Motion and Forces Worksheet

1. In each of the following situations, does the force involve pulling or pushing?
   - **a)** the force of a dog on its leash — pulling
   - **b)** the force of a person inserting a letter in an envelope — pushing
   - **c)** the force of a magnet on a paper clip — pulling
   - **d)** the force of a bowstring on an arrow — stretching

2. How does the intensity of the Earth's gravitational field vary?

   It does not, it is a constant at 9.8 N/kg. As long as air resistance is not a factor.

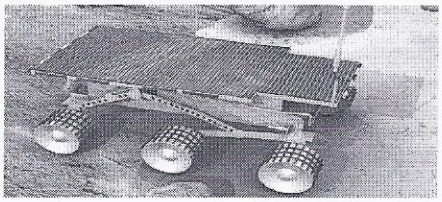
3. What distinguishes mass from weight?

   mass = substance's matter & does not change.
   Weight = gravitational pull & can vary.

4. Plasma or liquid crystal television sets are much lighter in weight than the old models with cathode ray screens. What is the weight of a television set that has a mass of 25 kg at the Earth's surface?

   $25\ kg \times 9.8\ N/kg = 250\ N$

5. Look at the illustration opposite.

   a) Will the mass of this explorer vehicle be the same on Earth and Mars? Explain your answer.

   Yes, matter never varies.

   b) Will the weight of the explorer be the same on Earth and the moon? Explain your answer.

   No, it will have more weight on earth because there is a greater gravitational pull.

6. Determine which example refers to an accelerating force, decelerating force and a diversion.
   - a- Bob kicked a ball across a soccer field and Carol kicked it back to him. diversion
   - b- It takes 3 hours to go to Orlando by plane, but when you come back home it takes 3.5 hours because of the wind. acc / dec.
   - c- Sean threw a baseball. acc

7. If a car weighs 905 kg, will it weigh more on earth or on the moon? Where will it have more mass?

   Weigh more on earth ↑ gravity, but same mass either on earth or moon.