

Name _____

Worksheet Completion:

Teacher signature

Kahoot score: _____

Teacher signature

GVC 8.2 Physical Systems

Final Review

***Each Final Review is worth 4 points on your binder grade. Each Kahoot review is worth 2 points on your binder grade. You must complete the worksheet in the amount of time allotted by your teacher to get a teacher's signature. You must actively participate on each kahoot to get a teacher's signature. If you get 8 teacher signatures before the RISE test, you will earn ice cream. For each additional signature, you will earn toppings for the ice cream.

8.2.1 Kinetic Energy

1. Finding Kinetic Energy

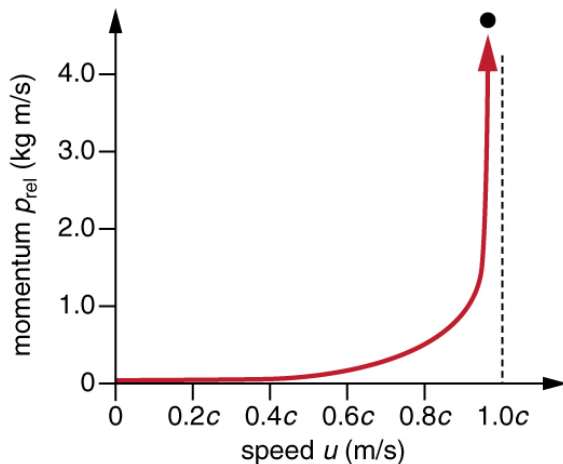
The formula for kinetic energy is $KE = (\text{mass} \times \text{velocity}^2) \times 0.5$. Use this equation to find kinetic energy for each of the following.

- How much kinetic energy would a bowling ball have with a mass of 10 and a velocity of 2 (remember to square the velocity)? _____
- How much kinetic energy would an eagle have with a mass of 5 and a velocity of 3? _____
- How much kinetic energy would a truck have with a mass of 25 and a velocity of 5? _____
- How much kinetic energy would a rabbit have with a mass of 3 and a velocity of 5? _____

2. For each example, underline the one that has the **greatest** kinetic energy.










- a 4 pound bowling ball rolling down a ramp **OR** 1 pound baseball rolling down a ramp
- a 2 ton car speeding down a hill **OR** a 4 ton truck speeding down a hill
- a 10 kg person running **OR** a 11 kg person running
- a 20 pound dog chasing a bird **OR** a 5 pound cat chasing a bird

3. According to the graph, how is kinetic energy affected as speed is increased?



8.2.2 Kinetic and Potential Energy

4. Classify each of the examples as potential (p) or kinetic (k) energy

| | | |
|--|--|---|
| Person riding a Bicycle _____  | A Flying Bat _____  | Batteries not being used _____  |
| A bowl of fruit _____  | Bowling ball hitting pins _____  | A Bell ringing _____  |
| A Car Racing _____  | A bow extended _____  | A show car not moving _____  |

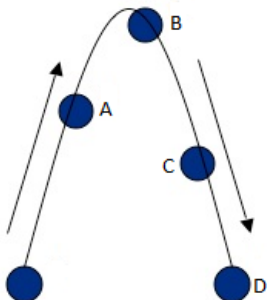
5. For each example, underline the one that has the **greatest** potential energy

- A bird sitting on the 5ft high fence **or** a bird sitting on a wire 25 feet high
- A truck parked on a parking garage's 3rd level **or** a truck parked on the 1st floor of a parking garage
- A book sitting on the top bookcase shelf **or** a book sitting on the lowest bookcase shelf.
- A 50 lb dog sleeping on a rug in the 3rd floor apartment **or** a 60 lb dog sleeping on a rug in the 3rd floor apartment
- A 130 pound skier on top of the hill **or** a 155 pound skier on top of a hill
- A student standing on the 4th floor of a build **or** a student standing on the 6th floor of a building

8.2.3 Changes in kinetic and Potential Energy

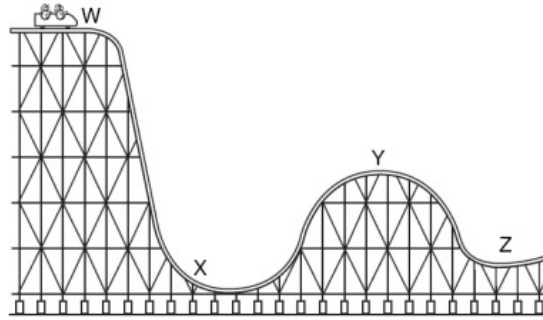
6. A ball is thrown into the air as shown in the picture below. Please label each of the following positions with one of the following:

- Greatest potential energy
- Greatest kinetic energy
- Potential energy turning into kinetic
- Kinetic energy turning into potential



| |
|----|
| A. |
| B. |
| C. |
| D. |

7. Explain what will happen to the cart between W and X.

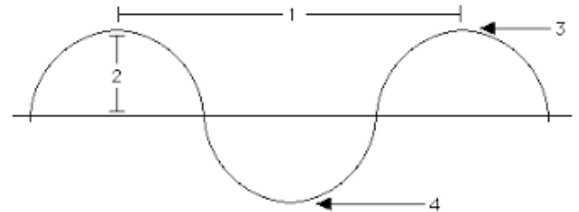


8. Explain what will happen to the cart Between X and Y

9. Classify the surfaces as having the least friction to greatest friction and explain your reasoning for why.

| Surface: | Most friction OR Least Friction | Explain your reasoning for why you chose that. |
|------------|---------------------------------|--|
| Wax | | |
| Sand Paper | | |

8.2.4 Structure of Waves

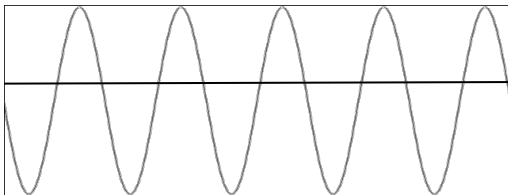


10. Use the picture to label and provide a definition for the main parts of a wave.

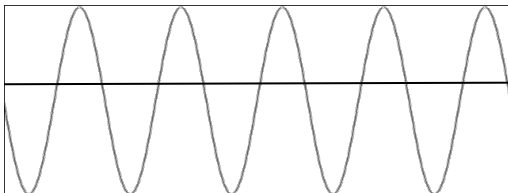
| | 1 | 2 | 3 | 4 |
|--------------|---|---|---|---|
| Part of Wave | | | | |
| Definition | | | | |

11. Explain the difference between a longitudinal and transverse wave.

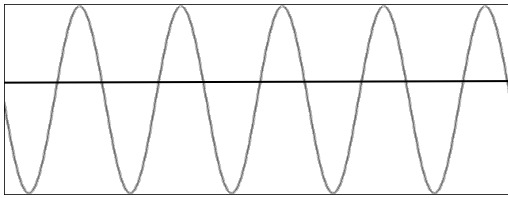
12. In comparison to the wave below, draw a wave that has a higher frequency and lower amplitude.



13. In comparison to the wave below, draw a wave that has an increased (larger) wavelength and higher amplitude.



14. In comparison to the wave below, draw a wave with a lower frequency.



8.2.5 Behavior of Waves

15. Provide a definition and a picture of each wave behavior

| Wave Behavior | Definition | Picture |
|---------------|------------|---------|
| Reflection | | |
| Absorption | | |
| Refraction | | |
| Diffraction | | |
| Scattering | | |

8.2.6 Digital and Analog

16. Complete the data table below

| | Definition | Examples | Draw the Wave | Advantage | Disadvantage |
|---------|------------|----------|---------------|-----------|--------------|
| Analog | | | | | |
| Digital | | | | | |

17. Explain when an analog signal is better than a digital signal.