TEXTBOOK. PAGE 379.

Our Solar System Scavenger Hunt NAME

1. How was our solar system formed? _____

_____

_____

2. **Record** *the distance of an* astronomical unit *(AU), and tell what this unit represents.*

1 AU = approximately _____

Represents: _____

3. **Classify** *regions of the solar system.*

	Region		
	Inner Solar System	Outer Solar System	Oort Cloud
Contents	•	•	•

4. What holds most of the objects in our solar system in orbit around the Sun? _____

5. What is the Sun mostly made of? _____

6. List two unique characteristics of the Sun.

_____

_____

7. **Define** satellite.

_____

8. **Compare and contrast** *the asteroid belt with the Kuiper belt.*

Asteroid Belt	Both	Kuiper Belt

Life in the Solar System Textbook page 389.

Key Concept What conditions on Earth enable life to exist?

Directions: *Answer each question or respond to each statement in the space provided.*

Question	Answer
1. What do organisms on Earth need to survive?	
2. How does studying conditions that support life on Earth help us find life in other parts of the universe?	
3. A small percentage of plants on Earth do not receive energy from the Sun. Where do they get their energy?	
4. How is Earth's average surface temperature (14°C) maintained?	
5. **Describe** conditions on Earth's moon.	
6. **Describe** how Earth's atmosphere protects it from harmful radiation.	
7. **Explain** how Earth's surface is protected from meteoroids.	

Human Space Travel

TEXTBOOK PAGE 397.

Directions: *Answer each question or respond to each statement on the lines provided.*

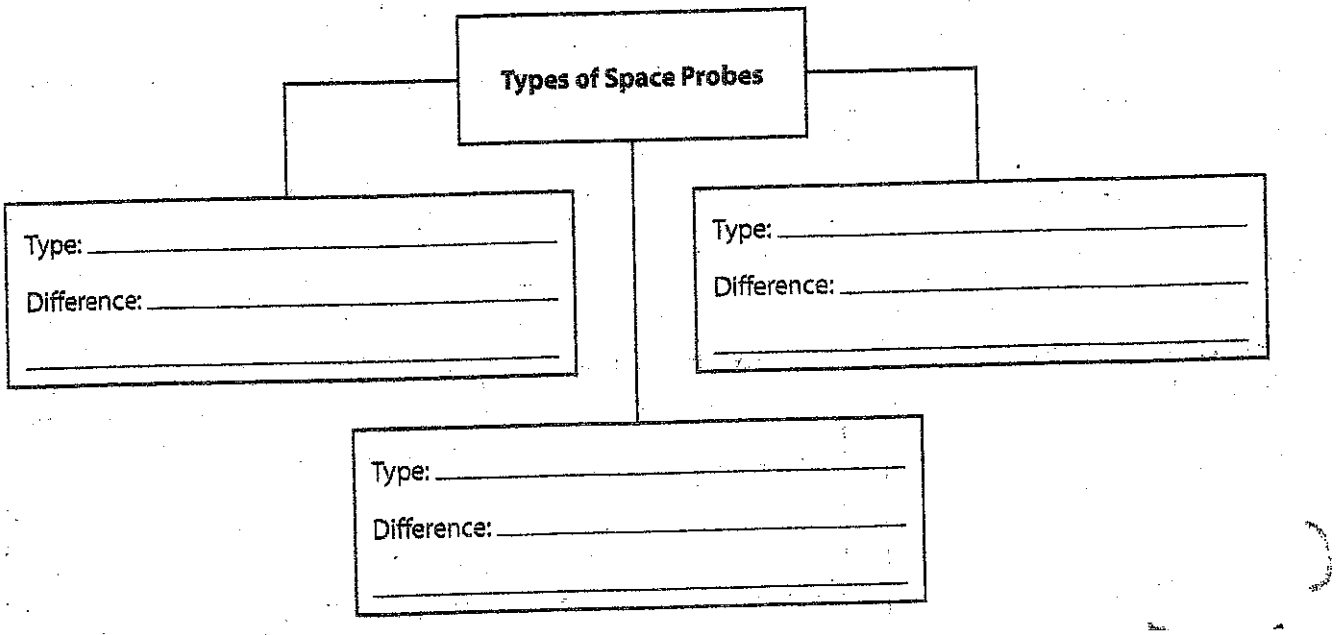
1. What event marked the beginning of the space age?

2. **List** three functions of satellites.

3. How is a rocket able to escape Earth's gravity?

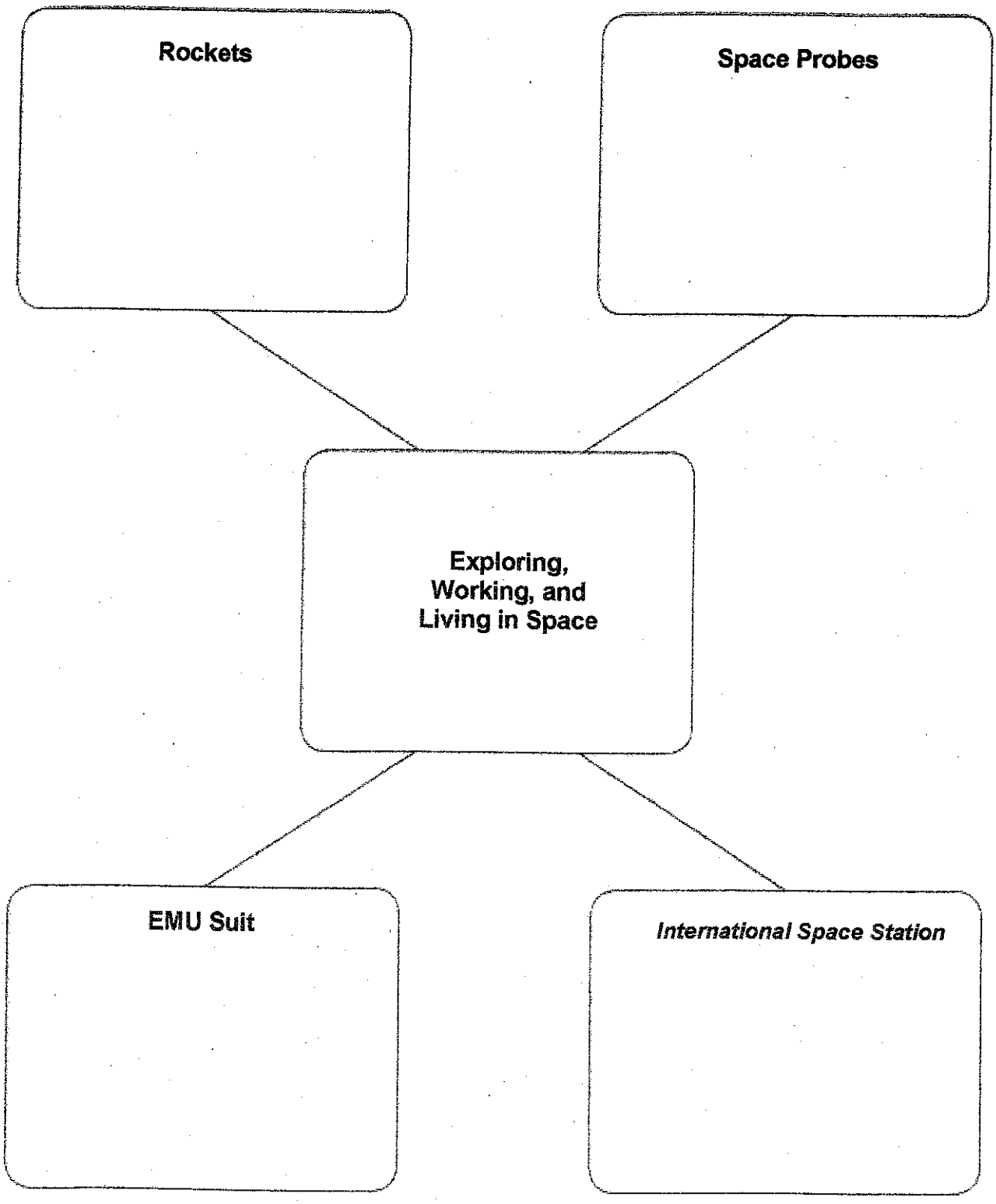
4. **Describe** the features of a space probe.

5. What is NASA?



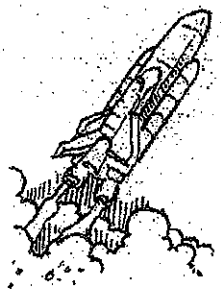
Human Space Travel

Directions: *Use your textbook to complete the concept map by writing the role of each piece of equipment in space exploration within each box.*



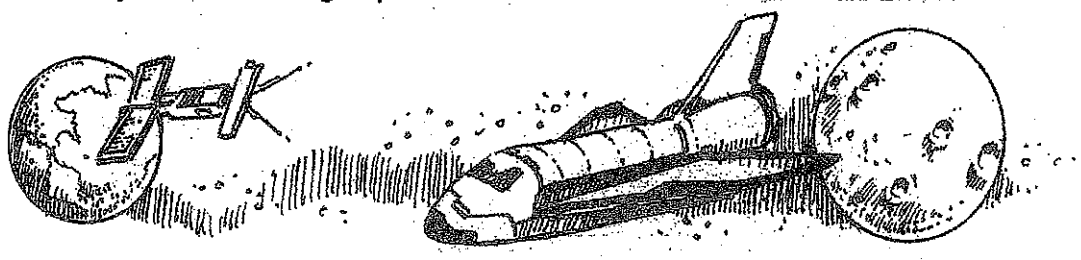
Congratulations! You have completed Mission 1. You have been promoted to Astronaut Status.

Blast Off!



Complete the puzzle with words related to the solar system.

1. particles of dust, ice, and gases orbiting the sun _ _ _ _ E _ _
2. imaginary line around which a planet spins _ X _ _
3. objects revolving around and reflecting light from the sun P _ _ _ _ _ _ _
4. objects that orbit planets _ _ _ _ _ _ L _ _ _ _
5. satellite that orbits Earth _ _ O _
6. a meteor that has fallen to Earth _ _ _ _ _ R _ _ _
7. instrument for observing objects in space _ _ _ E _ _ _ _ _
8. path of one body in space around another _ _ _ _ T
9. travels around the sun in 365 1/4 days _ _ _ _ H
10. group of stars that forms a picture _ _ _ _ _ E _ _ _ _ _ _ _
11. one who travels in space _ S _ _ _ _ _ _ _
12. one complete path around the sun _ _ _ O _ _ _ _ _ _
13. grouping of billions of stars that form a system _ _ L _ _ _
14. turn on an axis _ _ _ A _ _
15. study of the universe _ _ _ R _ _ _ _ _
16. Rocky objects with orbits between Mars and Jupiter _ S _ _ _ _ _ _ _
17. force of attraction between objects _ _ _ _ _ _ Y
18. having to do with the sun S _ _ _ _
19. the ringed planet _ _ T _ _ _
20. planet closest to the sun _ E _ _ _ _ _
21. gaseous layer surrounding a planet _ _ M _ _ _ _ _ _ _



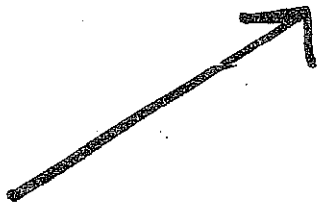
NOW YOU HAVE GOT THIS FAR, LETS SEE IF YOU WOULD MAKE A GOOD ASTRONAUT!!!

How well can you work under pressure?

Astronauts wear spacesuits when they work outside a spacecraft. The suits, which include gloves, are pressurized to protect the astronauts' bodies. What is it like to work in space wearing spacesuit gloves?

Procedure

1. Read and complete a lab safety form.
2. Have a partner use a **stopwatch** to see how long it takes you to build a tower using **10 wooden building blocks.** Record the time in the Data and Observations section below. Then break down the object.
3. Put on a pair of **gloves.**
4. Repeat step 2.
5. Switch roles and repeat the activity.



Construct a Data Table

Think About This

1. How did the time required to make an object from plastic blocks differ in steps 2 and 4?

2. Why do you think all parts of a spacesuit, including the gloves, are pressurized?

3. **Key Concept** What factors do you think humans must consider when traveling into space?

STRAW ROCKET ACTIVITY Names:

DIRECTIONS: Complete the following in order. Work quickly and quietly.

Explain (using your own words) the following terms:

1. Rocket

2. Thrust

3. Propulsion

4. Trajectory

5. Fuel

Draw a picture of a: 1. 90° angle 2. 60° angle 3. 30° angle 4. 0° angle 5. 180° angle

****What instrument did you use to measure the (4) angles? _____

GATHER all materials from your teacher and construct your straw rocket.

1.DECORATE the parts sheet (BEFORE cutting) to show off your personality.
2. CUT out the parts and TAPE to the body of the larger circular diameter straw ⟶ ROCKET BODY

Qa. The second straw will become the _____.

Qb. What fuel will you be using to move your rocket? _____

Qc. What three main gases are contained in the substance you are using for fuel?

_____ _____ _____

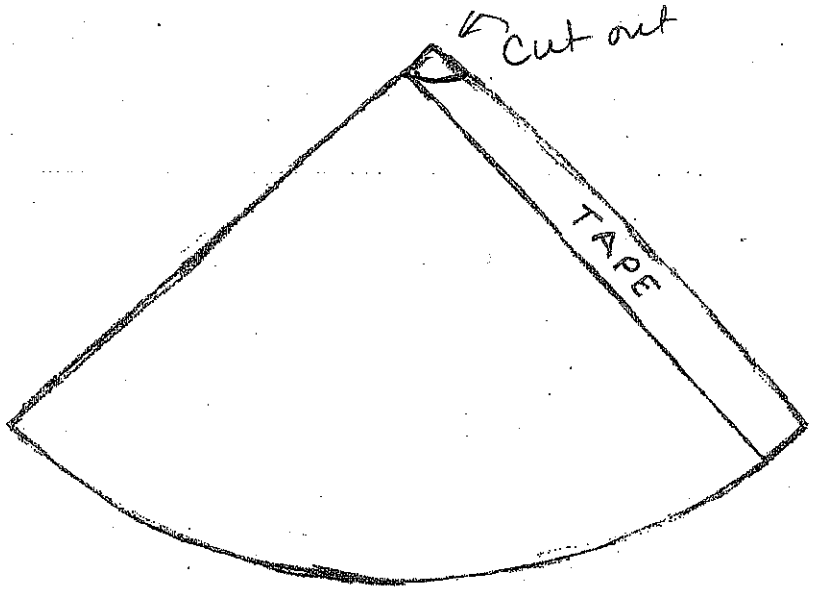
Qd. What is the relationship of the amount of energy source (fuel) to the distance the rocket will travel?

_____

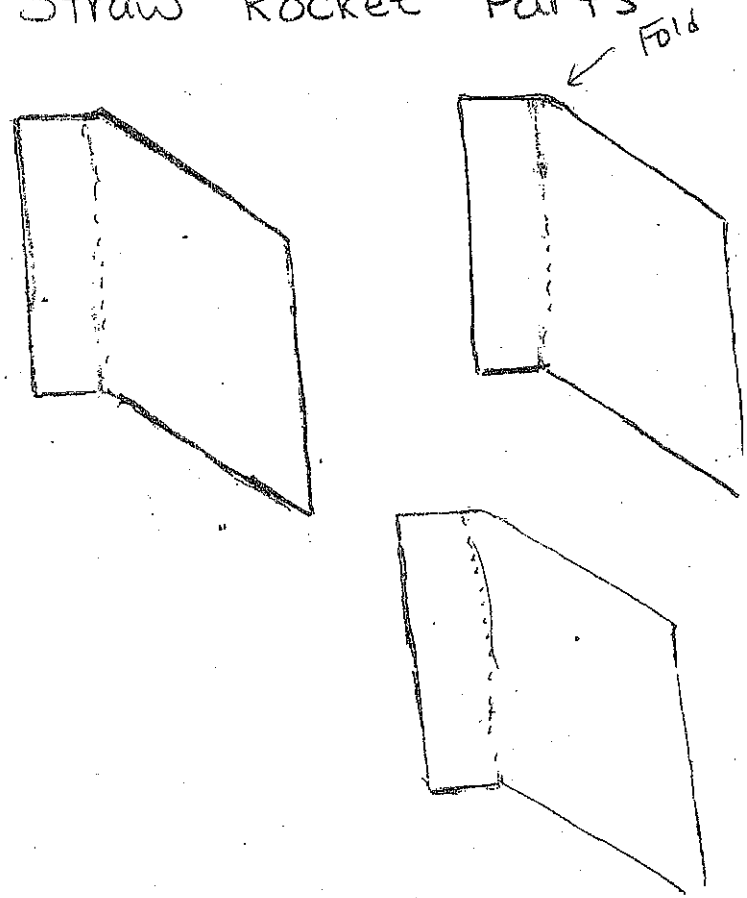
Qe. How can you prove your hypothesis? _____

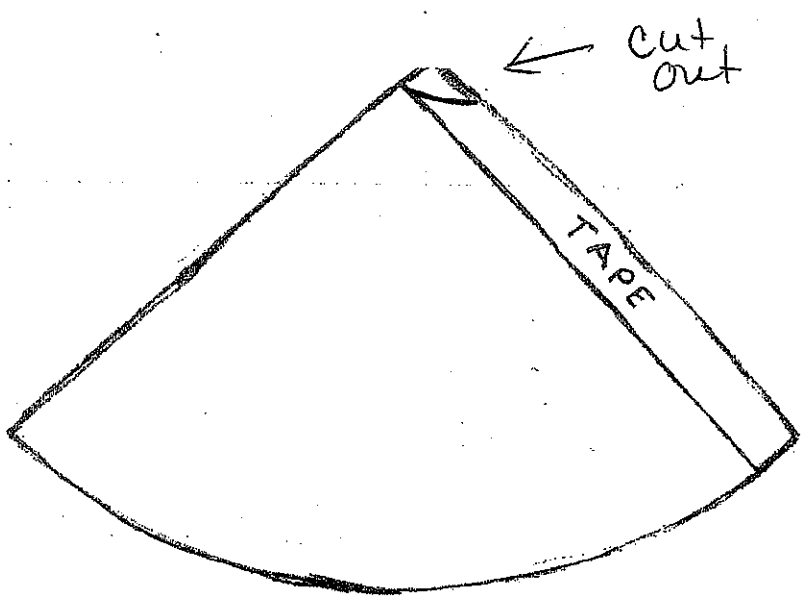
_____

NOW: Keeping the fuel constant (the same), what is the relationship of the launch trajectory and the distance your rocket will travel? Complete the experiment following the scientific process.

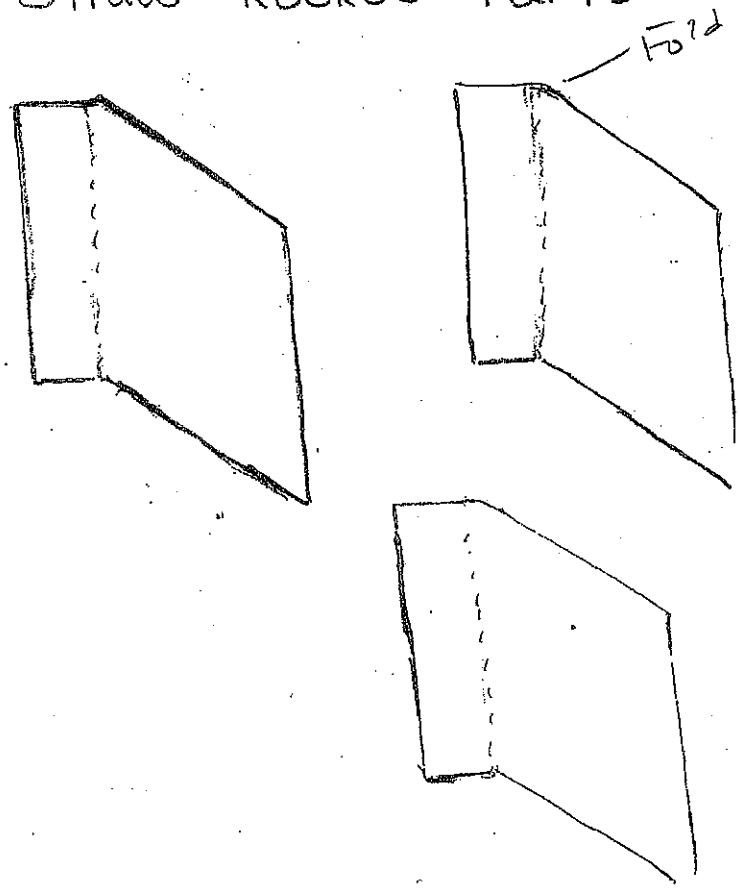


Straw Rocket Parts





Straw Rocket Parts



VOCABULARY MATCHING

Name:_____

Cut out the vocabulary and match them to their correct definition.
Glue the matched word and definition in the space below.

FILL IN THE BLANK

Use the vocabulary words from the vocabulary matching section
to fill in the missing information in the passage below

The patterns and cycles on Earth are important when we are measuring the passage of time such as the length of a day or a year. These patterns are caused by the relative motion of the Earth and the Sun. The _____ of Earth about its _____ takes 24 hours. This rotation causes the _____ on Earth. When the side of the Earth that you live on is facing the sun, it is daytime in that location. When the rotation continues and your side of the Earth is no longer facing the sun, it is nighttime in your location. The _____ of Earth around the Sun takes 365 days. Due to the 23.5° tilt of Earth's axis, some locations on Earth experience the _____. Earth is divided into two halves called _____. When the Northern Hemisphere is tilted towards the sun during Earth's revolution, it is summer in the Northern Hemisphere. This is because locations in the hemisphere tilted towards the sun have more daylight hours and a higher intensity of sunlight due to the height of the sun in the sky. Likewise, when the Northern Hemisphere is tilted away from the sun, it is winter in the Northern Hemisphere. The Northern and Southern Hemispheres experience seasons at opposite times, so when it is summer in the Northern Hemisphere it is winter in the Southern Hemisphere. The exception are locations on the _____, or the imaginary line that divides the Northern and Southern Hemispheres. Locations on the Equator do not experience a change in daylight hours because they are directly between the Northern and Southern Hemispheres. Therefore, day and night are always roughly equal on the Equator there are not seasons at these locations.

Axis	The cycle of summer, fall, winter, and spring due to variation in intensity of the sun and length of day caused by the tilt of the earth
Rotation	Movement in an elliptical path around a center
Revolution	An imaginary line drawn halfway between the northern and southern poles; divides the Northern and Southern hemispheres
Season Cycle	The cycle of daytime and nighttime caused by the rotation of the Earth about its axis
Day/Night Cycle	Half of a sphere; the Earth is typically divided into the Northern and Southern hemispheres
Equator	An imaginary line the extends through the Earth's north pole and out the south pole; tilted at 23.5°
Hemisphere	To spin on an axis

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ROCKET CHALLENGE

Rockets move by powerfully expelling material in one direction, causing the rocket to move in the opposite direction. The rocket moves because the force that ejects the material from the rocket also acts upon the rocket.

In the model rocket in this activity, an effervescent tablet mixes with water in a tube to produce carbon dioxide (CO2) gas, which builds pressure (force) that pushes against the stopper. Eventually, the stopper and the water in the tube are forced out downwards and the rocket tube shoots up.

Factors to consider:

- Mass of rocket and payload
- Mass of water and stopper
- Pressure build-up inside the tube
- Aerodynamics of the rocket tube such as fins

Before you accept the challenge of designing a rocket that will carry a payload to a minimum of 3 meters, your team needs to experiment with the variables and perform 3 test launches.

Variables: Different diameters and lengths of tubes, different caps and stoppers, different amounts of water, different amounts of effervescent tablets (half a tablet is the maximum).

When NASA or a private company builds a rocket, engineers and scientists work within the laws of physics and within a budget. Your final design must carry a payload and reach a height of 3 meters. You must take into consideration the expenses of fuel, the rocket itself, and the number of launch attempts. Income is generated by the rocket's payload (more weight carried=more money earned).