

## Unit 3: Building Devices and Vehicles that Move



### Overview

Students apply simple techniques and tools in building devices and vehicles that move. On constructing these objects, students apply previous learning about structures and explore new applications for wheels, rollers, gears, pulleys and variety of levers and connectors. They will learn that different forms of energy can be used to propel their devices such as a direct push, stored energy or falling weight.

### Students will be able to:

- Design and construct devices and vehicles that move or have moving parts – linkages, wheels and axels.
- Use simple forces to power or propel a device like direct pushes, pulls, cranking mechanisms, moving air, moving water or downhill motion.
- Design and build devices and vehicles that employ energy storing or energy consuming components that will cause motion like elastic bands, springs, gravity, wind, moving water.

- Recognize the need for control in mechanical devices and apply control mechanisms where necessary.
- Compare two designs, identifying the relative strengths and weaknesses of each.
- Identify steps to be used in constructing a device or vehicle and work cooperatively with other students to construct the device or vehicle.
- Design and construct several different models of a device and evaluate each model, working cooperatively with other students.

### Vocabulary for the Unit:

Axle, chassis, drag, fair test, friction, inclined plane, inertia, lever, linkage, machine, mechanical advantage, potential energy, speed and wheel