

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

**Handouts:**  
None.

**On Board:**  
1. Get out assignment A or B depending on which you did.  
2. Get out your Energy and Motion Unit 5 Lesson 1 - Day 4 (Kinetic/Potential Energy Lab)  
3. Get out Laptop and log in.  
4. Do Bell Work on the board.  
5. Pencil

**Up For Grabs:**

**Materials:**  
Laptops and dividers.

**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. 373 in your Fusion book (Energy & Motion Unit 5 Lesson 1 Review).

# Energy & Motion Unit 5 - Lesson 1 Day: 4

To Do...      Bell Work - Day 5

1. Get out assignment A or B depending on which you did.
2. Get out your Energy and Motion Unit 5 Lesson 1 - Day 4 (Kinetic/Potential Energy Lab)
3. Get out Laptop and log in.
4. Do Bell Work on the board.
5. Pencil

Label This Bell Work: Energy & Motion Unit 5 - Lesson 1 - Use one box.

What is energy transformation and give an example of energy transformation.

Bell Work - Day 5

Label This Bell Work: Energy & Motion Unit 5 - Lesson 1 - Use one box.

What is energy transformation and give an example of energy transformation.

The process of energy changing from one form into another.

When a skateboarder is at the top of the ramp it it potential energy. As the skateboarder goes down the ramp the potential energy is changing (transforming) to kinetic energy. When the skateboarder is at the bottom of the ramp it is kinetic energy. As he or she goes back up the ramp the energy changes back to potential energy.

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 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 about kinetic, potential, and mechanical energy.
- Students will learn that there are many different forms of energy.
- Students will learn that energy cannot be created or destroyed.

State Standard

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

Answers Energy and Motion Unit 5 Lesson 1 - Day 4 (Kinetic/Potential Energy Lab)

Hypothesis:

If: the ball is dropped from a given height

then: it will bounce back to the original height it was dropped from

because: potential energy will convert to kinetic energy.

Answers Energy and Motion Unit 5 Lesson 1 - Day 4 (Kinetic/Potential Energy Lab)

Analysis:

1. Potential energy

2. Kinetic energy

3. The ball would bounce back to the original height it was dropped from.

How did the type of ball used affect your results? Why?

The type of ball affects the results because we saw that \_\_\_\_\_ ball bounced higher than \_\_\_\_\_ ball. The ball may have been affected by elastic energy from the bounce of the tennis ball or it may have been affected by friction affecting the balls differently when they bounced back.

Answers Energy and Motion Unit 5 Lesson 1 - Day 4 (Kinetic/Potential Energy Lab)

Conclusion:

Sample Answer: The purpose of this lab was to test kinetic and potential energy changes. The hypothesis was that if a ball was dropped from a given height it would bounce back to the original height it was dropped from because potential energy will convert to kinetic energy. The procedures were to use a meter stick to measure the drop heights and rebound bounce heights of a tennis ball, golf ball, and ping pong ball at 30cm, 50cm, and 200cm. The data showed that the tennis ball bounced to a height of \_\_\_\_\_, the golf ball bounced to a height of \_\_\_\_\_, and the tennis ball bounced to a height of \_\_\_\_\_. (Analysis: A further sentence or two may be needed to explain the data and trends from the data. The students should say that the rebound heights were or were not equal to the initial drop heights) (Reflect on hypothesis: The students should say "The original hypothesis was incorrect because..... OR The original hypothesis was correct because....." Any why)

Fusion Book pp. 364-372

5. Gone over in class (See book).
6. Sample Answer: You might sketch a clock pendulum or child swinging, or amusement park ride such as a roller coaster or log flume.
7. No, because he is at the bottom of the ramp. Gravity cannot pull him any lower, so he has no gravitational potential energy. You may also consider that the skater is still above the ground because he is on the ramp. Therefore, he has some gravitational potential energy. Depends how you look at the ramp example.

Fusion Book pp. 364-372

8. A: mechanical; B: electromagnetic; C: Sound
9. Electromagnetic energy is caused by vibration of electrically charged particles. Electrical energy is caused by the position or motion of electrically charged particles.
10. Your answer should demonstrate that you have an understanding that the pinball machine is powered by electrical energy as inferred by the lights, sounds (rings when the ball hits the bumper), and the motion of the flipper.

Fusion Book pp. 364-372

11. Gone over in class (See book).
12. The energy in the chemicals is stored energy. The battery must be placed into a completed electrical circuit for the energy to create an electric current.
13. electromagnetic energy
14. The signals that modern technology depends on are vulnerable to space and weather.

Fusion Book pp. 364-372

15. Advanced technology makes predicting space weather more important. Scientists use sensors and images of the sun to look for patterns of activity. They monitor solar flares by the x-rays and light they produce. Scientists use the data to build computer models that will forecast space and weather.

Fusion Book pp. 364-372

16. Sample Answer: In a cell phone, the chemical energy in the battery is transformed into electrical energy to power the phone. In a digital wristwatch, the battery in the watch is transformed into electrical energy to display the time.

17. The law of conservation of energy states energy is not created or destroyed; it can only change forms. An energy transformation is a change from one form of energy to another.

Fusion Book pp. 364-372

18. electrical energy; sound energy, mechanical energy, electromagnetic energy.

19. Sample Answer: In a camera flash, the electrical energy in the wires is transformed into light in the flash bulb. In a table lamp, the electrical energy in the wires in the wall is transformed into light in the light bulb.

20. remains the same.

Fusion Book pp. 364-372

21. potential energy

22. kinetic energy

23. heat

24. Sample Answer: electrical energy of the clock, mechanical energy of the pencil sharpener, electromagnetic energy of the light.

Open Note Quiz - STUDENTS THAT DID ASSIGNMENT B ONLY

1. Get dividers and prepare room for quiz.
2. Open up lap tops.
3. Log in and go to, "Think Central" from the, "Middle Leopard Techie" page.
4. Log into "Think Central."
5. Go to, "Things To Do" and click on the assignment given to you.
6. Take Energy & Motion Unit 5 Lesson 1 Quiz.
7. Read the screen about testing then hit, "Start Test."
8. YOU ARE PERMITTED TO USE YOUR ENERGY & MOTION UNIT 5 LESSON 1 DIGITAL SCRIPT TO HELP YOU.

WHEN YOU ARE FINISHED

9. Review and check your answers if you need to.
10. Click on, "Score Test."
11. Click on, "Score Test" again.
12. Click on, "Ok."
13. Log out of Think Central and close laptop.
14. Put dividers back. Keep chairs turned around until everyone is complete with quiz.
15. PLEASE BE SURE TO SHOW MR. MCCULLY YOUR SCORE.

Cell Project Presentations

Finish up Cell Project Presentations (If Needed)

Homework

Finish p. 373 in your Fusion book (Energy & Motion Unit 5 Lesson 1 Review).