

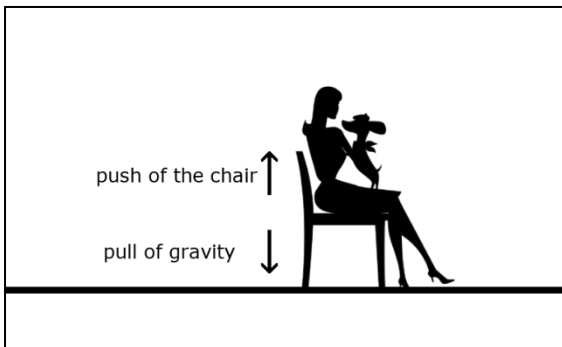
Force Pairs

Balanced and Unbalanced Forces

Forces always act in pairs. In every interaction between two objects, one or more force pairs are at work. What are force pairs? To help answer this, let's refer to Newton's third law of motion:

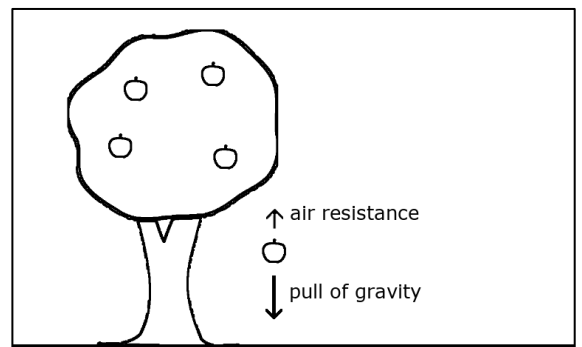
'Every action has an equal and opposite reaction.'

This means that when an object applies force to another object, it receives the same amount of force, but in the opposite direction.



As an example, imagine you are sitting in a chair. What force is pulling you down on to your chair? Gravity. The chair is also providing a force, keeping you from crashing to the ground. These two forces are opposite in direction: gravity pulling down and the chair pushing you up. They are an example of a force pair. Because the forces are equal in size, this force pair is balanced.

Force pairs aren't always balanced. Imagine an apple has just fallen off a tree. Gravity is pulling it towards the ground. Air resistance is pushing against the apple as it falls through the air, however the force of gravity is much stronger than the air resistance. This force pair is unbalanced. Gravity overpowers the air resistance and the result is that the apple falls to the ground.



Draw and label another example of each type of force pair.

Balanced

Unbalanced