

Grade level: 5

Course Title: Science & Technology and Engineering Education

Topic/Concept: Scientific Process

Time Allotment: 2 weeks

Unit Sequence: 1

**Major Concepts to be learned:**

1. To Identify, understand, and apply the steps to the Scientific Process

**Expected Skills to be demonstrated:**

1. Understand how theories are developed.
2. Identify questions that can be answered through scientific investigations and evaluate the appropriateness of questions.
3. Design and conduct a scientific investigation and understand that current scientific knowledge guides scientific investigations.
4. Describe relationships using inference and prediction.
5. Use appropriate tools and technologies to gather, analyze, and interpret data and understand that it enhances accuracy and allows scientists to analyze and quantify results of investigations.
6. Develop descriptions, explanations, and models using evidence and understand that these emphasize evidence, have logically consistent arguments and are based on scientific principles, models, and theories.
7. Analyze alternative explanations and understanding that science advances through legitimate skepticism.
8. Use mathematics in all aspects of scientific inquiry.
9. Understand that scientific investigations may result in new ideas for study, new methods or procedures for an investigation, or new technologies to improve data collection.

**PA Standards/Anchors:**

**Eligible Content:**

S5.A.1 S5.A.2	S5.A.1.1.1 S5.A.1.1.2 S5.A.1.1.3	S5.A.2.1.1 S5.A.2.1.2
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**Instructional Strategies:**

**Assessments:**

Science Notebook Note-taking Lecture Demonstrations Cooperative learning groups Hands-on Activities and Experiments	<ul style="list-style-type: none"><li>• Informal Science Notebook</li><li>• Quiz</li><li>• Lab Report</li></ul>
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Grade level: 5 Course Title: Science & Technology and Engineering Education

Topic/Concept: Drug/Alcohol Awareness

Time Allotment: 1 week

Unit Sequence: 2

**Major Concepts to be learned:**

1. To become aware of dangers of drug, alcohol, and tobacco use/abuse

**Expected Skills to be demonstrated:**

1. Understand the negative consequences of drug, alcohol, and tobacco use

**PA Standards/Anchors:**

**Eligible Content:**

10.1.D (Health, Safety, and Physical Education)

**Instructional Strategies:**

**Assessments:**

Class Discussion  
Cooperative learning groups

- Poster

Grade level: 5

Course Title: Science & Technology and Engineering Education

Topic/Concept: Water Cycle

Time Allotment: 3 weeks

Unit Sequence: 3

**Major Concepts to be learned:**

1. To explain the basic components of the water cycle
2. Describe how water can be changed from one state to another by adding and taking away heat

**Expected Skills to be demonstrated:**

1. Identify the process and components of the water cycle: evaporation, condensation, precipitation, transpiration, and filtration.
2. Describe relationships using inferences and predictions.
3. Demonstrate knowledge of the water cycle through hands-on activities.
4. Identify characteristic properties of matter that are independent of mass and volume.
5. Differentiate between volume and mass.
6. Describe how water changes from one state to another.
7. Explain how the cycling of water through the atmosphere impacts climate patterns.
8. Explain the effects of oceans and lakes upon climate.

**PA Standards/Anchors:**

**Eligible Content:**

3.3.5.A4  
3.3.5.A5

S5.C.1.1  
S5.C.1.2  
S5.D.2.1

**Instructional Strategies:**

**Assessments:**

Science Notebook  
Note-taking  
Lecture  
Demonstrations  
Cooperative learning groups  
Hands-on Activities and Experiments

- Informal Science Notebook
- Quiz
- Lab Report
- Poster or Graphic Representation

Grade level: 5

Course Title: Science & Technology and Engineering Education

Topic/Concept: Blood and Air

Time Allotment: 2 weeks

Unit Sequence: 4

**Major Concepts to be learned:**

1. Blood moves through the body in the circulatory system.
2. Air moves into and out of the body through the respiratory system.

**Expected Skills to be demonstrated:**

1. Explain how blood travels through the body.
2. Describe the circulatory system, the parts of the blood, and their functions.
3. Understand the importance of blood pressure.
4. Explore how the lung works.
5. Understand how the respiratory system works.
6. Understand how exercise affects respiration.

**PA Standards/Anchors:**

**Eligible Content:**

10.1.6.B (Health, Safety, and Physical Education)  
10.1.6.E (Health, Safety, and Physical Education)

**Instructional Strategies:**

**Assessments:**

Science Notebook  
Note-taking  
Lecture  
Demonstrations  
Cooperative Learning Groups  
Hands-on Activities and Experiments

- Informal Science Notebook
- Quiz
- Label Diagram

Grade level: 5

Course Title: Science & Technology and Engineering Education

Topic/Concept: Using Food & Staying Fit

Time Allotment: 2 weeks

Unit Sequence: 5

**Major Concepts to be learned:**

1. The body has separate systems that digest foods, absorb nutrients, and eliminate wastes.
2. A healthful diet and proper exercise are important to maintain the health of the body.

**Expected Skills to be demonstrated:**

1. Explore how the kidneys work.
2. Understand the process of digestion and absorption of nutrients.
3. Understand the importance of water to the body.
4. Understand the excretory system.
5. Understand how your liver works.
6. Explain the importance of physical fitness.
7. Understand the importance of exercise to the development of the body.
8. Understand how a healthful diet is important to physical fitness.

**PA Standards/Anchors:**

**Eligible Content:**

10.1.6.C (Health, Safety, and Physical Education)  
10.1.6.D (Health, Safety, and Physical Education)  
10.2.6.B (Health, Safety, and Physical Education)

**Instructional Strategies:**

**Assessments:**

Science Notebook  
Note-taking  
Lecture  
Demonstrations  
Cooperative learning groups  
Hands-on Activities and Experiments

- Informal Science Notebook
- Quiz
- Poster or Graphic Representation

Grade level: 5

Course Title: Science & Technology and Engineering Education

Topic/Concept: Ecosystems

Time Allotment: 8 weeks

Unit Sequence: 6

**Major Concepts to be learned:**

1. The interaction between living and non-living things in various ecosystems.
2. The interdependent and dependent relationships among the terrestrial and aquatic environments.
3. Variables that impact an ecosystem.

**Expected Skills to be demonstrated:**

1. Understand how living and non-living things depend on each other.
2. Create a model of a terrarium to study terrestrial ecosystems.
3. Create a model of an aquarium to study aquatic ecosystems.
4. Discuss how the components of an aquarium/terrarium are related.
5. Explore benefits and problems that organisms give to their environment.
6. Explore food chains and consider the impact organisms have on one another.
7. Identify producers, consumers, scavengers, and decomposers.
8. Differentiate between natural and human-made disturbances that affect ecosystems.
9. Research the effects of pollutants and alternative methods to reduce pollution in our environment.

**PA Standards/Anchors:**

**Eligible Content:**

S5.B.3	S5.B.3.1.1	S5.B.3.2.2	S5.B.3.2.1
	S5.B.3.1.2	S5.B.3.2.3	

**Instructional Strategies:**

**Assessments:**

Science Notebook – recording and organizing daily observations Using hand lenses, measuring devices and other testing equipment. Making and testing predictions. Lecture Demonstrations Cooperative learning groups Hands-on Activities and Experiments	<ul style="list-style-type: none"><li>• Science Notebook</li><li>• Quizzes</li><li>• Informational Brochure</li><li>• Poster</li><li>• Presentation</li></ul>
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