

# CHANGES IN POTENTIAL ENERGY

**Potential energy** is stored between any two objects. There are many types of potential energy:

- **Gravitational potential energy** is energy stored between two objects as a result of the force of gravity.
- **Electric potential energy** is energy stored between two charged objects as a result of an electric force.
- **Magnetic potential energy** is energy stored between two magnets as a result of a magnetic force.

There is a relationship between the amount of potential energy stored between two objects and their distance apart. For attractive forces, the amount of potential energy increases as the distance between the objects increases. Likewise, the amount of potential energy decreases as the distance between the objects decreases.

**Let's practice!** Read each scenario. Decide whether the amount of potential energy increased, decreased, or stayed the same, and write the correct answer on the blank.



1. Shraddha was baking cookies in her kitchen. While mixing the batter, she accidentally knocked an egg off the counter, which fell to the floor.

The gravitational potential energy stored between the egg and Earth decreased as the egg dropped toward the floor.

2. Deirdre wants to decorate her locker with some pictures of her dog. She pulls a magnet off her locker door so that she can use it to display one of the pictures.

The magnetic potential energy stored between the magnet and the locker door increased as Deirdre pulled the magnet away.

3. Jack's little sister, Maggie, is learning to ice skate. To help her learn, Jack skates with Maggie from one end of the ice rink toward the other.

The gravitational potential energy stored between Maggie and Earth stayed the same as she moved across the ice rink.

4. Chandler walked across the carpeted floor of his room in his favorite pair of socks. When he touched the metal doorknob, he felt an electric shock.

The electric potential energy stored between Chandler and the doorknob decreased as Chandler touched the doorknob.

5. Allyson and Madeline are studying together in the library. Allyson asks Madeline to borrow her math textbook, so Madeline slides it across the table toward her.

The gravitational potential energy stored between the textbook and Earth stayed the same as the textbook slid across the table.

6. Jeremy went sledding with his friends yesterday. He climbed to the top of a tall hill and rode his sled all the way back down to the bottom.

The gravitational potential energy stored between Jeremy and Earth increased as he climbed up the hill.