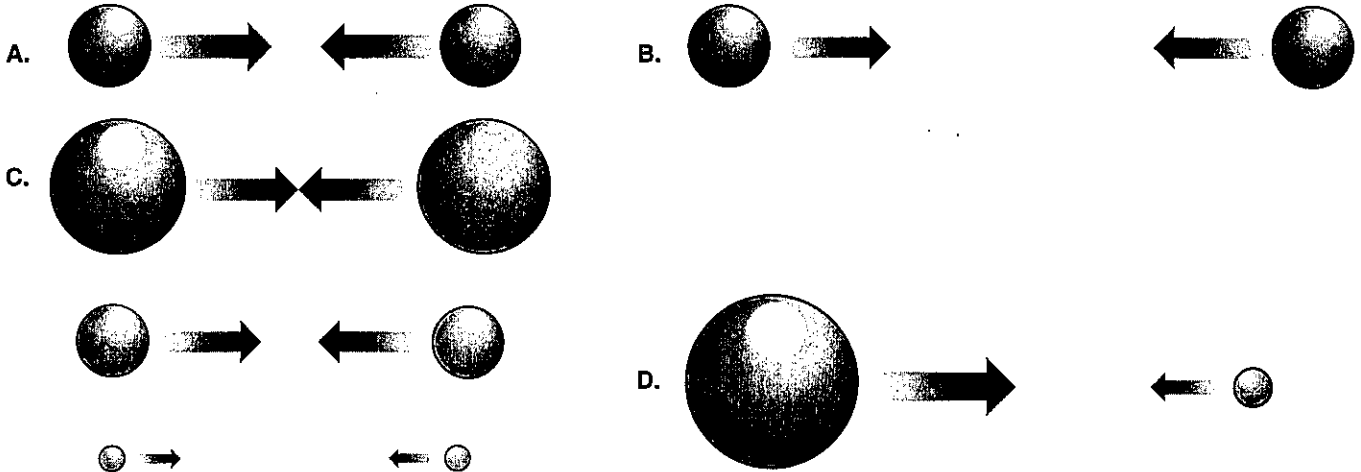


Gravitational Force

Enrichment Activity for Lesson 12-2

Skills: interpreting diagrams

The diagrams below illustrate several important properties of gravitational force. In each picture, the sizes of the arrows are proportional to the size of the forces between the objects. Assume that the larger the size of the object, the larger its mass. Study the diagrams. Then, answer the questions.



1. Look at Figures A and B. What is the same in both pictures? _____
 2. How do Figures A and B differ? _____

 3. What important property of gravitational force is illustrated by Figures A and B? _____

 4. Look at Figure C. How are the three pairs of objects different? _____

 5. What property of gravitational force is illustrated by Figure C? _____

 6. How do the two objects in Figure D differ from each other? _____

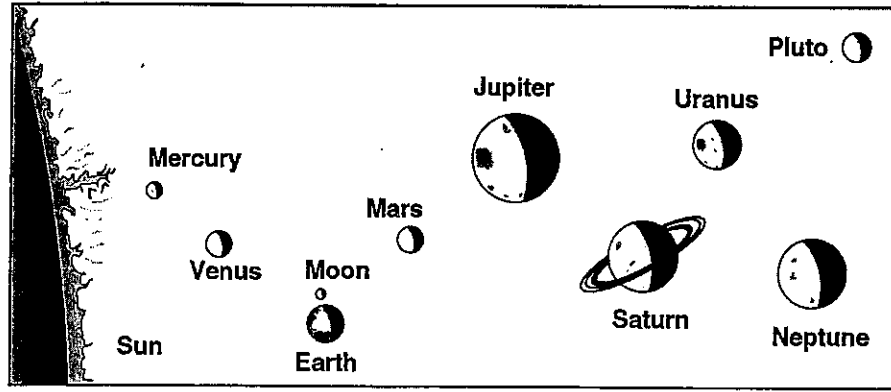
 7. What does Figure D tell you about gravitational force? _____

- X Which diagram is most like the situation that exists when an apple falls to the ground? Why?

12-2 What is gravity?

Lesson Review

The diagram below shows the Sun and the nine planets in the solar system, including the Moon. Use the diagram to answer the following questions.



1. Which body probably has the greatest mass? _____
2. Which body probably has the smallest mass? _____
3. Based on your answers to questions 1 and 2, which body has the strongest force of gravity?

4. Based on your answers to questions 1 and 2, which body has the weakest force of gravity?

5. On which body would you weigh the most? _____
6. On which body would you weigh the least? _____

Skill Challenge

Skills: calculating, comparing, interpreting a table

The table shows how the distance of an object from the center of Earth changes, and how this affects the force of Earth's gravity on the object. Fill in the blanks to complete the table. The first one has been done for you.

Distance (d)	Force of Gravity ($1/d^2$)
1. 3 times as far	$1/9$
2. _____	$1/25$
3. 64 times as far	_____
4. _____	$1/8,836$
5. 18 times as far	_____
6. _____	$1/625$