



Topic: Wind

MISSION: GAUGE THE WIND

Note that children should NEVER use tools without the proper scientific protection. Note that children should NEVER run with tools (including gauges).



MISSION GOALS AND OBJECTIVES:

Fundamental Goal: Children will make their own wind gauges and play in the wind.

Primary Goal: Children will learn about Energy by inquiring about wind (the movement of air) and its force and direction.

Primary Objective: Children will observe and evaluate the wind with self-made wind gauges.



NATIONAL SCIENCE EDUCATION STANDARDS MET BY THIS MISSION:

- Changes in earth and sky



MISSION VOCABULARY:

Wind, Air, Movement, Breeze, Force, Direction



MISSION TIME: This mission can be divided into several shorter periods of discussion, reading, viewing, constructing, and experimentation. Be flexible – children’s inquiry of wind can extend and deepen over time!



MISSION EQUIPMENT AND PREPARATION CHECKLIST:

- Breezy or windy day
- Lengths of dowels, broomsticks (or unsharpened pencils)
- Strips cut from plastic bags (three per student)
- Masking tape
- Marker or pen
- Colorful tape (optional)
- Saw, goggles, and sandpaper (optional)
- Book about wind
- Wind related photos/images (windmills, kites, weather vanes, sailboats, pinwheel, wind meters and gauges, etc.) available in the online photo library at zula.com.

Recommended Reading

Find additional titles at zula.com.
I Face the Wind by Vicki Cobb
The Wind Blew by Pat Hutchins
Feel the Wind by Arthur Dorros

MISSION IGNITION!

Teachers: *Introduce the Primary Goal by piquing curiosity and stimulating thinking.*

Students: *Engage in open-ended dialogue related to the MISSION GOALS AND OBJECTIVES.*

- Go outside on a breezy or windy morning. What is the weather like today? (sunny, rainy, cloudy, windy) How can you tell that it’s windy? (Sun and/or rain and/or clouds visible) How can you tell it’s windy? Can you see the wind? How do you know that it’s windy if you can’t see wind? (air on face, blowing hair or scarves, swaying trees, fluttering leaves, rippling flag) What other things can tell us if it’s windy? How can you tell which direction that the wind is coming from? How can you measure its strength?

- The end result of the discussion should be a need on the part of the students to explore or solve questions. Encourage children to come up with their own questions.

- Throughout the activity give children *plenty* of time to think and wonder before offering answers. And remember, every answer should be treated as a valuable contribution. Instead of judging an answer as “off topic” or “inaccurate,” say “How interesting, what makes you say that?” to find out what they are thinking!

CREW BRIEFING:

Teachers: *View, read about, and discuss this “mission” with your children.*

Students: *Explore, ask questions, gather information, research (books, video clips, pictures), and hypothesize.*

- **Read** and discuss a book about the wind (see Recommended Reading).

- **Watch** *The Zula Patrol: Under the Weather!* full-dome show. Talk about the theme of the wind:

Q: What do you know about wind?

Q: What does wind look like?

Q: If you can’t see wind, how can you tell it’s there? (see things blowing around, hear the wind, feel it)

Q: What does wind feel like?

Q: What is wind made of?

Q: What can wind do?

- Let’s look at pictures of things that use wind to work. (If possible, hold up a picture of a windmill, kite, pinwheel, windsock, etc.) Does anyone know what this is? What does it do? What does the wind make it do?

- Here are some pictures of special tools. What do you think they do? (gauge, or measure the wind)

- Connect children’s responses to their MISSION IGNITION observations and discussion.

- Ask children if they would like to build their own wind gauges!

MISSION BLASTOFF!

Teachers: *Support and facilitate student experimentation; introduce MISSION VOCABULARY after children describe concepts in their own words.*

Students: *Experience the concepts, discover, observe, and experiment.**

Depending on your class and comfort level, you can purchase and cut lengths of dowels yourself, or work with students, a saw, and goggles (for you and the students) to cut lengths of dowel or broomsticks. Other students can use sandpaper to smooth out rough parts of their dowels/sticks. This project also works well with unsharpened pencils.

1) Decorate lengths of wood (dowels, pencils, broomsticks) with colorful tape and/or create and apply name labels with masking tape.

2) Distribute three strips from plastic bags to children (or have students cut the three strips, themselves). Have children stack their strips and fold them over a few times (to reinforce the plastic).

3) Under close supervision, children can carefully thumbtack the strips into the end of the wood (or eraser of the pencil).

4) Go outside and put the gauges to the test. Ask students to observe *other children's* gauges as well as their own. What's happening to them? What information can the students gain from the gauges? Where is the wind coming from? Which way is the wind blowing the streamers? How much are they blowing?

5) Invite children to play with their gauges and have fun with the wind! (But not to run with these tools)



MISSION SPIN-OFFS AND CONNECTIONS:

Teachers: *Enrich and extend content by supporting children's understanding of the Primary Goal, its connection to other concepts, and application to "real world" situations.*

Students: *Review results, analyze, record and infer, use deductive reasoning, elaborate on their findings, and extend activities to the home.*

• Mission Spin-offs

1) Where's the Wind? Mission: Use a compass to mark "North," "South," "East," and "West" on the children's outside play area in chalk or on rocks. Use the wind gauges to determine from which direction the wind is blowing. Use a chart or science journals to track the intensity and direction of the wind over time through pictures and by writing or transcribing the name of the direction from which the wind is blowing.

2) Wind Song Mission: Download the *Breezy* music and lyrics from zula.com. Play the song, teach children the lyrics, and encourage them to sing along!

3) Home Mission: Send home the wind gauge kits (dowel/pencil, plastic bag strips, thumbtack) for families to make together. Children can provide their families with wind reports by monitoring their wind gauges. Families with compasses can determine the compass directions in relation to their wind monitoring location – and place direction markers.

• Mission Connections

Support additional learning about the wind, air, and energy with the *Explore Air* and *Make Sails* activities.

MISSION ACCOMPLISHED:

Teachers: *Empower students to express their conclusions and determine the next mission.*

Students: *Draw conclusions, assess learning, evaluate what they've learned, and envision their next mission.*

1) After completing this mission, ask students to assess what they've discovered and how. What conclusions can they draw about the wind? Use their comments to reinforce the Primary Goal. Ask what else the children would like to know about the wind. For additional *Zula Patrol* activities and information, log onto zula.com.

2) Mission Accomplished Badge: Celebrate a mission accomplished by downloading this free badge at zula.com. Distribute them for children to color and wear or glue into their science journals.

Congratulations on a mission well done – keep exploring!



FICTION VS. FACT!

Fiction: Many people think that all winds are the same.

Fact: In fact, some winds are very mild, like gentle summer breezes, and some are very strong, like hurricanes.