



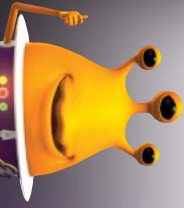
Sky-High Science

Fun Lessons and Reproducibles

Connects to National Standards

- ✦ Science
- ✦ Language Arts
- ✦ Math

Inspired by the public television series *The Zula Patrol*
zula.com



"The Zula Patrol is a pre-K-2 teacher's dream."

—National Science Teachers Association

Welcome, Teachers:

Get ready to lift off with dynamic new standards-based lessons and activities. Inspired by the award-winning public television program *The Zula Patrol*, **Sky-High Science** provides easy-to-use, fun materials that build important science, language arts, and math skills. You'll find great ways to guide students in observing and learning about the wonders of *weather* and *astronomy*. Best wishes on a successful launch of this program!

National Standards Matrix

	Lesson 1	Lesson 2
Science (NSTA & McREL)		
Content Standard D: Objects in the Sky (NSTA)	★	★
Content Standard D: Changes in the Earth and Sky (NSTA)	★	★
Knows vocabulary for different types of weather (McREL)	★	★
Knows vocabulary used to describe major features of the sky (McREL)	★	★
Knows basic patterns of the Sun and Moon (McREL)	★	
Knows that the Sun supplies heat and light to Earth (McREL)	★	★
Language Arts (McREL)		
Uses mental images based on pictures and print to aid in comprehension of text	★	★
Uses reading skills and strategies to understand a variety of informational texts	★	★
Understands the main idea or message in visual media	★	
Math (NCTM)		
Count with understanding and recognize "how many" in sets of objects		★
Sort, classify, and order objects by size, number, and other properties		★

Sources: National Science Teachers Association (NSTA), <http://www.nsta.org/standards/Mid-continent-Research-for-Education-and-Learning-McREL>; <http://www.mcrel.org/standards-benchmarks/National-Council-of-Teachers-of-Mathematics-NCTM>; <http://standards.nctm.org/document/appendix/numb.htm>.

Tune In to *The Zula Patrol*

Check your local listings for the groundbreaking program that has been described as "a space odyssey for kids that blends science education with comic characters" (*Nick Jr. Family Magazine*).

To learn how to contact your local PBS station with questions or feedback about the program, check out www.pbs.org.

Meet the Cast:

Bula

The fearless captain who is good at solving problems

Zeeter

Smart and talented, she works hard and learns through trial and error

Multo

An avid reader who believes in learning through books

Gorga

A spirited and loyal space pet who loves to investigate and collect data

Wizzy and Wigg

Two high-flying explorers who love learning new vocabulary



Bula



Zeeter



Multo



Gorga



Wizzy and Wigg

space

stars

sun

meteor

Earth's moon

rocket ship

atmosphere

cloud

airplane

rainbow

mountain

lightning

wind

snow

rain

ground

trees

Look Up! Science Is Everywhere



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Lesson Overviews

Lesson 1: What's Up?

Objective: Through observation, students understand science vocabulary related to objects in the sky.

Time Required: 35 minutes

Materials: "Look Up!" classroom poster, "Definitions" list (Part 2), paper and colored pencils or markers (optional)

Steps:

1. Begin by inviting students to look up at the sky and to note what they see. Take students to a window, go outside, or look at photographs of the sky. (Remind students of sun safety tips: never look directly at the sun, wear sunscreen and a brimmed hat, wear sunglasses.)

2. Write "Things we can see in the sky" on the board. Ask students to name things in the sky; write down answers.

3. Display the "Look Up!" poster and invite students to examine it. Ask students: *What other things do you see on the poster that we haven't named yet? Have you ever seen any of these things? When did you see them?* (E.g., day, night, during a storm.)

4. Refer to the "Definitions" list in Part 2. Ask students what they think various poster items are made of or what they do. (Make sure to introduce definitions of cloud, lightning, rain, snow, sun, and wind in preparation for Lesson 2: "What's the Weather?")

5. Read definitions aloud, and ask students to correctly identify the poster image and/or word that matches the definition. You might also have students draw the image and/or write the word on paper.

Lesson 2: What's the Weather?

Objective: Students will gain understanding of *weather* through studying the science of elements in the sky that create weather.

Time Required: 25 minutes

Materials: "Look Up!" classroom poster, "Definitions" list, "What's the Weather?" reproducible, lined paper, pencils

Steps:

1. Begin by inviting students to look outside. Ask students: *What is the weather today? What was it yesterday? What do you think it will be tomorrow?* Make a list on the board titled "Weather Words." Invite students to add words to the list.

2. Now ask students what they think *weather* means. Refer to the "Definitions" list (weather: ever-changing conditions of the air around us).

3. Refer students to the poster. What (and how many) items do they see that are "weather" words? Encourage students to state the science definition of the six weather words on the poster: *cloud, wind, rain, lightning, snow, sun*.

4. Review other weather-related science on the poster. (E.g., rain and snow fall from clouds; lightning travels from clouds to Earth; sunlight reaches Earth when clouds don't block it; rainbows happen when sunlight passes through rain.)

5. Distribute the "What's the Weather?" reproducible. Instruct students to complete Part 1 of the reproducible. (Answers: 1. cloud; 2. wind; 3. rain; 4. snow; 5. sun; 6. lightning.)

As an alternative for pre-reading students, you might do the following: Provide each student with lined paper. Instruct students to choose at least four weather words from the poster, and to copy down the names of each chosen element. Invite students to draw a picture of each word as well.

6. For Part 2 of the reproducible, guide students to chart weather they observe over a few days. This activity can be done in class or at home.

Lesson Extensions:

- Introduce concepts of *space* and *atmosphere* to students (see the layers on the left side of the poster). Identify (and count) items on the poster that are found in the *atmosphere* and in *space*. Review definitions of these words with students.

- Create a "Weather Watcher" Wall Chart. After students have completed Part 2 of Lesson 2, create a class chart that shows the different types of weather that were recorded. The chart should show how many days it rained, snowed, was sunny, etc. Challenge students to tally up different types of weather.

- Ask students to name items in the sky that are not pictured on the poster (birds, insects, balloons, etc.). Add these words on sticky notes and have students place the notes near the area on the poster where they would be found.

Additional Activities:

See Part 2 for additional language arts/science reproducibles.

Family Activity Pages:

See the Family Activity Pages in Part 2 for a fun moon-tracking activity that reinforces skills at home. Extend the activity by creating a moon-tracking chart in class. Assign each student a day during the course of a month on which he or she will draw the moon as it appeared in the sky. Hang the drawings in chronological order to show students how the moon changes over the course of a month (*phases*).

Additional Resources:

www.nasa.gov/forkids

NASA's Web site for kids; links to valuable information for teachers

www.education.noaa.gov

National Oceanic & Atmospheric Administration's education site

www.weather.gov/om/reachout/kidspage.shtml

National Weather Service's Web site for kids; fun facts and information for classrooms

Also, visit zula.com for more great lessons, educational activities, games, and resources.



What's the Weather?

Your Name: _____

Part 1 Choose words from the **Word Box** that answer the weather clues below.

Word Box



cloud



lightning



rain



snow



sun



wind

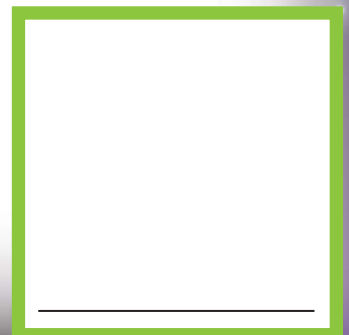
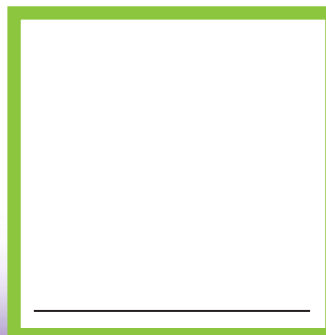
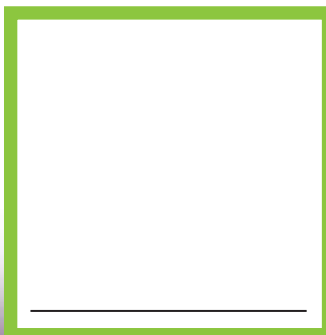
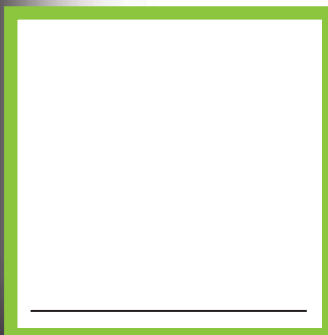
1. I am made of lots of drops of water and tiny bits of dust.

2. I am air that is in motion. _____
3. I am water that falls from clouds. _____
4. I am water that freezes in the clouds before falling to Earth.

5. I am bright and hot and you can see me in the sky on clear days.

6. I am a bright electric flash during a storm. _____

Part 2 Draw the different kinds of weather that you see over a few days. Then label each picture with the weather word that matches it.





Definitions

Review the definitions below to build vocabulary with your students. Then distribute the fun language arts reproducible activity that corresponds with your grade level.

Weather Words

cloud: made mostly of water and a tiny bit of dust

lightning: an electric burst caused by a buildup of static electricity in a cloud

rain: drops of water that fall to Earth when they become too heavy to remain in the air

rainbow: colorful bands of light that are made when sunlight passes through drops of water in the sky

snow: water drops that freeze in a cloud before they fall to the ground

weather: ever-changing conditions of the air around us

wind: air that is in motion

Space Words

atmosphere: a layer of air that surrounds and protects Earth from the heat of the sun and the coldness of space

Earth: the third planet from the sun; it is the only planet with people on it

Earth's moon: a large object made mostly of rock that orbits, or travels around, Earth; Earth's only natural satellite

meteor: a particle of matter in the solar system that we see as a streak of light as it enters Earth's atmosphere; also called a "shooting star"

rocket ship: a spacecraft that is powered by a rocket

space: the area above Earth's atmosphere that has many planets and stars in it

stars: large, bright balls of gas that give off heat and light

sun: the star that is closest to Earth and provides Earth's heat and light

Answers to reproducibles:

Sky-High Crossword: Across: 1. cloud; 2. sun; 3. rain; Down: 2. snow; 4. moon; 5. Earth

The Changing Sky: 1. clouds; 2. sun; 3. hiking; 4. stars, moon