



TeachEngineering

STEM Curriculum for K-12

WHAT IS NEWTON'S THIRD LAW?



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Forces and Newton's Third Law



Newton's Third Law of Motion

For every **action**, there is
an **equal** and **opposite reaction**.



Hero's
Engine
DEMO



Newton's Third Law of Motion

For every action, there is an *equal and opposite* reaction.

The block's weight pushes
on the ground



The ground pushes back
on the block

Examples of Newton's Third Law

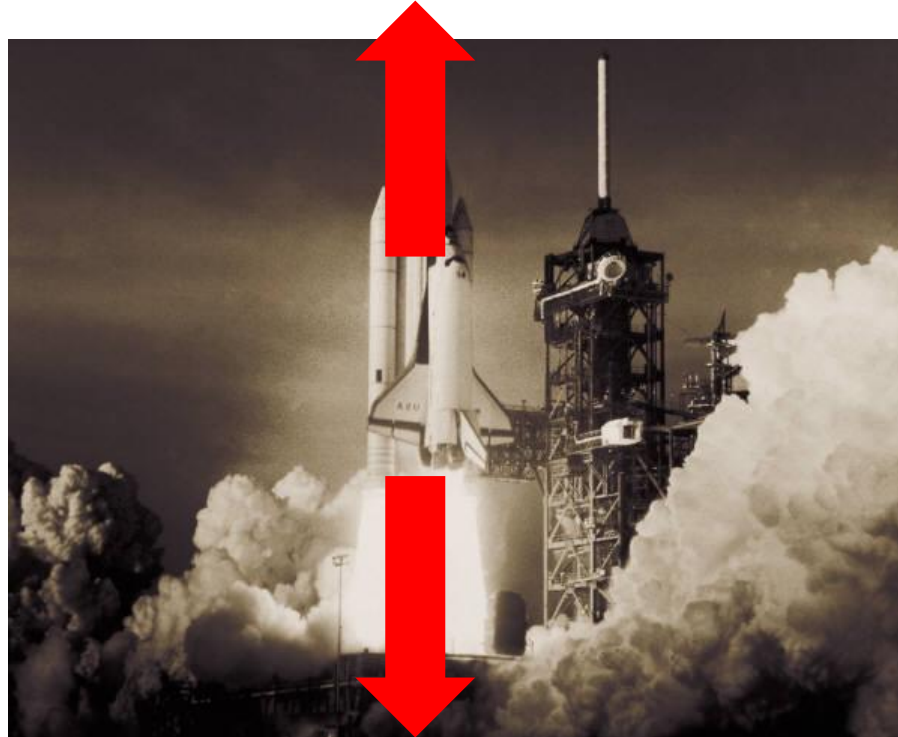
Identify several action-reaction force pairs in the photograph.



The cannon exerts a force on the cannon ball, and the cannon ball exerts an equal and opposite force on the cannon.

Examples of Newton's Third Law

Identify several action-reaction force pairs in the photograph.



The space shuttle exerts a force downward, and the reaction force pushes it upward.

Examples of Newton's Third Law

Identify several action-reaction force pairs in the photograph.



Concept Review

1. Inertia is an object's resistance to changing its motion.
2. Applying an unbalanced force to an object causes it to accelerate.
3. Based on Newton's first law, if no forces are acting on an object, its velocity will not change.
4. From Newton's second law, an object's acceleration depends on the object's mass and the strength of the unbalanced force acting on it.
5. Newton's third law: For every action there is an equal and opposite reaction.