Lesson Topic: Unit 1The Practice of Science: Lab Safety, Scientific Method, Metric System, Scientific
Grade level: 7th
Length of lesson: 8-9 Weeks

Content Standards

MSETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MSETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

MSETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

MSETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Big Ideas:
Students will understand
- Lab safety awareness is essential
- The scientific method can be used to create and design experiments that answer questions
- Making accurate measurements help to ensure accurate results
- Document and interpret scientific language/text.

Essential Question(s):
- Why is it important to have lab safety awareness?
- How can the scientific method be used to make informed decisions?
- What is the difference between experimental repetition and experimental replication?
- Some statements in science called laws and some called theories. Why?
- What information is important to include in a scientific paper?

Student objectives (outcomes):
Students will be able to:
- Understand Lab Safety Procedures
- Pass a Lab Safety Test with 100% Proficiency
- Use the Scientific Method to design an experiment to answer a question
- Make accurate measurements with various tools and lab ware
- Record and interpret scientific data and text.

Assessment Evidence

Performance Task(s):

- Lab Safety Pamphlets
- Lab Safety Test
- Lab ware Test

Other Evidence:

- Microscope Review Activities
- Lab ware Identification Activities

Learning Plan

Learning Activities:

Scientific Method Activities
LAB: Working in groups using problem solving and the scientific method
Lab Safety Unit
Labeware Unit
Microscope Introduction
Measurement Activities

Resources:

Use the SMART Exchange for lessons and ideas on Scientific Method, Inquiry,
The Science Spot http://sciencespot.net/
Puzzle Makers http://www.puzzlemakers.net/samples.html
Bozeman Science Videos on YouTube:

Practice 1 - Asking Questions and Defining Problems

Practice 2 - Developing and Using Models

Practice 3 - Planning and Carrying Out Investigations

Students who demonstrate understanding can:

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The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts