

12.1 Gravity
Integrated Science
Problem Set

Name_____ Per._____ Date_____

Directions: Use the online ck12 reading, which is posted on the class website, to help you answer the following questions.

True/False: Write (T) for true and (F) for false on the line provided.

- _____ 1. Satellites orbit Earth because of gravity.
- _____ 2. An object has a greater mass on Earth than it does on the moon.
- _____ 3. Molecules of gas are attracted toward one another by gravity.
- _____ 4. The mass of an object affects its force of gravity.
- _____ 5. Objects that are closer together have a weaker force of gravity.
- _____ 6. All objects have the same acceleration due to gravity.
- _____ 7. The curved path of an arrow is called its orbit.
- _____ 8. The moon has both forward velocity and acceleration toward Earth.
- _____ 9. Einstein's theory of gravity is better than Newton's law of gravity at predicting how all objects move.

Multiple-Choice: Write the letter of the correct choice on the line provided.

- 1. _____ Gravity always causes objects to
 - a. repel each other.
 - b. circle each other.
 - c. attract each other.
 - d. two of the above
- 2. _____ Unlike friction, gravity
 - a. is a force.
 - b. acts over a distance.
 - c. acts between objects that are not touching.
 - d. two of the above
- 3. _____ What does weight measure?
 - a. size
 - b. mass
 - c. force
 - d. volume

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4. _____ Jody has a mass of 50 kilograms. What is his weight on Earth?
- a. 5 N
 - b. 50 N
 - c. 500 N
 - d. 5000 N
5. _____ There is gravity between you and
- a. Earth.
 - b. the moon.
 - c. your desk.
 - d. all of the above
6. _____ The moon orbits Earth rather than the sun because
- a. the sun's gravity is weaker than Earth's.
 - b. the moon is smaller than Earth.
 - c. Earth already orbits the sun.
 - d. the moon is closer to Earth.
7. _____ An object with greater mass
- a. has greater acceleration when it falls.
 - b. has a weaker force of gravity.
 - c. is less affected by gravity.
 - d. has greater weight.

Matching: Match each definition with the correct term.

| | | | |
|-------------------------|--------------------|-----------|-----------|
| Terms a. gravity | b. Isaac Newton | c. orbit | d. weight |
| e. projectile motion | f. Albert Einstein | g. newton | |

Definitions

- _____ 1. SI unit for weight
- _____ 2. motion of an object subject to horizontal force and the force of gravity
- _____ 3. force of attraction between two masses
- _____ 4. scientist who proposed that gravity is due to curves in space and time
- _____ 5. measure of the force of gravity
- _____ 6. path of one object around another, such as the moon around Earth
- _____ 7. scientist who proposed the law of universal gravitation

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Fill-In: Fill in the blank with the appropriate term on the line provided. Words may be used more than one time.

Terms: orbital, weight, projectile, gravity, Newton, 10 N, 10 m/s²

1. The force that created the solar system is _____.
2. On Earth, a mass of 1 kilogram has a weight of about _____.
3. A scale is a device that measures _____.
4. _____ was the first to suggest that gravity affects all objects in the universe.
5. Because of gravity, objects accelerate toward Earth at a rate of _____.
6. An arrow shot straight ahead from a bow has _____ motion.
7. The moon has _____ motion because of its forward velocity and acceleration due to Earth's gravity.