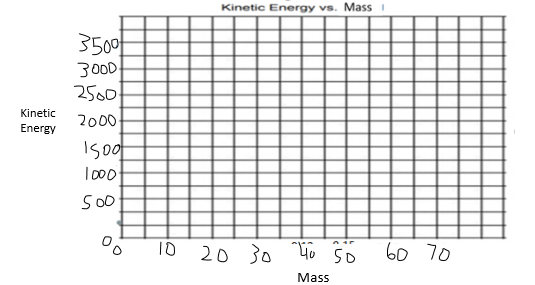
**UNIT 1 TEST STUDY GUIDE**

This is a study guide for the UNIT 1 EXAM that we will have in class on **TUESDAY 11/10/20.**

**Kinetic Energy:**

Be able to answer the following questions:

* Be able to interpret and create tables and graphs about speed, mass, and kinetic energy.

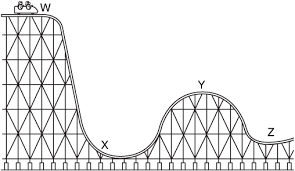
 

* What is the relationship of mass to kinetic energy? What does a graph of mass vs kinetic energy look like?
* What is the relationship of speed to kinetic energy? What does a graph of speed vs kinetic energy look like?
* Be able to explain the relationship between potential energy and kinetic energy.
* Which two factors affect kinetic energy? Mass and speed.
* A 30 kg ball and a 20 kg ball are rolling across Mr. Doming’s Driveway at the same speed. Which ball has more Kinetic Energy?
* Mr. Doming and Ms. Cloonan have the same mass. They decide to race each other. Mr. Doming ran at 10 m/s and Ms. Cloonan ran at 5 m/s. Which teacher has more kinetic energy?
* Define kinetic energy and provide an example.
* Define Mass and provide an example.
* Define Speed and provide an example.
* Define the Law of Conservation of Energy and provide an example.

**Potential Energy:**

Be able to answer the following questions:

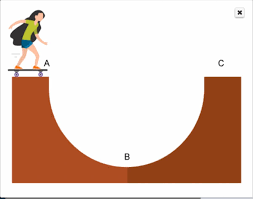
* What is potential energy?
* What is an example of potential energy?
* Where on a rollercoaster is there the most potential energy and the most kinetic energy?



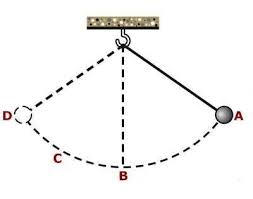
* What are the different types of potential energy (gravitational, chemical, elastic, nuclear, electrostatic, magnetic)?
* Which two factors affect gravitational potential energy?
* Two rocks are hanging at the edge of the same cliff. ROCK A has a mass of 30 kg and ROCK B has a mass of 20 kg. Which rock has more potential energy? Explain why.
* Look at the table below. Based on the information in the table, which ball would have the most potential energy? Explain why.

|  |  |  |
| --- | --- | --- |
| **Ball** | **Height in the air (m)** | **Mass (g)** |
| Ball A | 10 m | 50 g |
| Ball B | 5 m | 50 g |
| Ball C | 15 m | 50 g |
| Ball D | 7 m | 50 g |

* Look at the picture below. At which point would the skater have roughly 50% potential energy and 50% kinetic energy?

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**Electric and Magnetic Forces**

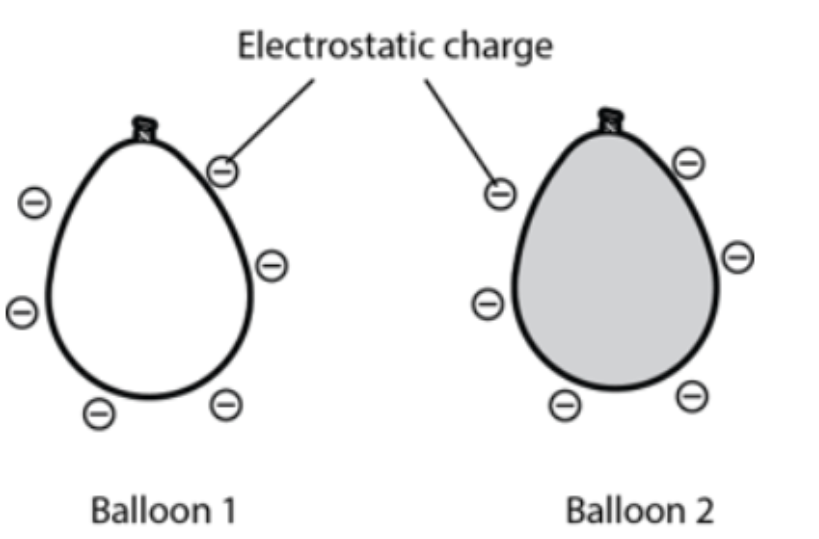
* Be able to define and identify the following terms: Electric field, electric force, magnetic force, electromagnetic force, attraction, repulsion, electric current, charged object.
* How does distance affect the strength of electric and magnetic forces? Explain.
* What are the ways we can increase the strength of an electromagnet?
* Analyze the data in the table: what is happening to the strength of the electromagnet when the amount of copper wire is increased?

|  |  |
| --- | --- |
| **Amount of copper wire (cm)** | **Staples picked up by electromagnet** |
| 100 cm | 5 |
| 125 cm | 7 |
| 150 cm | 9 |
| 200 cm | 13 |

* Which kind of force is shown by the interaction of these two magnets?



* What will happen if balloon 1 is moved toward balloon 2?
* What will happen to the strength of the electric force if Balloon 1 is moved away from Balloon 2?



* Can objects interact with each other without touching? Explain and give an example.