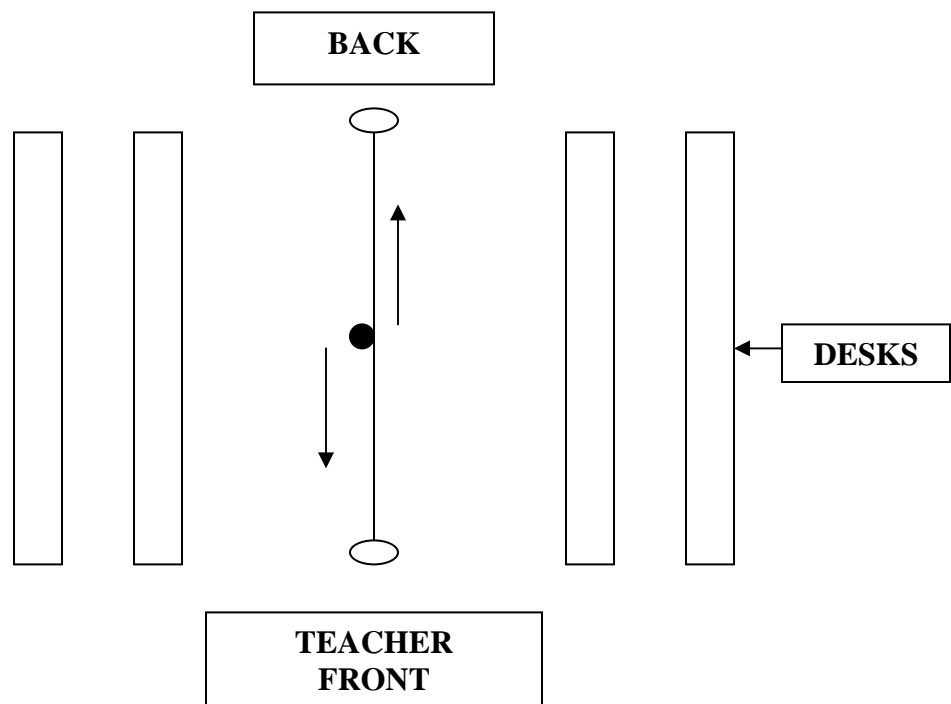




2ND LAW OF THERMODYNAMICS

**When an energy conversion occurs,
some of the energy is converted into
heat (wasted energy).**

Classroom setup



Homework #1- Assessment

Two points for each correctly stated life application to the Law of Conservation of Energy.

5 applications = 10 points

4 applications = 8 points

3 applications = 6 points

2 applications = 4 points

1 application = 2 points

Homework #2 – Assessment

Research Assignment - 20 points

| | 10 points | 5 points |
|-------------|---|---|
| Research | Clear and accurate description of the perpetual motion machine. | An attempt to describe the perpetual motion machine. |
| Explanation | Clear and accurate explanation of why the machine was not successful. | An attempt to explain why the machine was not successful. |

Design Assignment – 20 points

| | 10 points | 5 points |
|-------------|---|---|
| Design | Clear and easy to understand perpetual motion machine design. | An attempt to design a perpetual motion machine. |
| Explanation | Clear explanation of why the machine will be 100% efficient. | An attempt to explain why the machine will be 100% efficient. |

Activity Assessment – 10 points

1 point = cooperative learning in construction of the pendulum

| | 3 points | 1 point |
|-----|--|-------------|
| Q 1 | Clear and accurate answers as discussed during the activity. | An attempt. |
| Q 2 | Clear and accurate answers as discussed during the activity. | An attempt. |
| Q3 | Clear and accurate answers as discussed during the activity. | An attempt. |

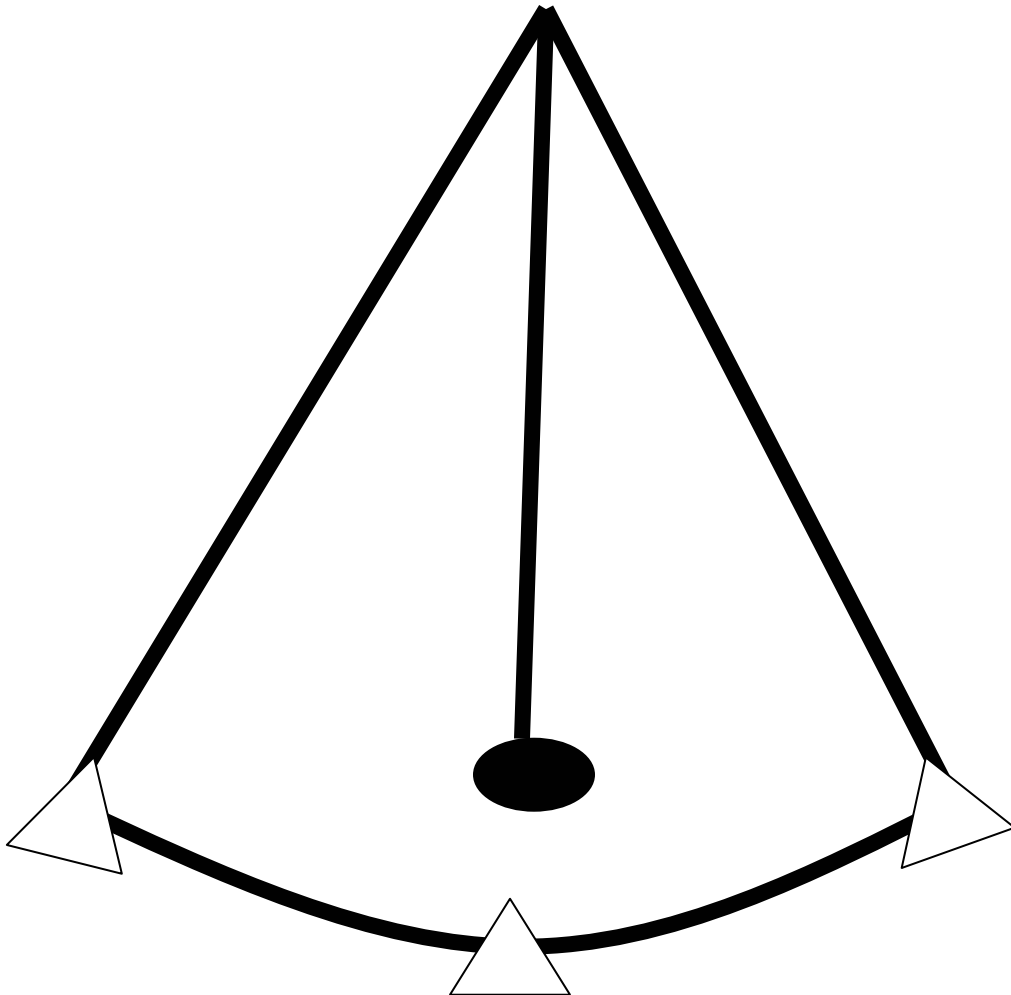


LAW OF CONSERVATION OF ENERGY

**Energy cannot be created or
destroyed, but can change its form.**



PENDULUM POWER



PRE/POST TEST

ANSWER KEY

1. Which is not a form of energy?
A. Kinetic B. Solar C. Potential **D. wire**
2. _____ is an example of a man made system in which energy is transferred from one form to another.
A. Pendulum B. Car C. Refrigerator **D. All of these**
3. Energy cannot be created or destroyed, but can change forms. This is known as the "Law of Conservation of _____".
A. Momentum B. Chemistry C. The Environment **D. Energy**
4. When an energy conversion occurs, some of the energy is converted into _____ heat.
A. utilized **B. wasted** C. conserved D. used
5. _____ is an example of a 100% efficient machine.
A. Overhead projector B. Pendulum C. Bike **D. none of these**
6. In a sentence, name one common force that acts on machines to decrease their efficiency? ***Students should mention some form of friction.***
7. When running, the mechanical energy from your body is converted. What type of energy does it convert to? ***Students should mention heat energy.***
8. State the 2nd Law of Thermodynamics. ***When an energy conversion occurs, some of the energy is converted into wasted heat.***
9. Relate the Law of Conservation of Energy to a pendulum. ***Students should mention an energy conversion, such as potential energy converted into kinetic energy during the swinging of the pendulum.***
10. Justify why a pendulum would be more efficient than a car. ***Students should explain that a pendulum would have less friction than a car. The pendulum has less moving parts to create the friction.***

PRE/POST TEST

Name: _____
Class: _____
Date: _____

1. Which is not a form of energy?
A. Kinetic B. Solar C. Potential D. wire
2. _____ is an example of a man made system in which energy is transferred from one form to another.
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A. Overhead projector B. Pendulum C. Bike D. none of these
6. In a sentence, name one common force that acts on machines to decrease their efficiency?
7. When running, the mechanical energy from your body is converted. What type of energy does it convert to?
8. Explain the 2nd Law of Thermodynamics.
9. Relate the Law of Conservation of Energy to a pendulum.
10. Justify why a pendulum would be more efficient than a car.

Tracy Smith, Middle School of the Arts
Palm Beach County, Jupiter, Florida
June 26, 2001