

Ch. 2 Forces in Motion

Define the following terms:

Matter _____

Mass _____

Weight _____

Force _____

Gravity _____

Fill ins

- 1) _____ is anything that **has mass** and **takes up space**.
- 2) A _____ is a **metric measure of weight**. (force of gravity)
- 3) _____ is the **amount of matter (stuff) in an object**.
- 4) _____ is a **measure of the force of gravity on an object**.
- 5) In science, a _____ is **a push or pull**.
- 6) _____ is the **attractive force exerted by a body or an object on all other bodies or objects**.
- 7) The most common units for **measuring weight** in the English System is the _____, and the _____ in the Metric System.
- 8) _____ **never changes**. But, as you move farther away from Earth's center (such as going up a mountain) the Earth is not able to pull as strongly on you or any object and weight will _____.

9) The same volume of two different substances can have very different _____ and _____.

Page F35 Investigation 1 Wrap-Up questions.

1) What is the difference between mass and weight?

2) Why does an object "lose" weight as you carry it up a mountainside?

3) If a bag of feathers has the same mass as a bag of gold coins, what will be true about about the sizes of the bags.

4) Your bag of gold coins has been stolen, but the police have found it in Death Valley. When you report the weight of your coins as 980 N, the officer says that this bag of coins can't be yours because it weights more than 980 N. What has happened.

10) _____ taught that **heavy objects fall faster than light objects.**

11) An observer watching Galileo observed that the large cannonball hit the ground _____ as the small cannonball.

12) About 1665, _____ discovered that the **force keeping Earth in its orbit around the sun is gravity.**

13) The line graph on page 40 is curved, indicating that the distance a falling object travels does not _____ at a steady rate. The graph is **true** (accurate) for any place on earth.

14) _____ causes an object to _____ as it falls towards the Earth's surface.

Investigation 2 Wrap-Up

1. Would the graph on page F40 be useful in predicting the fall of both a marble and a baseball?

2) Use the graph on page F40 to find out how long it will take an object dropped from a height of 310 m to fall to Earth.

3) How would the graph on page F40 be different if an object fell at a constant speed rather than accelerating?

4) An astronaut standing on the moon and a scientist standing on the Earth drop identical hammers from identical heights at exactly the same moment. Which will hit the surface first? Explain

15) _____ is the **force exerted by air against objects that are moving through the air.**

16) Scientists on Earth have used _____ to test Galileo's theory of falling objects many times.

17) In a vacuum, a hammer and a feather dropped at the same time will reach the ground

_____.

18) The **moon is a vacuum** because it has **no** _____.

19) The **large outside surface of an open parachute** offers a great deal of _____

and **slows a diver's fall.**

20) A parachute with _____ is **more stable.** It can be steered so that the **parachutist**

has more control.

21) In the 16th century, _____ envisioned (drew) a primitive type of

parachute

22) _____ of France was the **first person to use a parachute more or less**

successfully.

Investigation # 3 Wrap-Up

1) Could you sky-dive on the moon? Why or why not?

2) What are some ways that air resistance is helpful?

3) During a free fall, what might parachutists do to speed up their rate of fall?

4) If an astronaut released a helium-filled balloon on the moon's surface, what would happen to the balloon? Explain your answer.

