Energy Grade 7 Lab Practical

Teacher's Answer Key

This is your chance to see how well your students have picked up on important key concepts, and if there are any holes. Your students also will be working on their homework assignment as you do this test individually with the students.

Materials:

- string
- scissors
- tape
- pencil
- pulley with 6 feet of rope
- yardstick
- wood block
- tennis ball
- large washer or hexnut

Lab Practical: Ask the student *Note: Answers given in italics!*

You will demonstrate two of the following:

1. Design an experiment that demonstrates the first law of thermodynamics.
    a. *Refer to "First Law of Thermodynamics" for ideas. Basically you are looking for them to show you how energy is always conserved, and then have them show you how energy is the ability to do work, and work is moving something against a force over a distance. Pushing a block, lifting an object, etc) are all examples of this.*
2. Design an experiment that demonstrates the second law of thermodynamics.
    a. *Refer to "Second Law of Thermodynamics" for ideas. Essentially you want to see that they can explain to you that heat only flows from a warmer object to a cooler object.*
3. Make a simple pendulum (only one bob) and identify points where the kinetic and potential energies are both highest and lowest for each.
    a. *Highest kinetic energy/lowest potential energy is at the base of the arc of the swing, and highest potential energy/lowest potential energy is at either end of the arc when the pendulum changes direction.*

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Student Exam

This is your chance to see how well your students have picked up on important key concepts, and if there are any holes. Your students also will be working on their homework assignment as you do this test individually with the students.

Materials:

- string
- scissors
- tape
- pencil
- pulley with 6 feet of rope
- yardstick
- wood block
- tennis ball
- large washer or hexnut

Lab Practical:

You will demonstrate two of the following using the materials provided:

1. Design an experiment that demonstrates the first law of thermodynamics.

2. Design an experiment that demonstrates the second law of thermodynamics.

3. Make a simple pendulum and identify points where the kinetic and potential energies are both highest and lowest for each.