

Building Devices and Vehicles that Move

General Learner Expectations

Students will:

4-7 Construct a mechanical device for a designated purpose, using materials and design suggestions provided. Note: One or more components of the task will be open-ended and require students to determine the specific procedure to be followed.

4-8 Explore and evaluate variations to the design of a mechanical device, demonstrating that control is an important element in the design and construction of that device.

Specific Learner Expectations

Students will:

1. Design and construct devices and vehicles that move or have moving parts-linkages, wheels and axles.
2. Use simple forces to power or propel a device; e.g., direct pushes, pulls, cranking mechanisms, moving air, moving water and downhill motion.
3. Design and construct devices and vehicles that employ energy-storing or energy-consuming components that will cause motion; e.g., elastic bands, springs, gravity, wind, moving water.
4. Recognize the need for control in mechanical devices, and apply control mechanisms where necessary.
5. Compare two designs, identifying the relative strengths and weaknesses of each.
6. Identify steps to be used in constructing a device or vehicle, and work cooperatively with other students to construct the device or vehicle.
7. Design and construct several different models of a device and evaluate each model, working cooperatively with other students. Suggested evaluation criteria are identified under the Specific Learner Expectations, Reflect and Interpret.