

Name _____ Date _____
Unit _____ Lesson _____

1. Fill in the chart with following information.

- a) measured in newtons (N)
- b) mass x gravity
- c) stronger on the Earth
- d) measured in kilograms (kg)
- e) the larger it is, the stronger the pull
- f) a non-contact, pull force
- g) the amount of matter in an object
- h) only noticeable with very large masses
- i) a force

| Mass | Weight | Gravity |
|------|--------|---------|
| | | |
| | | |
| | | |

2. Complete Newton's conclusions on gravity.

- a) _____ masses pull _____ masses towards them.
- b) The _____ the mass, the _____ the pull.
- c) The closer the _____, the stronger the _____.

3. Write the formula for calculating weight.

Now use this formula to solve the following problems:

- a) John's mass is 95 kg. If gravity on Mars is 3.7, how much more is John's weight on Earth than it would be on Mars?
- b) Jupiter's gravity is 25, Venus' is 9 and Neptune's 11. Calculate the difference of John's weight comparing all three planets. Use the following structure:
He weighs _____ more/less on _____ than on _____.

Forces

WORKSHEET 5.3

Answer key

1. Fill in the chart with following information.

- a) measured in newtons (N)
- b) mass x gravity
- c) stronger on the Earth
- d) measured in kilograms (kg)
- e) the larger it is, the stronger the pull
- f) a non-contact, pull force
- g) the amount of matter in an object
- h) only noticeable with very large masses
- i) a force

| Mass | Weight | Gravity |
|---|-------------------------|--|
| the amount of matter in an object | measured in newtons (N) | a non-contact, pull force |
| measured in kilograms (kg) | mass x gravity | stronger on the Earth |
| the larger it is, the stronger the pull | a force | only noticeable with very large masses |

2. Complete Newton's conclusions on gravity.

- a) **Big** masses pull **small** masses towards them.
- b) The **bigger** the mass, the **stronger** the pull.
- c) The closer the **masses**, the stronger the **pull**.

3. Write the formula for calculating weight.

$$\text{weight} = \text{mass} \times \text{gravity}$$

Now use this formula to solve the following problems:

- a) John's mass is 95 kg. If gravity on Mars is 3.7, how much more is John's weight on Earth than it would be on Mars?

John's weight is 598.5 (N) more on Earth than it would be on Mars.

- b) Jupiter's gravity is 25, Venus' is 9 and Neptune's 11. Calculate the difference of John's weight comparing all three planets. Use the following structure:

He weighs 1520 (N) more on Jupiter than on Venus. He weighs 190 (N) more on Neptune than on Venus. He weighs 1330 (N) more on Jupiter than on Neptune.