

## Building Classroom Objectives from the 2010 *Science Standards of Learning* Structure of the Standard

“**Investigate**” refers to scientific methodology and implies systematic use of the following inquiry skills:

- observing;
- classifying and sequencing;
- communicating;
- measuring;
- predicting;
- hypothesizing;
- inferring;
- defining, controlling, and manipulating variables in experimentation;
- designing, constructing, and interpreting models; and
- interpreting, analyzing, and evaluating data.

“**Understand**” refers to various levels of knowledge application. In the *Science Standards of Learning*, these knowledge levels include the ability to:

- **recall** or recognize important information, key definitions, terminology, and facts;
- **explain** the information in one’s own words, comprehend how the information is related to other key facts, and suggest additional interpretations of its meaning or importance;
- **apply** the facts and principles to new problems or situations, recognizing what information is required for a particular situation, using the information to explain new phenomena, and determining when there are exceptions;
- **analyze** the underlying details of important facts and principles, recognizing the key relations and patterns that are not always readily visible;
- **arrange and combine** important facts, principles, and other information to produce a new idea, plan, procedure, or product; and
- **make judgments** about information in terms of its accuracy, precision, consistency, or effectiveness.

- 4.2 The student will investigate and understand characteristics and interactions of moving objects. Key concepts include
- a) motion is described by an object’s direction and speed;
  - b) changes in motion are related to force and mass;
  - c) friction is a force that opposes motion; and
  - d) moving objects have kinetic energy.