Unit 1 Study Guide

chapters 1-3

Answer each of the following thoroughly on a separate piece of paper.

1. What is the basic metric unit for mass? gram For length? meter For weight? newton
2. A place or object used for comparison to determine if something is in motion is called a?

REFERENCE POINT

1. What is friction?

WHEN ONE OBJECTS RUBS AGAINST ANOTHER & EXERTS A FORCE ON IT

1. Name the 4 types of friction (according to Ms. Skaggs) and describe each type.

STATIC- OBJECT SITTING STILL

SLIDING- ONE OBJECT SLIDING OVER THE SURFACE

ROLLING- ONE OBJECT ROLLING OVER THE SURFACE

FLUID- INVOLVES MOVING OVER A FLUID (LIQUID OR GAS)

1. The rate at which velocity changes is called? ACCELERATION
2. Give several examples of acceleration.

CAR SLOWING DOWN, MOTORCYCLE TURNING LEFT, SEMI SPEEDING UP

7. name 2 ways to increase acceleration. **INCREASE FORCE OR DECREASE MASS**

8. What is speed? DISTANCE COVERED IN A CERTAIN PERIOD OF TIME

9. How do you calculate the average speed of an object? TOTAL DISTANCE/ TOTAL TIME

10. What is the difference between instantaneous speed and average speed?

INSTANTANTOUS SPEED IS SPEED AT A GIVEN MOMENT SUCH AS WHEN BEING CLOCKED BY RADAR. AVERAGE SPEED ACCOUNTS FOR VARIATIONS OVER THE COURSE OF TIME

11. If you know the speed of an object and the direction it is moving in, then you know its? VELOCITY

12. What is weight? **MEASURE OF THE FORCE OF GRAVITY ON AN OBJECT**

14. What do we call the amount of matter in an object? MASS

1. How can you tell if an object is in motion?

BY COMPARING IT TO ANOTHER OBJECT TO SEE IF YOU SEE A CHANGE IN POSITION

1. Give the abbreviations for the following:

Kilometer: km Hour: h Meter: m Minute: min

1. What do unbalanced forces produce? MOVEMENT
2. Explain inertia.TENDENCY OF AN OBJECT TO RESIST CHANGE IN ITS MOTION
3. What is air resistance? FRICTION FROM AIR
4. List each of Newton’s Laws, define them, and give a real world example.
5. Explain what happens when 2 forces moving in the same direction act on an object?

THE FORCES ARE ADDED TOGETHER TO CREATE THE NET FORCE

Use the diagram above for questions 22 & 23.

1. What do you learn by looking at the head and length of each arrow?

The strength and direction of the force.

1. What direction would this object move? LEFT
2. Your Ipod is sitting on the dashboard of your car at a stop sign. As the car begins to move forward, the Ipod moves backward and falls off the dashboard. Using Newton’s first law, explain what has happened.

SINCE ALL OBJECTS TEND TO OPPOSE CHANGES IN MOTION (INERTIA), THE IPOD IS NOT PART OF THE CAR AND WANTS TO STAY SITTING STILL WHEN THE CAR MOVES

1. Define each of the following parts of the scientific method
   1. control - VARIABLE THAT DOES NOT GET CHANGED AT ALL, USED AS A COMPARISON
   2. independent variable – VARIABLE MANIPULATED BY THE SCIENTIST (CHANGED ON PURPOSE)
   3. dependent variable- VARIABLE THAT RESPONDS TO THE CHANGE CAUSED BY THE INDEPENDENT VARIABLE
2. Review how to do metric conversions
3. When constructing a graph, which axis contains the independent variable? X AXIS The dependent variable? Y AXIS
4. Know how to read distance vs. time graphs, speed vs time graphs and position vs time graphs.
5. What is the slope of a graph? What does it represent in each of the above types of graphs?
6. Define
   1. equilibrium – THE STATE OF FORCES BEING IN BALANCE
   2. momentum – THE MASS OF AN OBJECT X ITS SPEED