

LAWS OF MOTION



A **force** is a push or pull, which can cause an object to be in motion. Pushes and pulls can have different strengths and directions. An object at rest typically has multiple forces acting

on it, but they add to give zero net force on the object. Forces that do not sum to zero can cause changes in the object's speed or direction of motion.

Motion is a change in position. When objects touch or collide, they push on one another and can change motion. The mass of an object affects the object's motion. An object with more mass requires a greater force to put the object in motion.

Newton's first law of motion says an object at rest tends to stay at rest until acted upon by an outside force and an object in motion tends to stay in motion until acted upon by an outside force. The first law of motion is also known as the law of inertia. **Inertia** is the tendency of an object to resist change. **Newton's second law of motion** says the acceleration of an object is dependent upon the net force acting upon the object and the mass of the object. **Newton's third law of motion** says for every action, there is an equal and opposite reaction.



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Activity

Select the correct law of motion.

1. The mass of the white bird is greater than the mass of the blue bird, therefore it will take more of a net force to accelerate the white bird when compared to the blue bird.
 - a. *First Law of Motion*
 - b. *Second Law of Motion*
 - c. *Third Law of Motion*
2. The red bird will remain in motion, once launched from the sling shot, until acted upon by an outside force.
 - a. *First Law of Motion*
 - b. *Second Law of Motion*
 - c. *Third Law of Motion*
3. The green bird will remain at rest, in the sling shot, until acted upon by an outside force.
 - a. *First Law of Motion*
 - b. *Second Law of Motion*
 - c. *Third Law of Motion*
4. The mass of the blue bird is less than the mass of the red bird, therefore it will take less of a net force to accelerate the blue bird when compared to the red bird.
 - a. *First Law of Motion*
 - b. *Second Law of Motion*
 - c. *Third Law of Motion*
5. As the yellow bird pushes against the pig, there is an equal and opposite reaction.
 - a. *First Law of Motion*
 - b. *Second Law of Motion*
 - c. *Third Law of Motion*



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Quiz

Write the word(s) from the box that completes each sentence.

FIRST LAW OF MOTION	FORCE	MOTION	SECOND LAW OF MOTION
THIRD LAW OF MOTION		INERTIA	

1. _____ says an object at rest tends to stay at rest until acted upon by an outside force and an object in motion tends to stay in motion until acted upon by an outside force.
2. _____ is the tendency of an object to resist change.
3. _____ says for every action, there is an equal and opposite reaction.
4. A _____ is a push or pull, which can cause an object to be in motion.
5. _____ is a change in position.
6. _____ says the acceleration of an object is dependent upon the net force acting upon the object and the mass of the object.