

8th Grade Physical Science Matter

Implementation Guide

Grade Level Expectation

Systems

1.1.1 Understand how to use physical and chemical properties to sort and identify substances.

1.1.4 Understand that energy is a property of matter, objects, and systems and comes in many forms (i.e., heat [thermal] energy, sound energy, light energy, electrical energy, kinetic energy, potential energy, and chemical energy)

1.2.1 Analyze how the parts of a system interconnect and influence each other.

1.2.2 Understand how various factors affect energy transfers and that energy can be transformed from one form of energy to another.

1.2.3 Understand that all matter is made of particles called atoms and that atoms may combine to form molecules and that atoms and molecules ca

kg runs at this

7. A cheetah can run briefly with a speed of 31 m/s. Suppose a cheetah with a mass of 47 kg runs at this speed. What is the cheetah's kinetic energy?

a speed of about

8. A ping-pong ball has a mass of about 2.45g. Suppose the ball hit across the table with a speed of about 4.0 m/s. What is its kinetic energy?

potential

9. For each of the following, state whether the system contains primarily *kinetic energy* or *potential energy*...
- a. a stone in a stretched slingshot _____
 - b. a speeding race car _____
 - c. a basketball as it leaves your hand and goes towards the hoop _____
 - d. water above a hydroelectric dam _____