5. Marine science

For each standards, students are expected to progressively develop more complex understating of what they are expected to know, do, think and value in the content area. Teachers need to be

continually aware of what students are learning in different subjects and determine ways to reinforce that learning. A basic assumption of constructivism is that student best learn what is taught is used and reinforced in different contexts.

There is more on these issues in the section on teaching and learning.

Language Arts Standards

Vision Statement

To be successful citizens our students must develop a secure Pohnpeian identity. They must develop knowledge and skills in their own language and culture, literacy and communication, math, technology, sports, performing arts, survival, and vocational careers. They must develop moral values and knowledgeable respect and caring for the environment. Our students must demonstrate positive social behaviors, always using respectful and appropriate language, always being considerate and respectful. Through their knowledge, skills, and behavior our students will show that they possess the positive attitudes that lead to their being respected in the community, reflect spiritual conviction, and respect traditional values.

Basic Assumptions

1. The standards represent literacy standards – the fundamental knowledge, skills, and values that literate citizens have and are able to use.
2. The content standards identify what students should know, be able to do, and care about in language arts.
3. Benchmarks are identified for each standard and represent what students should know and be able to do at each grade level.
4. Classroom implementation will reflect not only the content of standards and benchmarks but also the best instructional research and practice.

Purpose

For the purpose of this document, these points must be emphasized:

1. These standards are designed to asset teachers in implementing the language arts curriculum. It is hoped that this document will be used as a general guideline in the language arts classroom and will be extended by teacher through innovation and creativity.
2. For purposes of discussion and assessment, distinct standards have been designed within the language arts curriculum. It is assumed that reading, writing, speaking, and listening will be integrated in all classrooms.

Language arts – reading, writing, speaking and listening – is fundamental in constructing knowledge in all academic disciplines, succeeding in the world of work, and making sense of everyday life. Through the efforts of innovation and creative teachers, these standards can help students adapt to the continually changing world of communication.

Language Arts Strands at a Glance

Reading	Writing	Oral and Visual Communications
1.1 Range and Diversity Read a variety of sources in the appropriate instructional language	2.1 Range and Diversity Write using various forms, cultural points of view, and diverse perspectives	3.1 Range and Diversity Communicative effectively through various forms and diverse perspectives
1.2 Comprehension Process Apply a variety of strategies to comprehend	2.2 Composing Process Apply a variety of strategies to construct text.	3.2 Communication Process Apply strategies to communication and to interpret what others convey.
1.3 Conventions and Skills Apply knowledge of print and language to comprehend.	2.3 Conventions and Skills Apply knowledge of language conventions and rules	3.3 Conventions and Skills Use verbal and nonverbal language skills to communicate effectively.
1.4 Response Respond to text at a variety of levels; personal, literal, interpretive, and applied.	2.4 Effective Expression Use quality language that conveys meaning	3.4 Effective Expressions Use quality language to communicate effectively and appropriately
1.5 Attitude and Engagement Show motivation and engagement in reading and in sharing with others	2.5 Attitude and Engagement Show motivation and engagement in writing and sharing with others.	3.5. Attitude and Engagement Show motivation and engagement in oral and visual communication and in sharing.

Standards at a Glance

Strand 1: Reading		Strand 2: Writing		Strand 3: Oral & visual communications	
Focus of the Standard	Statement of Standards	Focus of the Standard	Statement of Standards	Focus of the Standard	Statement of Standards
1.1 Range & Diversity <ul style="list-style-type: none"> Types of materials (i.e., novels, magazines, books, newspapers, etc.) Genres/Subjects (e.g., fiction, non-fiction, informational text, fairy tales) 	1.1 Read a variety of sources in the appropriate instructional language	2.1 Range & Diversity <ul style="list-style-type: none"> Fiction Non-fiction Poems Letters Reports Cultural experiences Cultural perspectives 	2.1 Write using various forms, cultural points of view, and diverse perspectives	3.1 Range & Diversity <ul style="list-style-type: none"> Types *informal, formal) Forms (speech, plays) 	3.1 Communicate effectively through various forms and diverse perspectives.
1.2 Comprehension Process <ul style="list-style-type: none"> As questions Synthesizes Make connections Visualize Predict Infer Use “in-the head” strategies 	1.2 Apply a variety of strategies to comprehend	2.1 Composing Process <ul style="list-style-type: none"> Writing process (i.e., drafting, responding to feedback, revising, editing, publishing) Creating outlines & topics lists Webbing, mapping, visual & graphic organizers 	2.2 Apply a variety of strategies to construct a text	3.2 Communication Process <ul style="list-style-type: none"> Listen Speak Think Comprehend View Create Analyze Use “in-the-head” skills 	3.2 Apply strategies to communicate and interpret what other convey
1.3 Conventions & Skills <ul style="list-style-type: none"> Phonemic awareness 	1.3 Apply knowledge of print and	2.3 Conventions & Skills <ul style="list-style-type: none"> Language 	2.3 Apply knowledge of language	3.3 Conventions & Skills <ul style="list-style-type: none"> Pronunciation 	3.3 Use verbal and nonverbal language skills to

Strand 1: Reading		Strand 2: Writing		Strand 3: Oral & visual communications	
Focus of the Standard	Statement of Standards	Focus of the Standard	Statement of Standards	Focus of the Standard	Statement of Standards
<ul style="list-style-type: none"> • Phonics • Fluency • Vocabulary • Concepts of print • Text features (i.e., Table of Contents, glossary, index, etc.) 	language to comprehend.	structure <ul style="list-style-type: none"> • Use of grammar • Use of punctuation 	conventions and rules	<ul style="list-style-type: none"> • Grammar usage • Syntax/Sentence Structure • Body language • Eye contact • Facial expression 	communicate effectively
1.4 Response <ul style="list-style-type: none"> • Written • Oral • Dramatization • Music • Art 	1.4 Respond to text at a variety of levels; personal, literal, interpretive, and applied.	2.4 Effective Expression <ul style="list-style-type: none"> • Appropriate choice of words • Vocabulary • Quality of writing 	2.4 Use quality language that conveys meaning	3.4 Effective Expression <ul style="list-style-type: none"> • Choice of vocabulary • Fluency • Clear language • Word choice • Delivery • Organization 	3.4 Use quality language to communicate effectively and appropriately
1.5 Attitude & Engagement <ul style="list-style-type: none"> • Interest • Motivation • Attention • Willingness 	1.5 Show motivation and engagement in reading and in sharing with others	2.5. Attitude & Engagement <ul style="list-style-type: none"> • Interest • Motivation • Attention • Willingness 	2.5 Show motivation and engagement in writing and in sharing with others	3.5 Attitude & Engagement <ul style="list-style-type: none"> • Interest • Motivation • Attention • Willingness 	3.5 Show motivation and engagement in oral and visual communication and sharing.

Strand 1 Reading

Standard	Grade 1	Grade 2	Grade 3
1.1 Range and Diversity Read a variety of sources in the appropriate instructional language	a. Read wall stories, flash cards, big books, and posters in Pohnpeian independently and fluently at the appropriate level. b. Identify common signs and logos in Pohnpeian.	a. Read independently and fluently in Pohnpeian at the appropriate level. b. Identify common signs, logos, and words in Pohnpeian and English.	a. Read independently in Pohnpeian at grade level.
1.2 Comprehension Process Apply a variety of strategies to comprehend	a. Relate ideas from reading to personal experience and background knowledge.	a. Ask and answer questions using culturally appropriate Pohnpeian language. b. Relate ideas from reading to personal experience. c. Read and follow simple directions to perform tasks. d. Create mental images from pictures and print. e. Retell a story (main ideas) in own words.	a. Ask and answer questions at different levels in Pohnpeian languages. b. Compare ideas from reading to personal experience.
1.3 Conventions and Skills Apply knowledge of print and language to comprehend.	a. Develop skills in handling a book. b. Demonstrate knowledge of phoneme awareness. c. Apply strategies to unlock unknown words. d. Recognize and understand	a. Apply reading strategies in Pohnpeian. b. Use text features to comprehend.	a. Apply reading strategies in Pohnpeian. b. Read with express and fluency and follow punctuation marks. c. Chunk parts of words to decoded unknown words.

Standard	Grade 1	Grade 2	Grade 3
	common Pohnpeian words. e. Reread familiar text to build fluency.		d. Read familiar stories with fluency.
1.4 Response Respond to text at a variety of levels; personal, literal, interpretive, and applied.	a. Draw, write, and talk about stories b. Identify favorite part of a story	a. Compare and contrast different events and stories.	a. Ask and answer questions about stories read. b. Recite and relate story events to life experiences. c. Identify story elements in Pohnpeian.
1.5 Attitude and Engagement Show motivation and engagement in reading and in sharing with others	1. Share reading experience with others. b. Pay attention to a story.	a. Read for enjoyment and information. b. Volunteer to give information about a text.	a. Stay on task and complete task during reading.

Standard	Grade 4	Grade 5	Grade 6
1.1 Range and Diversity Read a variety of sources in the appropriate instructional language	a. Read for a variety of purposes at grade level (e.g. locate information, connect themes to personal experience, reinforce comprehensive skills in English Language.)	a. Read a variety of reference materials (e.g., maps, almanacs, encyclopedias).	a. Read and comprehend competently a variety of sources in Pohnpeian and English. b. Read to gain information from content materials. c. Read and identify different forms of literature.
1.2 Comprehension Process Apply a variety of strategies to comprehend	a. Ask and answer questions at different levels in Pohnpeian and English. c. Synthesizes information to summarize and draw conclusions in Pohnpeian.	a. Use context clues to unlock meaning. b. Ask and answer questions at different cognitive levels in Pohnpeian and English. c. Identify the elements of a story (i.e., character, setting, plot, resolution and climax).1	a. Apply reading strategies in Pohnpeian and English.
1.3 Conventions and Skills Apply knowledge of print and language to comprehend.	a. Recognize word and sentence structure to determine meaning.	a. Read and interpret information from graphs and charts.	a. Read to solve functional tasks (e.g., phone directory, labels, schedules, etc.)
1.4 Response Respond to text at a variety of levels; personal, literal, interpretive, and applied.	a. Write a summary of a book, story, article, or lecture in Pohnpeian.	a. Synthesize information to summarize and draw conclusions in Pohnpeian and English. b. Summarize stories, articles or lectures in Pohnpeian in writing or verbally.	a. Demonstrate the ability to interpret given articles or passages in Pohnpeian and English.
1.5 Attitude and Engagement Show motivation and engagement in reading and in sharing with others	a. Recall and discuss stories.	a. Share favorite stories and ask questions.	a. Share ideas about stories with details.

Standard	Grade 7	Grade 8	Grade 9
1.1 Range and Diversity Read a variety of sources in the appropriate instructional language	a. Read a broad range of traditional and contemporary text and technological materials.	a. Read and identify different forms of literature.	a. Read and comprehend different types of literature.
1.2 Comprehension Process Apply a variety of strategies to comprehend	a. Expand comprehension skills in both languages. b. Use reading strategies to infer.	a. Distinguish fact from opinion. b. Interpret descriptive words, phrases, and passages. c. Predict outcomes of text while reading. d. Evaluate and make	a. Use reading strategies appropriate to text and purpose (i.e., annotating, quoting, alluding to text, rethinking initial purposes). b. Identify and analyze the elements of the story (i.e.,

Standard	Grade 7	Grade 8	Grade 9
		judgments.	setting, plot, climax, conflict, resolution, and point of view.
1.3 Conventions and Skills Apply knowledge of print and language to comprehend.	a. Develop reading strategies to be able to scan and skim. b. Use knowledge of word origins, affixes, root words, context clues, dictionaries, and glossaries to determine the meaning of words.	a. Use knowledge of word origins to determine meaning (root words, context clues, affixes, dictionaries, etc.) b. Read to research a theme or hypothesis using technological and reference materials.	a. Understand the meanings of unfamiliar words using context clues before, during and after reading.
1.4 Response Respond to text at a variety of levels; personal, literal, interpretive, and applied.	a. Demonstrate ability to combine ideas from different resources.	a. Critique author/s message with supporting evidence.	a. Express and support assertions about the effectiveness of a text with evidence.
1.5 Attitude and Engagement Show motivation and engagement in reading and in sharing with others	a. Make judgments and opinions about reading materials	a. Make judgments and opinions and relate information to real life situations.	a. Read for personal enjoyment. b. Identify favorite books. c. Share reading experiences with others.

Standard	Grade 10	Grade 11	Grade 12
1.1 Range and Diversity Read a variety of sources in the appropriate instructional language	a. Read and understand a variety of literary texts.	a. Read and identify different genres (e.g., poetry, classics).	a. Understand relationships between literature and its historical period, culture, and society (i.e., influence of historical context on form, style, and point of view).
1.2 Comprehension Process Apply a variety of strategies to comprehend	a. Use reading skills and strategies. B. Analyze complex elements in specific literacy works (i.e., time frame, causes and effect, conflict, and resolution).	a. Synthesizes and evaluate texts. b. Analyze simple and complex actions (i.e., internal/external conflicts) between main and subordinate characters in literary works containing complex character structure. c. Understand how themes are used across literary works and genres (i.e., universal themes in literatures of different cultures).	a. Evaluate how themes are used across literary works and universal themes.
1.3 Conventions and Skills Apply knowledge of print and language to comprehend.	a. Identify, recognize, and expand symbolism (e.g., idioms, figures of speech, personification).	a. Apply knowledge of context clues, syntax, and reference materials.	a. Analyze and evaluate the rules (conventions) of the four genres of fiction (short story, drama, novel, and poetry).
1.4 Response Respond to text at a variety of levels; personal, literal, interpretive, and applied.	a. Make connections to own life and the characters, events, motives, and causes of conflict in texts.	a. Analyze and evaluate themes using a variety of texts and textual and experimental evidence.	a. Complete a comparative analysis of texts. b. Independently read and responds to a variety of texts. c. Understand the effects of author's style and complex literary devices and techniques on the overall quality of a work (i.e., tone, irony, mood, figurative language, personification, and point of view).
1.5 Attitude and Engagement	a. Appreciate different forms	a. Participate in discussion on	a. Demonstrate ability to

Standard	Grade 10	Grade 11	Grade 12
Show motivation and engagement in reading and in sharing with others	of literature such as poetry, plays etc. b. Demonstrate motivation by sharing and discussing what was read.	comparisons of textual situations to existing societal situations.	select appropriate reading materials.

Strand 2: Writing

Standard	Grade 1	Grade 2	Grade 3
2.1 Range and Diversity Write using various forms, cultural points of view, and diverse perspectives	a. Draw, tell, and write about personal experience and cultural background. b. Write descriptions of pictures.	a. Express ideas in Pohnpeian to communicate.	a. Write about different content areas – familiar or newly learned topics.
2.2 Composing Process Apply a variety of strategies to construct text.	a. Talk about and share ideas when writing.	a. Use pictures, objects, and experiences to generate ideas for writing topics.	a. Use strategies to focus topic (e.g., mapping, brainstorming, reading, and talking). b. Ask questions or conduct interviews to gain information to be used in writing. c. Use personal experience to assist with writing.
2.3 Conventions and Skills Apply knowledge of language conventions and rules	a. Apply basic handwriting strokes. b. Write from left to right. c. Write own name and other names correctly and legibly. d. Use capitals and periods correctly.	a. Use punctuation and conventions appropriate to grade level.	a. Recognize parts of speech appropriate to grade level. b. Organize writing with main topics and supporting ideas.
2.4 Effective Expression Use quality language that conveys meaning	a. Write simple sentences in Pohnpeian.	a. Use appropriate words to support ideas and thoughts.	a. Use descriptive words to complete thoughts and ideas.
2.5 Attitude and Engagement Show motivation and engagement in writing and sharing with others.	a. Share writing with others.	a. Share and explain writing to others.	a. Volunteer to help others with writing.

Standard	Grade 4	Grade 5	Grade 6
2.1 Range and Diversity Write using various forms, cultural points of view, and diverse perspectives	a. Take notes in Pohnpeian and in English. b. Write stories in Pohnpeian and in English.	a. Take notes in Pohnpeian. b. Write formal and personal letters. c. Write stories in Pohnpeian and in English.	a. Take notes and summarize. b. Write in a variety of forms in English and Pohnpeian (e.g., expository stories). c. Fill out forms and simple applications (i.e., licenses, library cards).
2.2 Composing Process Apply a variety of strategies to construct text.	a. Revise and edit own writing.	a. Revise, edit, and evaluate own and others' writing in Pohnpeian and English.	a. Use writing process in Pohnpeian and English with guidance.
2.3 Conventions and Skills Apply knowledge of language conventions and rules	a. Use correct writing mechanics in Pohnpeian and English.	a. Use writing mechanics in Pohnpeian and English. b. Identify and use grammatical patterns of language appropriate to grade level.	a. Apply writing mechanics in Pohnpeian and English.
2.4 Effective Expression Use quality language that	a. Include details to support ideas in writing.	a. Use precise words to convey meaning.	a. Use the appropriate form of Pohnpeian when writing.

Standard	Grade 4	Grade 5	Grade 6
conveys meaning			
2.5 Attitude and Engagement Show motivation and engagement in writing and sharing with others.	a. Enjoy writing for own purposes.	a. Demonstrate motivate by sharing writing with others.	a. Display writing pieces for others to view.

Standard	Grade 7	Grade 8	Grade 9
2.1 Range and Diversity Write using various forms, cultural points of view, and diverse perspectives	a. Take notes and write summaries in Pohnpeian and English. b. Correspond in a variety of forms in Pohnpeian and English (i.e., persuasive, descriptive, informative, stories, etc.).	a. Take notes and write summaries in English and Pohnpeian. b. Correspond in a variety of forms in English and Pohnpeian. c. Write research and persuasive papers in English and Pohnpeian.	a. Write reports using information from various sources.
2.2 Composing Process Apply a variety of strategies to construct text.	a. Apply writing process in Pohnpeian and English independently.	a. Demonstrate writing processes. b. Include data and sources to support content.	a. Apply writing process to specific tasks and purposes.
2.3 Conventions and Skills Apply knowledge of language conventions and rules	a. Demonstrate understanding of conventions in complex writing.	a. Use vivid and creative ideas to convey message.	a. Use conventions of standard English consistently.
2.4 Effective Expression Use quality language that conveys meaning	a. Use appropriate language for given topic.	a. Use figurative language in writing. b. Use sophisticated sentences and expressive language.	a. use words, expressions, and support details relevant to topics.
2.5 Attitude and Engagement Show motivation and engagement in writing and sharing with others.	a. Show confidence in own writing ability.	a. Set high expectations for own writing.	a. Show enjoyment when reporting information.

Standard	Grade 10	Grade 11	Grade 12
2.1 Range and Diversity Write various forms, cultural points of view, and diverse perspectives	a. Write responses to reflect own learning.	a. Write essays, business letters, poetry, and reports on content areas. b. Use technology to access, organize, and present information in essays.	a. use technology to access, organize, and present information in a research paper.
2.2 Composing Process Apply a variety of strategies to construct text.	a. Organize ideas based on spatial order, classification, and importance. b. Craft writing to appeal to and convince readers.	a. Understand the process of writing research reports. b. Use the writing process to produce essays.	a. Develop criteria to judge, revise, and improve writing. b. Revise and improve written documents.
2.3 Conventions and Skills Apply knowledge of language conventions and rules	a. Write coherent compositions with a topic statement, evidence, and well-developed paragraphs.	a. Demonstrate understanding of elements in analytical writing.	a. Revise writing to improve style, word choice, sentence variety, and subtlety of meaning in relationship to the purpose and audience. b. Cite sources of information using appropriate format.
2.4 Effective Expression Use quality language that conveys meaning	a. use language to persuade readers.	a. Edit writing to improve the logical progression of ideas and supporting information.	a. Use voice and style appropriate to topics, purpose, and reader.
2.5 Attitude and Engagement	a. Be willing to share a	a. Analyze and set high	a. Recognize opportunities to

Standard	Grade 10	Grade 11	Grade 12
Show motivation and engagement in writing and sharing with others.	variety of writing to reflect own learning.	expectations for own writing.	use writing to improve own learning.

Strand 3: Oral and Visual Communication

Standard	Grade 1	Grade 2	Grade 3
3.1 Range and Diversity Communicative effectively through various forms and diverse perspectives.	a. Make greetings and introductions, and maintain conversations. b. Give and follow directions and explanations. c. Tell stories based on experiences. d. demonstrate the ability to sing along with actions. e. Demonstrate the ability to express oneself through the arts.	a. Interact with others to share ideas and express opinions. b. Participate in dramatizations.	a. Tell different types of stories. b. Demonstrate the ability to interpret pantomime. c. Interpret meaning of posters and environmental signs.
3.2 Communication Process Apply strategies to communication and to interpret what others convey.	a. Respond appropriately to what was stated. b. Ask questions for clarification.	a. Follow oral directions with 3-4 steps. b. Listen and speak in order to function in a group. c. Listen critically to information in a story and be able to answer who, what, when, and why questions.	a. Follow complex directions. b. Identify and recall main points.
3.3 Conventions and Skills Use verbal and nonverbal language skills to communicate effectively.	a. Recognize appropriate body language.	a. Speak clearly and expressively using nonverbal language (i.e., eye contact, expressions, etc.).	a. Speak with appropriate pronunciation and grammar.
3.4 Effective Expressions Use quality language to communicate effectively and appropriately	a. Use clear language. b. Speak using appropriate volume, eye contact, and gestures.	a. Express needs, feelings, and ideas in detail.	a. Express needs and feelings and share ideas with increasing vocabulary. b. Express alternative ways of saying things (i.e., idioms, lepin kahs)
3.5 Attitude and Engagement Show motivation and engagement in oral and visual communication and in sharing.	a. Show willingness to initiate and/or engage in oral activities.	a. Demonstrate positive attitude toward communicating with others.	a. Show interest, demonstrate willingness, and pay attention while communicating.

Standard	Grade 4	Grade 5	Grade 6
3.1 Range and Diversity Communicative effectively through various forms and diverse perspectives.	a. Participate in exchanging ideas and exploring issues.	a. Participate in groups to exchange ideas, explore issues, problem solve, or complete projects.	a. Give oral presentations on a finished product. b. Demonstrate the ability to sing and dramatize. c. Produce simple crafts and graphic arts.
3.2 Communication Process Apply strategies to communication and to interpret what others convey.	a. demonstrate clarification skills. b. Listen critically for supporting evidence to separate fact from opinion. c. Create images when listening.	a. Listen critically to separate fact from opinion. b. Use intonation to appropriate to situation.	a. Listen critically to paraphrase.
3.3 Conventions and Skills	a. Correct pronunciation and	a. Apply knowledge of verbal	a. Speak articulately in

Standard	Grade 4	Grade 5	Grade 6
Use verbal and nonverbal language skills to communicate effectively.	grammatical errors when speaking.	and nonverbal language to create and interpret meaning.	English and Pohnpeian.
3.4 Effective Expressions Use quality language to communicate effectively and appropriately	a. Share ideas in a clear and organized manner. b. Deliver message appropriate to audience and situation.	a. Use language appropriate to audience and situation.	a. Use facts and information to convince peers.
3.5. Attitude and Engagement Show motivation and engagement in oral and visual communication and in sharing.	a. Demonstrate confidence in speaking.	a. Ask questions and make comments to others.	a. Ask questions and formulate opinions in discussions.

Standard	Grade 7	Grade 8	Grade 9
3.1 Range and Diversity Communicative effectively through various forms and diverse perspectives.	a. Conduct and facilitate meetings. b. Demonstrate the ability to express ideas.	a. Conduct formal and informal meetings. b. Demonstrate the ability to produce and deliver project in different content areas. c. Participate in solving problems, analyzing issues, and making reasoned decisions.	a. Participate in informal and formal groups for a variety of purposes.
3.2 Communication Process Apply strategies to communication and to interpret what others convey.	a. Interpret sentences orally from Pohnpeian to English and vice versa. b. Give oral presentations on comparing and contrasting points of view. c. Listen critically to analyze and restate.	a. Listen critically to analyze and restate information to judge, critique, and make decisions, b. Interpret paragraphs orally from Pohnpeian to English and vice versa.	a. Listen critically to analyze and elaborate information. b. Listen and dramatize situations.
3.3 Conventions and Skills Use verbal and nonverbal language skills to communicate effectively.	a. Use appropriate language in various traditional settings (i.e., customs, ceremony, nahnmwarki).	a. Engage and explain various traditional rituals and ceremonies in Pohnpeian and in English.	a. Use language appropriate to audience and situation.
3.4 Effective Expressions Use quality language to communicate effectively and appropriately	a. use verbal and nonverbal language persuasively.	a. Adjust language to purpose and audience. b. Give organized and relevant oral presentations.	a. Supports ideas based on personal experiences and observations.
3.5. Attitude and Engagement Show motivation and engagement in oral and visual communication and in sharing.	a. Pay attention and show respect during discussions.	a. Volunteer and help others improve their communications skills. b. Show confidence and defend own opinions.	a. Appreciate how verbal and body language reflect culture, gender, and ethnicity.

Standard	Grade 10	Grade 11	Grade 12
3.1 Range and Diversity Communicative effectively through various forms and diverse perspectives.	a. Participate and share information in the collection of data.	a. Give an effective speech on any topic. b. Give a speech to a familiar audience on a researched topic.	a. Participate in discussion that analyze issues and involve decision making.
3.2 Communication Process Apply strategies to communication and to interpret what others convey.	a. Respond to questions asked by the audience. b. Develop, express, and defend an opinion. c. Demonstrate the ability to adjust informal and formal addresses.	a. Compose, deliver, and evaluate informal and formal conversation. b. Take and defend a positioning an informal debate. c. Listen and communicate	a. Compose, deliver, and evaluate an informal and formal speech. b. Take and defend a position on different topics.

Standard	Grade 10	Grade 11	Grade 12
		critically in a cultural situation.	
3.3 Conventions and Skills Use verbal and nonverbal language skills to communicate effectively.	a. Use verbal and nonverbal language to create rapport and establish credibility with the audience.	a. Demonstrate ability to adapt to suit various audiences and purposes.	a. Adapt language to suit various audience, situations, and/or purposes.
3.4 Effective Expressions Use quality language to communicate effectively and appropriately	a. Demonstrate the ability to speak English fluently in a variety of situations.	a. deliver oral presentations with clarity, documentation, nonverbal cues, and audience awareness.	a. Express oneself effectively to achieve desired result.
3.5. Attitude and Engagement Show motivation and engagement in oral and visual communication and in sharing.	a. Show respect of others' opinions and evaluate judgments.	a. Speak with confidence in a variety of situations.	a. Speak effectively for a variety of purposes to address different topics and issues.

Social Studies Standards

Vision Statement

En pali en Sukuhl ah tungoal mehn kairoir ong wahn kasukuihl

Pwe en kak kakairada tohn wehi kesempwal me poahsoanda sang pohn wahu, onepek, oh minimin, sapwellimatail seri kan anahne ren keirda pahn mwetehn kaiahn pwe ren kak pein wauniki, kesempwaliki, oh pereniki soarerail pwehki arail wia pwilidak en wein Pohnpei.

Ni arail pahn keirda pahn mwetehn wahu, irail pahn kin lirohrohki pein arail tungoal lokaia oh pein arail tiahk en wahu kesempwal akan. Seri kan en kak kolokol wahu, minimin, oh soaramwahu kesempwal en wein Pohnpei, irail anahne ren esehla wadawad, nting, oh wehwehki wiepen alehda oh peuse ire kesempwal kan koaros me iangahki wahntuhke, duwen doadoahngki dipwisou en doadoahk kapw nan mwei wet, wiepen kamwadong, kemweit, oh pil soangen koahiek en memour teikan.

Seri kan udahn anahne ren ahneki koahiek en wia pilipil pwung, me pahn pohnese oh wauniki kesempwal en arail wasahn kousoan oh kepikipik en ni limen Kauno kan. Seri kan udahn pahn kasalehda audepen mour kesempwal en tiahk en wahu, ni arail pahn kin doadoahngki mahsen en wahu me konehng oh pwung. Irail pahn kin kasalehda marain de wehwe oh kolokol pein soarerail ni arail pahn kin wauneki meh teikan.

Ni seri kan arail pahn marainiki, koahiengki oh momouriki tiahk en wahu kesempwal pwukat, re pahn kak poahsoanki lamalam en minimin oh utuhtpene. Tiahk kesempwal pwukat kin kasalehda utuhtpene oh poakoadeipenehn tohn wehi. Ni ah kin poahsoan sang pohn wahu, e kin kolokol onepek, minimin, oh soaren wehi ong towe kan de pil mehn likin Pohnpei kan.

To be successful citizens our students must develop a secure Pohnpeian identity. They must develop knowledge and skills in their own language and culture, literacy and communication, math, technology, sports, performing arts, survival, and vocational careers. They must develop moral values and knowledgeable respect and caring for the environment. Our students must demonstrate positive social behaviors, always using respectful and appropriate language, always being considerate and respectful. Through their knowledge, skills, and behavior our students will show that they possess the positive attitudes that lead to their being respected in the community, reflect spiritual conviction, and respect traditional values.

Basic Assumptions

1. The standards represent the fundamental knowledge, skills, and values that citizens have and are able to use in the area of social studies.
2. The content standards identify what students should know, be able to do, and care about in social studies.

3. Benchmarks are identified for each standard and represent what students should know and be able to do at each grade level.
4. Classroom implementation will reflect not only the content of standards and benchmarks but also the best instructional research and practice.

Purpose

The purpose of this document is to assist teachers in implementing the social studies curriculum. It is hoped that this document will be used as a general guideline in the social studies classroom and will be extended by teachers through innovation and creativity.

Social Studies Strands at a Glance

Culture	Geography	History	Economics	Civics
<p>1.1 Cultural Heritage and Diversity Understand and appreciate culture as a system as well as respect cultural differences (customs, traditions, beliefs, values, language, political systems, etc.)</p>	<p>2.1 Physical Geography, Places and Regions Learn the major physical and geographical processes of the earth and the characteristics of places and regions by using geographical tools.</p>	<p>3.1 Past, Present, Change, and Continuity Learn about past events and the cause and effect of change over time to better understand present day issues</p>	<p>4.1 Limited Resources, Consequences of Choices, and Economic Interdependence Understand that resources are limited, and that every choice has consequences, and that there is economic interdependence; use this knowledge to make sound economic decisions.</p>	<p>5.1 Rights and Responsibilities and Decision Making Understand civil rights and responsibilities and the political and legal process of decision making.</p>
<p>1.2 Cultural Unity, Continuity, and Change Understand that cultures maintain continuity yet are adaptive to change.</p>	<p>2.2 Human Systems and the Environment Learn about how human experience and activities impact the environment and how humans can protect the environment.</p>	<p>3.2 Multiple Perspective of History and Historical Investigation Analyze and examine multiple perspectives of historical events over time using investigative methods and tools of historians.</p>	<p>4.2 Economic Systems Learn and distinguish between the roles and functions of different markets (subsistence, planned, and free) to realize how economic interactions affect human behavior.</p>	<p>5.2 Compare Governments Identify and explain the structure, purpose, function, and power of governments.</p>
<p>1.3 Cultural Exploration Use the tools and methods of researchers to interpret and explain cultural ideas and events.</p>			<p>4.3 Economic Assessments and Evaluations Utilize the tools and methods of economists to make sound economic judgments.</p>	<p>5.3 Judicial System Explain the judicial system and the traditional ways of settling disputes and conflicts.</p>
				<p>5.4. Foreign Relations Understand diplomatic channels of foreign affairs and how they impact the government and how the government impacts other countries.</p>

Standards at a Glance

Strand 1: Culture		Strand 2: Geography		Strand 3: History	
Focus of the Standard	Statement of Standards	Focus of the Standard	Statement of Standards	Focus of the Standard	Statement of Standards
1.1 Cultural Heritage and Diversity <ul style="list-style-type: none"> • Know components of culture • Communicate cultural traditions • Respect cultural differences 	1.1 Understand and appreciate culture as a system as well as respect cultural differences (customs, traditions, beliefs, values, language, political systems, etc.)	2.1 Physical Geography, Places and Regions <ul style="list-style-type: none"> • Use geographical tools • Learn geographic locations and features • Describe landmarks • Name important places Identify locations	2.1 Learn the major physical and geographical processes of the earth and the characteristics of places and regions by using geographical tools.	3.1 Past, Present, Change, and Continuity <ul style="list-style-type: none"> • Understand the historical past • Compare and contrast pre-colonial and post-colonial periods • Examine and analyze foreign influences • Analyze the effect of events 	3.1 Learn about past events and the cause and effect of change over time to better understand present day issues
1.2 Cultural Unity, Continuity, and Change <ul style="list-style-type: none"> • Adapt to cultural changes • Understand the cause and effect of cultural change 	1.2 Understand that cultures maintain continuity yet arte adaptive to change.	2.2 Human Systems and the Environment <ul style="list-style-type: none"> • Understand the impact of human construction on the earth • Know demographic patterns Understand environmental challenges & solutions	2.2 Learn about how human experience and activities impact the environment and how humans can protect the environment.	3.2 Multiple Perspective of History and Historical Investigation <ul style="list-style-type: none"> • Understand different perspectives • Examine past events • Investigate primary sources • Understand the importance of preserving the past 	3.2 Analyze and examine multiple perspectives of historical events over time using investigative methods and tools of historians.
1.3 Cultural Exploration <ul style="list-style-type: none"> • Participate in cultural activities • Research cultural issues • Apply cultural research 	1.3 Use the tools and methods of researchers to interpret and explain cultural ideas and events.				

Strand 4: Economics		Strand 5: Civics	
Focus of the Standard	Statement of Standards	Focus of the Standard	Statement of Standards
4.1 Limited Resources, Consequences of Choices, and Economic Interdependence <ul style="list-style-type: none"> • Make economic decisions • Understand consequences of decisions • Identify resources • Understand different perspectives • Examine past events 	4.1 Understand that resources are limited, and that every choice has consequences, and that there is economic interdependence; use this knowledge to make sound economic decisions.	5.1 Rights and Responsibilities and Decision Making <ul style="list-style-type: none"> • Understand own rights and responsibilities • Understand the roles and responsibilities of leaders • Understand civil rights • Understand democracy • Analyze the role of decision making 	5.1 Understand civil rights and responsibilities and the political and legal process of decision making.
4.2 Economic Systems <ul style="list-style-type: none"> • Discuss food distribution • Understand the concept of supply and demand • Compare economic systems 	4.2 Learn and distinguish between the roles and functions of different markets (subsistence, planned, and free) to realize how economic interactions affect human behavior.	5.2 Compare Governments <ul style="list-style-type: none"> • Understand the meaning of government • Understand laws • Understand the three branches of government 	5.2 Identify and explain the structure, purpose, function, and power of governments.
4.3 Economic Assessments and Evaluations <ul style="list-style-type: none"> • Utilize tools and methods of economists • Compare and contrast economic decisions 	4.3 Utilize the tools and methods of economists to make sound economic judgments.	5.3 Judicial System <ul style="list-style-type: none"> • Understand the judicial system • Understand judicial and traditional ways of settling disputes and conflicts Evaluate court decisions	5.3 Explain the judicial system and the traditional ways of settling disputes and conflicts.
		5.4. Foreign Relations <ul style="list-style-type: none"> • Learn about the government offices and services provided • Learn about the leaders of the FSM • Understand the importance of foreign affairs • Understand the concept of 	5.4. Understand diplomatic channels of foreign affairs and how they impact the government and how the government impacts other countries.

Strand 4: Economics		Strand 5: Civics	
Focus of the Standard	Statement of Standards	Focus of the Standard	Statement of Standards
		foreign aid	

Stand 1: Culture

Standard	Grade 1	Grade 2	Grade 3
1.1 Cultural Heritage and Diversity Understand and appreciate culture as a system as well as respect cultural differences (customs, traditions, beliefs, values, language, political systems, etc.)	a. Know the major components of culture on the family level to include people, customs, food production and redistribution, traditions, beliefs, values, and language. b. Understand the concept of cultural differences and develop respect for such differences.	a. Know the major components of culture on the village level to include people, customs, food production and redistribution, traditions, beliefs, values, and language. b. Understand the concept of cultural differences and develop respect for such differences in various communities and their families.	a. Understand how the cultural values of the community are shared through stories, song, celebrations, family gatherings, and village feasts. b. Compare and contrast cultural differences in the community and families.
1.2 Cultural Unity, Continuity, and Change Understand that cultures maintain continuity yet are adaptive to change.	a. Understand how to adapt to peers and view the world through the eyes of others.	a. Understand how the family and the extended family's traditions adapt and change over time.	a. Understand how the cultural values of the village and community adapt and change over time.
1.3 Cultural Exploration Use the tools and methods of researchers to interpret and explain cultural ideas and events.	a. Discuss, observe, and participate in cultural activities and understand their value and importance to the individual.	a. Discuss, observe, and participate in cultural activities that normally take place in the family and are of value and importance to the culture.	a. Discuss, observe, and participate in cultural activities that normally take place in the community.

Standard	Grade 4	Grade 5	Grade 6
1.1 Cultural Heritage and Diversity Understand and appreciate culture as a system as well as respect cultural differences (customs, traditions, beliefs, values, language, political systems, etc.)	a. Understand the importance in Pohnpei society of sharing such things as food, materials, work, skills, art, land, property, and funeral traditions. b. Compare and contrast cultural differences in the different municipalities of Pohnpei and understand the different perspectives.	a. Understand ways in which proverbs, chants, songs, dances, and legends are used to preserve culture and communicate values, traditions, and beliefs of a culture in Pohnpei and the rest of the FSM. b. Know and respect the different cultural ethnicities in Pohnpei and the rest of the FSM.	a. Identify and discuss major components of Micronesian culture to include people, customs, production of goods and services, redistribution of goods, traditions, beliefs, values, and languages. b. Identify and respect cultural differences within Micronesia.
1.2 Cultural Unity, Continuity, and Change Understand that cultures maintain continuity yet are adaptive to change.	a. Understand how the municipalities' cultural values adapt and change over time.	a. Understand how the cultural values in Pohnpei and the rest of the FSM adapt and change over time.	a. Identify the countries and people who introduced changes to Micronesian culture and discuss the impact of these changes.
1.3 Cultural Exploration Use the tools and methods of researchers to interpret and explain cultural ideas and events.	a. Discuss, observe, and participate in cultural activities that normally take place in the municipalities.	a. Discuss, observe, and participate in the cultural activities that normally take place in Pohnpei at the state level and the rest of the FSM.	a. Identify and discuss Micronesian values and how they affect everyday life.

Standard	Grade 7	Grade 8	Grade 9
1.1 Cultural Heritage and Diversity Understand and appreciate culture as a system as well as respect cultural differences (customs, traditions, beliefs, values, language, political systems, etc.)	a. Understand Pacific values and how they affect everyday life and decision making. b. Explain the different cultural influences on the daily lives of citizens in the Pacific region.	a. Understand the roles, duties, and responsibilities of traditional leadership. b. Compare and contrast different cultures across the FSM.	a. Understand cultural systems of the FSM and discuss their impacts on decision making, laws, and constitutional rights of citizens. b. Discuss how cultural diversity affects the laws, values, and goals as a nation.
1.2 Cultural Unity, Continuity, and Change Understand that cultures maintain continuity yet are adaptive to change.	a. Identify the impact of foreign influences on Pohnpeian culture.	a. Analyze ways Pohnpeians respond to cultural change. b. Analyze ways Pohnpeians respond to issues and problems related to cultural differences.	a. Identify and explain how cultural values change within Pohnpei and the FSM.
1.3 Cultural Exploration Use the tools and methods of researchers to interpret and explain cultural ideas and events.	a. Identify cultural resources and patterns in Pacific communities.	a. Use research tools and methods to explore and interpret FSM's cultural ideas and events.	a. Apply knowledge of culture to assess current issues in decision making.

Standard	Grade 10	Grade 11	Grade 12
1.1 Cultural Heritage and Diversity Understand and appreciate culture as a system as well as respect cultural differences (customs, traditions, beliefs, values, language, political systems, etc.)	a. Understand the cultural values in the FSM and compare them to other cultural groups in the region. b. Identify the cultures and cultural trends that influence political decision making in the FSM and compare them to other cultural groups in the region.	a. Generate and promote respect for cultural heritage in our daily lives and changing society. b. Analyze the impact of cultural interaction on economic prosperity in the FSM and compare it to different cultural groups of the world.	a. Evaluate the cultural heritage of industrialized and developing nations. b. Evaluate appropriate forms of technology and how technology improves the quality of life among different cultural groups both in the industrialized and developing nations.
1.2 Cultural Unity, Continuity, and Change Understand that cultures maintain continuity yet are adaptive to change.	a. Describe the cause and effect of changes within cultures of the Pacific region.	a. Understand the changes in local, regional, and international cultures and how these changes affect the way people live.	a. Predict the consequences of interpersonal interdependence in the global community and the relationship between cultural change and social conditions.
1.3 Cultural Exploration Use the tools and methods of researchers to interpret and explain cultural ideas and events.	a. Use research tools to find answers to questions about cultural issues in the Pacific and defend the findings.	a. Apply cultural research and analysis to interpret the past, understand the present, and plan for the future by relating current events to cultural issues.	a. Analyze how cultural values and beliefs influence the interaction between people of different cultural backgrounds at the state, national, and global level.

Strand 2: Geography

Standard	Grade 1	Grade 2	Grade 3
2.1 Physical Geography, Places and Regions Learn the major physical and geographical processes of the earth and the characteristics of places and regions by using geographical tools.	a. Use maps to locate places and important landmarks.	a. Make maps using geographical tools and features.	a. make and use geographic representations (maps, globes, graphs, charts, models) to locate places, regions, and important landmarks, and determine distances and directions.
2.2 Human Systems and the Environment	a. Understand the environmental challenges	a. understand how different kinds of pollution affect	a. Know about factors that influence where people settle.

Standard	Grade 1	Grade 2	Grade 3
Learn about how human experience and activities impact the environment and how humans can protect the environment.	around homes and how to safely adapt and modify the environment to better meet individual needs.	human lives and consider possible solutions.	b. Know ways people can keep the land, sea, and air clean and pollution free.

Standard	Grade 4	Grade 5	Grade 6
2.1 Physical Geography, Places and Regions Learn the major physical and geographical processes of the earth and the characteristics of places and regions by using geographical tools.	a. Know the location of major continents, mountain ranges, bodies of water, and islands.	a. Understand the importance of geographic features such as economic zones, reef zones, and coastal features.	a. Understand the importance of learning the location and geographic features of key places.
2.2 Human Systems and the Environment Learn about how human experience and activities impact the environment and how humans can protect the environment.	a. Identify, locate, and describe the significance of historical sites in Pohnpei before foreign contact.	a. Identify and name the islands and important places in and around Pohnpei and the rest of the FSM.	a. Identify the states and nations in Micronesia and discuss their location in relation to the FSM.

Standard	Grade 7	Grade 8	Grade 9
2.1 Physical Geography, Places and Regions Learn the major physical and geographical processes of the earth and the characteristics of places and regions by using geographical tools.	a. Understand the geographical characteristics of different regions and their relation to each other.	a. Analyze how the relationship between the earth and the sun affects the environment and the distribution of resources.	a. Use geographic tools to analyze and develop solutions to geographic problems.
2.2 Human Systems and the Environment Learn about how human experience and activities impact the environment and how humans can protect the environment.	a. Know the physical and human characteristics of places such as their soils, landforms, weather, animals, vegetation, population and their challenges.	a. Analyze and explain why, how, and by what means environmental caretaking can be managed.	a. Recognize the relationship between cultural diversity and geography. b. Identify local areas of environmental concerns, investigate complexities, and design preventive measures.

Standard	Grade 10	Grade 11	Grade 12
2.1 Physical Geography, Places and Regions Learn the major physical and geographical processes of the earth and the characteristics of places and regions by using geographical tools.	a. Use geographical tools in learning the geographic features of the continents and how those features affect human activity.	a. use geographical research and tools to analyze the importance and distribution of land and water, effects of global warming, and impact of physical changes on the lives of people. b. Examine and evaluation the importance of the natural environment in shaping cultures of different groups of people.	a. Use geographical investigation and tools to compare, contrast, and predict how places and regions change with time. b. Analyzes and evaluate how the perceptions of local, regional, and global location affect culture and the attitude toward development.
2.2 Human Systems and the Environment Learn about how human experience and activities impact the environment and how humans can protect the environment.	a. Identify and describe changes that occur in the value, use and distribution of important natural resources. b. Identify challenges and discuss solutions to environmental issues.	a. Know how demographic patterns, cultural impact, economic activities, and urbanization affect places and regions. b. Know the impact and effects of human activities on	a. Analyze how human actions modify the physical environment in which people live. b. Analyze the causes and effects of global industrialization and

Standard	Grade 10	Grade 11	Grade 12
		the environment and implement an action plan for the use and stewardships of local, regional, and global resources.	environmental problems facing both the industrialized and developing nations.

Strand 3: History

Standard	Grade 1	Grade 2	Grade 3
3.1 Past, Present, Change, and Continuity Learn about past events and the cause and effect of change over time to better understand present day issues	a. Understand and state how one's own life is different from children of the past.	a. Understand the contribution of historical figures of the community from the past to the present and the significance of their impact.	a. Understand the myths and legends of the community.
3.2 Multiple Perspective of History and Historical Investigation Analyze and examine multiple perspectives of historical events over time using investigative methods and tools of historians.	a. Know the different perspectives of classmates regarding historical events. b. Use the interview process to gather historical information..	a. Understand that people in one's family can have different perspectives regarding certain historical events. b. Understand family life now and in the past by using a variety of sources such as interviewing community members.	a. Discuss and explain the importance of significant historical events in the community. b. Understand the location and importance of historical sites of communities by using a variety of sources.

Standard	Grade 4	Grade 5	Grade 6
3.1 Past, Present, Change, and Continuity Learn about past events and the cause and effect of change over time to better understand present day issues	a. Know the maternal and paternal history of the clan and how this history affects the present.	a. Understand how outside influences such as colonizers affect present-day Pohnpei.	a. Understand the major historical events and developments of Micronesia between 1500 and the present and the effect of these events on Micronesia.
3.2 Multiple Perspective of History and Historical Investigation Analyze and examine multiple perspectives of historical events over time using investigative methods and tools of historians.	a. Discuss the value of preserving historical archives. b. Understand the importance of using historical data from a variety of sources to learn about the past.	a. Explain how language, beliefs, and values were shaped over time in Pohnpei and the rest of the FSM.	a. Name and discuss how specific ideas and people such as foreign colonizers shaped the history of Micronesia over time. b. Use historical data from a variety of sources to learn about family origins.

Standard	Grade 7	Grade 8	Grade 9
3.1 Past, Present, Change, and Continuity Learn about past events and the cause and effect of change over time to better understand present day issues	a. Investigate, discuss, and reflect how traditional leaders, other leaders, and foreigners have influenced the history of the Pacific. b. Discuss the significance of major events that took place in the Pacific between 1500 and the present.	a. Discuss the cause and effect of the colonial era in the FSM and the impact that colonization had on FSM History.	a. Compare and contrast oral traditions and history of pre-colonial and post-colonial period in the FSM. b. Analyze the effect that certain values have on history.
3.2 Multiple Perspective of History and Historical Investigation Analyze and examine multiple perspectives of historical events over time	a. Discuss important events that brought about many changes in the lives of Pacific Islanders. b. Investigate important events in the Pacific using a	a. Examine the transition from colonization to self-government of the FSM. b. Investigate important events that brought about changes in the FSM.	a. Explain how the impact of foreign rule influences decision making in the FSM. b. Use traditional history and research to identify famous people who made significant

using investigative methods and tools of historians.	variety of sources.		contribution toward the development of the FSM.
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Standard	Grade 10	Grade 11	Grade 12
3.1 Past, Present, Change, and Continuity Learn about past events and the cause and effect of change over time to better understand present day issues	a. Apply historical knowledge to discuss early historical dates and events to trace foreign influences, and use that knowledge to compare its impacts on the political and economic development of the FSM. b. Analyze how the movement of people in the Pacific caused a significant impact on history.	a. Examine and analyze the impacts of foreign influences on contemporary cultural, traditional, and social structures and systems in the FSM. b. Analyze and evaluate causes and effects of the early foreign settlers and administering authorities on Pohnpeian cultural, political, and economic development.	a. Trace the impact of history on a society and examine its role in understanding the past; apply that knowledge to better understand domestic and foreign issues. b. Examine global issues and evaluate their effects on the way people think and live in the FSM.
3.2 Multiple Perspective of History and Historical Investigation Analyze and examine multiple perspectives of historical events over time using investigative methods and tools of historians.	a. Trace the historical patterns of migration during the pre- and post-colonial periods in the FSM, Oceania, and other regions of the world. b. Use historical documents to identify the causes and effects of major world crises and their impacts on the FSM and neighboring countries.	a. Discuss the importance of learning historical events through traditional and modern technologies. b. Examine and evaluate the impacts and influences of various foreign administrations and influences in the FSM.	a. Identify and evaluate important characteristics of development shared by the industrialized and developing nations. b. Use historical research, data, and tools to evaluate the products of developing nations in the FSM and the impact on the standard of living.

Strand 4: Economics

Standard	Grade 1	Grade 2	Grade 3
4.1 Limited Resources, Consequences of Choices, and Economic Interdependence Understand that resources are limited, and that every choice has consequences, and that there is economic interdependence; use this knowledge to make sound economic decisions.	a. Understand how to make personal economic decision based on available personal and family resources and means. b. Understand the food distribution methods at home including the different goods that are traded or exchanged.	a. Understand how to make economic decisions based on available personal, family, and community resources while realizing that every choice has consequence to the family. b. Explain the food distribution methods at the family level including the different goods families trade and how they benefit from the trade.	a. Understand that resources are limited and every choice has consequences to the community. b. Explain and identify different goods a community trades and how the community benefits from the trade.
4.2 Economic Systems Learn and distinguish between the roles and functions of different markets (subsistence, planned, and free) to realize how economic interactions affect human behavior.	a. Understand that work is an important way to meet the basic needs of food, clothing, and shelter.	a. Discuss the impact of local and imported food on the family.	a. Explain food distribution at the community level and how this impacts the community.
4.3 Economic Assessments and Evaluations Utilize the tools and methods of economists to make sound economic judgments.	a. Create simple bar graphs or illustrations to explain ideas in economic terms.	a. Use economic tools such as charts and graphs to illustrate the need for conserving local food for the family.	a. Identify simple tools and methods of economists to make better economic decision within the community.

Standard	Grade 4	Grade 5	Grade 6
<p>4.1 Limited Resources, Consequences of Choices, and Economic Interdependence Understand that resources are limited, and that every choice has consequences, and that there is economic interdependence; use this knowledge to make sound economic decisions.</p>	<p>a. Understand that resources are limited and every choice has consequences to the municipality. b. Explain and identify who and what the municipalities depend on and why.</p>	<p>a. Compare and contrast decisions that are made about the economic resources of Pohnpei and the FSM. b. Analyze the consequences of the choices. c. Discuss and explain the interdependence of trading within Pohnpei and the rest of the FSM.</p>	<p>a. Understand the importance of transportation in Micronesia's economy. b. Identify the transportation costs for individuals as well as the impact on the standard of living. c. Understand the trading activities that have taken place in Micronesia and other parts of the world since the 1500s and the resulting interdependence between governments.</p>
<p>4.2 Economic Systems Learn and distinguish between the roles and functions of different markets (subsistence, planned, and free) to realize how economic interactions affect human behavior.</p>	<p>a. Compare and contrast the food distribution method in each municipality and the impact on the people of that municipality.</p>	<p>a. Investigate and research the food distribution methods in the FSM and its effects. b. Understand the function of economic laws and taxation.</p>	<p>a. Understand the supply and demand issues in Micronesia and how they can lead to shortages and surpluses.</p>
<p>4.3 Economic Assessments and Evaluations Utilize the tools and methods of economists to make sound economic judgments.</p>	<p>a. Understand that wise decisions about how to spend money must be made, using economic tools such as graphs and illustrations.</p>	<p>a. Discuss the importance of conserving local and imported resources in Pohnpei and the rest of the FSM.</p>	<p>a. Apply tools and methods of economists to compare economic decision in Micronesia.</p>

Standard	Grade 7	Grade 8	Grade 9
<p>4.1 Limited Resources, Consequences of Choices, and Economic Interdependence Understand that resources are limited, and that every choice has consequences, and that there is economic interdependence; use this knowledge to make sound economic decisions.</p>	<p>a. Understand the economic resources of Pohnpei and other places in the Pacific, choices made by the government and businesses, and how both impact the standard of living. b. Research and discuss trading activities that have taken place in the Pacific since 1500 and the resulting interdependence between governments.</p>	<p>a. Identify and interpret resources in the FSM, the government's choices about how to use the resources, and the impact those choices make on the standard of living. b. Investigate and research potential trading activities in the FSM.</p>	<p>a. Identify economic resources of the FSM and the Pacific, the decision made regarding these resources, and the impact of the decisions. b. Discuss trading activities in the FSM since the 1940s and how they affected social and the cultural changes in the FSM.</p>
<p>4.2 Economic Systems Learn and distinguish between the roles and functions of different markets (subsistence, planned, and free) to realize how economic interactions affect human behavior.</p>	<p>a. Research and discuss shortages and surpluses of services in the Pacific.</p>	<p>a. Understand that certain factors other than economics, such as cultural traditions, values, and interests, affect economic decision making.</p>	<p>a. Investigate the economic system of the FSM and compare it with the traditional methods of conservation and the production of goods.</p>
<p>4.3 Economic Assessments and Evaluations Utilize the tools and methods of economists to make sound economic judgments.</p>	<p>a. Apply tools and methods of economists to compare economic decision between the FSM and other countries in the Pacific.</p>	<p>a. Evaluate economic decisions and compare the quality of life in the FSM with other countries in the Pacific using economic data.</p>	<p>a. Use geographical and economic tools to determine how the local of resources affects the production, transportation, and use of goods in the FSM.</p>

Standard	Grade 10	Grade 11	Grade 12
<p>4.1 Limited Resources, Consequences of Choices, and Economic Interdependence Understand that resources are limited, and that every choice has consequences, and that there is economic interdependence; use this knowledge to make sound economic decisions.</p>	<p>a. Discuss the effects of limited resources and the location and distribution of resources on decision making in the FSM and various governments in the region. b. Explain the FSM's present role and speculate on its future role in the interdependence of economic activities throughout the world.</p>	<p>a. Describe the production, distributor and consumption of the world's natural resources and the impact on the world. b. Identify and analyze the impact of economic interdependence on the world's economic development.</p>	<p>a. Identify and describe types of resources that promote economic growth of a country. b. Compare the advantages and disadvantages of depending on one or two natural resources as a source of economic development. c. Identify and evaluate the impact of economic interdependence among the industrialized and developing world.</p>
<p>4.2 Economic Systems Learn and distinguish between the roles and functions of different markets (subsistence, planned, and free) to realize how economic interactions affect human behavior.</p>	<p>a. Compare the FSM economic system to that of other selected countries in the Pacific and neighboring countries.</p>	<p>a. Compare the world's economic system in managing such factors as supply and demand, prices, government's role, and distribution of wealth.</p>	<p>a. Apply economic indicators to describe and evaluate the characteristics of different economic systems of developing countries.</p>
<p>4.3 Economic Assessments and Evaluations Utilize the tools and methods of economists to make sound economic judgments.</p>	<p>a. Investigate how economic activities in the FSM affect production, transportation, and distribution of goods, compare this to neighboring countries.</p>	<p>a. Apply economic research to compare and contrast advantages and disadvantages of different types of economic systems in the world.</p>	<p>a. Apply economic analysis to evaluate the impact of modern technology on the economic well-being of the FSM and neighboring countries.</p>

Strand 5: Civics

Standard	Grade 1	Grade 2	Grade 3
<p>5.1 Rights and Responsibilities and Decision Making Understand civil rights and responsibilities and the political and legal process of decision making.</p>	<p>a. Understand the roles and responsibilities of the individual.</p>	<p>a. Understand the roles and responsibilities of being part of a family.</p>	<p>a. Understand the roles of a good citizen at the community level. b. Understand the roles and responsibilities of leaders in the community.</p>
<p>5.2 Compare Governments Identify and explain the structure, purpose, function, and power of governments.</p>	<p>a. Know and understand the importance of authority and responsibility in the home, classroom, school, and community.</p>	<p>a. Know some of the problems that might occur as a result of lack of leadership at the home, classroom, school, community, and government level.</p>	<p>a. Understand the simple meaning of government. b. Explain the purpose and function of laws in the municipal government and examine who makes the rules and laws.</p>
<p>5.3 Judicial System Explain the judicial system and the traditional ways of settling disputes and conflicts.</p>	<p>a. Know and understand the importance of classroom, school, and community rules, laws, and safety signs.</p>	<p>a. Understand the traditional ways of settling disputes and conflicts among peers, family members, and extended family; compare this with the present-day judicial system.</p>	<p>a. Understand and participate in making rules and following them.</p>
<p>5.4. Foreign Relations Understand diplomatic channels of foreign affairs and how they impact the government and how the government impacts other countries.</p>	<p>a. Understand why there are foreign government offices on the island.</p>	<p>a. Understand that Pohnpei is one state and that it interacts with other states and nations.</p>	<p>a. Understand how a community's collective behaviors, decisions, actions, or inactions impact others.</p>

Standard	Grade 4	Grade 5	Grade 6
5.1 Rights and Responsibilities and Decision Making Understand civil rights and responsibilities and the political and legal process of decision making.	a. Understand the importance of offering alternatives to conflict. b. Demonstrate an understanding of the roles, rights, and responsibilities of municipal leaders and traditional leaders.	a. Discuss major political and legal decisions made and how they affect Pohnpei and the FSM. b. Compare and contrast the roles and responsibilities of the traditional, local, and national leaders of Pohnpei and the FSM.	a. Discuss major political and legal decisions made and how they affect Micronesia. b. Discuss civic rights and responsibilities as a Micronesian citizen.
5.2 Compare Governments Identify and explain the structure, purpose, function, and power of governments.	a. Understand forms of democratic government for Pohnpei. b. Discuss what the state government provides the municipalities and how this influences the well-being of the people.	a. Understand the responsibilities of the three branches of government at the state level.	a. Understand the three branches of government and their functions at the national level within Micronesia.
5.3 Judicial System Explain the judicial system and the traditional ways of settling disputes and conflicts.	a. Understand why rules and laws are important. b. Know the characteristics of effective rules and laws.	a. Understand the function of the judicial system at the local and state level.	a. Compare and contrast ways of settling disputes and conflicts in the judicial and traditional systems of Micronesia.
5.4. Foreign Relations Understand diplomatic channels of foreign affairs and how they impact the government and how the government impacts other countries.	a. Understand the role of government positions and the impact of these positions on the people.	a. Understand the importance of political leaders at the FSM level and their roles when interacting with foreign countries.	a. Understand the importance of foreign affairs in Micronesia.

Standard	Grade 7	Grade 8	Grade 9
5.1 Rights and Responsibilities and Decision Making Understand civil rights and responsibilities and the political and legal process of decision making.	a. Understand roles, rights, and responsibilities of citizenship by participating in civic issues of the Pacific. b. Discuss major political and legal decisions made and how they affect the Pacific.	a. Explain the roles, rights, and responsibilities of citizenship by participating in civic issues of the FSM and compare it to other nations of the Pacific. b. Understand and discuss the values and principles of the FSM democracy as reflected in key documents such as the constitution.	a. Compare and contrast the FSM government to government systems in other countries. b. Evaluate the importance of the checks and balance system at all levels and branches of government in the FSM.
5.2 Compare Governments Identify and explain the structure, purpose, function, and power of governments.	a. Discuss and compare the formation of the FSM constitution and other constitutions in Micronesia.	a. Understand the different types of government in the FSM. b. Analyze the impact to government services provided to the FSM and how the services are funded.	a. Understand the responsibilities that individual citizens and the people serving in the government should assume to ensure the continuation of the FSM government.
5.3 Judicial System Explain the judicial system and the traditional ways of settling disputes and conflicts.	a. Understand the possible consequences of the absence of rules and laws.	a. Understand the judicial and traditional ways of settling disputes and conflicts in the FSM and compare it with neighboring islands in the Pacific.	a. Understand the role and function of the judicial system in constitutional government.
5.4. Foreign Relations Understand diplomatic channels of foreign affairs and how they impact the government and how the government impacts other	a. Understand the diplomatic channels of foreign affairs in the Pacific.	a. Understand the diplomatic relations of the FSM to other nations.	a. Understand the importance of foreign aid on the judicial, legislative, and executive levels of government.

Standard	Grade 7	Grade 8	Grade 9
countries.			

Standard	Grade 10	Grade 11	Grade 12
<p>5.1 Rights and Responsibilities and Decision Making Understand civil rights and responsibilities and the political and legal process of decision making.</p>	<p>a. Understand how people in different places are governed and make decisions. b. Examine and discuss a citizen's role in making decisions and how it affects the development in the FSM and neighboring countries.</p>	<p>a. Compare and contrast the rights and responsibilities in a traditional system with a democratic government. b. Analyze the traditional role of decision making in a changing society.</p>	<p>a. Examine the role of political action groups in government and how it affects people's lives in the developing and industrialized nations. b. Evaluate and discuss the role of adopting democratic principles in decision making.</p>
<p>5.2 Compare Governments Identify and explain the structure, purpose, function, and power of governments.</p>	<p>a. Trace the political development since the colonial era and determine its input on the traditional system in the FSM. b. Understand the current economic situation in the FSM and how the government could utilize resources for future potential.</p>	<p>a. Understand the purpose and differentiate the roles of the three levels of government in the FSM and neighboring countries. b. Examine how government services affect economic development of the FSM and neighboring countries.</p>	<p>a. Analyze the pros/cons of government policies and how they impact people's lives in the industrialized and developing nations. b. Evaluate how economic decisions are made for effective economic growth among the industrialized and developing nations.</p>
<p>5.3 Judicial System Explain the judicial system and the traditional ways of settling disputes and conflicts.</p>	<p>a. Compare and contrast the judicial systems in the FSM and neighboring countries.</p>	<p>a. Evaluate modern and traditional judicial systems of settling disputes and conflicts and the impact on the society across several developing nations.</p>	<p>a. Analyze and evaluate how court decisions in both the developed and the developing nations settle disputes and conflicts.</p>
<p>5.4. Foreign Relations Understand diplomatic channels of foreign affairs and how they impact the government and how the government impacts other countries.</p>	<p>a. Compare and contrast the impact of diplomatic relations between countries of the world and the FSM.</p>	<p>a. Understand foreign issues affecting traditional beliefs, values, and governances in the FSM.</p>	<p>a. Understand domestic and foreign issues affecting people in both the industrialized and developing nations.</p>

Mathematics

Mathematics Standards at a Glance

Standard 1: Number, Operation and Computation. Students understand the number system, the meaning of operations and how they relate to each other, and are able to use computational tools and strategies fluently.

Standard 2: Geometry, Measurement, Transformation. Students understand geometry, measurement and spatial relationships including: units and systems of measurement; and develop and use techniques, tools, and formulas for measuring, properties of objects and relationships among the properties, and use transformations and symmetry to analyze mathematical situations.

Standard 3: Patterns and Algebra. Students understand various types of patterns and functional relationships; use symbolic forms to represent, model, and analyze mathematical situations; and collect, organize, and represent data to answer questions.

Standard 4. Statistics and Probability. Students understand how to interpret data using methods of exploratory data analysis; develop and evaluate inferences, predictions, and arguments that are based on data; and, understand and apply basic notions of chance and probability.

Standard	Grade K - 3	Grade 4
S1: Numbers, operation and computation	<p>1.3.1 Use “English” and “local” systems to count, read, write and compare whole numbers up to 1,000.</p> <p>1.3.2 Understand base-ten by identifying the place-value of numbers up to 1,000.</p> <p>1.3.3 Demonstrate an understanding of the basic operations (+, -, x, ÷), and how they relate to each other.</p> <p>1.3.4 Represent whole numbers and operations in a variety of ways using physical models, diagrams, and number expressions.</p> <p>1.3.5 Use the basic operations to add and subtract (2- and 3-digit numbers).</p> <p>1.3.6 Use the basic operations to multiply and divide (1, 2 and 3-digit numbers by a single digit number).</p> <p>1.3.7 Use a variety of strategies including the understanding of number and operations to solve problems and explain the reasoning used to reach the solution.</p>	<p>1.4.1 Understand base-ten by identifying the place-value of fraction and decimal numbers up to 1,000 and down to 100ths.</p> <p>1.4.2 Demonstrate the ability to read, write, and compare simple fractions and decimals in English and local system.</p> <p>1.4.3 Represent whole numbers, fractions and decimals, and operations in a variety of ways using physical models, diagrams, and number expressions.</p> <p>1.4.4 Perform the basic operations to add, subtract, multiply and divide with whole numbers, decimals, and add and subtract fractions with like denominators.</p> <p>1.4.5 Use a variety of methods and ways to round and estimate whole numbers decimals and fractions.</p> <p>1.4.6 Use variety of strategies including the understanding of decimals and fractions to solve problems and explain the reasoning used to reach the solution.</p>
S2: Geometry, measurement, transformation	<p>2.3.1 Recognize, classify, identify, and draw common shapes using English and local systems.</p> <p>2.3.2 Describe similarities and differences between common shapes.</p> <p>2.3.3 Demonstrate the understanding of standard & non-standard measurement (time, money, length, mass, capacity, local ways of measurement, etc.).</p> <p>2.3.4 Use common tools (e.g. ruler, watch, scale, and non-standard measures) to measure & compare objects.</p>	<p>2.4.1 Identify and classify two and three dimensional shapes.</p> <p>2.4.2 Describe similarities and differences between one, two and three dimensional geometric figures.</p> <p>2.4.3 Demonstrate the understanding of common units in the English and metric systems by choosing appropriate units to measure common objects and quantities.</p> <p>2.4.4 Use standard and non-standard units to determine length, volume and weight, and describe the characteristics of each type of measurement.</p> <p>2.4.6 Use the understanding of geometry, measurement and transformation to solve problems and explain the reasoning used to reach the solution.</p>
S3: Patterns & algebra	<p>3.3.1 Describe and create patterns and find the next term using numbers, objects and other materials.</p> <p>3.3.2 Identify and use the inverse relationships between operations to solve problems.</p>	<p>3.4.1 Use patterns and functions to represent and solve real world situations, and explain the reasoning used to reach the solution.</p>
S4: Statistics & probability	<p>There are no benchmarks for this standard at this level</p>	<p>4.4.1 Collect, organize, display, and describe data systematically.</p> <p>4.4.2 Read and interpret data using pictographs, tables or charts.</p>

Standard	Grade 5	Grade 6
S1: Numbers, operation and computation	<p>1.5.1 Demonstrate the ability to read, write, and compare more complex decimals and fractions.</p> <p>1.5.2 Represent fractions as proper and improper fractions, mixed numbers and decimals.</p> <p>1.5.3 Continue to develop fluency to do the basic operations to add, subtract, multiply and divide whole numbers, decimals, and simple fractions.</p> <p>1.5.4 Use rounding and estimation to solve problems.</p> <p>1.5.5 Choose and use appropriate computational procedures and tools (e.g. pencil and paper, mental computation, or calculators) to solve problems.</p> <p>1.5.6 Use variety of strategies including make a model, work backward, draw a diagram, guess and check, and etc., to solve problems and justify answers.</p>	<p>1.6.1 Compare, order, round, and group rational numbers.</p> <p>1.6.2 Demonstrate fluency in the basic operations to add, subtract, multiply and divide whole numbers, fractions, and decimals.</p> <p>1.6. Identify the characteristics of prime and composite numbers and decompose composite numbers into factor pairs and prime factors using exponents.</p> <p>1.6.4 Use models and pictures to represent ratio and proportions and solve problems.</p>
S2: Geometry, measurement, transformation	<p>2.5.1 Recognize and classify triangles and quadrilaterals based on their properties (e.g. angles and sides).</p> <p>2.5.2 Use the common units of the English and metric systems and carry out simple unit conversion within the systems (e.g. centimeters to meters, hours to minutes).</p> <p>2.5.3 Develop and use formulas to determine perimeter and area.</p> <p>2.5.4 Measure length, area, volume, and weight accurately using appropriate tools.</p> <p>2.5.5 Use a variety of strategies (e.g. converting units and comparing, and the comparing the capacities of a number of objects) by pouring including the understanding of measurement to solve problems and explain the reasoning used to reach the solution.</p>	<p>2.6.1 Adds and subtracts customary units of length, mass, liquid, and time measures.</p> <p>2.6.2 Perform slides, flips, turns, and rotations and indicate the motion, position and direction applied.</p> <p>2.6.3 Use formulas to compute perimeter and area of polygons.</p> <p>2.6.4 Describe, compare, and classify geometrical figures using mathematical terminology (number of edge and faces, number and size of angles, and number of vertices).</p>
S3: Patterns & algebra	<p>3.5.1 Represent and record patterns using tools such as charts, tables and graphs.</p> <p>3.5.2 Use words and simple algebraic expressions to describe quantities and situations.</p> <p>3.5.3 Represent and investigate how a change in one variable relates to the change in the second variable (e.g. the height of a plant over time).</p> <p>3.5.4 Investigate and describe situations involving inverse relationships (e.g. the more friends, the fewer the cookies for each person; the larger the denominator in a unit fraction, the smaller the quantity).</p>	<p>3.6.1 Represent patterns in a variety of ways (numeric, algebraic, pictorial, oral, and graphic).</p> <p>3.6.2 Model and solve real world problems using various representations such as graphs and tables.</p> <p>3.6.3 Locate whole numbers, fractions and decimals on a number line.</p> <p>3.6.4 Use the guess and check method to solve simple algebraic expressions.</p>
S4: Statistics & probability	<p>4.5.1 Collect data using observations, measurements, surveys, or experiments.</p> <p>4.5.2 Organize data using tables and charts, and construct graphs (e.g. pictograph, bar graph, and line graph).</p> <p>4.5.3 Discuss events as likely or unlikely and give a description of the degree of likelihood in informal terms (e.g. unlikely, very unlikely, certain, impossible).</p> <p>4.5.4 Estimate and describe probabilities in simple experiments involving coins, spinners, dice, or objects in a bag.</p>	<p>4.6.1 Analyze and interpret data, including range, median, mode, mean, and frequency and present information to an audience.</p> <p>4.6.2 Make predictions that are base on experimental or theoretical probabilities and determine their reasonableness.</p> <p>4.6.3 Formulate and solve problems that involve collecting and analyzing data to reach conclusions and make generalizations.</p>

Standard	Grade 7	Grade 8
S1: Numbers, operation and	1.7.1 Understand and represent integers, adding and subtracting them in real world situations (e.g.,	1.8.1 Represent, compare, order and use numbers in a variety of forms (integer, fraction, decimal,

Standard	Grade 7	Grade 8
computation	<p>change in temperature, elevation, debt).</p> <p>1.7.2 Locate whole numbers, fractions, decimals, and integers on a number line.</p> <p>1.7.3 Writes decimals as fractions; decimals, fractions and whole numbers as percents; and vice versa.</p> <p>1.7.3 Represent number in a variety of ways including expanded form and scientific notation.</p> <p>1.7.5 Use the properties of numbers (zero, identity, commutative, associative, and distributive) to solve problems.</p> <p>1.7.6 Use the order of operations to evaluate expressions.</p> <p>1.7.7 Round numbers to estimate solutions and check the reasonableness of results.</p>	<p>percent, and exponents) in mathematical problem-solving situations.</p> <p>1.8.2 Demonstrate fluency in computing with rational numbers (fractions, decimals, percents and integers).</p> <p>1.8.3 Square whole, rational, and integers and find square roots of perfect squares (e.g. 1, 4, 9, 16, etc.).</p> <p>1.8.4 Use ratio, proportion, and percents in problem solving.</p>
S2: Geometry, measurement, transformation	<p>2.7.1 Identify and draw points, lines, line segments, angles and rays.</p> <p>2.7.2 Use pi (π), represented as both a decimal (3.14) and fraction ($22/7$), to find circumference and area of circles.</p> <p>2.7.3 Use appropriate English and metric units to develop reasonable estimates of measures.</p> <p>2.7.4 Describe symmetry, reflections, and translations with appropriate notation.</p>	<p>2.8.1 Use a compass, protractor, and straight edge to draw two-dimensional figures and do constructions (e.g. bisecting an angle or line segment, creating a right angle, drawing a circle).</p> <p>2.8.2 Identify similar and congruent figures including lines of symmetry and diagonals.</p> <p>2.8.3 Use formulas to find areas of quadrilaterals, triangles, and circles, and the surface area and volume of cylinders and prisms including appropriate units of measure.</p> <p>2.8.4 Use the Pythagorean theorem to find lengths of sides of right triangles.</p> <p>2.8.5 Solve simple problems involving rates and derived measures (e.g. miles per hour, cost per yard).</p> <p>2.8.6 Use proportional reasoning and indirect measurements to draw inferences, such as measuring the thickness of a book to estimate the thickness of one page.</p>
S3: Patterns & algebra	<p>3.7.1 Describe relationships and functions using word and symbols.</p> <p>3.7.2 Write and solve one-step equations.</p> <p>3.7.3 Locate points on the coordinate plane.</p>	<p>3.8.1 Write and solve two-step linear equations and one-step inequalities.</p> <p>3.8.2 Graph linear functions in two variables using a table of ordered pairs.</p> <p>3.8.3 Use symbolic algebra and additional techniques, such as tables, guess and check, and diagrams, to represent situations and to solve problems, especially those that involve linear relationships.</p> <p>3.8.4 Model and solve real-world problems using various representations, such as graphs and tables, to understand the purpose and utility of each representation.</p>
S4: Statistics & probability	<p>4.7.1 Propose and support conclusions by summarizing data (e.g., in a survey of how many books students read each month, over half the books students read in a year are read in April and May.).</p> <p>4.7.2 Formulate questions or hypotheses based on initial data collection, and describe further studies to explore them.</p>	<p>4.8.1 Find, describe, and interpret mean, median, mode, and range and determine which measure is best to use in a particular situation.</p> <p>4.8.2 Read and interpret tables, charts, and graphs, and make inferences based on the data.</p> <p>4.8.3 Use sampling and other data collection tools to gather and analyze data, and make conclusions and predictions.</p> <p>4.8.4 Compute simple probabilities using appropriate methods such as lists, tree diagrams or through experimental or simulation activities.</p>

Standard	<u>All high school students will:</u> (Based on the shared requirement that all students complete at least Algebra I.)
S1: Numbers, operation and computation	<p>1.hs.1 Demonstrate the inverse relationship between square numbers and square roots.</p> <p>1.hs.2 Compare and order rational numbers and square roots using a number line.</p> <p>1.hs.3 Solve problems with squares and square roots (limited to square roots of square numbers).</p> <p>1.hs.4 Represent numbers in a variety of forms (factors, multiples, exponents, prime, composite, fractions, decimal, percent) and change from one form to another.</p> <p>1.hs.5 Apply an understanding of addition, subtraction, multiplication, division and the order of operations when calculating with rational numbers.</p> <p>1.hs.6 Use ratios, proportions, and percent to represent the relationship between two quantities and solve problems (e.g. percent increase and decrease, using scales).</p> <p>1.hs.7 Add, subtract, multiply, and divide numbers with positive and negative exponents.</p> <p>1.hs.8 Estimate a reasonable solution to a problem.</p> <p>1.hs.9 Use rounding and estimation to solve real-world situations and recognize the limitations.</p>
S2: Geometry, measurement, transformation	<p>2.hs.1 Apply an understanding of the English and metric systems of measurement to solve problems.</p> <p>2.hs.2 Use formulas, including appropriate units of measure, to determine the surface area and volume of selected prisms, cylinders, and pyramids.</p> <p>2.hs.3 Apply the Pythagorean theorem to solve problems involving right triangles.</p> <p>2.hs.4 Perform transformations (reflection, rotation, translation) and describe the size, position, and orientation of the resulting shapes.</p>
S3: Patterns & algebra	<p>3.hs.1 Represent a variety of patterns (including recursive patterns) with tables, graphs, words, and when possible, symbolic rules.</p> <p>3.hs.2 Represent mathematical situations as algebraic expressions and equations, and describe algebraic expressions using words.</p> <p>3.hs.3 Solve single-variable equations and inequalities using rational numbers.</p> <p>3.hs.4 Use tables and graphs to represent linear relationships (equalities and inequalities) with two variables and solve problems.</p> <p>3.hs.5 Justify the steps used in simplifying expressions and solving equations and inequalities.</p> <p>3.hs.6 Identify functions as linear or nonlinear and contrast their properties from tables, graphs, or equations.</p> <p>3.hs.7 Represent data involving linear relationships from tables as graphs and equations and visa versa.</p> <p>3.hs.8 Solve linear equations and inequalities with two variables using algebraic methods, manipulatives, or models.</p> <p>3.hs.9 Determine the slope of a line when given the graph of a line, two points on the line, or the equation of the line.</p> <p>3.hs.10 Select and use a variety of strategies (e.g., concrete objects, pictorial representations, algebraic manipulation) add, subtract, multiply, divide and factor first- and second-degree binomials and trinomials in one variable.</p>
S4: Statistics & probability	<p>4.hs.1 Analyze and interpret data using mean, median, mode, range, and frequency.</p> <p>4.hs.2 Design a study, collect data, and select the appropriate representation (e.g. graphs) to make conclusions and generalizations.</p> <p>4.hs.3 Judge the validity of reported data, conclusions, and generalizations.</p> <p>4.hs.4 Calculate probabilities for simple events under different relationships (e.g., independent, dependent, with replacement, without replacement).</p>

By High School Students in College Preparatory Programs

The earlier benchmarks define the important knowledge and skills which all young people in FSM should demonstrate proficiency. The following outcomes reflect some of the additional knowledge and skills that students in high school college preparatory programs should demonstrate as, and if, they complete the following mathematics courses.

Algebra 2

- Apply arithmetic properties to operate on and simplify expressions that include radicals and other real numbers.
- Use the complex number system, the notation for complex numbers, and the definition of "i" to solve problems (standard form).
- Add, subtract, multiply, and divide complex numbers.
- Use the inverse relationship between exponents and logarithms to solve exponential and logarithmic problems.
- Use advanced formulas or functions to solve problems.
- Apply the properties of arithmetic and geometric sequences and series to solve problems.

- Use exponential functions to solve problems involving exponential growth and decrease.
- Use the properties of many types of functions (e.g., polynomial, absolute value, exponential, and logarithmic) to identify the function's graph.
- Use the appropriate terminology and notation to define functions and their properties (e.g., domain, range, function composition, inverses, zeros, and asymptotes).
- Describe the relationship among relations and functions.
- Solve equations and inequalities involving absolute values.
- Solve systems of linear equations and inequalities in two or three variables using a variety of strategies (e.g., substitution, graphing, or matrices).
- Solve equations containing radical and exponents.
- Factor polynomials representing perfect squares, the difference in squares, perfect square trinomials, the sum and difference of cubes, and general trinomials.
- Apply quadratic equations to solve real-world situations and complex number problems.
- Use the binomial theorem to expand binomial expression.
- Use the fundamental counting principles for combinations and permutations to determine probability.
- Calculate probabilities of events under different relationships (e.g., inclusion, disjoint, complementary, independent, dependent, with replacement, without replacement).
- Use the right triangle relationships (e.g., trigonometric ratios: cosine, sine, and tangent) to solve problems.

Geometry

- Use right triangle trigonometric ratios to solve for an unknown length of a side or the measure of an angle.
- Solve problems using the formulas for perimeter, circumference, area, and volume of two- and three- dimensional figures and solids and determine the effect of dimension changes to perimeter, area, and volume.
- Use reasoning to create and defend geometric conjectures.
- Use the concept of corresponding parts to prove that triangles, and other polygons, are congruent or similar.
- Explain properties and characteristics of angle bisectors, perpendicular bisectors, and parallel lines.
- Use the relationship between pairs of angles (e.g., complementary, supplementary, vertical, exterior, interior) to determine unknown angle measures or definitions of properties.
- Apply the concepts of special right triangles to real-world situations.
- Use the relationships among properties of circles (e.g., chords, secants, tangents, arcs, circumference, radius, diameter, inscribed polygons) to solve problems.
- Use coordinate geometry to produce formulas and prove theorems for the midpoint of a line segment, the distance formula, and forms of equations of lines and circles.
- Describe the concept of rigid motion on figures in the coordinate plane, including rotation, translation, and reflection.
- Use concrete objects, pictorial representations, computer software, or graphing calculators to solve geometric problems.

Trigonometry

- Express complex numbers in standard and polar form, and convert from one to another.
- Add, subtract, multiply, divide, and find powers of complex numbers in polar form.
- Use vector operations (including dot product and cross product), the law of sines, and the law of cosines to solve problems.
- Calculate linear and angular velocity.
- Find the sine, cosine, tangent, cotangent, secant, and cosecant of an angle in standard position.
- Use the relationship among the six trigonometric functions to translate among them (i.e., know that given one of the functions the value of the other five can be found).
- Recognize the trigonometric functions of benchmark angles.
- Translate between radians and degrees
- Find the value of any trigonometric function and inverse trigonometric function, and solve trigonometric equations
- Use the fundamental trigonometric identities, including the sum and difference formulas, double-angle formulas, and half-angle formulas to solve problems
- Verify trigonometric identities

- Solve trigonometric equations and inverse trigonometric equations that include all solutions or solutions with restricted domains
- Use the trigonometric functions in the form $y = A\sin(Bx+C) + D$ to determine various properties of the function (e.g., domain, range, period, phase shift, amplitude).
- Identify real-world phenomena that can be represented by a trigonometric function in the form $y = A\sin(Bx + C) + D$.
- Explain the relationship between trigonometric functions and their inverse.

Calculus

- Recognize limits from graphs and tables.
- Find limits of sums, differences, products, quotients, and rational functions.
- Understand continuity in terms of limits and functions.
- Find the derivatives of functions, including polynomial, rational, trigonometric, logarithmic, inverse, composite, and exponential functions.
- Find the derivatives of implicitly-defined functions.
- Find points of inflection of functions.
- Use implicit differentiation to find the derivative of an inverse function.
- Use integration by substitution (or change of variable) to evaluate integrals.
- Use Riemann sums, the trapezoidal rule, and technology to approximate definite integrals of functions represented algebraically, geometrically, or by tables of values.
- Find specific anti derivatives using initial conditions, including finding velocity functions from acceleration functions, finding position functions from velocity functions, and applications to motion along a line.
- Use definite integrals to find the area between a curve and the x-axis, the average value of a function over a closed interval, and the volume of a solid with known cross-sectional area.
- Apply the intermediate value theorem and extreme value theorem on a function over a closed interval.
- Apply the fundamental theorem of calculus; i.e., interpret a definite integral of the rate of change of a quantity over an interval as the change of the quantity over the interval.
- Describe the concept of a derivative geometrically, numerically, analytically, and verbally.
- Find second derivatives and derivatives of higher order.
- Prove the mean value theorem.
- Find average and instantaneous rates of change.
- Use first and second derivatives to describe the behavior of functions.

Science Standards

Science Standards at a Glance

Standard 1: Science As Inquiry

Students will understand the nature and processes of scientific inquiry; and use the modes of scientific inquiry and habits of mind to learn about the world around them.

Standard 2: Physical Science and Technology

Students will understand the structure, properties and changes of matter as well as sources, uses, conservation, and changes of energy. They will understand the nature of science and technology and the relationship of science and technology to society.

Standard 3: Earth and Space

Students will understand the characteristics and process of earth and space systems.

Standard 4: Life and Environmental Science

Students will understand the development, characteristics, processes and interactions of living things and the natural environment.

Standard 5: Marine Science

Students will understand the importance of protecting marine environments to sustain island life. They learn about the technological, ecological, and societal changes effecting those environments that have a direct impact both locally and globally.

Standard	Grade K - 3	Grade 4
S 1: Science as Inquiry	<p>1.3.1 Make observations about objects and events and share their findings with others.</p> <p>1.3.2 Compare and group objects by identifying their properties.</p> <p>1.3.3 Use simple measuring tools and equipment to gather information.</p> <p>1.3.4 Work individually or in teams to collect, compare, and share information, data, and ideas.</p> <p>1.3.5 Identify cause and effect relationships.</p> <p>1.3.6 Investigate events that interest them both in and out of the classroom.</p> <p>1.3.7 Use a variety of methods to record information.</p>	<p>1.4.1 Ask appropriate questions and gather information from observations.</p> <p>1.4.2 Uses drawings, charts, and graphs to communicate experimental information.</p> <p>1.4.3 Investigate by using variety of sources to acquire information.</p> <p>1.4.4 Record data clearly in logs and communicate data clearly.</p> <p>1.4.5 Compare and contrast things they collect and observe.</p>
S 2: Physical Science and Technology	<p>2.3.1 Describe the physical properties of objects and how materials undergo physical changes.</p> <p>2.3.2 Identify things in the environment that show motion.</p> <p>2.3.3 Identify changes in energy and ways energy can be conserved.</p> <p>2.3.4 Recognize that matter can exist in different forms or states.</p> <p>2.3.5 Identify and describe some technological changes in our islands.</p> <p>2.3.6 Use available materials to build simple measuring tools for measuring length, area, volume, mass, time, and temperature.</p>	<p>2.4.1 Demonstrate energy by push and pull on different objects.</p> <p>2.4.2 Describe the sources of energy (sun, foods, etc)</p> <p>Identify how animals get energy in connection with food chains and food webs.</p> <p>2.4.4 Explain how plants get energy to grow.</p> <p>2.4.5 Describe ways that advances in technology can improve living standards.</p>
S3: Earth and Space	<p>3.3.1 Compare and contrast rocks and types of soil, mud, and sand.</p> <p>3.3.2 Identify and give examples of water in three different forms (solid, liquid, gas).</p> <p>3.3.3 Describe activities of their lives that are affected by changes in the skies</p> <p>3.3.4 Recognize the patterns of sunrise, sunset, moonrise, and moonset.</p> <p>3.3.5 Observe and describe objects in the skies such as the phases of the moon.</p> <p>3.3.6 Use models to represent relative size and distance of the sun, moon, and earth.</p>	<p>3.4.1 Identify cloud types and describe cloud formation.</p> <p>3.4.2 Explain atmospheric phenomena including tropical storms, typhoons and tornados as a result of differences in air pressure and temperature.</p> <p>3.4.3 Explain how volcanoes erupt.</p> <p>3.4.4 Compare and contrast rocks, minerals, and fossils.</p> <p>3.4.5 Discuss the characteristics of the Earth’s atmosphere and identify some of the instruments scientists use to observe the skies.</p> <p>3.4.6 Differentiate between the causes of currents and waves.</p>
S4: Life and Environmental Science	<p>4.3.1 Explain that humans go through a life cycle of infancy, childhood, adolescence, adulthood, and old age, and identify differences in external human features such as size, shape, color of hair, etc).</p> <p>4.3.2 Describe basic requirements for life: obtaining food and deriving energy from it, protecting against injury, and reproducing.</p> <p>4.3.3 List and describe the five senses.</p> <p>4.3.4 Observe and identify common varieties of plants and animals around school their homes and communities.</p> <p>4.3.5 Explain how offspring of familiar animals compare to one another and to their parents.</p> <p>4.3.6 Explain that different plants and animals have features that help them survive in different kinds of places.</p>	<p>4.4.1 Recognize that cells are the basic structures in both plants and animals.</p> <p>4.4.2 Identify causes and kinds of pollution in their environment and suggest ways to prevent such pollution.</p> <p>4.4.3 Recognize factors that cause or contribute to rapid changes in the environment and describe the impact of such rapid changes to animal and plant life.</p>
S5: Marine Science	<p>5.3.1 Name and describe living things that are found in the ocean, reefs, and swamps.</p>	<p>5.4.1 Describe the variety of life forms found in the sea and fresh water,</p> <p>5.4.2 Describe free-swimming animals in tropical oceans, reefs, and swamps.</p> <p>5.4.3 Compare and contrast ways their ancestors</p>

Standard	Grade K - 3	Grade 4
		used the oceans to sustain life on islands with ways currently used.

Standard	Grade 5	Grade 6
S 1: Science as Inquiry	<p>1.5.1 Compare different plants and animals.</p> <p>1.5.2 Explain cause and effect relationships in nature.</p> <p>1.5.3 Solve simple problems that require manipulation of objects and ideas.</p> <p>1.5.4 Demonstrate persistence in solving problems.</p> <p>1.5.5 Uses replication to determine reliability of information gathered from simple scientific experiments.</p>	<p>1.6.1 Solve simple problems that require replication or manipulation of objects and ideas.</p> <p>1.6.2 Compare and contrast simple quantitative and qualitative data.</p> <p>1.6.3 Identify possible causes of an observed or represented effect.</p> <p>1.6.4 Use simple measuring tools and equipment to solve science problems.</p> <p>1.6.5 Use drawings, graphs, and charts to analyze and communicate experimental information.</p>
S 2: Physical Science and Technology	<p>2.5.1 Describe and give examples of the three states of matter.</p> <p>2.5.2 Explain that matter can have different physical and chemical properties.</p> <p>2.5.3 Identify changes in matter occurring as a result of natural processes.</p> <p>2.5.4 Identify and describe ways that energy can be transformed from one form to another.</p> <p>2.5.5 Identify ways that society depends on and benefits from advances in technology.</p>	<p>2.6.1 Describe the kinds and properties of metals found locally on islands and their uses.</p> <p>2.6.2 Analyze the simple process of oxidation of metals and methods to minimize rusting</p> <p>2.6.3 Explain the physical and chemical properties of matter.</p> <p>2.6.4 Use tools for observing and measuring properties of matter.</p> <p>2.6.5 Identify and demonstrate some ways lenses are used in school and environment.</p>
S3: Earth and Space	<p>3.5.1 Describe the effect of the sun and moon gravity on ocean tides.</p> <p>3.5.2 Identify and describe major layers of the earth atmosphere.</p> <p>3.5.3 Name, label and show the relative distance between the planets in the Solar System.</p> <p>3.5.4 Identify phases of the moon and describe what causes these phases.</p> <p>3.5.5 Identify the major structural components of the earth such as core, mantle and crust.</p> <p>3.5.6 Give examples of how our ancestors used stars, current, and wind to navigate in the open seas.</p>	<p>3.6.1 Describe the conditions in our atmosphere that causes changes in the weather.</p> <p>3.6.2 Relate seasonal changes to the Earth's rotation on its axis and revolution around the sun.</p> <p>3.6.3 Describe how wind is generated.</p> <p>3.6.4 Describe the water cycle including the processes of evaporation, condensation, and precipitation.</p> <p>3.6.5 Explain changes in the atmosphere that affect life on Earth.</p>
S4: Life and Environmental Science	<p>4.5.1 Identify the main parts of cells and differentiate between animal and plant cells.</p> <p>4.5.2 Classify plants with/without seeds, and animals with/without backbones.</p> <p>4.5.3 Identify that animals depend on plants to survive and carry on functions and plants depend on animals for continuation of life cycles.</p> <p>4.5.4 List and explain some of the negative human activities that have long-term effect on plants and animals.</p> <p>4.5.5 Differentiate between producers, consumers, herbivores, carnivores, omnivores, scavengers, and decomposers and their roles for life cycles to be sustained.</p>	<p>4.6.1 Explain and describe the properties and characteristics of microscopic organisms.</p> <p>4.6.2 List and classify types of trash in the communities.</p> <p>4.6.3 Explore the careers that relate to waste management.</p> <p>4.6.4 Identify materials that can be recycled,</p>
S5: Marine Science	<p>5.5.1 List and describe agencies and programs in the FSM that support the protection of marine environments.</p> <p>5.5.2 Identify practices that are contributing to the depletion of ocean resources.</p>	<p>5.6.1 Describe food chains and food webs in ocean and shore environments.</p> <p>5.6.2 Identify organisms found in different marine areas such as in tidal pools and deep water and body structures that allow them to live in those areas.</p> <p>5.6.3 Identify examples of interdependence among organisms in the ocean.</p>

Standard	Grade 7	Grade 8
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Standard	Grade 7	Grade 8
S 1: Science as Inquiry	<p>1.7.1 Communicate experimental results verbally as well as in charts, graphs, and drawings.</p> <p>1.7.2 Use tools and problem solving strategies to gather, analyze, and interpret data.</p> <p>1.7.3 Observe and explain that different phenomena (such as fire, flood, typhoon, etc) could be natural or manmade but both allow the ecology to rebirth.</p> <p>1.7.4 Identify actions and outcomes of a controlled experiment.</p> <p>1.7.5 Analyze experimental information, draw simple inferences and develop generalizations from scientific data.</p>	<p>1.8.1 Formulate hypothesis based on careful observations and design an investigation that includes controls and variables.</p> <p>1.8.2 Conduct checks of reliability of information gathered from observed phenomena and formulate explanations based on data gathered through scientific explorations.</p> <p>1.8.3 Report data accurately and without bias, including findings that contradict their hypothesis.</p> <p>1.8.4 Ask valid, testable questions about the world around them.</p> <p>1.8.5 Create and use models in different contexts.</p>
S 2: Physical Science and Technology	<p>2.7.1 Give examples and contrast renewable and non-renewable sources of energy.</p> <p>2.7.2 Describe friction, its affect on motion, and results on moving objects.</p> <p>2.7.3 Describe ways to honor traditional technologies as well as incorporate modern technologies that improve our life.</p> <p>2.7.4 Describe the composition of matter: atoms, molecules, elements and compounds.</p> <p>2.7.5 Describe the properties of light and how light reacts when it strikes various surfaces.</p>	<p>2.8.1 Describe matter as composed of small particles in motion and identify some of the properties resulting from this assumption.</p> <p>2.8.2 Describe some of the uses of energy in mechanical and living systems and explain the conversion of one form to another.</p> <p>2.8.3 Describe the origin of sound in vibrations.</p> <p>2.8.4 Identify different kinds of motion and the effect of force on direction and speed.</p> <p>2.8.5 Describe the apparent color of objects as a result of reflection and absorption of different colors of light.</p> <p>2.8.6 Describe the effects of gravity on motion of objects.</p> <p>2.8.7 Identify everyday applications of electric and magnetic forces such as attractions in electric circuits.</p>
S3: Earth and Space	<p>3.7.1 Describe the Milky Way Galaxy and identify our Solar System as part of that galaxy.</p> <p>3.7.2 Compare and contrast the various theories of the formation of our islands.</p> <p>3.7.3 Describe the formation of atolls, coral reefs and lagoons and give examples.</p> <p>3.7.4 Distinguish between fringing and barrier reefs.</p>	<p>3.8.1 Describe how the earths movement, properties of water and differential heating of land, water, and air cause weather phenomena.</p> <p>3.8.2 Discuss traditional knowledge about moon phases and tides and describe how this influences island life such as fishing practices, crab hunting, etc..</p> <p>3.8.3 Describe how landforms are worn down and shaped by gravity, water, wind, weather, erosion, and living things.</p> <p>3.8.4 Describe the composition of rock as different compositions of minerals and identify different rock types (sedimentary, igneous, and metamorphic).</p> <p>3.8.5 Describe the life cycle of stars and the sun as a star.</p> <p>3.8.6 Describe how gravitational pull of the sun holds Earth and other planets in their orbits, and the gravitational pull of the planets keeps their moons in orbit around them.</p> <p>3.8.7 Describe tides, seasons, and lunar phases, by using suitable models of the solar system and the motion of objects within it.</p>
S4: Life and Environmental Science	<p>4.7.1 Describe ways that can help solve some of the pollution problems throughout the region.</p> <p>4.7.2 Give examples and describe different ways living things reproduce.</p> <p>4.7.3 List and explain the conditions necessary for life on earth.</p> <p>4.7.4 Diagram and explain the carbon dioxide-oxygen cycle.</p> <p>4.7.5 Explain how humans can help maintain life on</p>	<p>4.8.1 Investigate environmental problems such as water, air, and land pollution, deforestation, and soil erosion.</p> <p>4.8.2 Investigate and implement traditional practices in one major area of stewardship (farming, waste disposal, recycling, food preparation, etc.).</p> <p>4.8.3 Classify plants and animals into groups based on similarities and differences.</p> <p>4.8.4 Describe technology's role in selective</p>

Standard	Grade 7	Grade 8
	earth.	breeding of certain organisms. 4.8.5 Identify the cell as the basic unit of life, components of cells, and describe functions. 4.8.6 Identify examples of interdependence among organisms and flows of energy in food chains and food webs.
S5: Marine Science	5.7.1 Identify causes of pollution in local marine environments and suggest ways to minimize or prevent such pollution. 5.7.2 Participate meaningfully in local practices that encourage conservation of marine resources. 5.7.3 Describe some of the ways that marine resources are being used to develop the FSM economy.	5.8.1 Diagram a marine ecosystem. 5.8.2 Identify and describe effects of environmental change on shorelines to marine life. 5.8.3 Describe the impact of human activities on marine environments. 5.8.4 Explain how human actions have resulted in decreasing populations of marine animals such as turtles.

Standard	Science As Inquiry
S 1: Science as Inquiry	1.hs.1 Design and safely implement an experiment, including the appropriate use of tools and techniques to organize, analyze, and validate data. 1.hs.2 Interpret data to validate generalizations. 1.hs.3 Describe how a testable hypothesis may need to be revised to guide a scientific investigation. 1.hs.4 Report a scientific research using appropriate methodology and format. 1.hs.5 Prepare independent research papers on a scientific problem for sharing. 1.hs.6 Describe examples of major shifts in science (ex. Theories of plate tectonic atomic structure of matter) 1.hs.7 Describe some of the interactions of science, technology, and society
S 2: Physical Science and Technology	2.hs.1 Describe the basic assumptions of the atomic theory; and relate the properties of materials to their atomic structure. 2.hs.2 Identify and describe properties and classifications of energy and its ability to do work; and describe the importance of energy in physical and living systems. 2.hs.3 Identify applications of the principles of motion, gravitational forces, and electromagnetic forces in their lives 2.hs.4 Describe some of the positive and negative impacts of modern food production and distribution technologies. 2.hs.5 Cite examples of new products made possible by the creation of new materials by technology 2.hs.6 Describe some of the complex relationships between science and technology as they relate to manufacturing
S3: Earth and Space	3.hs.1 Describe the composition of the major layers of the earth. 3.hs.2 Describe the composition of the major objects in the universe such as stars, planets, etc. 3.hs.3 Describe the structure and composition of the Earth’s atmosphere. 3.hs.4 Explain factors that determine climate and give examples of types of climate.
S4: Life and Environmental Science	4.hs.1 Describe relationships and the interdependence of organisms within biomes. 4.hs.2 Describe how species have evolved over time to adapt to change. 4.hs.3 Describe how the study of DNA can explain kinship among species. 4.hs.4 Identify processes to utilize energy within organisms (photosynthesis, respiration, etc) 4.hs.5 Identify and describe mans use of natural resources and the need to manage and protect them.
S5: Marine Science	5.hs.1 Describe various marine ecosystems and identify similarities between land and marine ecosystems. 5.hs.2 Identify and describe changes in the marine environment. 5.hs.3 Use data to describe and design effective ways of managing or sustaining marine resources; and measures taken by the FSM to preserve the marine resources. 5.hs.4 Describe the movements of the earth’s plates and relationship of these movements to changes in the oceans.

The previous benchmarks identify learning expectations for all high school students. Following are benchmarks of learning for students who take specialized academic science classes in high school. First lists the process skills that are to be emphasized in all specialized courses. Next will list the specific content arranged as benchmarks for each individual course.

Process Skills for All Academic Science Courses:

- Describe how a testable hypothesis may need to be revised to guide a scientific investigation

- Design and safely implement an experiment, including the appropriate use of tools and techniques to organize, analyze, and validate data
- Defend and support conclusions, explanations, and arguments based on logic, scientific knowledge, and evidence from data
- Determine the connection(s) among hypotheses, scientific evidence, and conclusions
- Communicate the components of a scientific investigation, using appropriate techniques
- Engage in and explain the importance of peer review in science
- Revise, as needed, conclusions and explanations based on new evidence
- Describe the importance of ethics and integrity in scientific investigation
- Explain how scientific explanations must meet a set of established criteria to be considered valid
- Explain how scientific advancements and emerging technology have influenced society
- Compare the risks and benefits of potential solutions to technological issues

Biology Course Benchmarks

Students will:

- Understand the unity, diversity, and interrelationships of organisms, including their relationship to cycles of matter and energy in the environment.
- Describe biogeochemical cycles within ecosystems.
- Explain the chemical reactions that occur in photosynthesis and cellular respiration that result in cycling of energy.
- Explain how matter and energy flow through living systems and the physical environment.
- Explain dynamic equilibrium in organisms, populations, and ecosystems; explain the effect of equilibrium shifts.
- Describe different cell parts, their functions, and how they are specialized into different tissue and organs.
- Explain how cells are specialized into different tissues and organs.
- Differentiate between the processes of mitosis and meiosis.
- Describe how homeostatic balance occurs in cells and organisms.
- Describe the components and functions of a variety of macromolecules active in biological systems.
- Explain the organization of life on Earth using the modern classification system.
- Explain the theory of evolution and natural selection and cite evidence that supports these theories.
- Explain the structural properties of DNA and the role of DNA in heredity and protein synthesis.
- Explain how Mendel's laws of heredity can be used to determine the traits of possible offspring.
- Explain chromosomal mutations, their possible causes, and their effects on genetic variation.
- Name and describe the components of the human body from cell to system and how they work together.

Chemistry Course Benchmarks

Students will:

- Explain how conservation of energy is applied to various systems.
- Explain how elements are arranged in the periodic table and analyze trends among elemental properties.
- Explain how atoms bond using valence electrons.
- Describe nuclear reactions and how they produce energy.
- Describe the basic assumptions of the atomic theory
- Relate the properties of materials to their atomic structure.
- Distinguish between physical and chemical properties.
- Describe elements and compounds.
- Distinguish between mixtures and pure substances.
- Relate local technologies, including the utilization and preservation of materials, to either causing or controlling changes in matter.
- Relate observed properties and changes in matter to the behavior of molecules and atoms as described in the atomic and kinetic molecular theories.
- Discuss atomic mass and its experimental determination.
- Explain the mole concept and Avogadro's number.
- Describe molar mass.
- Convert between moles and mass of a given sample of a chemical compound.
- Name and write chemical formulas and balance chemical equations
- Describe endothermic and exothermic reactions
- Describe the basic characteristics of acids, bases, salts, and organic and inorganic compounds
- Calculate the efficiency of energy transfer within physical and biological systems
- Find the mass of an element in a given compound.

- Describe empirical formulas of compounds.
- Calculate empirical formulas.
- Calculate the molecular formula of a compound, given its empirical formula and molar mass.
- Identify and describe properties and classifications of energy and its ability to do work.
- Measure work and heat resulting from energy transformations.
- Describe possible ways or uses of technology to increase efficiency of energy transfer.
- Trace the energy transformations within physical and biological systems.

Physical Science/Physics Course Benchmarks

Students will:

- Explain and provide examples of electromagnetic radiation and sound using a wave model.
- Use vectors to explain force and motion.
- Provide examples of entropy.
- Describe the periodicity of the elements.
- Calculate the efficiency of energy transfer within biological and physical systems.
- Describe the structure of matter including atoms, protons, neutrons and electrons.
- Explain how atoms interact by transferring or sharing electrons.
- Describe the nature of solids, liquids and gases by examining molecular structures.
- Describe the importance of carbon bonding
- Describe nuclear reactions and how they produce energy
- Explain how atoms bond using valence electrons
- Understand the nature of matter and energy, forms of energy (including waves) and energy transformations.
- Explain how the law of conservation of energy is applied to various systems
- Compare transverse and longitudinal waves and their properties
- Explain and provide examples of electromagnetic radiation and sound using a wave model
- Understand the relationship between force, mass, and motion of objects; and know the major natural forces: gravitational, electric, and magnetic
- Apply the laws of motion to determine the effects of forces on the linear motion of objects
- Use vectors to explain force and motion

Marine Science Course Benchmarks

Students will:

- Identify common marine organisms and place them in the scientific classification system for organisms.
- Discuss environmental problems that affect marine environments resulting from human actions.
- Describe some of the technologies used on islands to protect marine resources.
- Discuss the nature of tropical fisheries in the FSM and challenges in their management.
- Compare traditional marine resource management practices to western practices.
- Describe the relationship of marine plant and animal reproduction in relation to phases of the moon and seasons.
- Identify local poisonous fishes and methods of detecting ciguatera toxin in fish.
- Discuss the benefits of marine resources to local cultures and sustaining life, as well as to the economic development of the nation.
- Identify pollution controls in the FSM States and design a plan to support the implementation of these controls.

Earth Science Course Benchmarks

Students will:

- Describe the size and shape of the Earth.
- Describe the different rates at which geologic processes occur.
- Distinguish between minerals and rocks.
- Classify rocks.
- Describe the relative distribution of oceans and continents.
- Distinguish between fresh water and ocean water.
- Investigate different kinds of soil and determine their location(s) in rock layers.
- Determine the properties of lakes, rivers, and ground water.
- Investigate how fossils are incorporated into sedimentary rocks.
- Describe the plate tectonics theory.
- Identify basic hydrological properties and processes and see how features of the planet interact.

- Determine that water cycles to and from the oceans, atmosphere, and solid Earth through a series of processes: evaporation, condensation, precipitation, surface run-off, and percolation into the soil.
- Describe the processes (weathering, erosion, deposition, and lithification) that shape the surface of the Earth.
- Recognize that on continents surface water is found in lakes, streams, and rivers and in the form of ice.
- Describe ground water and investigate how rain, dew, fog, and clouds form through the process of evaporation, condensation, and precipitation.
- Investigate how smoke affects cloud, fog, and dust formation.
- Relate cloud types to weather.
- Investigate the movement of air.
- Describe the formation of their island and region environment.
- Identify human impacts on local and regional environments.
- Explain the formation of weather fronts and how they behave
- Identify and describe global wind patterns
- Identify and describe changes in their own environment, in the FSM, and the world
- Identify and describe global changes that affect FSM island life.
- Predict how changes on Earth's surface will affect local ecosystems
- Identify and describe local examples of how living things affect the non-living environment and vice versa

3: Teaching & learning

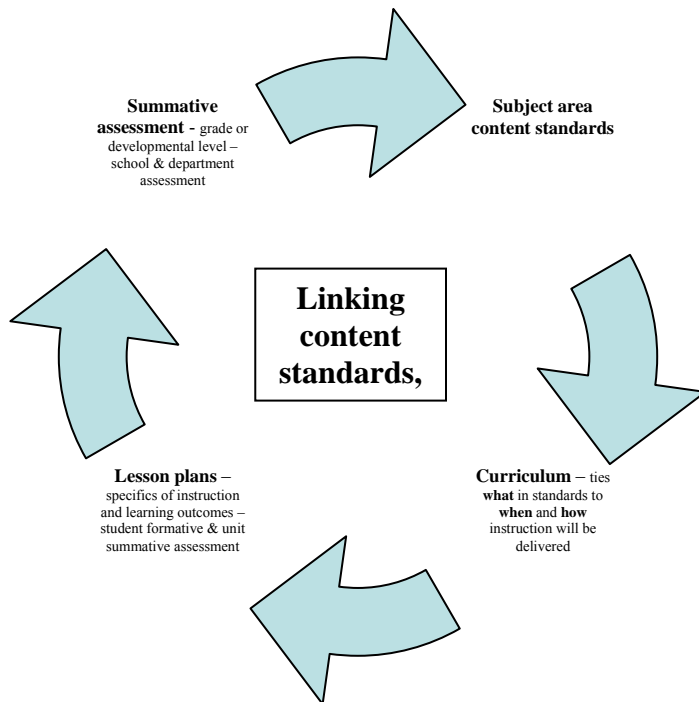
Purpose of this section

This section is devoted to the process of turning standards into curriculum and instructional programs. A primary focus is on the process of creating and delivering lesson plans that turn standards into classroom activities that promotes student learning and achievement against the standards.

Of particular usefulness may be the links to a series of web sites (appendix) that support standards based instruction with standards, lesson plans, instructional materials, work sheets, resource materials, training programs (including self directed training) and web related resources organized by subject area.

Standards and the Curriculum

The department's curriculum and lessons plans are the primary mechanisms that translate between standards and student learning. While standards identify what students are expected to know, think, do and value, it is the curriculum and lessons plans that lay out when and how that learning is to occur and what materials and strategies can best promote student learning. Combined with assessment (answers the question – how well did the students learn what was expected of them). The process is a cycle that ties the different pieces together and results in increased student learning.



Curriculum and course outlines

The PDOE is implementing curriculum concepts through development of course outlines. A few notes and cautions follow.

- As with the content standards, course outlines are generally grouped by subject area and as a result teachers are expected to consult multiple documents each day. It is recommended that the course outlines for major subject areas for a given grade level be combined into a single notebook or binder for easy reference by the teacher.
- Where content standards are referenced the standard needs to be written in full to allow easy reference by the teacher of what students are expected to know, think, do and values for each of the units.
- If a textbook is use, the course outline should indicate what sections of the text must be covered and what sections may be considered optional.
- Levels of expectations for learning need to be specified. Is the current unit introducing materials related to the standard, developing understanding of the standard or is mastery of the standard expected.
- Course outlines should provide information on how the content area and instruction can be linked to and reinforced in other situations and settings.
- A variety of appropriate instructional strategies for the unit should be identified and links (print or internet) should be specified where the teacher can obtain additional information.
- A variety of appropriate formative and summative assessment strategies should be identified and links (print or internet) should be specified where the teacher can obtain additional information.
- NOTE: learning and assessment strategies should include recommendations for both advanced students and those with learning disabilities.

Lesson plans and instruction materials

Lesson plans are perhaps the most vital part of the standards cycle. Lesson plans are where the learning outcomes are precisely identified that determines how a content standard will be approached and what students are expected to learn. Lesson plans are also the place where specific instructional and assessment strategies are identified that fit the needs of the lesson and the learning style of students. Lesson plans also identify the appropriate instructional materials (including supplemental) materials to be used. These instructional materials may be textbooks and/or supplemental materials that fit the needs of students and the intent of the lesson.

Lesson plans need to be in a common format. A recommended format for lesson plans is included in the appendix. A critical aspect of lesson plans is that the standards that are being addressed by the lesson are fully understood by the teacher and how the standards and learning outcomes fit into the broader learning expectations for the unit, quarter or year.

A major question is who develops lesson plans? Often the lesson plan developer has been the teacher and the teacher still maintains the final say on how to present a lesson in his or her

classroom. However, with the advent of the Internet, there are literally thousands of lesson plans available for review and adoption. The problem is not having lesson plans, but rather which lesson plans fit the PDOE content standards and provide appropriate learning strategies for Pohnpei children.

A big note is needed. While in the past we have primarily thought of a lesson plan as identifying what to teach from a textbook, today's Internet provides not only a wide range of lesson plans taking multiple approaches to the same standard, but also provides opportunities for downloading worksheets, supplement and main material to support the lesson.

The following are recommended strategies for assisting teacher with lesson plans.

1. Determine which web sites support a standards based approach to education. This research is best done by specialists with a select group of teachers.
2. Specialists and teachers should identify a variety of different approaches to a content standard or instructional area that addresses different learning styles.
3. Two, three or even four different lesson plans should be downloaded for each standard and put in either a print or electronic medium that is readily assessable to teachers.
4. Teachers should have the option of selecting one of the lesson plans provided, or to develop their own lesson plan.
5. The impact of different lesson plans should be evaluated and recorded. Knowing what and under what circumstances lesson plans are effective can provide useful guidance to teachers in selecting the appropriate lesson plan for their students.
6. Specialists and selected teachers should also seek appropriate supplemental materials for students. Note – readability levels of materials downloaded from the Internet or from other sources can be easily determined by importing the materials into MS Word and turning on the readability component under the Grammar and Spelling section. When the spelling and grammar is checked, the program will also provide what is the grade level readability of the materials.
7. A list of potential web sites for lesson plans and supplemental materials is included in this curriculum framework and is updated on a regular basis.

In developing and/or modifying lesson plans special attention should be paid to ensure that the developmental stage of children is considered and that the lesson focuses on the appropriate student level. Bloom's taxonomy is generally seen as a useful tool in helping design lesson plans appropriate to the development level of students.

Bloom's taxonomy

Bloom's taxonomy, while developed in the 1950's and 1960.s, still remains an excellent tool to assist in putting together standards, curriculum, assessment strategies and lesson plans. The taxonomy is broken down into three domains.

1. **Cognitive domain** (intellectual capability - **knowledge**, or '**think**')
2. **Affective domain** (feelings, emotions and behavior - **attitude**, or '**feel**')

3. **Psychomotor domain** (manual and physical skills - **skills**, or '**do**')

While most attention has been paid to Bloom’s cognitive domain (intellectual capability) it is also recommended that attention be paid to the affective domain (feelings, emotions and behavior) and the psychomotor domain (manual and physical skills). Research into emotional intelligence indicated that success in life is highly influenced by the affective domain.

Generally, the higher level in each of the domains indicates a greater level of understanding and ability and a higher developmental stage for students. These sequences should also be considered when sequencing standards, curriculum, lesson plans and assessment strategies. It is generally best to focus on the highest level that students can deal with at their developmental level. The following focuses on key words for each of the domains. It should be noted that Bloom never fully developed the psychomotor domain. The version found below is based on Dave’s (a student of Bloom).

Anyone developing standards, curriculum, lesson plans or assessment strategies would be advised to keep a copy of Bloom’s taxonomy at hand at all times. Use of the appropriate verbs also simplifies determining appropriate assessment strategies.

Web sites for additional information on Bloom’s taxonomy and emotional intelligence can be found at the end of this section.

Cognitive domain (intellectual capability - knowledge, or 'think') key words

Knowledge	Comprehension	Application	Analysis (use)	Synthesis (create/build)	Evaluation (assess, judge in relational terms)
defines describes identifies knows list matches names outlines recalls recognizes reproduces selects states	comprehends converts defends distinguishes estimates explains extends generalizes gives	applies changes computes constructs demonstrates discovers manipulates modifies operates predicts prepares produces relates shows solves uses	analyses break down compares contrasts diagrams deconstructs differentiates discriminates distinguishes identifies illustrates infers outlines relates selects separates	categorizes combines compiles composes creates devises designs explains generates modifies organizes plans rearranges reconstructs relates reorganizes revises	appraises compares concludes contrasts criticizes critiques defends describes discriminates evaluates explains interprets justifies relates summarizes supports

Knowledge	Comprehension	Application	Analysis (use)	Synthesis (create/build)	Evaluation (assess, judge in relational terms)
				rewrites summarizes tells writes	

Affective domain (feelings, emotions and behavior - attitude, or 'feel') key words

Receiving phenomena (awareness)	Responding to phenomena (react)	Valuing (understand, act)	Organization (personal value system)	Internalizing values (adopt behavior)
asks chooses describes follows gives holds identifies locates names points to selects sits erects replies uses	answer assists aids complies conforms discusses greet helps labels performs practices presents reads recites reports selects tells writes	completes demonstrates differentiates explains follows forms initiates invites joins justifies, proposes reads reports selects shares studies works	adheres alters arranges combines compares completes defends explains formulates generalizes identifies integrates modifies orders organizes prepares relates synthesizes	Acts discriminates displays influences listens modifies performs practices proposes qualifies questions revises serves solves verifies

Psychomotor domain (manual and physical skills - skills, or 'do') key words

Imitation (copy)	Manipulation (follow instructions)	Precision	Articulation (combine, integrate related skills)	Naturalization (automate, become expert)
copy follow replicate repeat adhere	re-create build perform execute implement	demonstrate complete show perfect calibrate control	construct Solve combine coordinate integrate adapt develop	Design Specify Manage Invent project-manage

Imitation (copy)	Manipulation (follow instructions)	Precision	Articulation (combine, integrate related skills)	Naturalization (automate, become expert)
			formulate modify master	

Teaching strategies and approaches

Learning styles

Students learn in different ways and through different medium. It is the role of the teacher to know the preferred learning styles of their students and ensure that instructional programs fit the needs of the students (and not the teacher).

Research on learning styles and memory show that active learning strategies provide the best fit for the different developmental stages of children and what we know about how and what students (and adults) remember. While there has been little direct research into the best learning strategies for Micronesian children, observations support learning by doing is effective.

Deep versus surface learning

The concepts of deep versus surface learning are seen in the constructive approach to education. Under deep learning, fewer topics are covered in a classroom, but topics are covered in greater detail and in greater depth. Emphasis is on what is significant. Students are assisted in relating previous knowledge to new knowledge. Students learn to relate what they learn in the classroom, or as a theory, to everyday experience. Students learn to distinguish between facts/evidence and opinion. Students are assisted in organizing their knowledge into a consistence whole. And finally, the emphasis of instruction is internal, from within the student.

The idea that by covering less material but in greater depth is sometimes difficult to understand, but is supported by research and also practical experience.

Teacher as facilitator

Under active learning strategies teachers are seen as facilitators to student learning. This means that teachers set up conditions under which students construct their own knowledge. Again, research has shown that memory is enhanced when an individual constructs his own knowledge and understanding.

What is Active Learning?

Active learning is simply that--having students engage in some activity that forces them to think about and comment on the information presented.

Active Learning is "anything that involves students in doing things and thinking about the things they are doing"

Meyers and Jones (1993) define active learning as learning environments that allow “students to talk and listen, read, write, and reflect as they approach course content through problem-solving exercises, informal small groups, simulations, case studies, role playing, and other activities -- all of which require students to apply what they are learning”.

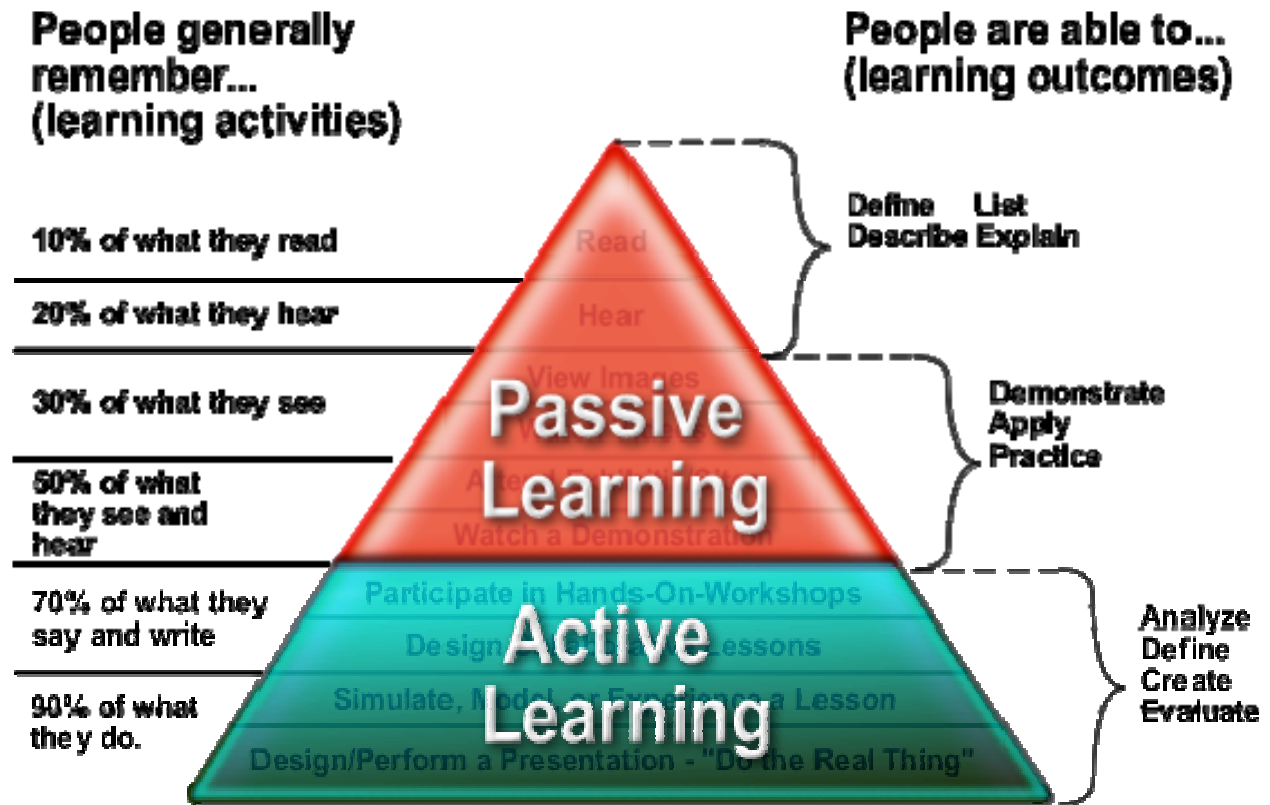
Cooperative learning is defined by a set of processes which help people interact together in order to accomplish a specific goal or develop an end product which is usually content specific. It is more directive than a collaborative system and closely controlled by the teacher. While there are many mechanisms for group analysis and introspection the fundamental approach is teacher centered whereas collaborative learning is more student centered.

Collaborative learning is a personal philosophy, not just a classroom technique. In all situations where people come together in groups, it suggests a way of dealing with people which respects and highlights individual group members' abilities and contributions. There is a sharing of authority and acceptance of responsibility among group members for the groups actions. The underlying premise of collaborative learning is based upon consensus building through cooperation by group members, in contrast to competition in which individuals best other group members. CL practitioners apply this philosophy in the classroom, at committee meetings, with community groups, within their families and generally as a way of living with and dealing with other people.

Where can different learning strategies be found?

Numerous books and hundreds of Internet sites can provide a wealth of different active and cooperative learning strategies to try out. Teachers should be encouraged to try out different active and cooperative learning strategies and share across the state which strategies are found effective in Pohnpeian classrooms. See the appendix for recommended web sites.

The following diagram summaries why active learning strategies are effective and their impact on what is remembered by students and how they are able apply learning in one subject area to another.



Themes

Themes are other approach to enhancing student learning. A themes approach to instruction provides a powerful tool for connection different subjects and reinforcing learning across a broad spectrum of subjects. Themes can also be a tool to encourage conversation and dialogue among teachers around student learning and achievement.

The process of themes approach to instruction simply adds an additional layer on top of lesson planning and can provide mechanism for assessing learning across different subjects.

The process is straightforward.

- A theme for learning is selected. Common examples are weather, cultural activities, current events, etc.
- Lesson plan development is coordinated around the theme and across the different subject areas. The lesson plans should also consider how learning can be reinforced across the different subjects. What is introduced in one subject might be reinforced in a different subject and in a different context. Teachers should pay special attention to helping students develop an understanding and appreciation of applying knowledge and/or facts in one subject in a different subject/context. For example, if outmigration is selected, a language arts class

might write an essay on outmigration in their village, social studies might look at population trends over the years, and mathematics classes might graph the outmigration trends.

- Assessment can also be coordinated if desired.

Importance of Pohnpeian language and culture in curriculum and instruction

The PDOE Strategic Plan identified language and culture as perhaps the highest priority and perhaps the area of greatest concern for the PDOE. Learning English and English competence has become the medium of judging student performance in school. However, a well constructed and implemented first or native language program not only promotes the local language and culture, but also provided a basis for learning a second language.

The following are guiding principles from the FSM Language Policy that promotes a bilingual society for the FSM.

A note, research in the areas of language loss and shift indicates that Pohnpei and the FSM are following patterns seen around the world that will see the loss of Micronesian languages in two generations.

Guiding Principles for FSM Language Policy

The following are general guidelines for design and implementation of the FSM Language Policy.

- a Micronesia will become a multilingual society with high competence (read, write and the ability to converse) in local languages, English, and other international languages.
- b Our languages convey our values, cultures and traditions.
- c Our languages areas still strong [however there are trends which indicate language shift and loss], but they must expand and grow if they are to remain strong.
 - 1) Students should have an opportunity to study and improve upon their local language at elementary, secondary, and postsecondary levels of education in the FSM.
 - 2) All local languages need reference grammars and dictionaries.
 - 3) Student grammars and dictionaries must be developed at appropriate grade levels.
 - 4) Local languages must expand to allow new concepts and thoughts to be expressed.
 - 5) Baseline indicators must be established to measure language competence and improvement.
 - 6) Assessment instruments and evaluation processes must be established for local languages.

- 7) Instructional materials, general reading and content specific information should be available in local languages and convey information important to economic and social development of the Nation.
- d Local language should be the foundation for developing thinking and learning skills. Acquisition of English and other languages should build upon the basic (reading, writing, arithmetic & mathematics) and thinking skills learning in the primary language of the student. Note that research shows that a solid foundation in the primary language improves academic achievement in a second language.
- e Competence in the primary State language should be an entry requirement into high school and should be incorporated into high school entrance tests. Major FSM languages should be offered for study at the College of Micronesia - Federated States of Micronesia.
- f Students should be introduced to English through materials that are relevant to Micronesia students and convey content information important to the economic and social development of the Nation. The materials might be locally developed, adapted from newspapers and magazines, South Pacific materials, government or private pamphlets and reports, or other materials that are relevant to the economic, political, and social development of the FSM.
- g Valid assessment instruments and evaluation processes for English and other international languages must be developed or adopted and the results be the basis for instructional program design, implementation and planning activities.
- h English and other international languages are used as international languages, second languages, and foreign languages in the FSM. Instructional strategies and materials should be appropriate to the language needs and usage of students. Note: while English is the official language of the Federated States of Micronesia it is the first language of less than 1% of FSM citizens.
- i The primary language of the community should be both the medium and object of instruction in the elementary school. If the local language is not the primary state language, the primary State language should be taught in the school as a second language. Transition into English should be based on cognitive skills developed in students primary and/or State language.
- j Instruction in second, third and other languages should be based on standards and curriculum frameworks that follow sound research on language acquisition and set a basis for assessments and reporting.
- k Language maintenance and expansion cannot be addressed only by the school system. The school system must work in partnership with the community, other government departments and sectors, and traditional systems in the maintenance and expansion of local languages and developing high competence in English and other international languages. Public education must address the issues of language acquisition and the link

between language and economic growth and language, culture and traditions and social problems and development.

- l Other governmental agencies, community organizations, and businesses should be encouraged to help build a body of knowledge in print, video, & oral medium in local languages and in English appropriate for the FSM.
- m Teaching staff should be provided training in and demonstrate competence in the language being taught [local languages, English, Japanese, Chinese, etc.) and be provided with training in appropriate teaching strategies and methods for first and second language acquisition.

Instructional Materials

The PDOE is purchasing and should continue to purchase textbooks from outside the Micronesian region, but it must also development instructional materials in Pohnpeian and English that support the local values and cultures. An example, while fisheries/maritime, agriculture, and tourism are seen as the FSM productive sectors and areas of greatest potential for development, there are few instructional materials in the school system (especially at the early years when values are formed that last a lifetime) that promote the importance of these productive sectors.

Following are principles to help guide development of local materials for both Pohnpeian and English instruction.

Principles of Materials Development

The following are recommended as Principles for Materials Development and usage in Pohnpei:

- a Reference grammars and dictionaries should be available in local languages.
- b Instructional dictionaries and grammars should be available in local languages for use at appropriate grade levels. Initial emphasis is recommended to be development of dictionaries.
- c Children should have materials in their local languages for study in school.
- d Children's introduction to English and other international languages should be through materials which are appropriate for students age, cultural setting, and in line with economic and social realities in Pohnpei.
- e Materials should be developed in local languages and English to:
 - 1) promote Micronesian customs, beliefs, and values,
 - 2) promote the development of community role models,

- 3) provide content information on the productive sectors (agriculture, marine, and tourism), and,
 - 4) promote development of National and State identities.
 - 5) give age appropriate materials for students instructional use.
 - 6) ensure provision of quality teaching instructions and training for use of materials be considered part of the materials development process.
 - 7) provide content related materials (science, social studies, mathematics) and thematic materials related to agriculture, marine & fisheries, and tourism.
- f Materials should be developed in high quality, attractive formats. Innovative use of information technology might also allow use of “Print on Demand” whereby materials could be printed at the school or classroom level as needed. This approach could also allow adaptation of materials to fit local community conditions or to use local pictures and examples in a State or Nation based text.
- g Materials can be print media, audio/visual, computer based or other means of transferring information.
- h Innovative processes should be used for materials development. Students, teachers, other government agencies, and COM-FSM Students should all be considered as potential writers and materials developers. The FSM NDOE and State DOE’s should develop processes for rapid development of high qualities material appropriate to local conditions.
- i Exchange of locally developed materials should be the norm. This would include local language materials for use in other States and English materials developed in any State as use throughout the FSM.
- j Materials should be copyrighted by the organization developing the materials, but for acknowledgment purposes only, not for restricted use.
- k Materials developed by other government agencies, such as R&D, the private sector, religious organizations should be considered for use in the school system with editing and development of teacher materials as needed. Maximum use should be made of newspaper and magazine articles, government and business pamphlets and reports, and other “real world” reading materials as the basis of instructional materials.
- l Textbooks and other materials used in schools should be reviewed for their appropriateness not only in skills development, but also for values and content information.

Role of Technology and Technology Standards

The role of technology in education is a critical element that is current unutilized in Pohnpei schools. Ability to use technology and information literacy is a critical part of life and work throughout the world. The International Society of Technology Education (ISTE) has established

standards that should be reviewed by the PDOE as it develops its own technology standards and technology plan. The ISTE web site www.iste.org provides a wealth of information on technology use in schools. The following are the ISTE standards for students. Technology standards for teachers and administrators can also be found on the ISTE web site <http://www.iste.org/AM/Template.cfm?Section=NETS> .

1. Creativity and Innovation
2. Communications and Collaboration
3. Research and Information Literacy
4. Critical Thinking, Problem Solving, and Decision Making
5. Digital Citizenship
6. Technology Operations and Concepts

The ISTE web site also provides excellent linkages to a wide variety of web sites in all areas related to education. Go to http://www.iste.org/AM/Template.cfm?Section=Educator_Resources Educator recourses and use the links provided.

4: Assessment

Purpose of Assessment

For a standards based education system, student assessment answers a fundamental question. Did students learn what was expected of them? A program evaluation assists in determining if the programs, processes and procedures of the education system are effective in supporting student learning. The data and evidence generated by a high quality assessment/evaluation system provides the basis for informed decisions on planning, program improvement and resource allocation.

Assessment and evaluation should occur at all levels of the education system on a systematic and ongoing basis. Teachers assess student learning and progress daily. The department assesses whether or not improvement is being made at the class, school and department levels and provides annual data regarding if students are learning at grade level. The FSM NDOE assessment provides a basis for comparison of levels of student learning across the FSM and with external education agencies. The College of Micronesia – FSM COMET and other assessment instruments provide a picture into the college readiness of high school graduates and assist in tracking those graduates during the course of their post secondary experience.

Assessment and evaluation is most effective when both the broad trends in student learning are identified as well as class, school and state level strengths and weaknesses against specific standards and sub standards.

A critical issue in assessment is accountability. Assessment should not be designed to be punitive, but rather to assist all stakeholders in the education system to be accountable for student learning. How well a student learns is based on a multitude of factors including: teacher quality; previous knowledge and skills; support services; quality of materials; quality of facilities; parental and community support, etc.

Linkages to Standards and Planning

To be effective, assessment and evaluation at all levels must help determine if students are learning what is expected of them. The learning expectations are detailed in the content standards for each subject area. Assessment and evaluation systems must ensure that all results can be tied back to the content standards and the expectations for student learning.

Types of Student Assessment

There are two general types of student assessment: formative and summative.

Formative assessment is designed to give quick feedback to help determine if students are learning what is expected of them. A common use of formative assessment is in the classroom. A teacher may use a quiz or other method of assessment to check if students have learned what is being studied at the expected level. Formative assessment strategies should be included in all lesson plans. The results may be used to modify teaching strategies, re-teach a lesson or parts of a lesson, present content in a different perspective, etc.

Summative assessment is designed to be evaluated at the conclusion of a unit; program and body of study and answer provide insight at the level of learning that occurred. Examples of summative assessment are unit or quarter finals and can be used to assign grades. Summative assessment should also be directed at determining if students are learning what is expected of them as expressed by subject content standards. Summative assessment can be used to compare student learning across different grade sections, schools and at the state level.

Ways to Assess Student Learning

1. **Direct assessment** is based on an analysis of student behaviors or products in which they demonstrate how well they have mastered the topics being covered.
2. **Indirect assessment** is based on an analysis of reported perceptions about student mastery of learning outcomes. The perceptions may be self-reports by students, or they may be made by others, such as teachers, other students, parents, etc.

Properties of good assessment techniques

Teachers and the department may use a variety of assessment techniques, but those techniques should follow the following properties (this applies whether or the assessment technique is a quick check of student learning in the classroom or a department scale assessment).

- The assessment technique is **Valid**. It directly reflects the standard or sub standard being assessed
- The assessment technique is **Reliable**. That is it includes inter-rater reliability when subjective judgments are made.
- The assessment technique is **Actionable**. Results provide insight toward strengths and weakness of students that can be addressed.
- The assessment technique is **Efficient**. The technique provides information in is cost-effective in time and money
- The assessment technique is **Engaging**. Students and other respondents respond well to the technique and are engaged in the assessment process.
- The assessment technique is **Interesting**. Teachers and other stakeholders care about the results and are willing to act on them.
- The assessment technique involves **Triangulation**. Multiple lines of evidence point to the same conclusion.

Assessment techniques for classrooms

The following are a brief description of some common direct assessment techniques for the classroom. **A critical point for teacher constructed tests is to ensure that the tests measure student learning against the standard or sub standard being taught.**

Teacher Constructed Tests

Completion is a technique where students fill in the blanks with the appropriate words or phrases. The technique is good for testing vocabulary and basic knowledge. It differs from multiple choices technique in that students cannot guess the correct answer from a listing of answers. In an alternate version, students do have a list of potential answers that may be inserted into the proper space, but the listing is generally not tied into a single question. Teachers need to be careful in scoring as more than one answer may fit.

Essays are a good way to assess higher order thinking skills. It is good to look at the verbs in the standard or sub standard (or use Bloom's taxonomy) when assigning an essay question. Scoring can be time consuming. Teachers should consider models where students are involved in evaluating their own or the essays of other students.

Matching is where students associate words or phrases between the two different columns. Generally the technique is best for factual knowledge. Matching tends to be easy to score, but difficult to construct.

Multiple choice techniques are quick methods for assessing student knowledge in a short time. Developing a good multi choice test takes time. It is best to look at item banks of questions to assist in designing a test.

True – false items are easy to construct, but have limited ability to assess deep understanding of an issue. Guessing can play a big role.

Embedded questions and assignments is a technique that can be used across different sections and schools. An example of this method would be each quarter exam for 6th grade mathematics classes would include 50% of the questions on the test to be common across the education system and 50% of questions at the discretion of the teacher. Generally, embedded questions and assignments need to be coordinated from the central office. This technique can be used to ensure students are making adequate progress toward meeting grade level expectations without waiting to the end of the year from results of the SBA.

Portfolios are a popular technique where artifacts of student work are collected. The method allows tracking of student progress across a specific time period (often a school year). A common example would be collecting essays each quarter and comparing the beginning and end of year essays. Portfolios are often graded using *rubrics*.

Rubrics are scoring techniques that provide methods for comparing student artifacts against set scales. From a standards based view, the scales generally run from no knowledge or ability in the area to mastery of the concept or skill. Rubrics are also useful for scoring of student ability in the affective and psychomotor domains where some type of observation or judgment is required by the scorer. The COMET uses a rubric to score the student essays to assist in determining if the students are college ready. The COMET rubric can be found in the appendix.

Departmental level assessment techniques

The department has developed a Standards Based Assessment (SBA) system for assessing student performance against subject area content standards. The SBA exams are administered yearly and provide data on student performance and levels of student learning. Comparisons are provided for schools and department norms.

A critical aspect of the SBA is the ability to desegregate results by standard and sub standard. Also of major importance is developing skills in using the SBA results (desegregated by standard and skills) to design specific classroom interventions to enhance student learning.

Teacher Observation

Teacher observations are a special class of assessment. The department uses the Instrument for the Observation of Teacher Activities (IOTA) that is included in the appendix. The approach is to use a rubric for rating teachers across a variety of categories.

1. Developing & implementation of classroom objectives
2. Variety in learning activities
3. Use of materials for instruction
4. Opportunity for participation
5. Teacher reaction to student's response
6. Individualism of instruction
7. Learning difficulties
8. Current application of subject matter
9. Assessment student achievement/comprehension
10. Creative expression
11. Development of student initiative
12. Social climate
13. Classroom control

The current use of IOTA can be enhanced by a few simple procedures.

- a. Use an observation recording sheet as the basis of the rating. The process is to have a sheet (see appendix) with each of the sections above having a box for recording informative – data – evidence through the observation period. Once the observation is complete, the observer

bases his/her rating on the observation sheet. Both IOTA rubric (rating) and observation sheet should be shared with teachers immediately after the observation.

- b. Observers should make recommendations on how the lesson might be improved, alternate instructional strategies to for the teacher to try, alternate assessment methods, or classroom control, etc. to the teacher.
- c. The observation system should be coordinated across all potential observers: principals, central office staff, NDOE staff, etc. and results compiled in a data base, analyzed and results reported on a periodic basis.
- d. Results of the observations should be a major factor in determination of training needs for teachers, staff and principals.

Self assessment and reflection

A critical area of assessment is one that is often over looked. This is the time when teachers, principals, schools, central office staff and the education system sets back and reflects on what is being accomplished in terms of student learning, what are the strengths and weaknesses of individuals, schools and the education, instructional programs and the school system. This reflection must be based on data/evidence and not just perceptions of what is happening. Schools and the department are recommended to develop mechanisms where formal reflection on the education system and what it is accomplishing is conducted on an ongoing basis.

Mechanisms can include discussions during regular school and staff meetings, education symposium and education retreats. The reflections need to be documents and disseminated.

The rating tools included in the appendix can be used for self assessment and evaluation by all levels of the education system.

Use of Assessment Results

The most critical part of any assessment/evaluation system is not the results per se, but rather the use of those results for continuous improvement of the education system. Assessment and evaluations results need to be compiled in user friendly formats and disseminated widely to all appropriate audiences. The following are recommendations for the use of different assessment results at different levels of the education system.

Assessment	Uses	Audience
Formative assessment (classroom)	<ol style="list-style-type: none"> 1. Assist in determining if students are learning at the expected level as identified by the standard or sub standard 2. Assist in determining students strengths and weaknesses against the content standards 3. Assist in determining if students are ready to proceed to next unit or if re-teaching of the unit is needed 	<ul style="list-style-type: none"> - Classroom teacher - Other classroom teachers at same grade level and/or subject area

Assessment	Uses	Audience
	<ul style="list-style-type: none"> 4. Assist in determining the impact of various instructional strategies and techniques on student learning 5. Assist in determining the impact of various assessment strategies and techniques on student learning 6. Assist in determining the impact of instructional materials on student learning 7. Provide information/evidence to teacher s for training and professional development needs 	
Summative assessment (classroom)	<ul style="list-style-type: none"> 8. Provide formal evidence of student mastery of learning outcomes 9. Assign quarterly and final grades 	<ul style="list-style-type: none"> - Parents - Community - Stakeholders
Standards Based Assessment (SBA)	<ul style="list-style-type: none"> 10. Provide yearly evidence on student mastery of learning outcomes against content standards 11. Provide a medium for gauging the quality of instructional programs and school comparisons of student learning. 12. Provide information/evidence of teacher training and professional development needs across the education system for content knowledge 13. Provide data/evidence for development of interventions that address specific content knowledge and skills needs of students 14. Provide data/evidence for allocation of resources across subject areas and schools 15. Provide the basis for reporting to stakeholders on quality in the education system 	<ul style="list-style-type: none"> - Parents - Community - Stakeholders - Teachers - Principals - Central office - Schools - Board of Education - Government leaders - Community leaders
Teacher Observations (IOTA) & other observation data	<ul style="list-style-type: none"> 16. Provide data/evidence of teacher quality 17. Provide data/evidence of training and professional development needs 18. Provide information for development of interventions that address specific instructional and managerial weaknesses of teachers 19. Provide data/evidence for allocation of resources across subject areas and schools 	<ul style="list-style-type: none"> - Teachers - Principals - Central Office - Stakeholders
National Standardized Test (NST)	<ul style="list-style-type: none"> 20. Provide yearly evidence of student mastery against FSM Content Standards at selected grades 21. Provided for comparison of Pohnpei’s levels of student learning against other students in FSM state s 22. Provide data/evidence for allocation of resources across subject areas and schools 	<ul style="list-style-type: none"> - Parents - Community - Stakeholders - Teachers - Principals - Central Office - Schools - Board of Education

Assessment	Uses	Audience
		- Government leaders - Community leaders
National Standardized Test for Teachers (NSTT)	23. Provide comparison data for teachers content knowledge against standards and across the FSM Education System 24. Provide data/evidence for determining training and professional development needs of teachers in content areas 25. Provide data/evidence for allocation of resources across subject areas and schools	- Teachers - Principals - Central Office
College of Micronesia – FSM Entrance Test (COMET)	26. Provide data/evidence on the college readiness of high school graduates 27. Provide data/evidence for admission and placement of students into certificate/developmental education and college level courses 28. Provide data/evidence for allocation of resources across subject areas and schools	- Parents - Community - Stakeholders - Teachers - Principals - Central Office - Schools - Board of Education - Government leaders - Community leaders

Principles for Assessment and Evaluation

The following provide an overview of principles for implementing a quality assessment and evaluation program. The principles have also been turned into a rating tool (see appendix).

1. Plans, program design, standards, curriculum, professional development, and instructional activities should have clear visions, goals, and performance expectations which support the development of the State and individual communities and allow for quality assessment and evaluation to occur.
2. Assessment and evaluations activities need to ensure that they are assessing and evaluating the actual goals, objectives and expectations of education system and of individual programs and projects.
3. The impact of programs on improving student learning and achievement should be the primary focus of all assessment and evaluation activities.

4. Assessment and evaluation should use a broad set of instruments and/or processes and procedures from standardized tests to portfolios and alternate assessment procedures or instruments.
5. Improved means of assessing student achievement should be developed, but existing data and assessment tools should be used until better instruments are in place.
6. Assessment of teaching and learning should be continuous with accountability established at all levels.
7. Programs (in the broader sense: U.S. Federal Education Programs, 221 (b) Programs, but also regular curriculum activities such as Language Arts, Mathematics, Vocational Education) should be formally evaluated on a regular basis (at least once each 3 years) for their impact on improving student achievement and learning and meeting the educational needs of the FSM.
8. Emphasis in assessment and evaluation should be for improvement of learning, not for attachment of blame. Assess and evaluate the system for improvement purposes, not for attaching blame to individuals or groups.
9. Evaluation systems for teachers, principals and education support staff need to be improved and actively supported. Certification systems should focus on improving teaching and learning.
10. Assessment and evaluation data is public information to be shared with the community while respecting the individual rights of students.
11. Assessment and evaluation should show quantifiable “before and after” data on the impact of programs and improvement efforts.
12. Assessment and evaluation in the FSM needs to be looked at as a series of interlocking systems at the National, State, School and Classroom levels.

5: Professional development

Purpose of this section

Training and professional development of teachers, principals and central office staff is an ongoing process that must be directed by assessment/evaluation of student learning and teacher performance in the classroom. Student learning levels and teacher observation data should drive training and professional development. This is sometimes a difficult concept to implement.

For teachers, training and professional development must be directed at assisting improvement of their classroom instructional activities and improvement of the content information they are expected to assist students to learn. For principals and central office it is the training and professional development they need to improve their support services to teachers, schools and the community.

The ultimate purpose of any training or professional development activity in the education system is to enhance student learning and achievement. Care should be taken in the design, delivery and follow up to training and professional development activities that the linkages to enhance student learning and achievement are clear.

Often training and professional development have had limited impact on classroom instructional activities or improvement in support services to schools and teachers. The following sections lay out processes that can assist with improving the impact of training and professional development on improving student learning and achievement.

Determining training and professional development needs

Training needs should flow out of detailed review of assessment data/evidence from formative and summative assessments in the classroom, SBA, NST, NSTT, teacher observations, COMET and other information that relates to how well students are learning what is expected of them and how well teachers are prepared to facilitate that learning. For an example this would mean if evidence shows that students are struggling with applying knowledge of mathematics to word (real world) problems at upper elementary, training and professional development needs to be provided that assists the education in delivery improved instruction in that area. If NSTT data shows teachers themselves are struggling with problem solving, content training needs to be provided.

Assessment/evaluation results and analysis needs to be directed at both reporting data and generating evidence on improvement needs of the system. Improving the ability of the education system in both reporting and generating evidence on the improvement needs of the education system needs to be a major training/professional development area in the immediate future.

Community training program

Community training needs are a special case for the department. A detailed training plan must be developed at the school/community level that progressively increases the capacity of the community to be an active partner in the education of its children. The training program should be focused on enhancing the communities understanding of standards based education and the community's role in improving student learning and achievement.

Community involvement in the education system can be monitored through use of rubrics.

Selection of participants for training and professional development

Selection of training participant must be based on established criteria and evidence. A training database is also vital to track training and professional development activities for the department. Types of criteria and evidence could include:

Teachers

- Key data that can contribute to selection of teachers for participating in training are student achievement results that are desegregated by standards (sub standard) and or study skills set
- NSTT or other teacher assessment instruments that are desegregated by content area or standards and/or skill area
- Teacher observations
- Ability to provide training to other teachers and the community
- Recognition for quality services and results

Principals

- Key data that can contribute to selection of principals for participating in training are school level student achievement results that are desegregated by standards (sub standard) and or study skills set
- School level NSTT or other teacher assessment instruments that are desegregated by content area or standards and/or skill area and provide insight to content needs and support services of teachers
- Principals and teacher observations data that has been analyzed for strengths & weaknesses as well as trends
- Ability to provide training to other principals, teachers and the community
- Recognition for quality services and results

Staff

- Key data that can contribute to selection of staff for participating in training are school and department level student achievement results that are desegregated by standards (sub standard) and or study skills set

- School level NSTT or other teacher assessment instruments that are desegregated by content area or standards and/or skill area
- Principals and teacher observations and staff evaluations
- Ability to provide training to principals, teachers and the community
- Recognition for quality services and results

Selection criteria for teachers, principals and staff to participate in training activities should be established and published prior to selection.

Who provides training and professional development?

Training and professional development needs to be expanded in concept and delivery.

Self training by teachers, principals and staff

The Internet is rich in professional and self development programs. Many of these programs are either free or low cost. The Education web sites in the appendix provide access to numerous high quality training programs that can form the basis for professional development and upgrading. A critical aspect is for teachers, principals and staff to have a self assessment and evaluation system that allows them to determine their strengths and weaknesses and research training programs that can impact their professional competence. The self assessment can be the basis for forming an individual improvement plan for all staff.

The concept of developing lifelong learners applies to the education system as well. If we are to explain the importance of lifelong learning to students, we need to demonstrate that practice in our own development.

Another source of self upgrading is simply reading the latest education news, articles, stories or reserach from major education sources.

Training at the school level

As part of their school improvement plans, schools should identify what resources they have to deliver training. Often a teacher (or principal) will have the ability to provide content training or update on classroom management. Schools need to set up a professional development component for staff meetings or a special training day each quarter. If local resources or not available, the school should seek assistance from the central office.

Additionally, sharing of what is working in classrooms or with individual students can become a valuable training activity itself.

Training by or arranged by central office

In arranging professional development and training activities, the central office should first look within the system to determine if capacity exists to deliver training at the school or central office level. Note that the training can be delivered by teachers, principals and staff within the system.

If no education staff is available, the department should first look at local resources including the College of Micronesia – FSM, PREL, and other organizations before seeking outside assistance to provide professional development and training.

Teacher and principal forums

Teacher and principal forums should become the norm for the department. Both formal and informal presentations by teachers and principals on various improvement topics can form the basis for real advancements in student learning. Forums can also provide the venue for recognition of quality classroom and school activities. Principals and central office staff need a formal system for recognizing quality teachers and classroom/school practices that can be shared with other teachers and schools in the education system.

Emphasis should be placed on best practices for instruction, assessment and community involvement.

Teacher certification and degree training

All teachers in the PDOE are expected to meet and/or exceed teacher certification requirements. Current FSM teacher certification requires possessing an AA/AS degree and passing all components of the National Standardized Test for Teachers (NSTT).

Teacher training, professional development and assessment/evaluation

Training and professional development assessment and evaluation should be multilevel.

- **Onsite assessment/evaluation** should be conducted for all training and professional development at the training site and results recorded and disseminated in monthly and quarterly reports. The primary purpose of this level of assessment and evaluation is to improve on the design and delivery of other trainings. The assessment and evaluation should also include information on expected participants use of the training in the classroom, school or work site.
- **Follow up classroom or work site observations or surveys** should be conducted at least once to ensure that the contents or lessons of the training are being implemented as designed. The follow up and classroom or work site observation

schedule is to be included in the design of the training or professional development activity and specify when and who will conduct the observation.

- **Evaluation of impact** of the training or professional development activity should be included in the design phrase and identify what are the expected outcomes of the training on the education system.

The assessment and evaluation component of training and professional development is as vital as the actual training. Doing less training and professional development, but with greater follow up and evaluation of actual impact on students, schools and the education will have greater impact on improving student learning and achievement than a large number of activities that have limited or no implementation or impact on classrooms and worksites.

Appendix

Appendix A: Education web sites¹

General and Policy Resources

Harvard Graduate School of Education – Useable Knowledge
<http://www.uknow.gse.harvard.edu/> articles and information by worldwide leaders in the field of education. The site provides access to five major clusters:

- Leadership and policy
- Learning and development
- Decisions through data
- Community and family
- Teaching and curriculum

A note, Harvard is a world leader in education theory and practice and conducts research and provides consultant assistance around the world. The materials including articles, interview, videos, etc. are in themselves a major professional development opportunity.

The Association of Supervision and Curriculum Development (ASCD)
<http://www.ascd.org/> covers all areas of education. Regular visits to the ASCD site can keep you updated on all aspect of current education issues. The Department might consider assigning individuals or offices to monitor and disseminate information on useful materials from the site. Some key portions of the site.

- The publications page <http://www.ascd.org/publications.aspx> provides links to publications and magazines of the ASCD. The association’s “Educational Leadership” provides in-depth articles while the “Education Update” are briefer and summarize key issues.
- ASCD offered online professional development at \$99 per course. The main professional development http://www.ascd.org/professional_development/PD_Online_Courses.aspx provides access to the listing of available courses.
- The ASCD “Community Blog” <http://ascd.typepad.com/blog/2009/07/the-best-resource-for-me-is-other-teachers.html> provides in-depth views of educators perceptions of critical issues in education.

The Council of Chief State School Officers (CCSSO) <http://www.ccsso.org/> provides a broad range of materials (some free in .pdf format) that are interest to policy makers. As the CCSSO is composed of chief state school officers, their views represent a major force in policy development. The site is somewhat hard to use, but if you go to the publications section and select the predefined categories search you will be rewarded with a broad range of high quality materials.

¹ Web sites accessed June to July 2009.

The American Psychology Association (APA) www.apa.org provides information on the latest research into critical issues facing education systems. The resources page on psychology topics <http://www.apa.org/topics/> provides access to topics such as learning and memory, children, and other various topics of interest to educators. The Monitor on Psychology <http://www.apa.org/monitor/> is a publication that provides concise articles on many different topics that are often of interest to the education community.

Standards Based Education

For standards based education lessons plans and resource materials the best place to start is the Thinkfinity web site and its consortium members. Each site is dedicated to standards based education and provides excellent overviews of the subject areas and detailed lessons plans, worksheets, resource materials, etc. You can also find other high quality education sites through links from the various web sites look for web resources or web links sections on each of the individual websites. A note, the Thinkfinty and it consortium web sites have quality controls in place to ensure high quality materials and resources are placed on the web sites. Unlike much of the Internet web sites, you can have a higher confidence that the materials and lessons plans have been used effectively in classroom situations. Most of the web sites also have sections for professional development.

Thinkfinity <http://www.thinkfinity.org/home.aspx> is supported by the Verizon Foundation and provides not only one of the best sites for assessing lesson plans, worksheets, etc. for standards based education, but provides easy access to a high quality consortium. A few notes before description of the consortium partners.

- Use the search engine on the main page (and most other pages) to access standard based lesson plans, worksheet and resource materials.
- Access free online training on http://www.thinkfinity.org/pd/request_training.aspx.
- Thinkfinity's National Education Standards Alignment page http://www.thinkfinity.org/standards_alignment.aspx provides the linkages between its partner sites and various linkages to content standards in multiple areas.
- The Literacy Network <http://literacynetwork.verizon.org/TLN/> provides information on how to teach, learn, manage and volunteer better.

Thinkfinity consortium partners:



[John F. Kennedy Center for the Performing Arts](#)

Created by the John F. Kennedy Center for the Performing Arts, ARTSEEDGE provides resources and examples for teachers to teach in, through, and about the arts. The site includes lesson plans advocacy and professional development resources and up-to-date information on arts programs from around the world.

[Standards](#)



[Council for Economic Education](#)

Developed by the Council for Economic Education, EconEdLink provides teachers and students with lessons and classroom learning activities based on economics topics in the news and real-time economics data. EconEdLink content is designed to help integrate economic concepts across the curriculum as outlined in the Voluntary National Content Standards in Economics.

[Standards](#)

[EDSITEment](#)



Presented by the National Endowment for the Humanities, EDSITEment features lesson plans and additional classroom resources about art and culture, literature and language arts, foreign language, history and social studies. It also serves as a gateway to the best humanities sites on the Web and features a monthly theme-based teaching resource calendar.

[Standards](#)

[Illuminations](#)



[The National Council of Teachers of Mathematics](#)

The Illuminations site is designed by The National Council of Teachers of Mathematics (NCTM) to bring its Principles and Standards for School Mathematics to life through engaging interactive applets, standards-based lesson plans and other teacher resources.

[Standards](#)

[Literacy Network](#)



Developed by the American Library Association (ALA), the National Center for Family Literacy (NCFL) and ProLiteracy Worldwide, Literacy Network provides literacy instructors, tutors, volunteers, librarians and parents with the tools to improve their knowledge and performance and expand their skills in literacy instruction. The site features best practices for lifelong literacy development, valuable professional development opportunities and hundreds of resources that are accessible and easy to use.



[International Reading Association](#)
[The National Council of Teachers of English](#)

Developed by the International Reading Association (IRA) and the National Council of Teachers of English (NCTE), ReadWriteThink.org provides educators and students with access to the highest quality practices and resources in reading and English language arts instruction. The site features standards-based lesson plans, interactive student materials and a literacy calendar.

[Standards](#)



[American Association for the Advancement of Science](#)

Developed by the American Association for the Advancement of Science, Science NetLinks provides resources for K-12 teachers and students. The site includes lesson plans, interactives, hands-on activities and reviewed resources, all of which provide opportunities to bring science and technology discovery into the classroom. Science NetLinks resources are matched to Project 2061's *Benchmarks for Science Literacy*.

[Standards](#)

[Smithsonian's History Explorer](#)



[Smithsonian National Museum of American History](#)

Designed and developed by the Smithsonian National Museum of American History, the [Smithsonian's History Explorer](#) is your gateway to innovative, standards-based online resources for teaching and learning American history.

Explore the rich resources of the Museum and bring history to life with artifacts, primary sources, and online tools for the classroom, afterschool activities, and home.

[Standards](#)

[Xpeditions](#)



[National Geographic Society](#)

Developed by the National Geographic Society, Xpeditions brings rich, standards-based geography content to teachers and students. This site includes materials for K-12 teachers and students and their families, including an interactive atlas with more than 1,600 printable maps and Xpeditions Hall-- a virtual learning museum with exhibits aligned to the U.S. National Geography Standards.

The Partnership for 21st Century Skills <http://www.21stcenturyskills.org/> provides wide ranging input on the skills needed to be effective in the 21st century. Pay special attention to the Overview and Tools and Resources pull down menus. The department should also download and distribute the frameworks and definition document at http://www.21stcenturyskills.org/documents/p21_framework_definitions_052909.pdf.

Mid Continental Research for Education and Learning <http://www.mcrel.org/>
Good on standards and lesson plans tied to standards

The International Society for Technology in Education (ISTE) <http://www.iste.org/> is your best source for educational technology. See technology standards for students, teachers and administrators at <http://www.iste.org/AM/Template.cfm?Section=NETS>.

Additional Resources

Pacific Resources for Education and Learning <http://www.prel.org/> reading materials in various Pacific languages along with research papers under the products section – many downloadable

Guampedia <http://www.guampedia.com/> while providing information on Guam that can be used in many subjects can also be a starting point for developing FSM and FSM State web sites that support learning more about the nation and states.

Pacific Islands Report <http://pidp.eastwestcenter.org/pireport/graphics.shtml> news articles from the Pacific Region – excellence source of reading materials for students – Use MS word readability function to determine reading grade level

Federal Resources for Education Excellence <http://www.free.ed.gov/> US web site for education with not just lesson plans but complete reference and instructional materials.

The National Education Association (NEA) <http://www.nea.org/> tools and ideas is a good site for best practices in education.

The National Council of Teachers of Mathematics (NCTM) provides the Illuminations section above but also see it web site <http://www.nctm.org/> and especially the lessons and resources sections. The NCTM has also developed a document “Guiding Principles for Mathematics Curriculum and Assessment” at <http://www.nctm.org/standards/content.aspx?id=23273> that should be reviewed in developing mathematics curriculum.

Appendix B: Lesson Plan Format - Pohnpei Department of Education

School:		Teacher:		Date:	
Subject:		Time:			
Standard (s) referenced:					
Cross linkages to other subject standards:					
Lesson student learning objective (s):					
Pre assessment:					
Instructional activities:					
Textbook (if used) reference:					
Post assessment:					
Resource materials:					
Supplies needed:					
Reviewed by & Date:			Approved by & Date:		
Lessons learned:					
Things to try out in future lessons:					

Appendix C: Rating tools

The following tools are designed to assist the department with a process of self reflection and self evaluation on the status and quality of the education system. The tools may be used at the individual, school and department levels. The process is straight forward. The reviewer (rater (s)) should first discuss or think through the current status with emphasis on what is **known** about the area being rated and separate out what is **unknown** and what is **assumed**. The rating should be based on what is **known** (evidence is available). The rating scale is numerical (0-7); 0 = issue not being addressed, 7 = issue fully addressed in an ongoing, systematic manner. Results of the ratings should be recorded and reviewed over time to ensure that progress is being made toward full implementation of a standards based education system.

The department should conduct a **formal** review of each rating tool at least once a year if not more often.

The rating tools include:

1. Characteristics of a Standards Based Education System
2. Lesson Plan Development and Processes
3. Principles of Language Use and Instruction
4. Principles of Materials Development
5. Principles of Assessment and Evaluation
6. Professional Development (training)

Characteristics of a Standards Based Education System

Rater (s):		Date:	
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What are characteristics of a quality standard based education system?	Rating
1. Quality is determined by how well students are meeting or exceeding the standards for their grade/development level.	
2. Evidence (assessment & evaluation results) form the basis for discussions on quality and how well students are achieving. Student results are shared with parents and the community.	
3. There is an ongoing dialogue at all levels of the education system on student learning and achievement and how that learning and achievement can be improved. This is especially true among teachers but is also the frame of reference for principals and central office staff.	
4. Teachers know how their daily instruction is linked to standards and that linkage is clarified in their lesson plans and planning.	
5. Teachers are aware, through in class formative and summative assessment, how well their students are meeting expectations for student learning.	
6. Summative assessment is used at all levels of the education system to guide decision making and resources allocation.	
7. Teachers are aware of different subject area content standards and seek ways to link student understanding and learning across subject area.	
8. Teachers have detailed knowledge not only of what students are expected to learn at their own grade level, but have detailed knowledge of what students should know, think and be able to do when they begin grade level instruction, but also are committed to ensuring that at the end of the school year their students are prepared for the next stage in their learning.	
9. Teachers with support of principals and central office staff are continually seeking instructional methods and materials and ways to enhance student learning.	
10. Students are actively engaged in the learning process through active and cooperative learning activities.	
11. Parents know their roles and responsibilities in enhancing their child's learning.	
12. Content standards are readily available to teachers, staff and parents in various formats (hard and soft copies).	
13. Support services provided by principals and central office are constant and ongoing and directed at enhancing student learning.	
<i>Rating 0-7; 0 = issue not being addressed, 7 = issue fully addressed in an ongoing, systematic manner</i>	

Lesson Plan Development and Processes

Rater (s):		Date:	
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Lesson plan development and processes (rating tool)	Rating
1. Web sites have been determined that support a standards based approach to education.	
2. Specialists and teachers have identified a variety of different approaches to a content standard or instructional area that addresses different learning styles.	
3. Two, three or even four different lesson plans have downloaded for each standard and put in either a print or electronic medium that is readily assessable to teachers.	
4. Teachers have the option of selecting one of the lesson plans provided, or to develop their own lesson plan.	
5. The impact of different lesson plans are being evaluated and recorded. Information on effectiveness of lesson plans is disseminated to teachers and staff on an ongoing basis.	
6. Specialists and selected teachers have identified appropriate supplemental materials for students and determined readability levels.	
7. A list of quality web sites for lesson plans and supplemental materials is updated on a regular basis and is readily assessable to teachers and staff.	
<i>Rating 0-7; 0 = issue not being addressed, 7 = issue fully addressed in an ongoing, systematic manner</i>	

Principles of Language Use & Instruction

Rater (s):		Date:	
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Principles of Language Use & Instruction (Rating tool)	Rating
1. Pohnpei has multilingual society with <u>high competence</u> (read, write and the ability to converse) in local languages, English, and other international languages.	
2. Our languages are seen as conveying our values, cultures and traditions.	
3. Our languages are expanding and growing in complexity in both vocabulary and concepts.	
4. Students have an opportunity to study and improve upon their local language at ECE, elementary, and secondary levels.	
5. All local languages need reference grammars and dictionaries.	
6. Student grammars and dictionaries are available at appropriate grade levels.	
7. Local languages are expanding to allow new concepts and thoughts to be expressed.	
8. Baseline indicators have been established to measure language competence and improvement.	
9. Assessment instruments and evaluation processes are available for local languages.	
10. Instructional materials, general reading and content specific information is available in local languages and convey information important to economic and social development of the Pohnpei.	
11. Local languages are the foundation for developing thinking and learning skills. Acquisition of English and other languages are building upon the basic (reading, writing, arithmetic & mathematics) skills developed in local languages achievement in a second language.	
12. Competence in the primary State language is an entry requirement into high school	
13. Students are introduced to English through materials that are relevant to Pohnpeian students and convey content information important to the economic and social development of Pohnpei.	
14. Valid assessment instruments and evaluation processes for English and other international languages have been developed or adopted and the results are the basis for instructional program design, implementation and planning activities.	
15. English and other international languages are used as international languages, second languages, and foreign languages in Pohnpei. Instructional strategies and materials are appropriate to the language needs and usage of students.	
16. The primary language of the community is both the medium and object of instruction in the elementary school. If the local language is not the primary state language, Pohnpeian should be taught in the school as a second language.	
<i>Rating 0-7; 0 = issue not being addressed, 7 = issue fully addressed in an ongoing, systematic manner</i>	

Principles of Materials Development

Rater (s):		Date:	
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Principles of Materials Development (Rating tool)		Rating
	Reference grammars and dictionaries are available in local languages.	
a	Instructional dictionaries and grammars are available in local languages for use at appropriate grade levels.	
b	Children have materials in their local languages for study in school.	
c	Children’s introduction to English and other international languages is through materials which are appropriate for students age, cultural setting, and in line with economic and social realities in the FSM.	
d	Materials are developed in local languages <u>and</u> English that:	
	1) promote Micronesian customs, beliefs, and values,	
	2) promote the development of community role models,	
	3) provide content information on the productive sectors (agriculture, marine, and tourism), and,	
	4) promote development of National and State identifies.	
	5) give age appropriate materials for students instructional use.	
	6) ensure provision of quality teaching instructions and training for use of materials be considered part of the materials development process.	
	7) provide content related materials (science, social studies, mathematics) and thematic materials related to agriculture, marine & fisheries, and tourism.	
e	Materials are available in high quality, attractive formats. Innovative use of information technology allows use of “Print on Demand” whereby materials could be printed at the school or classroom level as needed.	
f	Materials are in print media, audio/visual, computer based or other means of transferring information.	
g	Innovative processes are used for materials development. Students, teachers, other government agencies, and COM-FSM Students are all considered as potential writers and materials developers.	
h	Exchange of locally developed materials is encouraged with other state departments of education.	
i	Materials are copyrighted by the department, but for acknowledgment purposes only, not for restricted use.	
j	Materials developed by other government agencies, such as R&D, the private sector, religious organizations are considered for use in the school system with editing and development of teacher materials as needed. Maximum use should be made of newspaper and magazine articles, government and business pamphlets and reports, and other “real world” reading materials as the basis of instructional materials.	
k	Textbooks and other materials used in schools are reviewed for their appropriateness not only in skills development, but also for values and content information.	
<i>Rating 0-7; 0 = issue not being addressed, 7 = issue fully addressed in an ongoing, systematic manner</i>		

Principles for Assessment & Evaluation

Rater (s):		Date:	
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Principles for Assessment and Evaluation (Rating tool)	Rating
1. Plans, program design, standards, curriculum, professional development, and instructional activities have clear visions, goals, and performance expectations which support the development of the State and individual communities and allow for quality assessment and evaluation to occur.	
2. Assessment and evaluations activities are assessing and evaluating the actual goals, objectives and expectations of education system and of individual programs and projects.	
3. The impact of programs on improving student learning and achievement is the primary focus of all assessment and evaluation activities.	
4. Assessment and evaluation uses a broad set of instruments and/or processes and procedures from standardized tests to portfolios and alternate assessment procedures or instruments.	
5. Improved means of assessing student achievement are developed, but existing data and assessment tools should be used until better instruments are in place.	
6. Assessment of teaching and learning are continuous with accountability established at all levels.	
7. Programs (in the broader sense: Special education, SEG, Programs, but also regular curriculum activities such as Language Arts, Mathematics, Vocational Education) are formally evaluated on a regular basis (at least once each 3 years) for their impact on improving student achievement and learning and meeting the educational needs of the FSM.	
8. Emphasis in assessment and evaluation is improvement of learning, not for attachment of blame.	
9. Evaluation systems for teachers, principals and education support staff and actively supported. Certification systems are the focus for improving teaching and learning.	
10. Assessment and evaluation data is public information and is shared with the community while respecting the individual rights of students.	
11. Assessment and evaluation show quantifiable “before and after” data on the impact of programs and improvement efforts.	
12. Assessment and evaluation in Pohnpei is looked at as a series of interlocking systems at the National, State, School and Classroom levels.	
<i>Rating 0-7; 0 = issue not being addressed, 7 = issue fully addressed in an ongoing, systematic manner</i>	

Professional Development

Rater (s):		Date:	
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Professional (Rating tool)	Rating
1. Criteria for determination of professional development activities is established and made public.	
2. Criteria for determination of professional development include review of relevant student and teacher assessment and evaluation data including student and teacher test and observation data (SBA, NST, NSTT, IOTA etc.).	
3. Professional development activities are designed to include follow up in the classroom or at the worksite to determine the impact and effectiveness of the training.	
4. Evaluation of professional development activities includes both surveys of participants at the end of the training, observation and other data collection methods at the classroom or work site and data on how the activity affected student learning and/or support services for student learning.	
5. Criteria for selection of participants in professional development activities are established and made public.	
6. Criteria for selection of participants in professional development include review of relevant student and teacher assessment and evaluation data including student and teacher test and observation data (SBA, NST, NSTT, IOTA etc.).	
7. The department and individual school have established plans for professional development that specifies how training needs are determined and how participants are selected.	
8. The department makes effective use of its own and other local resources (teachers, principals, central office staff, COM-FSM, PREL, etc.) in designing and delivering training.	
9. Teachers and staff are committed to lifelong learning and make use of the Internet, resource materials, etc. for self directed learning to provide quality instruction and support to enhance student learning.	
10. The department evaluates individual trainings and the overall impact of professional development on enhancing student learning on an ongoing, systematic approach.	
<i>Rating 0-7; 0 = issue not being addressed, 7 = issue fully addressed in an ongoing, systematic manner</i>	

Appendix D: Instrument for the Observation of Teaching Activities (IOTA)

Teacher:	School:	Grade:
Observer 1:	Preconference:	Yes or No
Observer 2:	Post conference:	Yes or No
<p>1. Developing & implementation of classroom Objectives Choice 1 __ Choice 2 __ Agreed __ Notes:</p>	<p>5. Develop objectives consistent with content/standards; involve students in clarifying objectives & in planning for their attainment</p> <p>4. Develop objectives based upon course content; encourages class to share in the planning for their attainment</p> <p>3. Clarifies through discussion, predetermined objectives & plans for their attainment.</p> <p>2. Inform the class of predetermined objectives & procedures for their attainment.</p> <p>1. Direct classroom activities without making objectives or plans for their attainment</p>	
<p>2. Variety in learning activities Choice 1 __ Choice 2 __ Agreed __ Notes:</p>	<p>5. Shows evidence of wide variety of instructional activities consistent with the goals & objectives of all. The teacher uses four or more different activities with the goals & objectives of all.</p> <p>4. Provides a variety of appropriate instructional activities involving most students. The teacher provides three or more instructional activities to construct the lesson.</p> <p>3. Provides a limited variety of instructional activities involving most students. The teacher provides two varieties of instructional activities to conduct the lesson involving most students.</p> <p>2. Provides a limited variety of instructional activities involving some students. The teacher provides two varieties of instructional activities to conduct the lesson involving some students.</p> <p>1. Uses no variety in instructional activities. The teacher uses only one instructional activity to conduct the lesson.</p>	
<p>3. Use of materials for instruction Choice 1 __ Choice 2 __ Agreed __ Notes:</p>	<p>5. Makes effective use of a wide variety of instructional materials related to the learning activities & objectives. The teacher uses four or more different instructional materials that are related to the learning activities & objectives.</p> <p>4. Makes good use of variety of appropriate instructional materials. The teacher uses three or more different types of appropriate instructional materials.</p> <p>3. Makes good use of common instructional materials. The teacher uses two different common instructional materials to present the lesson.</p> <p>2. Makes limited use of readily available instructional materials. The teacher uses two varieties of instructional materials to present lesson.</p> <p>1. Makes no use of instructional materials</p>	

<p>4. Opportunity for participation Choice 1: __ Choice 2: __ Agreed __ Notes:</p>	<p>5. Provides abundant & varied opportunities for individual & group expression & other activities. The teacher provides five opportunities for individual & group expression. 4. Encourages students to participate in discussion or other activities. 3. Elicits responses in teacher-led discussion & activities; permits some student participation. 2. Dominate classroom activities, student's response only when called upon. 1. Lecture to a large group most of the time; does not involve small group or individual students.</p>
<p>5. Teacher reaction to students response Choice 1: __ Choice 2: __ Agreed Notes:</p>	<p>5. Encourage student response; utilized & extends student input to enhance learning. 4. Encourage students' response; utilizes some student input in the class session. 3. Provides some opportunity for student response; accepts student input. 2. Permits some student response; criticizes student input. The teacher allows less than three student responses; make negative comments on student's response; discourage input. 1. Permits some student responses; discourage input.</p>
<p>6. Individualization of instruction Choice 1: __ Choice 2: __ Agreed __ Notes:</p>	<p>5. Recognizes & deals with each student according to his/her needs, aptitude, talents & learning styles. 4. Arrange for differentiated learning experiences for small groups. 3. Arranges for differentiated small-group learning with some experiences attention to individuals. 2. Provides some differentiated small-group learning. 1. Provides the same learning experiences for all the class.</p>
<p>7. Learning difficulties Choice 1: __ Choice 2: __ Agreed __ Notes:</p>	<p>5. Assists individuals & groups to solve learning difficulties. 4. Provides individual & group instruction for most cases of learning difficulties. 3. Provides group instruction for identified learning difficulties. 2. Provides limited help for obvious learning difficulties. The teacher provides two extra instructional activities for the obvious learning difficulties. 1. Provides no help for obvious learning difficulties.</p>
<p>8. Current application of subject matter Choice 1: __ Choice 2: __ Agreed __ Note:</p>	<p>5. Evidences skill in relating subject matter to the student's application of it by providing opportunities for utilization. 4. Relates subject matter to the student's application of it as enrichment in some areas. 3. Indicates how current application of subject matter may be made but provides limited opportunity for utilization. The teacher provides two opportunities to utilize application for subject matter. 2. Stress subject matter overlooking most</p>

	<p>possibilities of application for current utilization.</p> <p>1. Makes no connection between subject matter & the student's application of it.</p>
<p>9. Assessing student achievement/comprehension</p> <p>Choice 1: __ choice 2: __ Agreed __</p> <p>Notes:</p>	<p>5. Employs a variety of ways to assess achievement/comprehension regularly.</p> <p>4. Assess student achievement/comprehension regularly</p> <p>3. Assess student achievement/comprehension periodically.</p> <p>2. Assess student achievement/comprehension incidentally.</p> <p>1. Makes no attempt to assess student achievement/comprehension.</p>
<p>10. Creative expression</p> <p>Choice 1: __ Choice 2: __ Agreed __</p> <p>Notes:</p>	<p>5. Provides activities, which challenge & encourage both individual & group activity.</p> <p>4. Provides activities, which encourage creative expression.</p> <p>3. Utilizes creative activities for some students</p> <p>2. Allows limited opportunity for creative expression. The teacher provides less than three opportunities for student to express himself/herself creatively.</p> <p>1. Permits no opportunity for creative expression.</p>
<p>11. Development of student initiative</p> <p>Choice 1: __ Choice 2: __ Agreed __</p> <p>Notes:</p>	<p>5. Utilizes activities to encourage & develop student initiative in a wide variety of ways. The teacher utilizes five or more activities to encourage & develop student initiative.</p> <p>4. Provides a variety of classroom activities to develop student initiative. The teacher provides four or more activities to develop student initiative.</p> <p>3. Provides some opportunities for developing student initiative. The teacher provides three activities for student to exercise initiative.</p> <p>2. Permits students to exercise initiative in limited number of activities. The teacher provides two activities for student to exercise initiative.</p> <p>1. Allows no opportunity for student initiative.</p>
<p>12. Social climate</p> <p>Choice 1: __ Choice 2: __ Agreed __</p> <p>Notes:</p>	<p>5. Provides an environment which results in cooperation & mutual respect among all students.</p> <p>4. Develop positive student relationships, which prevail with few exceptions.</p> <p>3. Encourages a spirit of cooperation among students.</p> <p>2. Demonstrates limited effort to enhance student relationship.</p> <p>1. Makes no effort to enhance student relationship.</p>
<p>13. Classroom control</p> <p>Choice 1: __ Choice 2: __ Agreed __</p> <p>Notes:</p>	<p>5. Provides an atmosphere in which industrious self-regulation is generally maintained.</p> <p>4. Establishes standards of conduct that are generally maintained.</p> <p>3. Encourages self-directed standards of conduct that are generally maintained with occasional laps.</p> <p>2. Intervenes frequently to maintain control.</p> <p>1. Imposes authority rigorously which is frequently circumvented or ignored.</p>
<p>14. Classroom environment</p>	<p>5. Arrange a clean & safe classroom where students</p>

<p>Choice 1: __ Choice 2: __ Agreed __ Note:</p>	<p>can move freely without causing disturbances to other students</p> <ol style="list-style-type: none">4. Arrange a clean & safe classroom where students can move freely without causing disturbances to other students with minor lapses.3. Makes minor improvements to classroom arrangement as to safety & cleanliness.2. Accept classroom environment as provided & needs constant reminder regarding the need of clean & safe environment.1. Accepts classroom environment as provided without making any changes to arrangement, cleanliness & safety.
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IOTA observation sheet Date, person observed, school, grade level and subject manner:	Observer, signature and date:	1. Developing & implementation of classroom objectives	2. Variety in learning activities
3. Use of materials for instruction	4. Opportunity for participation	5. Teacher reaction to student's response	6. Individualism of instruction
7. Learning difficulties	8. Current application of subject matter	9. Assessing student achievement/comprehension	10. Creative expression

11. Development of student initiative	12. Social climate	13. Classroom control	14. Classroom environment
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Appendix E: COMET Essay Rubric (COM-FSM)

	Syntax
5	Grammar and word order nearly perfect.
4	Some errors of grammar or word order but communication not impaired.
3	Errors of grammar or word order fairly frequent; occasional re-reading necessary for full comprehension.
2	Errors of grammar or word order frequent; efforts of interpretation sometimes required on reader's part.
1	Errors of grammar or word order very frequent; reader often has to rely on own interpretation.
0	Errors of grammar or word order so severe as to make comprehension virtually impossible.
	Vocabulary
5	Wide and correctly used vocabulary.
4	Occasionally uses inappropriate terms or relies on circumlocution; expression of ideas not impaired.
3	Uses wrong or inappropriate words fairly frequently; expression of ideas may be limited because of inadequate vocabulary.
2	Limited vocabulary and frequent errors clearly hinder expression of ideas.
1	Vocabulary so limited and so frequently misused that reader must often rely on own interpretation.
0	Vocabulary limitations so extreme as to make comprehension virtually impossible.
	Organization
5	Extremely well organized.
4	Material fairly well organized; links could occasionally be clearer but communication not impaired.
3	Some lack of organization; re-reading required for clarification of ideas.
2	Little or no attempt at connectivity, though reader can deduce some organization.
1	Individual ideas may be clear, but very difficult to deduce connection between them.
0	Lack of organization so severe that communication is seriously impaired.
	Cohesion
5	Strong cohesion with smooth transitions both within and between paragraphs.
4	Occasional lack of consistency in choice of cohesive structures and vocabulary but overall ease of communication not impaired.
3	'Patchy', with some cohesive structures or vocabulary items noticeably inappropriate to general style.
2	Cohesive structures or vocabulary items sometimes not only inappropriate but also misused; little sense of ease of communication.
1	Communication often impaired by completely inappropriate or misused cohesive structures or vocabulary items.
0	A 'hotchpotch' of half-learned misused cohesive structures and vocabulary items rendering communication almost impossible.
	Content
5	Full and complete answer, inclusive of all parts of the task.
4	Relevant and adequate answer to the task set.
3	For the most part answers the task set, though there may be some gaps or redundant information.
2	Answer of limited relevance to the task set. Possibly major gaps in treatment of topic and/or pointless repetition.
1	Answer bears little relation to the task set.
0	No evidence of assigned task. (If it is obvious that the student wrote on an unrelated topic give a zero for the content but mark the essay for syntax, vocabulary, cohesion, and organization. If there is found to be evidence that the essay is a "canned" or "memorized" essay, then the essay receives a zero on all metrics.)

Appendix F (a): Understanding the Standards - Language Arts

Language Arts Grade ECE		
Understanding the Standard (Teacher Notes)	Essential Understandings By the end of grade 4 All Students Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
COMMUNICATION: <ul style="list-style-type: none"> ▪ Communicate orally and visually. 	Students should be able to: <ul style="list-style-type: none"> • Speak in simple sentences in both English and Pohnpeian language 	<ul style="list-style-type: none"> • Greet others and make introduction and maintain conversation • Give and follow directions and explanation • Tell stories based on experience
READING: <ul style="list-style-type: none"> ▪ Read a variety of sources in the appropriate instructional language 	<ul style="list-style-type: none"> • Read and understand words and sentences in Pohnpeian 	<ul style="list-style-type: none"> • Read wall stories, flash cards, big books, and posters in Pohnpeian
WRITING: <ul style="list-style-type: none"> • Writing using various forms and cultural points of view. 	<ul style="list-style-type: none"> • Write simple sentences in Pohnpeian 	<ul style="list-style-type: none"> • Apply basic writing strokes • Write from left to right • Draw, tell and write about personal experiences and cultural background.

Language Arts Grade 1		
Understanding the Standard (Teacher Notes)	Essential Understandings By the end of grade 4 All Students Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
COMMUNICATION: <ul style="list-style-type: none"> • Communicate orally and visually. 	Students should be able to: <ul style="list-style-type: none"> • Speak in simple sentences in both English and Pohnpeian language 	<ul style="list-style-type: none"> • Greet others and make introduction and maintain conversation • Give and follow directions and explanation • Tell stories based on experience
READING: <ul style="list-style-type: none"> • Read a variety of sources in the appropriate instructional language 	<ul style="list-style-type: none"> • Read and understand words and sentences in Pohnpeian 	<ul style="list-style-type: none"> • Read wall stories, flash cards, big books, and posters in Pohnpeian
WRITING: <ul style="list-style-type: none"> • Writing using various forms and cultural points of view. 	<ul style="list-style-type: none"> • Write simple sentences in Pohnpeian 	<ul style="list-style-type: none"> • Apply basic writing strokes • Write from left to right • Draw, tell and write about personal experiences and cultural background.

Language Arts Grade 2		
Understanding the Standard (Teacher Notes)	Essential Understandings By the end of grade 4 All Students Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
COMMUNICATION: <ul style="list-style-type: none"> • Communicate orally and visually. 	<ul style="list-style-type: none"> • Be able to speak in complete sentences 	<ul style="list-style-type: none"> • Interact with others to share ideas and express opinions • Participate in role playing
READING: <ul style="list-style-type: none"> • Read a variety of sources in the appropriate instructional language 	<ul style="list-style-type: none"> • Be able to read short and simple sentences in Pohnpeian and English 	<ul style="list-style-type: none"> • Spell words correctly • Read in Pohnpeian and English at grade level
WRITING: <ul style="list-style-type: none"> • Writing using various forms and cultural points of view. 	<ul style="list-style-type: none"> • Be able to write short and simple sentences in Pohnpeian and English 	<ul style="list-style-type: none"> • Spell and write simple words correctly in Pohnpeian and English at grade level

Language Arts Grade 3		
Understanding the Standard (Teacher Notes)	Essential Understandings By the end of grade 4 All Students Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
COMMUNICATION: <ul style="list-style-type: none"> Communicate orally and visually. 	<ul style="list-style-type: none"> Be able to speak in complete sentences 	<ul style="list-style-type: none"> Interact with others to share ideas and express opinions Participate in role playing
READING: <ul style="list-style-type: none"> To have students continue and develop their reading skills in the areas of alphabet recognition, phonemic awareness and phonics use in both Pohnpeian and English. Read a variety of sources in the appropriate instructional language 	<ul style="list-style-type: none"> Be able to read independently, Use their phonic knowledge to sound out unknown words and to share ideas with others. Be able to read short and compound sentences in Pohnpeian and English 	<ul style="list-style-type: none"> Read with expression and fluency Ask and answers questions Compare ideas Spell words correctly Read in Pohnpeian and English at grade level
WRITING: <ul style="list-style-type: none"> Conventions and skills Apply knowledge of print and language to comprehend. 	<ul style="list-style-type: none"> Be able to write short and compound sentences in Pohnpeian and English 	<ul style="list-style-type: none"> Write short stories correctly in Pohnpeian and English at grade level Understand story elements

Language Arts Grade 4 Strand 1 Reading 1.1. Range and Diversity 1.2. Comprehension process 1.3. Convention & Skills 1.4. Response 1.5. Attitude & Engagement		
Understanding the Standard (Teacher Notes)	Essential Understandings By the end of grade 4 All Students Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
<ul style="list-style-type: none"> The intent of this standard is that the students will continue to expand & develop their reading and comprehension skills in different kinds of reading materials/genre (newspaper, stories-fiction and nonfiction, poems, music, Bible, magazines, etc.) 	<ul style="list-style-type: none"> Read and comprehend variety of sources for different purposes at grade level in Pohnpeian & English 	<ul style="list-style-type: none"> Read fluently both in English and Pohnpeian Asking/Answering Questions Read and locating information Following directions Connecting theme Use context clues Use vocabulary skills (base words, roots, prefixes/suffixes, syllables, determine meaning, etc.) Identify story elements. (setting, plot, resolution, climax, characters' motive) Text structure (summarize, draw conclusion, sentence structure, dramatize, etc) Text features (captions, pictures, cartoons graphs, charts, etc)

Language Arts Grade 5 Strand 1 Reading 1.1. Range and Diversity 1.2. Comprehension process 1.3. Convention & Skills 1.4. Response 1.5. Attitude & Engagement		
Understanding the Standard (Teacher Notes)	Essential Understandings By the end of grade 5 All Students Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
<ul style="list-style-type: none"> The intent of this standard is that the students will continue to expand & develop their reading and comprehension skills in different kinds of reading materials/genre (newspaper, stories-fiction and nonfiction, poems, music, Bible, magazines, etc.) 	<ul style="list-style-type: none"> Read and comprehend variety of sources for different purposes at grade level in Pohnpeian & English 	<ul style="list-style-type: none"> Read fluently both in English and Pohnpeian Asking/Answering Questions Use context clues Use vocabulary skills (base words, roots, prefixes/suffixes, syllables, dramatize, etc.) Interpreting story elements

Language Arts Grade 5 Strand 1 Reading 1.1. Range and Diversity 1.2. Comprehension process 1.3. Convention & Skills 1.4. Response 1.5. Attitude & Engagement		
Understanding the Standard (Teacher Notes)	Essential Understandings By the end of grade 5 All Students Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
		<ul style="list-style-type: none"> • Text structure; • (sequence, summarize compare/contrast, describe, explain etc.) • Text features (captions, pictures, cartoons graphs, charts, etc) • Use references or sources.(Encyclopedia, Atlases, internet, almanac.)

Language Arts Grade 6 Strand 1 Reading 1.1. Range and Diversity 1.2. Comprehension process 1.3. Convention & Skills 1.4. Response 1.5. Attitude & Engagement		
Understanding the Standard (Teacher Notes)	Essential Understandings By the end of grade 6 All Students Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
<ul style="list-style-type: none"> • The intent of this standard is that the students will continue to expand & develop their reading and comprehension skills in different kinds of reading materials/genre (newspaper, stories-fiction and nonfiction, poems, music, Bible, magazines, etc.) 	<ul style="list-style-type: none"> • Read and comprehend variety of sources for different purposes at grade level in Pohnpeian & English 	<ul style="list-style-type: none"> • Read with expression & competency both in English and Pohnpeian • Asking/Answering Questions • Use context clues • Use vocabulary skills (base words, roots, prefixes/suffixes, syllables, etc.) • Interpreting story elements • Text structure • (sequence, summarize, compare/contrast, describe, explain etc.) • Text features (interpret captions, pictures, cartoons graphs, charts, etc) • Use references or sources. (Encyclopedia, Atlases, internet, almanac.)

Language Arts Grade 7 Standard: 1.3.7b: Convention and Skills Apply Knowledge of print and language to comprehend. Use Knowledge of word origin, affixes, root words, context clues, dictionaries, and glossaries to determine the meaning of words.		
Understanding the Standard (Teacher Notes)	Essential Understandings All Student Should:	Essential Knowledge, Skills and Processes
<ul style="list-style-type: none"> • The intent of this standard is that students will become independent learners of vocabulary. • Students will come to understand prefixes, suffixes, roots, derivations, and inflections of polysyllabic words and understand that words with similar parts are frequently related to each other in origin and meaning. 	<p>All students should</p> <ul style="list-style-type: none"> • Find the meaning of an unknown word by using dictionaries, glossaries, context clues and other known word information i.e. (root words) 	<p>To be successful with this standard, students are expected to</p> <ul style="list-style-type: none"> • separate and recombine known word parts to predict the meaning of unfamiliar words, such as separating <i>dent</i> from <i>dentist</i> and <i>fric</i> from <i>friction</i> to predict the meaning of <i>dentifrice</i> • Use dictionaries and glossaries • Skim and scan

Language Arts Grade 8 Standard: 1.3.8: Conventions and Skills Apply knowledge of print and language to comprehend Use knowledge of word origins to determine meaning (root words, context clues, affixes, dictionaries, etc..)		
Understanding the Standard (Teacher Notes)	Essential Understandings All Student Should:	Essential Knowledge, Skills and Processes
<ul style="list-style-type: none"> The intent of this standard is that students will increase their independence as learners of vocabulary. Students will continue to use prefixes, suffixes, roots, derivations, and inflections of polysyllabic words to determine meaning. 	<p>All students should</p> <ul style="list-style-type: none"> use word structure, context clues, dictionaries to analyze words and determine meaning. 	<p>To be successful with this standard, students are expected to</p> <ul style="list-style-type: none"> use both context and reference skills independently to determine the meaning of words (i.e. context clues, prefixes, suffixes, affixes to adapt the words for different purposes. Read to research a theme or hypothesis using technological and reference materials.

Language Arts Grade 9 Standard: 1.3.9 : Convention and Skills		
Understanding the Standard (Teacher Notes)	Essential Understandings All Student Should:	Essential Knowledge, Skills and Processes
<p>The intent of this standard is to have students’ master the building of their own vocabulary.</p>	<p>All students should be able to:</p> <ul style="list-style-type: none"> use the words surrounding an unknown word to determine meaning. 	<p>To be successful with this standard, students are expected to:</p> <ul style="list-style-type: none"> Read and understand mid-level materials Use known words to determine meaning of unknown word.

Language Arts Grade 10 Standard: 1.3.10a: Convention and skills a. Read and comprehend different types of literature		
Understanding the Standard (Teacher Notes)	Essential Understandings All Student Should:	Essential Knowledge, Skills and Processes
<p>The intent of this standard is to build upon students’ comprehension skills by introducing the concept symbolism.</p> <ul style="list-style-type: none"> This standard, because of its advance nature, may be more appropriate for eleventh grade. 	<p>All students should</p> <ul style="list-style-type: none"> Recognize symbolism in various types of literature 	<p>To be successful with this standard, students are expected to</p> <p>Be able to define</p> <ol style="list-style-type: none"> Personification Idiom <p>c)Figures of speech</p> <ul style="list-style-type: none"> Able to recognize symbolism in their readings. Interact with peers regarding found symbolism.

Language Arts Grade 11 Standard: 1.3.11a: 1.3 Conventions and Skills apply knowledge of print and language to comprehend a. Apply knowledge of context clues, syntax, and reference materials		
Understanding the Standard (Teacher Notes)	Essential Understandings All Student Should:	Essential Knowledge, Skills and Processes
<p>The intent of this standard is to have students’ master the building of their own vocabulary.</p>	<p>All students should be able to:</p> <ul style="list-style-type: none"> use the words surrounding an unknown word to determine meaning. 	<p>To be successful with this standard, students are expected to:</p> <ul style="list-style-type: none"> Read and understand mid-level materials Use known words to determine meaning of unknown word.

Language Arts Grade 12 Standard: 1.3.12: Conventions and Skills a. Analyze and evaluate the rules (conventions) of the four genres of fiction (short story, drama, novel, and poetry).		
Understanding the Standard (Teacher Notes)	Essential Understandings All Student Should:	Essential Knowledge, Skills and Processes
The intent of this standard is to introduce the rules of the four genres of fiction.	<p>•All students should</p> <ul style="list-style-type: none"> ▪ Be able to identify the type of fiction based on the rules of each genre i.e. Is a particular reading a poem or a short story? 	<p>To be successful with this standard, students are expected to:</p> <ul style="list-style-type: none"> ▪ Identify the four genres of fiction ▪ Know the conventions associated with each type of fiction ▪ Use the knowledge of conventions to analyze a particular work of fiction

Appendix F (b): Understanding the Standards - Social Studies

Social Studies Grade ECE - 3		
Understanding the Standards (teacher notes)	Essential Understandings All the Students Should know	Essential Knowledge & Processes to be successful student w/this standards, are expected
<p>understanding the Standard (Teacher Notes) (Understand culture, Geography, history, economics and civics)</p> <p>Each standard should be INTRODUCED, PRACTICED AND MASTERED at each grade level.</p> <ul style="list-style-type: none"> • Make students ANSWER SIMPLE QUESTIONS RELATED TO DIRECT Social studies ACTIVITIES • Have students IDENTIFY AT LEAST one way of finding answers to questions for problem solving in SS • Ask students questions to gather information needed to explain home, community, & state <ul style="list-style-type: none"> • Have students follow safety precautions and rules while participating in SS activities • Tell students to demonstrate their interests in SS by participating in teacher directed SS activities • Have students give oral reports on simple myths and local legends • Have students infer why certain things are done in different ways 	<p>All students should</p> <p>Understand the basics of all the strands by reading, listing, naming, identifying, defining, discussion, demonstration, appreciate and value.</p>	<p>To be successful with this standard, students are expected to...</p> <p>Cultural Heritage and Diversity Understand and appreciate culture as a system as well as respect cultural differences (customs, traditions, beliefs, values, language, political systems, etc.)</p> <p>Physical Geography, Places and Regions Learn the major physical and geographical processes of the earth and the characteristics of places and regions by using geographical tools.</p> <p>Past, Present, Change, and Continuity Learn about past events and the cause and effect of change over time to better understand present day issues</p> <p>Limited Resources, Consequences of Choices, and Economic Interdependence Understand that resources are limited, and that every choice has consequences, and that there is economic interdependence; use this knowledge to make sound economic decisions.</p> <p>Rights and Responsibilities and Decision Making Understand civil rights and responsibilities and the political and legal process of decision making.</p>

Social Studies Grade 7 Standard 2.1.7a Physical Geography Places and REgions		
Understanding the Standard (Teacher Notes)	Essential Understanding All Student Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
<ul style="list-style-type: none"> • Know their rights & responsibilities in their society. • Students will begin to make decisions accordingly • Students will also begin to practice on their personal, justice, and property rights. • Know the obligation of citizens and non-citizens. • Students can differentiate between political & non-political decision-making. 	<ul style="list-style-type: none"> • Understand and explain roles, rights, and responsibilities of citizenship by participating in civic issues of the FSM and compare it to other nations of the Pacific. 	<ul style="list-style-type: none"> • Discuss among themselves the contents of the constitution • Demonstrate the different rights that they have • Judge the different decisions • Construct different kinds of decision making • Create short play of the rights and responsibilities • Role play- aware of the different roles and their outcomes • Analyze different kinds of roles and responsibilities of a citizen • Recall the components of the constitution

Social Studies Grade 8 Standard 5.1.8a Civil Rights Responsibility and Decision Making		
Understanding the Standard (Teacher Notes)	Essential Understanding All Student Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
<ul style="list-style-type: none"> • The formation of the islands. • The locations of the island (Longitude and Latitude) etc. • The Physical characteristics of the regions. • Compare/contrast (size, climate, population, and etc.) 	<ul style="list-style-type: none"> • Explain and understand how Volcanic, continental, raised Islands are formed • Explain and understand the causes of geo-physical features. 	<ul style="list-style-type: none"> • Understand the geographical characteristics of different regions and their relation to each other by locating, differentiating, identifying, and comparing.

Social Studies Grade 9 Standard 5.2.9a Compare Government		
Understanding the Standard (Teacher Notes)	Essential Understanding All Student Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
Identify and explain the structure, purpose, function, and power of Government.	<ul style="list-style-type: none"> • Level of Government <ol style="list-style-type: none"> a. Local b. State c. National 	<ul style="list-style-type: none"> • Compare and contrast <ol style="list-style-type: none"> a. 3 Level of Government b. Our Government to other countries government.

Social Studies Grade 10 Standard 4.2.10a Economic system		
Understanding the Standard (Teacher Notes)	Essential Understanding All Student Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
<ul style="list-style-type: none"> • Enable the students to have a common understanding of import and export. • List and discuss the 	<ul style="list-style-type: none"> • Know how to plan the betterment of their own economy. • Understand ways to plan and 	<ul style="list-style-type: none"> • Research • Collect data and needed information • Read and Write

<p>development of the past economic administrations (Japan, German, Spain, and USA).</p> <ul style="list-style-type: none"> • The basic concept of the three different markets: Subsistence, Planned, and Free-marketing. 	<p>improve the marketing-system of Pohnpei.</p>	<ul style="list-style-type: none"> • Generate ideas and develop a plan for their economy. • Field-trip • Survey
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Social Studies Grade 11 Standard 4.2.11a Economic system		
Understanding the Standard (Teacher Notes)	Essential Understanding All Student Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
<ul style="list-style-type: none"> • Understanding economic growth between countries • Understand the economic systems that exist around the world • Understand the economic factor such as: supply and demand, prices, government roles in marketing, and distribution of wealth • Understand the different values of currency around the world. 	<ul style="list-style-type: none"> • Understand of the differences and similarities of economic systems and their applications around the world. 	<ul style="list-style-type: none"> • Write short passages • Compare and contrast economies of different countries • Values of different currencies • What is supply and demand • Aware of governmental roles regarding marketing and distribution • Prices • Projection of future standing

Social Studies Grade 12 Standard 3.1.12a History		
Understanding the Standard (Teacher Notes)	Essential Understanding All Student Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
<ul style="list-style-type: none"> • Awareness of the different influences and impacts of foreign countries • Awareness of domestic issues of the past, the present and in the future. • Awareness of foreign issues of the past, present and future 	<ul style="list-style-type: none"> • Understand why we are where we are today and project where we will be in the future 	<ul style="list-style-type: none"> • Writing essays on related issues • Research on the oral history of our island • Interviews with community elders • Conducting surveys on the related issues and information verifications.

Appendix F (c): Understanding the Standards - Mathematics

Mathematics Grade ECE – 3 Standard S1: Numbers, operation and computations		
Understanding the standard (Teacher Notes)	Essential Understandings All Students Should:	Essential knowledge, skills and Processes to be successful with this standard, students are expected to:
Intent of the standard is to: Develop Child’s cognitive skill in understand and identifying numbers both in Pohnpeian and English.	<ul style="list-style-type: none"> • Demonstrate rote counting 0-50. • (English/Vernacular) • Be able to identify number. • Be able to understand number value; 1-10 • Show & tell numerals (1-10) • Identify objects (sizes: shape; length; widths) 	<ul style="list-style-type: none"> • Do rote counting from 0-50. • To write numbers 0-50. • Be able to understand phase value. • Be able to identify numbers 1-50. • Be able to match numbers, shapes.
<p>GRADE-1</p> <p>S-1 Numbers, operation and computation</p> <p>S-2: ‘Geometry, measurement, transformation.</p>	<ul style="list-style-type: none"> • Understand how to count & write 0-300. (English/Vernacular) • Recognize numbers 0-300. • Understand addition and subtraction facts. • Understand common plane figures. • Understands measuring instrument. • Understand usage of each instrument.. • Understand similarities and differences between common plane figures. 	<ul style="list-style-type: none"> • Be able to count & write 0-300. • Be able to identify numbers 0-300. • Be able to add & subtract 1 by 1 digit w/out renaming/carrying. • Be able to identify circle, square, rectangle & triangle. • Be able to identify tools. • Be able to use each tool properly. • Be able to compare and contrast shapes.
<p>2nd. Grade:</p> <p>S-1: Numbers, operations & computation`</p> <p>S-2: Students should gain the knowledge and skills to do basic geometry, measurement, and transform standard of measurement to non-standard of measurement. (geometry, measurement, transformation)</p>	<ul style="list-style-type: none"> • Understand how to read and write 0-600. (English/Vernacular). • Understand more on numbers, operations and computation 	<ul style="list-style-type: none"> • Count, read and comprehend whole numbers 0-600. • Identify place value 0-600. • Use basic operations to add, subtract (1 & 2 digit numbers). • Describe the similarities, differences of common figures.
<p>3rd Grade</p> <ul style="list-style-type: none"> • To provide students with basic counting skills and strategies to compute addition, subtraction, multiplication and division problems. • Students should gain the knowledge and skills to do basic 	<ul style="list-style-type: none"> • Understand more on numbers, operations and computation • Understand more on units and systems of measurement, 	<ul style="list-style-type: none"> • Count, read and comprehend whole numbers 0-1000 • Identify place value 0-1000 • Use basic operations to add, subtract (2 & 3 digit numbers). • Use basic operations to multiply and divide (1,2 & 3 digit

<p>geometry, measurement, and transform standard of measurement to non-standard of measurement. (geometry, measurement, transformation)</p> <ul style="list-style-type: none"> • Student should understand the different types of patterns, simple algebraic expressions, including collecting and interpreting of data, and predicting outcomes. (patterns, algebra, statistic, probability) 	<p>properties of objects and relationships among properties.</p> <ul style="list-style-type: none"> • Understand concept of patterns and functional relationships and data collection and usage. 	<p>numbers).</p> <ul style="list-style-type: none"> • Recognize, classify, identify, and draw common shapes in English and local language. • Demonstrate the understanding of standards and non-standard measurement. • Use common tools to measure and compare objects. • Describe and create patterns • Identify and use inverse relationships between operations to solve problems.
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Mathematics Grade 4		
Understanding the Standard (Teacher Notes)	Essential Understandings By the end of grade 4 All Students Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
<ul style="list-style-type: none"> • The intention of this standard is that students will continue to progress the knowledge and understanding in the number system, mastery of operation and their relation to each other. • The intention of this standard is to enhance the mastery of students' concepts and skills in Geometry, measurement, transformation, pattern, algebra, statistics & probability. <ul style="list-style-type: none"> ➤ Strategies- to engage students with effective strategies that can generate a student- centered classroom rather a teacher-centered classroom. (group, one-on-one, hands on activities, field trips, research, internet, library, learning center, bulletin, etc.) ➤ Develop local means to assist instructions. 	<ul style="list-style-type: none"> • Understand the number system, the meaning of operation and how they relate to each other, and are able to use computational tools and strategies fluently • Understand the concept of the Geometrical figures, units of measurements, and transformation. • Understand the concepts and types of patterns, algebraic expressions and interpret, analyze, and predict data. 	<ul style="list-style-type: none"> • Identify place value (Whole numbers (1000) and Decimal (0.01)) • Count and compare whole numbers, decimals, and simple fraction both in local and English system. • Add, subtract, multiply, and divide whole numbers and decimal numbers, & add/subtract fractions with like denominators. • Round and estimate whole numbers, decimals, and fractions. • Solve and explain word problems. • Identify, classify, and describe similarities and differences between one, two and three dimensional geometric figures. • Use of common, standard and non-standard units to determine appropriate units of measurement. • Collect, organize display, and describe data systematically.

Mathematics Grade 5

Understanding the Standard (Teacher Notes)	Essential Understandings By the end of grade 5 All Students Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
<ul style="list-style-type: none"> • The intention of this standard is that students will continue to progress the knowledge and understanding in the number system, mastery of operation and their relation to each other. • The intention of this standard is to enhance the mastery of students concepts and skills in Geometry, measurement, transformation, pattern, algebra, statistics & probability. • Strategies- to engage students with effective strategies that can generate a student-centered classroom rather a teacher-centered classroom. (group, one-on-one, hands on activities, field trips, research, internet, library, learning center, bulletin, etc.) • Develop local means to assist instructions. 	<ul style="list-style-type: none"> • Understand the number system, the meaning of operation and how they relate to each other, and are able to use computational tools and strategies fluently • Understand the concept of the Geometrical figures, units of measurements, and transformation. • Understand the concepts and types of patterns, algebraic expressions and interpret, analyze, and predict data. 	<ul style="list-style-type: none"> • Count and compare whole numbers, decimals, and simple fraction both in local and English system. • Continue to develop fluency to add, subtract, multiply, and divide whole numbers and decimal numbers, & fractions and mix numbers. • Round and estimate whole numbers, decimals, and fractions to solve problems • Identify, classify, and describe similarities and differences between one, two and three dimensional geometric figures. • Develop and use formulas to determine perimeter and area. • Use words and simple algebraic expressions to describe quantities and situations. • Use variables to relate meanings and representations. • Investigate and describe situations involving inverse relationship. • Use of common, standard and non-standard units to determine appropriate units of measurement. • Collecting data using observations, measurements, surveys, or experiments.

Mathematics Grade 6		
Understanding the Standard (Teacher Notes)	Essential Understandings By the end of grade 6 All Students Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:

<ul style="list-style-type: none"> • The intention of this standard is that students will continue to progress the knowledge and understanding in the number system, mastery of operation and their relation to each other. • The intention of this standard is to enhance the mastery of students concepts and skills in Geometry, measurement, transformation, pattern, algebra, statistics & probability. • Strategies- to engage students with effective strategies that can generate a student-centered classroom rather a teacher-centered classroom. (group, one-on-one, hands on activities, field trips, research, internet, library, learning center, bulletin, etc.) • Develop local means to assist instructions. 	<ul style="list-style-type: none"> • Understand the number system, the meaning of operation and how they relate to each other, and are able to use computational tools and strategies fluently • Understand the concept of the Geometrical figures, units of measurements, and transformation. • Understand the concepts and types of patterns, algebraic expressions and interpret, analyze, and predict data. 	<ul style="list-style-type: none"> • Compare, order, round, and group rational numbers. • Count and compare whole numbers, decimals, and simple fraction both in local and English system. • Add, subtract, multiply, and divide whole numbers and decimal numbers, & add/subtract fractions with like denominators. • Round and estimate whole numbers, decimals, and fractions. • Identify characteristics of prime and composite numbers and decompose composite numbers into factor pairs and prime factorization using exponents. • Solve and explain word problems. • Identify, classify, and describe similarities and differences between one, two and three dimensional geometric figures. • Use of common, standard and non-standard units to determine appropriate units of measurement. • Solve, compute, and apply using formulas in real-life situations. • Analyze and interpret data including range, median, mode, mean and frequency.
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Mathematics Grade 7 Standard: 2.7 : Geometry, Measurement and Transformation		
Understanding the Standard (Teacher Notes)	Essential Understandings By the end of grade 6 All Students Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
<ul style="list-style-type: none"> • The intent of this standard is to continue the knowledge of geometric transformations. measurements, attributes of figures - 	<ul style="list-style-type: none"> • All students should be able to • -understand and use the value of pi. • -use the English and metric unit of measurement • -use geometric figures. 	<ul style="list-style-type: none"> • -Identify and draw points, lines, line segments, angles and rays. • -Use pi (π), represented as both a decimal (3.14) and fraction ($\frac{22}{7}$), to find circumference and area of circles. • -Use appropriate English and metric units to develop reasonable estimates of measures. • -Describe symmetry, reflections,

		and translations with appropriate notation.
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Mathematics Grade 8 Standard: 2.8: Geometry, Measurement and Transformation		
Understanding the Standard (Teacher Notes)	Essential Understandings By the end of grade 6 All Students Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
<ul style="list-style-type: none"> The intent of this standard is to build upon the understanding of properties of object and relationship among properties. 	<ul style="list-style-type: none"> All students should be able to <ul style="list-style-type: none"> Use formulas to find area and perimeter Identify, compare and contrast two-dimensional figures. Solve simple problems and use reasoning to prove their findings. 	<ul style="list-style-type: none"> Use a compass, protractor, and straight edge to draw two-dimensional figures and do constructions (e.g. bisecting an angle or line segment, creating a right angle, drawing a circle). Identify similar and congruent figures including lines of symmetry and diagonals. Use formulas to find areas of quadrilaterals, triangles, and circles, and the surface area and volume of cylinders and prisms including appropriate units of measure. Use the Pythagorean theorem to find lengths of sides of right triangles. Solve simple problems involving rates and derived measures (e.g. miles per hour, cost per yard). Use proportional reasoning and indirect measurements to draw inferences, such as measuring the thickness of a book to estimate the thickness of one page

Mathematics Grade 9 Standard: 2.9: Geometry, Measurement and Transformation		
Understanding the Standard (Teacher Notes)	Essential Understandings All Student Should:	Essential Knowledge, Skills and Processes
<ul style="list-style-type: none"> The intent of this standard is to continue students' development in using formulas, identifying, comparing and contrasting figures. Solve simple problems and use reasoning to prove their findings. 	<p>All students should be able to use</p> <ul style="list-style-type: none"> Problem solving Communication Reasoning Representation - Connection 	<p><u>All high school students will:</u> (Based on the shared requirement that all students complete at least Algebra I.) Demonstrate the inverse relationship between square numbers and square roots.</p> <ul style="list-style-type: none"> Compare and order rational numbers and square roots using a number line. Solve problems with squares and square roots (limited to square roots of square numbers).

		<ul style="list-style-type: none"> • Represent numbers in a variety of forms (factors, multiples, exponents, prime, composite, fractions, decimal, percent) and change from one form to another. • Apply an understanding of addition, subtraction, multiplication, division and the order of operations when calculating with rational numbers. • Use ratios, proportions, and percent to represent the relationship between two quantities and solve problems (e.g. percent increase and decrease, using scales). • Add, subtract, multiply, and divide numbers with positive and negative exponents. • Estimate a reasonable solution to a problem. • Use rounding and estimation to solve real-world situations and recognize the limitations.
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Mathematics Grade 10 Standard: 2.10: Geometry, Measurement and Transformation		
Understanding the Standard (Teacher Notes)	Essential Understandings All Student Should:	Essential Knowledge, Skills and Processes
<ul style="list-style-type: none"> • The intent of this standard is to continue students' development in mastering usage of formulas, identifying, comparing and contrasting figures. • Solve simple problems and use reasoning to prove their findings. 	<p>All students should be able to use the process standards in solving problems such as:</p> <ul style="list-style-type: none"> • Estimate land area and volume • Determine speed limits, distance between Points, and find • solutions with given information 	<p>Demonstrate the inverse relationship between square numbers and square roots.</p> <ul style="list-style-type: none"> • Compare and order rational numbers and square roots using a number line. • Solve problems with squares and square roots (limited to square roots of square numbers). • Represent numbers in a variety of forms (factors, multiples, exponents, prime, composite, fractions, decimal, percent) and change from one form to another. • Apply an understanding of addition, subtraction, multiplication, division and the order of operations when calculating with rational numbers. • Use ratios, proportions, and percent to represent the relationship between two

		<p>quantities and solve problems (e.g. percent increase and decrease, using scales).</p> <ul style="list-style-type: none"> • Add, subtract, multiply, and divide numbers with positive and negative exponents. • Estimate a reasonable solution to a problem. • Use rounding and estimation to solve real-world situations and recognize the limitations.
	-	<p>2.hs.5 Apply an understanding of the English and metric systems of measurement to solve problems.</p> <p>2.hs.6 Use formulas, including appropriate units of measure, to determine the surface area and volume of selected prisms, cylinders, and pyramids.</p> <p>2.hs.7 Apply the Pythagorean Theorem to solve problems involving right triangles.</p> <p>2.hs.8 Perform transformations (reflection, rotation, translation) and describe the size, position, and orientation of the resulting shapes.</p>
		<p>3.hs.11 Represent a variety of patterns (including recursive patterns) with tables, graphs, words, and when possible, symbolic rules.</p> <p>3.hs.12 Represent mathematical situations as algebraic expressions and equations, and describe algebraic expressions using words.</p> <p>3.hs.13 Solve single-variable equations and inequalities using rational numbers.</p> <p>3.hs.14 Use tables and graphs to represent linear relationships (equalities and inequalities) with two variables and solve problems.</p> <p>3.hs.15 Justify the steps used in simplifying expressions and solving equations and inequalities.</p> <p>3.hs.16 Identify functions as linear or nonlinear and contrast their properties from tables, graphs, or equations.</p> <p>3.hs.17 data involving linear relationships from tables as graphs and equations and visa versa.</p> <p>3.hs.18 Solve linear equations and inequalities with two variables using algebraic methods,</p>

		<p>manipulative, or models.</p> <p>3.hs.19 Determine the slope of a line when given the graph of a line, two points on the line, or the equation of the line.</p> <p>3.hs.20 Select and use a variety of strategies (e.g., concrete objects, pictorial representations, algebraic manipulation) add, subtract, multiply, divide and factor first- and second-degree binomials and trinomials in one variable.</p>
		<p>4.hs.5 Analyze and interpret data using mean, median, mode, range, and frequency.</p> <p>4.hs.6 Design a study, collect data, and select the appropriate representation (e.g. graphs) to make conclusions and generalizations.</p> <p>4.hs.7 Judge the validity of reported data, conclusions, and generalizations. \</p> <p>4.hs.8 Calculate probabilities for simple events under different relationships (e.g., independent, dependent, with replacement, without replacement).</p>

Mathematics Grade 11 Standard: 2.11: Geometry, Measurement and Transformation		
Understanding the Standard (Teacher Notes)	Essential Understandings All Student Should:	Essential Knowledge, Skills and Processes
<p>The intent of this standard is to: Increase students' development in mastering usage of formulas, identifying, comparing and contrasting figures. Solve simple problems and use reasoning to prove their findings.</p>	<p>All students should be able to use the process standards in solving problems such as:</p> <ul style="list-style-type: none"> • Using formulas to find Perimeter, Area, Volume, Circumference and other 3-D figures etc... • Use concrete objects • Use reasoning to make conjectures • Prove solutions based on given theorems and conjecture etc... 	<ul style="list-style-type: none"> • Use right triangle trigonometric ratios to solve for an unknown length of a side or the measure or an angle. • Solve problems using the formulas for perimeter, circumference, area, and volume of two- and three-dimensional figures and solids and determine the effect of dimension changes to perimeter, area, and volume. • Use reasoning to create and defend geometric conjectures. • Use the concept of corresponding parts to prove that triangles, and other polygons, are congruent or similar. • Explain properties and characteristics of angle bisectors, perpendicular bisectors, and parallel lines.

		<ul style="list-style-type: none"> • Use the relationship between pairs of angles (e.g., complementary, supplementary, vertical, exterior, interior) to determine unknown angle measures or definitions of properties. • Apply the concepts of special right triangles to real-world situations. • Use the relationships among properties of circles (e.g., chords, secants, tangents, arcs, circumference, radius, diameter, inscribed polygons) to solve problems. • Use coordinate geometry to produce formulas and prove theorems for the midpoint of a line segment, the distance formula, and forms of equations of lines and circles. • Describe the concept of rigid motion on figures in the coordinate plane, including rotation, translation, and reflection. • Use concrete objects, pictorial representations, computer software, or graphing calculators to solve geometric problems.
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Mathematics Grade 12 Standard: 2.12: Geometry, Measurement and Transformation		
Understanding the Standard (Teacher Notes)	Essential Understandings All Student Should:	Essential Knowledge, Skills and Processes
<p>The intent of this standard is to: Maximize students' mastery in usage of formulas, identifying, comparing and contrasting figures. Solve simple problems and use reasoning to prove their findings.</p>	<p>•All students should be able to use the process standard to solve complex problems such as:</p> <ul style="list-style-type: none"> • Using properties, the four operations to solve numbers with powers, advance formulas or functions • Applying the properties geometric sequences and series. • Using the appropriate terms for certain functions. • Equation, equalities and inequalities. 	<ul style="list-style-type: none"> • Apply arithmetic properties to operate on and simplify expressions that include radicals and other real numbers. • Use the complex number system, the notation for complex numbers, and the definition of "i" to solve problems (standard form). • Add, subtract, multiply, and divide complex numbers. • Use the inverse relationship between exponents and logarithms to solve exponential and logarithmic problems. • Use advanced formulas or

		<p>functions to solve problems.</p> <ul style="list-style-type: none"> • Apply the properties of arithmetic and geometric sequences and series to solve problems. • Use exponential functions to solve problems involving exponential growth and decrease. • Use the properties of many types of functions (e.g., polynomial, absolute value, exponential, and logarithmic) to identify the function's graph. • Use the appropriate terminology and notation to define functions and their properties (e.g., domain, range, function composition, inverses, zeros, and asymptotes). • Describe the relationship among relations and functions. • Solve equations and inequalities involving absolute values. • Solve systems of linear equations and inequalities in two or three variables using a variety of strategies (e.g., substitution, graphing, or matrices). • Solve equations containing radical and exponents. • Factor polynomials representing perfect squares, the difference in squares, perfect square trinomials, the sum and difference of cubes, and general trinomials. • Apply quadratic equations to solve real-world situations and complex number problems. • Use the binomial theorem to expand binomial expression. • Use the fundamental counting principles for combinations and permutations to determine probability. • Calculate probabilities of events under different relationships (e.g., inclusion, disjoint, complementary, independent, dependent, with replacement, without
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		<p>replacement).</p> <ul style="list-style-type: none">• Use the right triangle relationships (e.g., trigonometric ratios: cosine, sine, and tangent) to solve problems.
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Appendix F (d): Understanding the Standards - Science

Science Grade ECE		
Understanding the Standard (Teacher Notes)	Essential Understanding All Student Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
<p>Understand Science as inquiry, physical science & technology, Earth & Space, Life & Environmental Science, and Marine Science</p> <p>Each standard should be INTRODUCED, PRACTICED AND MASTERED at each grade level. Guiding questions:</p> <ul style="list-style-type: none"> • Ask students to answer simple questions related to direct science activities • Have students identify at least one way for finding answers to questions for problem solving in science 	<p>All students should</p> <p>Understand the basics of all the strands by reading, listing, naming, observing, identifying, defining, discussion, demonstration, describing, appreciate and value.</p>	<p>ECE- Objectives/Standard/Benchmarks:</p> <ul style="list-style-type: none"> • Identify body parts and functions • Describe daily weather • Identify five senses and functions • Discuss objects and their properties • Identify and describe types of rocks and clouds • Explain disadvantages of driving • Discuss importance of teeth • Name and describe living things on land, sea, and what helps them to survive • Compare and contrast plants and animals • Demonstrate the steps in planting crops • Name roles of fisherman and farmer • Identify and demonstrate types of fishing • Demonstrate body movement • Identify plant parts and function • Name tools and function • Explain the human food chain • Demonstrate how to conserve water

Science Grade 1		
Understanding the Standard (Teacher Notes)	Essential Understanding All Student Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
<p>Understand Science as inquiry, physical science & technology, Earth & Space, Life & Environmental Science, and Marine Science</p> <p>Each standard should be INTRODUCED, PRACTICED AND MASTERED at each grade level. Guiding activities:</p>	<p>All students should</p> <p>Understand the basics of all the strands by reading, listing, naming, observing, identifying, defining, discussion, demonstration, describing, appreciate and value.</p>	<p>Human Science:</p> <ul style="list-style-type: none"> • Draw, Name and Identify body parts and functions (head, trunk, and limbs) • Name and Identify the five senses and functions <p>Life & Environmental Science:</p> <ul style="list-style-type: none"> • Describe daily weather • Identify and describe types of rocks and clouds • Name and describe living things

		<p>on land, sea, and what helps them to survive</p> <ul style="list-style-type: none"> • Demonstrate the steps in planting crops • Identify plant parts and function • Compare and contrast plants and animals <p>Guiding questions:</p> <ul style="list-style-type: none"> • Answers simple questions related to direct science activities • Ask students to give oral reports on simple quantitative experimental data
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Science: Grade 2		
Understanding the Standard (Teacher Notes)	Essential Understanding All Student Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
<p>Understand Science as inquiry, physical science & technology, Earth & Space, Life & Environmental Science, Human Science and Marine Science</p> <p>Each standard should be INTRODUCED, PRACTICED AND MASTERED at each grade level.</p>	<p>All students should</p> <p>Understand the basics of all the strands by reading, listing, naming, observing, identifying, defining, discussion, demonstration, describing, appreciate and value.</p>	<ul style="list-style-type: none"> • Knowing Body parts/Senses • Forms of Energy • Knowing about sound • Knowing our islands forest • Land, rivers, seas(lagoons)space • Effects of deforestation • Discuss about rocks & soil <p>Guiding questions or activities:</p> <ul style="list-style-type: none"> • Have students identify at least one way for finding answers to questions for problem solving science • Answer simple questions related to direct science activities • Use simple science measuring tools & equipment to do science activities

Science: Grade 3		
Understanding the Standard (Teacher Notes)	Essential Understanding All Student Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
<p>Understand Science as inquiry, physical science & technology, Earth & Space, Life & Environmental Science, and Marine Science</p> <p>Each standard should be INTRODUCED, PRACTICED AND MASTERED at each grade level.</p>	<p>All students should</p> <p>Understand the basics of all the strands by reading, listing, naming, observing, identifying, defining, discussion, demonstration, describing, appreciate and value.</p> <ul style="list-style-type: none"> • ANSWER SIMPLE QUESTIONS RELATED TO DIRECT SCIENCE ACTIVITIES • IDENTIFY AT LEAST one way of 	<p>1.3.1 Make observations about objects and events and share their findings with others.</p> <p>1.3.2 Compare and group objects by identifying their properties.</p> <p>1.3.3 Use simple measuring tools and equipment to gather information.</p> <p>1.3.4 Work individually or in teams to collect, compare, and share information, data, and ideas.</p>

	<p>finding answers to questions for problem solving in science</p> <ul style="list-style-type: none"> • Ask students questions to gather information needed to explain natural phenomena 	<p>1.3.5 Identify cause and effect relationships.</p> <p>1.3.6 Investigate events that interest them both in and out of the classroom.</p> <p>1.3.7 Use a variety of methods to record information.</p>
	<ul style="list-style-type: none"> • Have students follow safety precautions and rules while participating in science activities • Tell students to demonstrate their interests in science by participating in teacher directed science activities • Have students give oral reports on simple quantitative experimental data • Have students infer possible causes of an observed effect 	<p>2.3.1 Describe the physical properties of objects and how materials undergo physical changes.</p> <p>2.3.2 Identify things in the environment that show motion.</p> <p>2.3.3 Identify changes in energy and ways energy can be conserved.</p> <p>2.3.4 Recognize that matter can exist in different forms or states.</p> <p>2.3.5 Identify and describe some technological changes in our islands.</p> <p>2.3.6 Use available materials to build simple measuring tools for measuring length, area, volume, mass, time, and temperature.</p>
	<ul style="list-style-type: none"> • Have students use simple scientific measuring tools & equipment to do science activities • Have students identify the effects of science & technology in the environment 	<p>3.3.1 Compare and contrast rocks and types of soil, mud, and sand.</p> <p>3.3.2 Identify and give examples of water in three different forms (solid, liquid, gas).</p> <p>3.3.3 Describe activities of their lives that are affected by changes in the skies</p> <p>3.3.4 Recognize the patterns of sunrise, sunset, moonrise, and moonset.</p> <p>3.3.5 Observe and describe objects in the skies such as the phases of the moon.</p> <p>3.3.6 Use models to represent relative size and distance of the sun, moon, and earth.</p>
		<p>4.3.1 Explain that humans go through a life cycle of infancy, childhood, adolescence, adulthood, and old age, and identify differences in external human features such as size, shape, color of hair, etc).</p> <p>4.3.2 Describe basic requirements for life: obtaining food and deriving energy from it, protecting against injury, and reproducing.</p> <p>4.3.3 List and describe the five senses.</p> <p>4.3.4 Observe and identify common varieties of plants and animals around school their homes and</p>

		<p>communities.</p> <p>4.3.5 Explain how offspring of familiar animals compare to one another and to their parents.</p> <p>4.3.6 Explain that different plants and animals have features that help them survive in different kinds of places.</p>
		<p>5.3.1 Name and describe living things that are found in the ocean, reefs, and swamps.</p>

Science Grade 7 Standard 1.7.1 Science as Inquiry		
Understanding the Standard (Teacher Notes)	Essential Understanding All Student Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
<ul style="list-style-type: none"> • Understand how to create charts, graphs, and drawings. • Understand communication skills. • Understand basic skills in Arts. • Differentiate the different tools of data collection. • Analyze results and experiments 	<ul style="list-style-type: none"> • Understand the different methods of analyzing and reporting the outcomes of experiments. 	<p>1.7.1 Communicate experimental results verbally as well as in charts, graphs, and drawings.</p> <p>1.7.2 Use tools and problem solving strategies to gather, analyze, and interpret data.</p> <p>1.7.3 Observe and explain that different phenomena (such as fire, flood, typhoon, etc) could be natural or manmade but both allow the ecology to rebirth.</p> <p>1.7.4 Identify actions and outcomes of a controlled experiment.</p> <p>1.7.5 Analyze experimental information, draw simple inferences and develop generalizations from scientific data.</p>

Science Grade 8 Standard 2.8.2 Physical Science and Technology		
Understanding the Standard (Teacher Notes)	Essential Understanding All Student Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
<ul style="list-style-type: none"> • Understand what is energy and its different forms • Understand some of the different forms of mechanical systems and the uses of energy within these systems. • Understand the basics about living systems and the uses of energy within these systems. • Understand the rules applied to the conversion of one form of energy to another. 	<ul style="list-style-type: none"> • Understand some of the uses of energy in mechanical and living systems and the conversion of one form of energy to another 	<p>2.8.1 Describe matter as composed of small particles in motion and identify some of the properties resulting from this assumption.</p> <p>2.8.2 Describe some of the uses of energy in mechanical and living systems and explain the conversion of one form to another.</p> <p>2.8.3 Describe the origin of sound in vibrations.</p> <p>2.8.4 Identify different kinds of motion and the effect of force on direction and speed.</p> <p>2.8.5 Describe the apparent color of objects as a result of reflection and absorption of different colors of light.</p>

		<p>2.8.6 Describe the effects of gravity on motion of objects.</p> <p>2.8.7 Identify everyday applications of electric and magnetic forces such as attractions in electric circuits</p>
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Science Grade 9: Standard 3.hs.3 Earth Science		
Understanding the Standard (Teacher Notes)	Essential Understanding All Student Should:	Essential Knowledge, Skills and Processes to be successful with this standard, students are expected to:
<ul style="list-style-type: none"> • Science as inquiry • Nature and processes of scientific inquiry (experimentation) and its applications 	<ul style="list-style-type: none"> • Understand the nature and processes of scientific inquiry and use the modes of scientific inquiry and habits of mind to learn about the world around them. 	<p>1.hs.1 Design and safely implement an experiment, including the appropriate use of tools and techniques to organize, analyze, and validate data.</p> <p>1.hs.2 Interpret data to validate generalizations.</p> <p>1.hs.3 Describe how a testable hypothesis may need to be revised to guide a scientific investigation.</p> <p>1.hs.4 Report a scientific research using appropriate methodology and format.</p> <p>1.hs.5 Prepare independent research papers on a scientific problem for sharing.</p> <p>1.hs.6 Describe examples of major shifts in science (ex. Theories of plate tectonic atomic structure of matter)</p> <p>1.hs.7 Describe some of the interactions of science, technology, and society</p>
<ul style="list-style-type: none"> • Physical Science and Technology • Concept of the atomic theory and relationships of materials to their atomic structure • Concepts relating to energy • Characteristics, properties, uses, etc. • Concepts and skills relating to force • Principles, gravitation, electromagnetic, etc. • Impacts of technology • Positive & negative, food production & distribution, etc. • Impacts of science and technology on manufacturing • Mass production, etc. 	<ul style="list-style-type: none"> • Understand the structures, properties, and changes of matter as well as sources, uses, conservation and changes of energy • Understand the nature of science and technology and the relationships of science and technology to society 	<p>2.hs.1 Describe the basic assumptions of the atomic theory; and relate the properties of materials to their atomic structure.</p> <p>2.hs.2 Identify and describe properties and classifications of energy and its ability to do work; and describe the importance of energy in physical and living systems.</p> <p>2.hs.3 Identify applications of the principles of motion, gravitational forces, and electromagnetic forces in their lives</p> <p>2.hs.4 Describe some of the positive and negative impacts of modern food production and distribution technologies.</p> <p>2.hs.5 Cite examples of new products made possible by the creation of new materials by technology</p>

		2.hs.6 Describe some of the complex relationships between science and technology as they relate to manufacturing
<ul style="list-style-type: none"> • Earth and Space • Different layers of the Earth • Contents, layers and composition of the Earth's atmosphere • Factors relating to weather and climate • Identifying different objects in our solar system or universe and their compositions 	<ul style="list-style-type: none"> • Understand the characteristics and process of earth and space systems. 	3.hs.1 Describe the composition of the major layers of the earth. 3.hs.2 Describe the composition of the major objects in the universe such as stars, planets, etc. 3.hs.3 Describe the structure and composition of the Earth's atmosphere. 3.hs.4 Explain factors that determine climate and give examples of types of climate.
<ul style="list-style-type: none"> • Life and Environmental Science • Classification of living things in different ecosystems • Concepts and skills relating to evolution • Genetic structure of living things • Conservation and uses of natural resources 	<ul style="list-style-type: none"> • Understand the development, characteristics, processes and interactions of living things and natural environment 	4.hs.1 Describe relationships and the interdependence of organisms within biomes. 4.hs.2 Describe how species have evolved over time to adapt to change. 4.hs.3 Describe how the study of DNA can explain kinship among species. 4.hs.4 Identify processes to utilize energy within organisms (photosynthesis, respiration, etc) 4.hs.5 Identify and describe mans use of natural resources and the need to manage and protect them.
<ul style="list-style-type: none"> • Marine Science • Classification of marine environment • Different ecosystems within our marine environment and their changes • Differences and similarities among marine and land ecosystems • Conservation of resources within our marine environment • Concepts regarding to plate tectonics 	<ul style="list-style-type: none"> • Understand the importance of protecting marine environments to sustain island life. • Learn about the technological, ecological and societal changes that have a direct impact on the local and global environments 	5.hs.1 Describe various marine ecosystems and identify similarities between land and marine ecosystems. 5.hs.2 Identify and describe changes in the marine environment. 5.hs.3 Use data to describe and design effective ways of managing or sustaining marine resources; and measures taken by the FSM to preserve the marine resources. 5.hs.4 Describe the movements of the earth's plates and relationship of these movements to changes in the oceans.