



Comprehension Check

For questions 1-5, match each vocabulary term to the correct definition:

1. Friction	a. a measure of the pull of gravity on an object
2. Gravity	b. the tendency of objects to stay at rest or stay in motion
3. Inertia	c. rubbing between objects that slows them down and produces heat
4. Mass	d. the amount of matter in an object
5. Weight	e. a force that attracts all objects toward one another

1. Friction –
2. Gravity –
3. Inertia –
4. Mass –
5. Weight –
6. Why do you weigh more on Jupiter than the moon?
7. Describe what might happen to a soccer ball if kicked on Earth, the moon, Jupiter, and in space. Use what you know about gravity and inertia to explain why this is.

8. How does the sun's gravity affect the planets?

9. What are black holes and why are they considered dangerous?

10. Describe how scientists believe gravity played a role in the creation of our sun and other parts of our solar system.

Gravity

Comprehension Check Answer Key

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1. Friction – c

2. Gravity – e

3. Inertia – b

4. Mass – d

5. Weight – a

6. Why do you weigh more on Jupiter than the moon?

a. Objects weigh more on Jupiter than the moon because weight is a measure of the pull of gravity on an object. Because Jupiter is much more massive than the moon, it has more gravity and therefore objects weigh more.

7. Describe what might happen to a soccer ball if kicked on Earth, the moon, Jupiter, and in space. Use what you know about gravity and inertia to explain why this is.

a. If you kick a soccer ball on Earth, it will eventually fall to the ground because of all the forces on Earth working to change the ball's motion. For example, gravity pulls the ball toward Earth. In addition, air particles rub against the ball, and this friction causes it to slow down. If you kick a soccer ball on the moon, it will soar because there is far less gravity on the moon than on Earth. The opposite is true about Jupiter. A soccer ball will hardly move due to the force of gravity. However, if you kick a soccer ball in space, it will continue moving in a straight line because there are no forces of gravity or friction to slow it down or stop it.

8. How does the sun's gravity affect the planets?
 - a. The sun is massive! Because of this, its gravity is so strong that it keeps the planets in our solar system from hurtling into space. The sun's gravity is offset by the planets' inertia, which keeps them from crashing into the sun. The sun's gravity acts like an invisible string tethered to the planets and keeping them in orbit.
9. What are black holes and why are they considered dangerous?
 - a. A black hole is a region of space whose gravitational force is so strong that nothing can escape it. This makes them dangerous because all matter, even light, cannot escape the gravity of a black hole.
10. Describe how scientists believe gravity played a role in the creation of our sun and other parts of our solar system.
 - a. Scientists believe that around 4.5 billion years ago, gravity acted as a glue and brought particles from a spinning cloud of gas and dust together. The force of gravity caused the particles to continue to spin faster and faster, eventually creating a ball of fuel we know as the sun. Scientists also believe that gravity caused other particles to collide around the sun. These particles eventually became more massive and began to form other parts of our solar system, such as planets and moons.