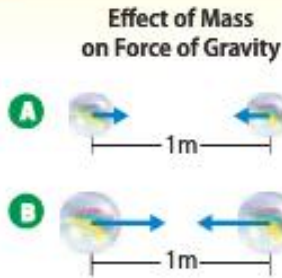
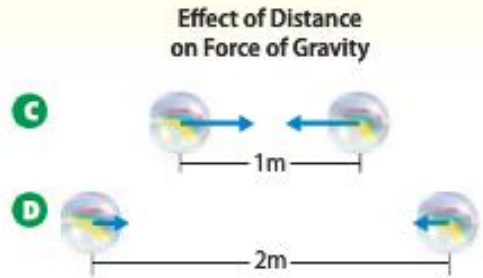


## Effects on Gravity

**Figure 3**  
Gravitational force increases as mass increases and decreases as distance increases.



The force of attraction between the marbles in B is greater than in A because the marbles in B have greater mass.









The force of attraction between the marbles in D is less than in C because the distance between the marbles is greater.



## Organize it!

**Model** factors that affect the force of gravity. Draw circles to represent masses as described. The first one has been done for you.

Description	Drawing
A. A mass	
B. A mass that produces larger gravitational force than A	
C. A mass that produces smaller gravitational force than A	
D. Two masses	
E. The same masses as D, but positioned to produce less gravitational force	
F. The same masses as D, but positioned to produce greater gravitational force	





**Figure 4** Because of its smaller mass, the Moon's gravity is only  $\frac{1}{6}$  that of Earth's. An astronaut's weight on the Moon is  $\frac{1}{6}$  his or her weight on Earth.

### Differentiate

2. What is the difference between mass and weight?

Mass is the amount of matter in an object. Weight is the gravitational attraction between objects.



**Figure 6** The net force acting on an object is the sum of the two forces and acts in the same direction.

### Describe

3. What can happen when forces combine?

Balanced forces cause no change in motion.

Unbalanced forces cause an acceleration.

**Explain** combined forces on an object. **TEKS 6.8 (B)**

Factor	Explanation
Net force	the sum of all forces acting on an object
Balanced forces	The net force on an object is 0 N.
Unbalanced forces	The net force on an object is not 0 N.
Net force = 0	The object's motion does not change.
Net force $\neq$ 0	The object accelerates in the direction of the larger force.

In the box below, **draw and label** examples of balanced and unbalanced forces.