

Activity 4: NOW YOU ARE AN ASTRONAUT!

After collecting the students spacesuits, copy each on sheets of plain 8 ½ inch x 11 inch white paper.

Ask students: Have you ever flown a kite? What did it look like? Display a pre-made purchased or self-made kite. At this point you may want to tell students a little about the history of kites. You might include the fact that kites have been made in the Orient for thousands of years and at one time were used during warfare. A mention of the work of Benjamin Franklin might also be included.

Distribute a list of “kite” vocabulary words. Using the pre-made kite show, identify, and explain the function of each part. Ask students: What makes a kite fly? (The thoroughness of your explanation depends upon the grade level and ability of your students.) Simply stated a kite flies because the wind blowing against the face of the kite pushes upward with a force greater than the downward gravitational pull. The kite deflects the flow of air. As the wind passes over a kite, the air on top must go farther than the air on the bottom, in the same amount of time. The air on top must speed up, and this decreases pressure over the kite. Air will move from an area of high pressure toward an area of low pressure. As a result the higher pressure air under the kite will push up, providing lift. (You can talk about Newton’s Third Law of Motion at this point and also Daniel Bernoulli’s principle that the pressure in a moving stream of fluid [air] is less than the pressure in the surrounding fluid [air].)

Activity 5: LET'S GO FLY A KITE!

Note: If you are a novice at kite making/flying you might want to begin with a trip to the library or the computer. There are many good books and videos that you can peruse in your search for kite information. A few I would recommend include: [Kites on the Wind](#) by Emery J. Kelly, [Making Kites](#) by David Michael, and [Marvelous mini-kites](#) by Norman Schmidt. I also recommend www.aloha.net/~big_wind/.

Materials List: What you will need depends upon which kite design you select. However, here is a general list of materials.

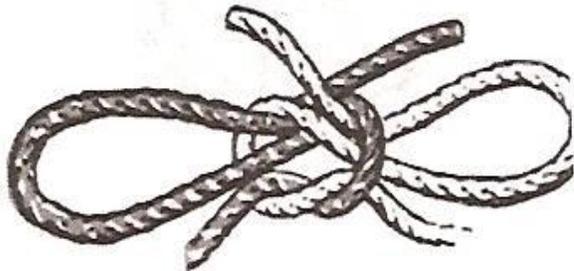
- Valesare copies made in Activity 4 (required)
- Items that could be used as spars include: drinking straws, bamboo bar-b-que shishkabab sticks, pieces of bamboo from an old bamboo shade, dowel rods, plastic rods, or a new pencil. Use your imagination but remember it must be light weight.
- A roll of 1/2 inch plastic tape
- A roll of string. You can use kite string, polyester thread, or fishing line (a good choice). You need about 10 feet for each child.
- Corrugated cardboard for making a reel for the flying line.
- Scissors, metal standard size paper clips, hole punch
- Aluminum bridle ring, curtain ring, or use a pop top ring
- Swivel clip, or small portion of ball chain
- To make a kite tail you need about 6 to 10 feet of plastic ribbon, curling ribbon, or use a plastic bag cut in a 1 inch wide spiral all around.

KITE PATTERNS

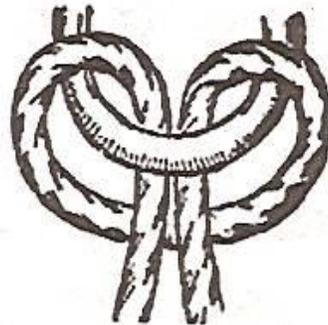
The following patterns are arranged from simple to complex. The source for each pattern has been identified.

When making kites you need to use one line as a flying line and the second as the bridle. The bridle line is attached directly to the kite and also to the bridle ring. In attaching the bridle line to a bridle ring use a Lark's Head Knot. In attaching the flying line to the bridle ring use a Bowline Knot.

Bow Knot



Lark's Head



GENERAL FLYING TIPS

- 1. Make all folds as straight and sharp as possible.**
- 2. Be accurate in your measurements.**
- 3. Follow the instructions and patterns carefully.**
- 4. Remember, kites should be symmetrical.**
- 5. Use a winder to hold your flying string. One can easily be made out of corrugated cardboard.**
- 6. Small paper kites are fragile and cannot tolerate strong or gusty winds. They generate small lift due to their size so they are not high fliers.**
- 7. Small kites can be easily launched by one person. Stand with your back to the wind. Hold the line and winder in one hand and the kite in the other. Hold the kite by the center spine. Let the tail flow freely. Raise the kite to arm's length and release it, unwinding a little line as you do but do not allow the line to become slack. As the kite moves up release more flying line. You can give a series of gentle tugs on the flying line if the kite has difficulty climbing. Do not run with the kite.**

Kite Flier's Code

- I will fly kites in an open field, away from electric power wires or transmission towers.**
- I will use perfectly dry string—NEVER WIRE.**
- I will NOT try to remove a kite if it catches in an electric power wire or a high pole.**
- I will NOT use any metal in making a kite, except for small fittings.**
- I will not fly kites on or near a public highway.**

- **I will never fly a kite in wet or stormy weather.**
- **I will have fun flying a kite-and be safe.**