

Newton's 3rd Law

Newton's 2nd Law

Explain Newton's third law of motion.

What does Newton's 3rd Law Say?

If a book pushes on a desk with 5N, what force does the desk push on the book?

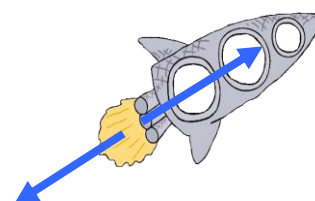
What does Newton's second law tell us?

How do you calculate force?

Consider hitting a baseball with a bat. If we call the force applied to the ball by the bat the action force, identify the reaction force.

Newton's Third Law: For every action (a force exerted in some direction) there is an equal and opposite reaction.

- Forces always act in pairs
- When one object exerts a force on a second object, the second object exerts the same force back on the first object
(the exhaust pushes the rocket forward).



We often don't see both objects move because of Newton's 2nd Law – the object with less mass does the most accelerating.

<u>Example</u>	<u>Answer</u>
<ul style="list-style-type: none"> • A bug with a mass of 5 grams flies into the windshield of a moving 1000 kg bus. Which will have the most force? a) The bug on the bus b) The bus on the bug 	<p><u>The force would be the same.</u></p> <p>Force (bug) = <u>$m \times A$</u></p> <p>Force (bus) = <u>$M \times a$</u></p>



Action: tire pushes on road

Reaction: road pushes on tire