

## Lesson Check: Gravity and the Universe

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- 1) The solar system formed 4.6 billion years ago when a disk of dust and gas was pulled together by \_\_\_\_\_.
- 2) Spiral, elliptical, and irregular are three types of \_\_\_\_\_ in the universe.
- 3) Which describes a characteristic that is shared by different galaxies in the universe?
- A) They all are about the same distance from the Milky Way.
  - B) They all have similar planets and stars.
  - C) They all formed because of gravity.
  - D) They all have the same shape.
- 4) Which correctly describes the gravity between objects in the solar system?
- A) Objects far from the Sun are not large enough to pull on any other objects in the solar system.
  - B) Objects in orbit are in motion, and are not affected by gravity.
  - C) Objects far apart pull on each other more strongly than objects close together.
  - D) Objects with a large mass pull with more force than objects with a small mass.
- 5) The planets and other objects in the solar system stay moving in their \_\_\_\_\_ because of the pull of gravity on them.
- 6) Which statement about the Milky Way is correct?
- A) The Milky Way is unique in that it contains planets and other celestial bodies.
  - B) The Milky Way does not belong to a cluster of galaxies.
  - C) The Milky Way is one of hundreds of billions of galaxies.
  - D) The Milky Way is so big that it is not affected by gravity.

Student Name: \_\_\_\_\_

Date: \_\_\_\_\_

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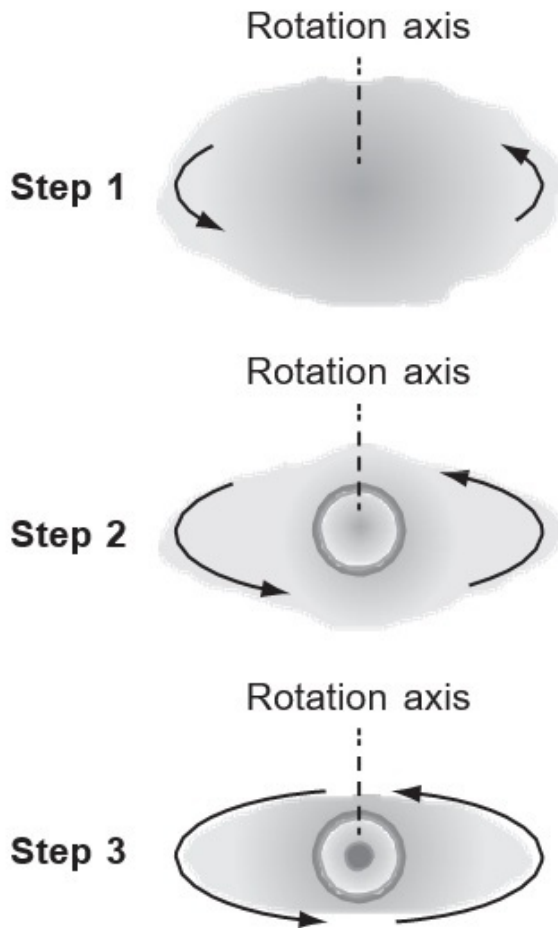
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7) Explain why the moon orbits Earth, and not the Sun.

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8) The diagram shows a model of star formation.

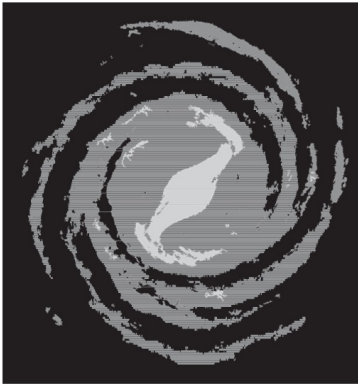


Use the model to describe the force involved in the process of star formation.

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9) Dan is creating a model of a galaxy. The first part of the model is the drawing shown.



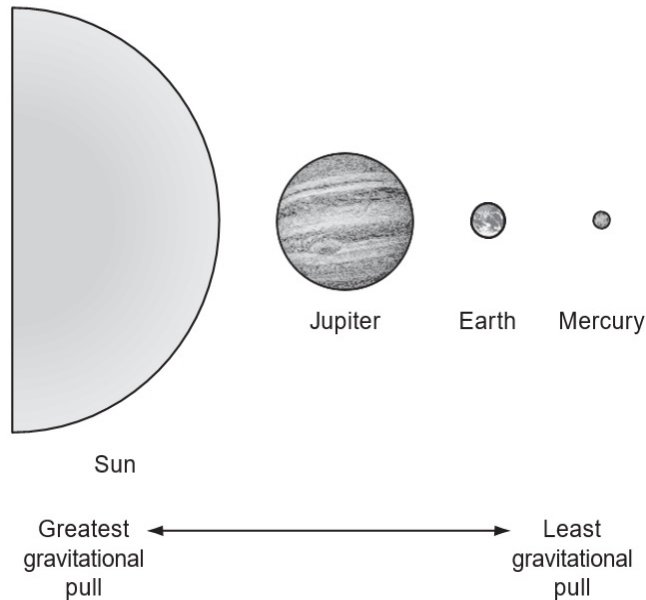
Which additions to Dan's model will correctly show **both** gravitational force and its effect within the galaxy?

- A) a straight arrow pointing outward from the center of the galaxy, and a curved arrow showing rotation of the whole galaxy
- B) a straight arrow pointing inward from one galaxy arm toward the center of the galaxy, and a straight arrow showing the galaxy's path through space
- C) straight arrows pointing outward and inward from the center of the galaxy, and curved arrows showing the rotation of objects around the center of the galaxy
- D) straight arrows pointing inward from outside each of the galaxy's arms, and straight arrows showing the paths of objects moving from within to outside the galaxy

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- 10) James has created the diagram shown to model three planets in the order of their gravitational force with the Sun.



Which change to the model will make it more accurate and why?

- A) reorder the planets to Mercury, Earth, Jupiter, because the Sun pulls more strongly on smaller planets than on larger planets
- B) reorder the planets to Mercury, Earth, Jupiter, because both distance from the Sun and the planets' masses influence gravitational pull
- C) keep the same order but move Earth and Mercury much farther away, because gravitational pull increases as distance from the Sun increases
- D) put all three planets the same distance from the Sun, because the Sun's constant mass causes the same gravitational pull on all three planets