College of Micronesia-FSM
COURSE OUTLINE COVER PAGE

Survey of Science — **Course Title**

SC 098 — **Department & Number**

Course Description:
This course will emphasize the development of basic scientific skills and concepts in chemistry, physics, earth science and biology. In addition, scientific vocabulary and reading comprehension will be addressed to assist students in furthering their science education.

Course Prepared by: Science/Math Division **State** Pohnpei

	Hours per Week		No. of Week		Total Hours		Semester Credits
Lecture	3	x	16	x	48/16	=	3
Laboratory		x		x		=	
Workshop		x		x		=	
					Total Semester Credits		3

Purpose of Course:

Degree Requirement	
Degree Elective	
Certificate	
Remedial	x
Other	

Prerequisite Courses: None

12/22/94
Date Approved by Committee

1/6/95
Signature, President, COM- FSM — Date Approved by President

GENERAL SCIENCE

Course Description: This course will emphasize the development of basic scientific skills and concepts in chemistry, physics, earth science and biology. In addition, scientific vocabulary and reading comprehension will be addressed to assist students ill furthering their science education.

Objectives:
1. To develop scientific vocabulary and enhance student comprehension of written scientific material from a variety of sources.
2. To increase student ability to solve scientific problems.
3. To enhance student scientific inquiry skills through conducting scientific experiments and participating in hands-on activities.
4. To increase student understanding of basic scientific concepts.
5. To heighten student awareness of scientific issues affecting their lives and increase their interest in science.

Course outline:

A. Building Scientific Inquiry Skills

1. What is science and what do scientists do?

2. Observing and describing scientific phenomena (classroom activity).

3. Collecting and Classifying: How are organisms alike and different. Outdoor and classroom activity.

4. Measuring. Demonstrations and classroom activity measuring length, magnitude, volume, mass and weight, temperature and density.

5. Collecting data. Creating and reading scientific graphs. Reading from text on tables and graphs with lecture, followed by classroom activity/game which includes creating a graph to show results.

6. How to use a microscope. Using a microscope to assist in classifying and collecting data.

B. Introduction to Chemistry.

1. Atomic Theory. Reading from text. How to read the periodic table.

2. The States of Matter. Reading from text and Beginning Scientific English (Book 1). Classroom activity to identify the states of matter. Describing observations using vocabulary.

3. Changes in the States of Matter. Molecules and Water Chemistry. Reading from Beginning Scientific English on Evaporation and Condensation of Water. Classroom demonstration and description of observations.

4. Changes in Matter. Lecture and reading from text on chemical bonding and chemical reactions. Demonstration of molecule building. Demonstration or classroom activity involving a

chemical reaction (baking soda and vinegar). Description of results.

5. Solutions, Acids, Bases, and Salts. Reading in text. Classroom activity using litmus paper to identify solutions as acidic or basic. Graphing and describing results.

6. Everyday applications of chemistry. Reading from newspaper or Newsweek on current issue involving chemistry.

C. Introduction to Physics: Reading from Sci Tech. Introduction to vocabulary and reading comprehension exercise.

1. Motion and Forces. Reading from text. Classroom demonstration of forces acting on objects.

2. Work and simple machines. Classroom activity with graphing of results. Reading from text.

3. Waves. Reading from Beginning Scientific English (Book 2) and reading comprehension and vocabulary exercises.

4. Sound Waves: Classroom Activity .with description of results. Reading from text and Beginning Scientific *English* (Book 2).

5'. Reflection and Refraction. Classroom activity with mirrors, lenses and light. Reading from text and *Beginning* Scientific English (Book 2).

6. Electricity. Classroom activities with static electricity. Making predictions, describing and recording observations. Reading from text.

7... Electrical Circuits and Currents. Experiments with bulbs and batteries. Reading from text.

8. Magnetism. Reading from text. Experiments with magnets. Reading comprehension exercises on magnetism from Beginning Scientific English *(Book 2).*

D. Introduction to Earth Science

1. The Solar System. Classroom demonstration and reading from text. Video.
2. The Earth's Tilt, Rotation, Revolution and Seasons. Classroom demonstration and reading from text. Class makes a sun dial.

3. Magnetism of the Earth. Demonstration with magnets. Reading comprehension exercise.

4. Composition of the Earth. Reading comprehension and vocabulary exercises from Sci. Tech. and text.

5. Minerals, Ores, and Rocks. Classroom activity classifying minerals, ores, and rocks. Graphing results. Reading from text.

6. Volcanoes. Reading comprehension from Sci Tech and video (?).

7. Continental Drift. Lecture and reading from text. Video.

8. Weathering and Erosion. Classroom activity. Graphing and describing results. Reading from text.

9. The Oceans and Tides. Reading from text. Interpret data from weather service to determine how often tides change, etc. Lecture.

10. The Water Cycle. Cause and effect relationship of evaporation, condensation, etc. Reading from text.

11. The Air and Weather. Reading from text. Special topic article on the depletion of the ozone layer.

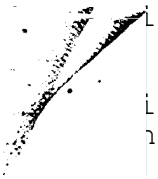
12. Energy. Sources and types %of energy. Field trip to the power plant. Pros and cons of electrical production. Decision-making exercise.

E. Introduction to Biology

1. Describing cell form and function. Reading from text and view video. Using a microscope to observe and describe plant and animal cells. Reading from text on plant cells.

2. classifying Living Organisms. Reading from text with an emphasis on vocabulary (root words and prefixes) and reading comprehension.

3. Bacteria and Viruses. Classroom activity examining bacteria using microscopes. Lecture on common bacterial and viral diseases. Special topic reading from current sources about AIDS.



ists. Examine with microscope and describe observations. from text.

i. Overview of basic characteristics. outdoor activity ng collection of fungi. Reading from text.

6. Plants and Photosynthesis. Lecture and reading from text. Reading comprehension and vocabulary exercises from Beginning Scientific (Book 1).

7. Plant reproduction. Observation of flowers. Reading from text. Classroom activity sprouting and planting bean seeds.

8. Overview of Invertebrates. Reading from text. Classroom activity identifying local organisms as invertebrates or vertebrates.

9. Fish, Amphibians and Reptiles. Overview of basic characteristics. Reading from text. Observation and description of preserved specimens.

10. Special Characteristics of Birds. Lecture and reading from text: Optional Saturday morning bird Watching trip. Using a bird book.

11. Mammals. Reading from text and discussion on the characteristics of mammals.

12. Food Chains and Food Webs. Reading from text. Classroom game demonstrating the interdependency of organisms.

13. Human Digestion, Circulation, and Respiration. Review parts and *function* of each system. Role of cells. Reading from text.

Texts:
Carona, P.B., Fuhs, P.M., Barnes, L., & Spellman, J.M., g,pringDoard for Passing the GED Science Test. (1993). Glenview, I1. Scott, Foresman and Company.

Reference Materials:

Bates,M., & Dudley-Evans, T., English for Science and Technology General Science. (1976). Longman Press.

Royds-Irmak, D.E.,
. (1975). Hong Kong. Thomas Nelson and Sons Ltd.

Drobnic, K., Abrams, S., & Morray, M., Sci Tech. Reading and Writing the English of Science and Technology. (19811. Culver City, CA., ELS Publications.

Course Content

A. Building Scientific_ inquiry Skill

l. Observing
2. Describing
3. Collecting Data
4. Classifying
5. Measuring

B. Introduction to Chemistry

1. Atomic Theory
2. States of Matter
3. Changes in States of Matter
4. Changes in Matter

5. Solutions
6. Current Events in Chemistry

C. Introduction to Physics

1. Motion and Forces
2. Work and Simple Machines
3. Waves
4. Sound Waves
5. Reflection and Refraction
6. Electricity
7. Electrical Circuits and Currents
8. Magnetism

D. Introduction to Earth Science

1. The Solar System
2. The Earth Tilt, Rotation, Revolution, and Seasons
3. Magnetism of the Earth
4. Composition of the Earth
5. Minerals, Ores, and Rocks
6. volcanoes
7. Continential Drift
8. Weathering and Crosion
9. The Ocean and Ti
10. The Water Cycle
11. The Air and Weather
12. Energy-sources and Types of Energy

E. Introduction to Biology

1. Cell Form and Function
2. Classifying Living Organisms
3. Bacteria and Viruses
4. Protists
5. Fungi
6. Plants and Photosynthesis
7. Plant Reproduction
8. Overview of Invertebrates
9. Fish, Amphibians and Reptiles
10. Special Characteristics of Birds
11. Mammals
12. Food Chains and Food Webs
13. Human Digestion, Circulation and Respiration

Evaluation Method

1 Mid-ter[m] End Final Exams
2. Total of 200 points
3. Five quizzes each worth 10 points total of 50 points
4. Ten homework of assignments each worth 5 points 50 points each

Attendance Policy

COM-FSM attendance policy applies.