

Unit 4E

Kinetic Energy and Gravitational Potential Energy

Note-Taking Guide **TEACHER**

➤ Main Ideas, Key Points, Questions:

After watching the video segment, write down key points, main ideas, and big questions.

➤ Objective(s):

- *Calculate the kinetic energy of an object.*
- *Calculate the gravitational potential energy of an object relative to a reference point.*
- *Understand how gravitational potential energy is converted to kinetic energy and vice versa.*

➤ Notes:

During the video segment, use words, phrases, or drawings to take notes.

➤ Summary:

After watching the video segment, write at least three sentences explaining what you learned. You may ask yourself: "If I was going to explain this to someone else, what would I say?"

Answer the following.

1. Define kinetic energy in your own words.

Kinetic energy is the energy of motion.

2. What must an object be doing in order to have kinetic energy?

An object must be moving to have kinetic energy.

3. What is the equation for kinetic energy?

$$KE = \frac{1}{2} mv^2$$

4. Kinetic energy is measured in what unit?

Kinetic energy is measured in joules.

5. Define potential energy in your own words.

Potential energy is either stored by an object or is based on its position.

6. One type of potential energy is gravitational potential energy. What is necessary for an object to have gravitational potential energy?

An object must have some height relative to a reference point in order to have

gravitational potential energy.

7. What is the equation for gravitational potential energy?

$$PE_g = mgh$$

Answer the following.

8. What happens to an object's gravitational potential energy as it falls from some height?

As an object falls, its gravitational potential energy decreases.

9. What happens to an object's kinetic energy as it falls from some height?

As an object falls, its kinetic energy increases by the same amount that its

gravitational potential energy decreases.

10. Define energy in your own words.

Energy is the amount of work that an object does.

11. Can an object have both kinetic energy and gravitational potential energy? Explain.

Yes, an object can have both kinetic energy and gravitational potential energy

because it can be moving and have some height relative to a reference point.