

Standards:

PS#2: Changes of state are explained by a model of matter composed of atoms and/or molecules that are in motion.
PS #3: There are two categories of energy: Kinetic and Potential.

Handouts:

None.

Note: Use warm water from sink.

Use online stopwatch to do the time recording.

On Board:

Make a two column chart on the board for time and temperature

1. Take paper(s) out of tray(s)
2. Get out Fusion book and turn to p. 373.
3. Turn in Bell Work under your number for Energy & Motion Unit 5 Lesson 1.
4. Get out Laptop and log in.
5. Do Bell Work on the board.
6. Pencil

Up For Grabs:

Materials:

Ice, Container for ice, warm water, Thermometer, Science Composition books, Laptops, and a Timer.

Procedures:

1. Take attendance.
2. Do Bell Work.
3. Discuss Bell Work.
4. Go over procedure for the day.
5. Go over focus for the day.
6. Go over Energy and Motion Unit 5 Lesson 1 - Day 4 (Kinetic/Potential Energy Lab)
7. Go over Assignment B Fusion Book pp. 364-372.
8. Take follow up quiz for only students who took assignment B. Please be sure to prepare room for test and up dividers. Students who did Assignment A will need to find something quietly to work on while we go over assignment B.
9. Play review game with students how did assignment A. You can play this as around the world.
10. Begin working on p. 373 in your Fusion book (Energy & Motion Unit 5 Lesson 1 Review).

Homework:

Finish p. 377 in your Fusion book and define all vocabulary words for lesson 2 on your vocabulary sheet.

Energy & Motion Unit 5 - Lesson 1

Day: 6

To Do...

Bell Work - Day 6

1. Take paper(s) out of tray(s)
2. Get out Fusion book and turn to p. 373.
3. Turn in Bell Work under your number for Energy & Motion Unit 5 Lesson 1.
4. Get out Laptop and log in.
5. Do Bell Work on the board.
6. Pencil

Label This Bell Work: Energy & Motion Unit 5 - Lesson 2 - Use one box.

Essential Question: How are thermal energy and temperature related?

Procedure

Today We will...

1. Take attendance.
2. Do Bell Work.
3. Discuss Bell Work.
4. Go over procedure for the day.
5. Go over focus for the day.
6. Go over Energy and Motion Unit 5 Lesson 1 - Day 4 (Kinetic/Potential Energy Lab)
7. Go over Assignment B Fusion Book pp. 364-372.
8. Take follow up quiz for only students who took assignment B. Please be sure to prepare room for test and up dividers. Students who did Assignment A will need to find something quietly to work on while we go over assignment B.
9. Play review game with students how did assignment A. You can play this as around the world.
10. Begin working on p. 373 in your Fusion book (Energy & Motion Unit 5 Lesson 1 Review).

Focus

- You will learn how atoms, molecules, and compounds relate.
- You will learn what molecules are necessary for life processes.

State Standard

PS#2: Changes of state are explained by a model of matter composed of atoms and/or molecules that are in motion.

PS #3: There are two categories of energy: Kinetic and Potential.

Answers p. 373 In Fusion Book

1. C
2. B
3. A
4. The kinetic energy increases.
5. Nuclear reactions take place in the sun and release electromagnetic energy in the form of light and heat.
6. Heat travels from an object of higher temperature to an object of lower temperature.

Answers p. 373 In Fusion Book

7. The amount of chemical energy a substance has is determined by the kinds of atoms in the substance and their arrangement.
8. Sample Answer: electromagnetic energy to heat the food and light the microwave, mechanical energy to turn the turntable, sound energy through the keypad tones, thermal energy and sound energy lost during the use of microwave.

Answers p. 373 In Fusion Book

9. Sample Answer: Electromagnetic energy from the microwave causes chemical changes in the food. As the bonds in the food molecules break during cooking, energy is released in the form of heat.
10. The law of conservation of energy states that energy is neither created nor destroyed, only changed into another form.

Hot vs. Cold Class Activity

1. Get out your science composition notebooks.
2. Label them, "Energy & Matter Unit 5 Lesson 2 - Day 1 - Hot vs. Cold" (Date). Make the chart on the board to record the time and temperature for each minute.
3. You will work with the person beside you.
4. Get the following materials for your group: small cup, warm water, thermometer, and ice cube. Place the ice cube on your table while you are waiting for everyone in the class to get ready so it does not begin to melt in your hand.
5. Take the temperature of water with no ice cube in your cup (Use Fahrenheit).
6. Drop your ice cube into the water and we will start the timer.
7. Check the ice every minute until the ice is completely melted. DO NOT STIR! LEAVE THERMOMETER IN WATER. Record you temperature and time each minute.
8. After your ice cube is melted record how long it took to melt in your Science Composition books.
9. Put your materials away and answer the questions on the next slide.

Online Stop Watch

Click Here: To Use The Online Stop Watch

Hot vs. Cold Class Activity Questions

1. Explain how the ice chill the drink. You need to use at least 5 sentences to answer this question. Please be sure to include the following in your answer:
 - A. Which way is the energy transferring?
 - B. What is happening to the molecules in the water, ice cube, and thermometer?
2. How else could we chill a drink without using ice?

Hot vs. Cold Class Activity Questions

1. The molecules in the hot water are moving fast and collide with the molecules of glass of the thermometer. The glass molecules collide with the molecules of the red liquid in the thermometer. The molecules of the liquid move faster and expand and because their no where to go they go up the tube and read a higher temperature. The energy is moving from the hot water to the thermometer.

When the ice cube is placed into the water the energy from the hot water is being transferred to the ice cube by conduction and is being taken away from the thermometer and water. This causes the molecules in the water to move slower and contract as well as in the thermometer. The liquid in the thermometer goes down the cylinder because the molecules in the liquid are losing energy and condensing, which will in turn read a lower temperature. The collision of the warm water molecules will collide with slower moving ice cube molecules and cause them to speed up and spread out. The molecules of the ice will keep spreading out until it changes completely to liquid or melts. The energy used to melt the ice has been taken away from the warm water, causing its molecules to move slower and condense making the water in the cup cooler.

Note: Another place the water in the cup will lose energy to by conduction is to the air molecules around the cup and water.

Hot vs. Cold Class Activity Questions

2. Sample Answer: You can put the cup in a freezer.

Homework

Finish p. 377 in your Fusion book.

Define all vocabulary words for lesson 2 on your vocabulary sheet.