How do different variables affect species growth?

MODELING:

Students will observe models that simulate changes in different environmental variables and their effect on species growth

1. Plant Growth
2. Algae
3. Slime
4. Slime Mold

Then students will use the information to design experiments to test their hypothesis on what factors will effect plant growth and mold growth.

Materials:

Fast Plants
Bread mold experiment

DATA:

Students will collect and use data to analyze and evaluate the experiments conducted.

Data collection -

1. Students will use traditional instruments rulers, thermometers, lamps, ph paper, scales

2. Students will also use vernier probes to help collect data when available

Data Displays - (both computer generated and old fashioned)

1. Spreadsheets
2. Graphs
3. Charts
4. Sketches
5. Writing conclusions - How did your results compare to the model

STANDARDS:

A2 Models - Students use *models* to examine a variety of real-world phenomena from the physical setting, the living environment, and the technological world and compare advantages and disadvantages of various *models*.

a. Compare different types of *models* that can be used to represent the same thing (including *models* of chemical reactions, motion, or cells) in order to match the purpose and complexity of a model to its use.
b. Propose changes to *models* and explain how those changes may better reflect the real thing.

B1 Skills and Traits of Scientific Inquiry - Students plan, conduct, analyze data from, and communicate results of investigations, including simple experiments.

a. Identify questions that can be answered through scientific investigations.
b. Design and safely conduct scientific investigations including experiments with controlled variables.
c. Use appropriate tools, metric units, and techniques to gather, analyze, and interpret data.
d. Use mathematics to gather, organize, and present data and structure convincing explanations.
e. Use logic, critical reasoning and evidence to develop descriptions, explanations, predictions, and *models.*
f. Communicate, critique, and analyze their own scientific work and the work of other students.

C1 Understandings of Inquiry - Students describe how scientists use varied and systematic approaches to investigations that may lead to further investigations.

a. Explain why it is important to identify and control variables and replicate trials in experiments.
b. Describe how scientists' analyses of findings can lead to new investigations.