Instructions
Print the flash cards from the templates on pages 2-3. Each page has 4 flash cards. The concept is on the left side of the template and the explanation is on the right side.

To create individual flash cards:
1) Trim the margins on the top, bottom, and sides of the page where you see the scissors icon.
2) Cut between the cards where you see the scissors icon to create individual cards.
3) Fold the cards in half at the dashed "Fold" line and align the front and back edges of each card.
4) Each template makes 4 flash cards of 2.5 x 3.75 inch (H x W). There are 8 cards in a set. The colored border indicates that the cards are in the same set.

Objectives & Grade Level
Teach students basic concepts about biophysics. Appropriate for middle school to high school students. Students can use the flash cards singly or in groups by studying the cards and testing themselves or others on concepts from the cards.

Acknowledgements
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A force is a push or pull that causes objects to change motion or velocity.

Push → Pull

Force Units are Newtons (N)

\[ 1 \text{N} = 1 \text{kg m/s}^2 \]

A Newton is the amount of force required to accelerate a 1 kg mass to 1 m/s².

Newton’s Second Law

Acceleration of an object is directly proportional to force acting on the object and inversely proportional to its mass.

Inertia is the tendency of objects to resist changes in motion.

All objects on Earth show inertia.
| Applied & Magnetic Forces | Forces can act through *direct contact*  
Applied forces  
Forces can act *over distances*  
Magnetic forces |
|--------------------------|--------------------------------------------------------------------------------------------------|
| Life on Earth            | Forces are large because masses are large  
Newton’s second law explains many actions on Earth  
Newton’s second law explains many actions on Earth |
| Why are forces large?    | \[ F = ma \] |
| Newton’s Second Law in Action | Greater masses require greater forces to accelerate |
| How Does Inertia Change With Mass? | Inertia varies directly with mass and increases with mass  
Objects of greater mass show greater inertia or resistance to changes in motion |