Lesson Plan

Rocket Vocab Countdown

Book: *Reusable Rockets*
Level: Voyager

Objective

To help students practice using domain-specific terms to refer to the components of rockets and forces related to rockets, recalling definitions from their reading.

Supplies

- *Reusable Rockets*
- Whiteboard
- Two different colors of whiteboard markers
- Whiteboard eraser

Before the Activity

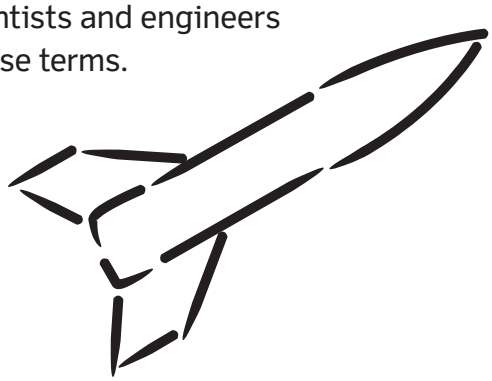
Have students read *Reusable Rockets*. Write the following words on the whiteboard:

- altitude
- atmosphere
- booster
- capsule
- colony
- drag
- fairing
- fins
- friction
- gravity
- lift
- liftoff
- orbit
- orbiter
- payload
- propellant
- satellites
- stages
- thrust
- touchdown

Activity

In order to launch and land reusable rockets, scientists must keep many different forces in mind. They must also make sure that many different parts of the rocket are working properly. Many of these forces and parts have specific terms that scientists and engineers use to describe them. Today, students will practice using these terms.

Divide the students into two teams. Give each team a different color of whiteboard marker. Explain that the team's goal is to launch a rocket by drawing it, one line at a time. Demonstrate by drawing the following image (or something like it) on the whiteboard:



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Explain that each team's drawing must be made up of 12 lines. In order to draw these lines, students must answer questions about vocabulary words used in *Reusable Rockets*. On each team's turn, one student from that team should come to the front of the class. That student can choose one of the words on the whiteboard and use the team's marker to write a definition for that word. Some of the words are pulled straight from the book's glossary, while others are explained in the text or implied by context. Students should write their definitions without consulting the book.

If the definition is correct, the student can also add one line of a rocket to his or her team's drawing. If the definition is incorrect, erase the definition and let the other team have a turn.

Evaluation

The first team to complete all 12 lines in their rocket drawing wins. Use the following answer key to check students' definitions:

- **altitude:** Height above the ground.
- **atmosphere:** The layers of gases that surround a planet or moon.
- **booster:** The first stage of a large rocket, or a small rocket added to the side of a large rocket for extra thrust.
- **capsule:** The section of a spacecraft that carries the crew and often returns to Earth by parachute.
- **colony:** A group of people going to live somewhere permanently.
- **drag:** The force of air pushing back against a moving object.
- **fairing:** A shell that covers a rocket's payload for launch.
- **fins:** Small wings that stick out from the rocket's side and keep it flying straight, like the feathers on an arrow.
- **friction:** A force generated by the rubbing of one thing against another.
- **gravity:** The force due to the mass of Earth that pulls an object downward.
- **lift:** The upward force that causes an object to rise.
- **liftoff:** When a rocket leaves the ground during launch and blasts off toward outer space.
- **orbit:** To repeatedly follow a curved path around another object because of gravity.
- **orbiter:** A winged spaceship that was part of the space shuttle and carried the astronauts and payloads.
- **payload:** An object carried to space by a rocket or other vehicle.
- **propellants:** A combination of fuel and oxygen that burns in a rocket engine to create thrust.
- **satellites:** Objects or vehicles that orbit a planet or moon, often to collect information.
- **stages:** Segments of a larger rocket that drop off after using all of their fuel.
- **thrust:** The pushing force that causes an object to move forward.
- **touchdown:** When a rocket returns to the ground and touches down on the landing pad.

Standards

This lesson may be used to address the Common Core State Standards' reading informational texts standards, grade 5 (RI 5.4) and the National Science Education Standards' Content Standard E, grades 5–8.

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