

# ROBERTSON COUNTY BOARD OF EDUCATION

## MASTERY GUIDE

### EIGHTH GRADE

#### SCIENCE

#### **FIRST NINE WEEKS**

##### **Scientific Method**

Continue to develop the students' use and understanding of the scientific method.

1. Problem
2. Hypothesis
3. Materials
4. Procedure
5. Data – use graphs, charts, tables
6. Results
7. Conclusion

##### **Interactions Between Living Things and Their Environment**

8.2.3 Characterize the major biomes according to specific environmental features and identify the organisms commonly found in these areas.

##### **Heredity and Reproduction**

- 8.4.2a. Use the results of test cross to distinguish between dominant and recessive traits.
- 8.4.2b. Construct and interpret Punnett Squares to determine the genotype and phenotype of offspring.
- 8.4.3a. Create a model of the DNA molecule.
- 8.4.3b. Draw or construct a model representing the relationship among DNA, genes, and chromosomes.
- 8.4.3c. Construct a simple model that represents the basic process by which reproductive cells are produced (meiosis).
- 8.4.4 Research and present information on careers related to biotechnology.

##### **Diversity and Adaptation Among Living Things**

- 8.5.2a. Infer the relatedness of different organisms using a system of classification.
- 8.5.2b. Compare different organisms according to similarities and differences in their structures and function.

## **SECOND NINE WEEKS**

### **Scientific Method**

Continue to develop the students' use and understanding of the scientific method.

1. Problem
2. Hypothesis
3. Materials
4. Procedure
5. Data – use graphs, charts, tables
6. Results
7. Conclusion

### **Forces and Motion**

- 8.11.1a. Determine the speed of an object based on the distance and amount of time traveled.
- 8.11.1b. Differentiate between speed and velocity.
- 8.11.2 Describe how Newton's three laws of motion explain the movement of objects.
- 8.11.3a. Distinguish between mass and weight.
- 8.11.3b. Describe the relationship among distance, size, mass, and gravitational force of objects.
- 8.11.4 Differentiate among the six types of simple machines and their applications.

### **Interactions of Matter**

- 8.13.1 Determine whether a substance is an acid or base using the indicator.
- 8.13.2a. Determine whether an interaction between substances results in a physical or a chemical change.

## **THIRD NINE WEEKS**

### **Scientific Method**

Continue to develop the students' use and understanding of the scientific method.

1. Problem
2. Hypothesis
3. Materials
4. Procedure
5. Data – use graphs, charts, tables
6. Results
7. Conclusion

### **Earth Features**

- 8.9.1a. Differentiate among earth layers according to their physical properties.
- 8.9.1b. Illustrate the major plate boundaries.
- 8.9.2a. Demonstrate how plate movements cause major geological events.
- 8.9.2b. Compare and contrast processes that shape the earth in the past with those shaping the earth today (e.g., plate movements, human activity, mountain building).

### **Interactions of Matter**

- 8.13.2b. Recognize that oxygen, in combination with another substance, results in a chemical change.
- 8.13.3a. Identify the reactants and / or products in a chemical reaction.
- 8.13.3b. Explain why the mass of the reactants is the same as the mass of the products during a chemical change.
- 8.13.3c. Describe how variables such as temperature and concentration affect the rate of reaction.

## **FOURTH NINE WEEKS**

### **Scientific Method**

Continue to develop the students' use and understanding of the scientific method.

1. Problem
2. Hypothesis
3. Materials
4. Procedure
5. Data – use graphs, charts, tables
6. Results
7. Conclusion

### **Earth Resources**

- 8.10.1a. Distinguish between common materials found in rock samples using test kits, descriptive charts, etc.
- 8.10.1b. Describe how various minerals are used.
- 8.10.2a. Label a diagram depicting the processes of the rock cycle.
- 8.10.2b. Explain how fossils are used to understand the earth's past.
  
- 8.10.3a. Analyze and evaluate the impact of man's use of earth's resources.
- 8.10.3b. Research how technological advances have impacted the environment (e.g., the use of fertilizers, fossil fuels).
- 8.10.4a. Describe the different sources of energy used by man.
- 8.10.4b. Analyze aspects of energy consumption by society.
- 8.10.5. Evaluate the effectiveness of various conservation strategies on the earth's energy and natural resources.