

## Civil Air Patrol's ACE Program

### The Wind in Your Socks Kindergarten Aerospace Lesson #1



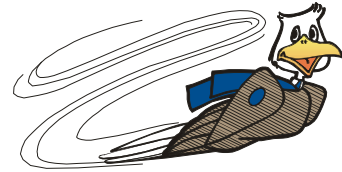
**Subject:** Science

**Lesson Reference:** CAP's Aerospace for the Very Young and NASA's *Aeronautics: An Educator's Guide* at [www.nasa.gov/pdf/58152main\\_Aeronautics.Educator.Guide.pdf](http://www.nasa.gov/pdf/58152main_Aeronautics.Educator.Guide.pdf).

**Length of Lesson:** 45-60 minutes

**Objective:**

- Students will define air and wind.
- Students will construct a simple windsock.
- Students will identify uses of a windsock.
- Students will identify which way the wind is moving using a windsock.



**National Standard Alignment:**

Science Standards:

- Content Standard A: Science as Inquiry
- Content Standard B: Physical Science
- Content Standard D: Earth and Space Science
- Content Standard E: Science and Technology

**Background Information:** (from NASA's *Aeronautics: An Educator's Guide*)

A windsock is a type of kite used to detect wind direction. It is a tapered tube of cloth that is held open at one end by a stiff ring. Wind is directed down the tube, causing the narrow end to point in the same direction the wind is blowing. Windsocks at airports allow pilots to see the direction and estimate the speed of the wind. Pilots take off into the wind to help push more air over the wing to achieve lift, and they land into the wind to provide resistance or drag to slow the plane down. Meteorologists use wind direction to help predict the weather.

**Materials:**

- windsock or picture of a windsock (example attached)
- one sheet of 8.5" x 14" colored construction paper per student
- crayons or markers
- tape
- one sheet of gift bag tissue paper per student (or two rolls of crepe paper for the class)
- scissors
- glue
- single-hole punch
- kite string or yarn
- ruler
- fan(optional)

**NOTE:** It will be helpful to have a windsock pre-made to show the students as an example. Although not necessary, it will be helpful to either have pre-cut strips or one pre-cut strip for each child so the child can duplicate making the strips for the windsock.

**Lesson Presentation/Guided Practice:**

1. Show students a windsock or a picture of a windsock. Ask students if they know what it is and for what purpose it is used. Listen to responses.
2. Explain to students that the device you are showing them is a windsock. Tell them that it is a sock that acts like it is catching the wind so that you can see which way the wind is blowing and how quickly the wind is blowing.
3. Ask students if they know what wind is. Explain that wind is moving air that we cannot see, and that air is what we breathe. Have students take a deep breath. Tell them that they just breathed in air. Ask them if they saw the air they breathed in. Tell students that although we cannot see clean air, we can feel air when it moves. Have students hold their hand in front of them and blow on their hand. They felt air moving across their hand. Ask students to name other things they might see or feel to let them know that air is moving. (trees blowing, leaves drifting to the ground, hair blowing, flag waiving, etc.)
4. Tell students that when the wind blows, a windsock can easily show them which way the air is moving and how quickly. Ask students what a windsock might look like if the wind is blowing really hard. Ask students what the windsock might look like if the wind is blowing very softly.
5. Ask students why it might be good to know which way the wind is moving and how quickly it is moving. After listening to the responses, explain the following: Windsocks help pilots, the people who fly airplanes, know which way they can best take off and land because they take off and land into the wind. Also, the weatherman likes to know which way the air is moving and how fast because it helps him/her to know what the weather is going to be like.
6. Tell students that they are going to make a windsock so they can see which way the wind is blowing and how strong the wind is. (Show a finished example.)
7. Hand out materials and make the windsock.

**Directions to make the windsock:**

1. Fold the construction paper in half lengthwise like making a hot dog bun.



2. Have the students write their names on one side of the folded paper, and decorate the other side of the folded paper. The fold in the paper will be at the top of the windsock.

**(windsock directions continued)**



3. Bend the folded paper to make a ring, overlapping the ends by .5" to 1". Make sure the artwork is on the outside of the ring. Tape the ring together.



4. Cut out 10 strips of tissue paper measuring 1.5" by 15", or cut five strips of crepe paper 15" long. Note: Depending on the overlap made in step 3, one more or less strip of paper may be needed.

5. Paste or staple the strips of paper to the inside of the ring.

6. Punch three holes of equal distance around the top of the paper ring.

7. Cut three pieces of string 15" each. Tie one end of each piece of string to each of the holes. Tie the other ends of the string together.

8. Allow students to try their windsock. You may have them blow on it, place it in front of a fan, and/or take it outside.

**Summarization:**

Ask students to name what they made. (windsock) Ask for volunteers to explain the two things that the windsock does. (shows which way the wind is blowing, shows how hard the wind is blowing) Ask them if they remember who might use a windsock and why. (pilot - take off and land into the wind; weatherman - to tell what the weather is going to do)







Tell students to also let their windsocks remind them of the words that come out of their mouth. When people talk, we don't actually see the words they say, but words do create feeling. Just like when the wind blows, we feel it. When people say nice things, we feel good. When people say mean or ugly things, it can make us feel angry or sad. Just because we don't see something doesn't mean we cannot feel it. Encourage students to enjoy their windsocks and use nice, wonderful words that will make people feel happy, including themselves.

**Assessment:**

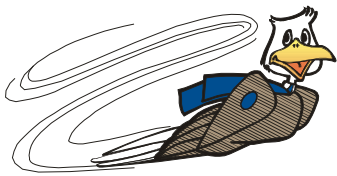
- windsock construction
- teacher observation of correct use of windsock

**Additional activity ideas to enrich and extend the primary lesson:**

- Have students draw a picture showing what happens to their windsock when the wind is blowing lightly and then strong.
- Complete the "Which Way is the Wind Blowing" worksheet. (Students may use their windsock and blow or use a fan to help them.)

Answers: 1.  2.  3.  4.  5.  6. 

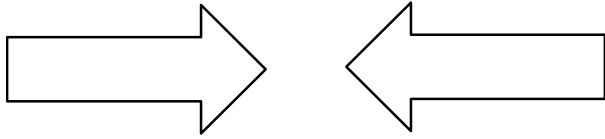
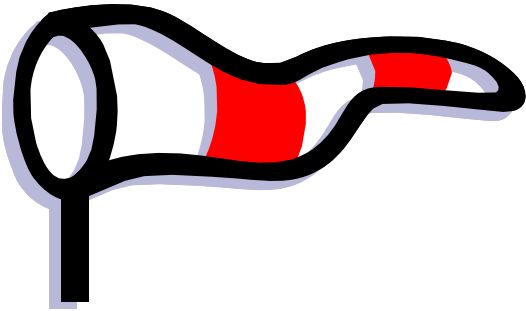
- Complete the "Wind in Your Socks" worksheet.



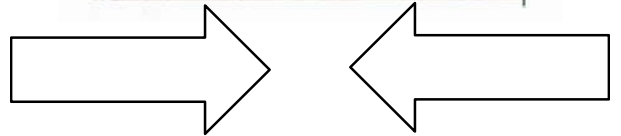
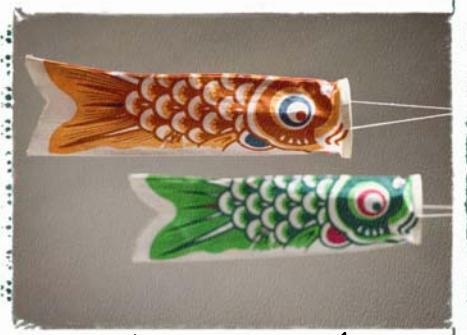
NAME \_\_\_\_\_

Which way is the wind blowing? Color the arrow to show which way the wind is blowing.

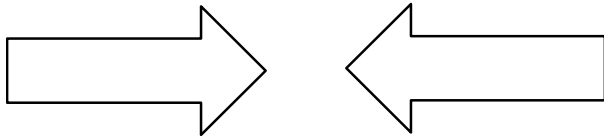
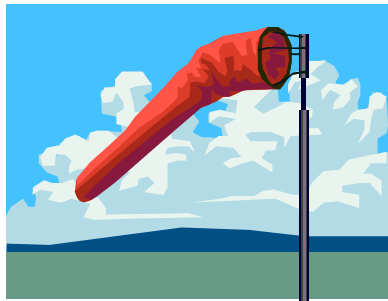
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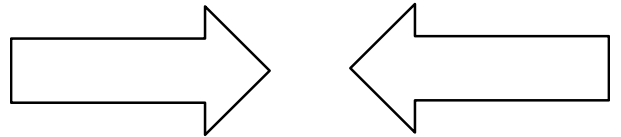
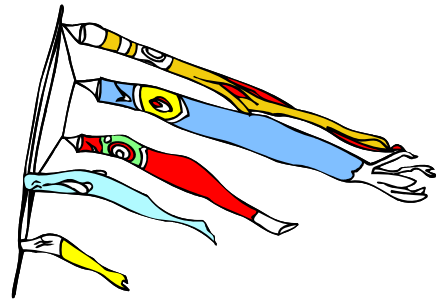
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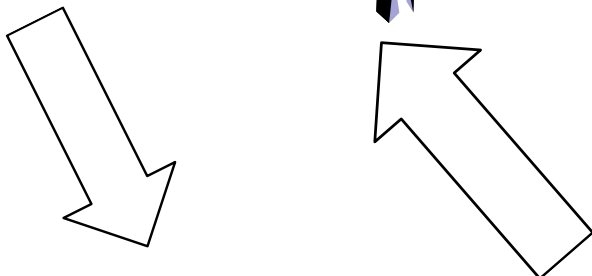
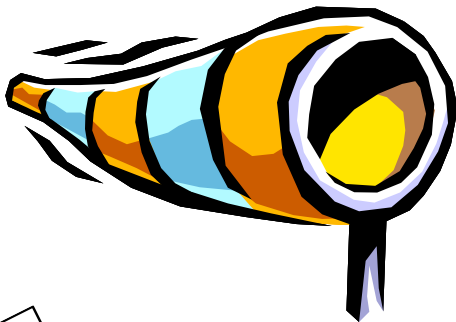
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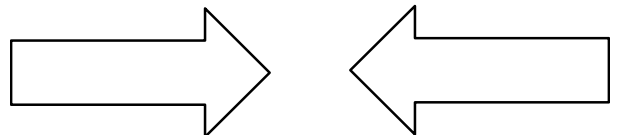
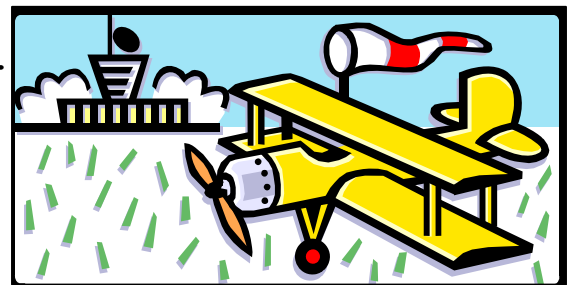
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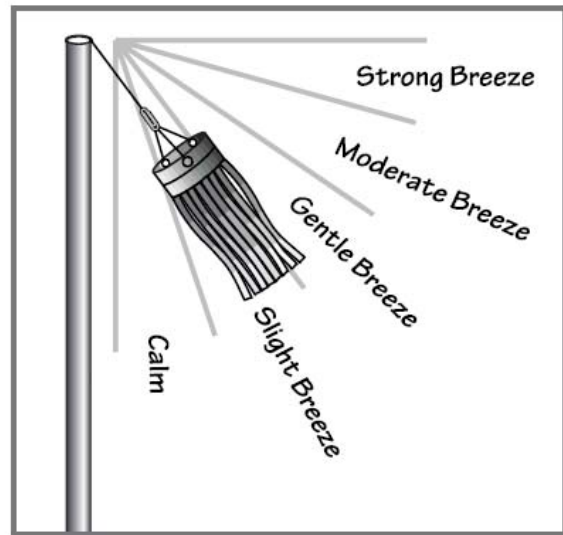
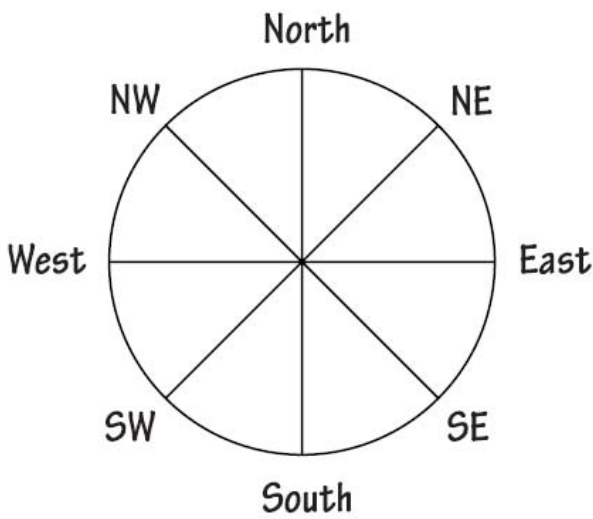




# Wind in Your Socks



Using your wind sock, record the following information. Color the charts to show the correct wind strength and direction.



Day:

Time:

Weather:

How is the weather related to the wind strength and wind direction?

