Let's Go Fly A Kite!

May Day is finally here, and what better way to spend time outside together than to go fly a kite? Up to the highest height and send it soaring!

Supplies

- ◊ A kite to work on together, or enough for each person to have his own.
- ◊ Pieces of paper, either square or circle shapes, about 4" in diameter. Make at least 10 per person. Use a hole punch to make a circle in the middle of the shape and cut a line halfway into, connecting to the hole in the middle. This will allow the paper onto the kite line.
- ◊ Tape measure
- ◊ Colored markers, pad of paper
- ◊ Blanket or camping chairs
- ◊ Sweaters and Comfortable Shoes

Food

- ◊ Light snacks—Snickers Bars or Nature Valleys Sweet & Salty Peanut Bars
- ◊ Gatorade or bottled water

Games

Contest for Who Can Fly the Highest Kite
Let the flyer get the kite in the air. When it is at max or the kite is ready to nose dive, mark with finger or marker on the string. Let the kite drop to the ground. Use your tape measure to measure the distance in feet. The one with the longest string of distance wins!

Bringing the Kite Down
A kite is launched, "paper messengers" (these are the shapes you pre-cut) are sent up the kite line until the kite becomes too overloaded to fly and comes down. The messages consist of square or round sheet of papers with a hole in the center and a slit from an edge to the hole. Have each person mark a paper with his name on it. The person places the shape on the kite line for the wind to send up to the kite. The last shape that finally brings the kite down wins the contest!

Follow the Leader
Two, three and maybe four flyers try to follow each other in the sky. This is a freeform game and can be lots of fun. Flyers do not need to fly the same kite, though the faster kite should probably be the leader.

Lessons Learned

- ◊ What does aerodynamic mean? How to make a kite aerodynamic.
- ◊ How air is needed to take off.
- ◊ What's happening up in the atmosphere to help fly the kite. Observe how a kite 'catches' the wind and how different types of kites respond to the airflow of the wind.
- ◊ Measure how high the kite went, then turn feet into yards.

The Event

Gather together family and items needed for your May Day event. Coordinate a meeting point with other families and friends who will participate with you. A park is a great location, but a large vacant parking lot would work nicely as well. Set the time according to your weather for early or late afternoon. Set up chairs and/or blankets at your meeting spot.

Unravel kite and string. Set out with one person holding the end of the kite and another holding the string. Let the running and releasing begin! As you get comfortable with flying the kite, begin competing against one another with the games and enjoy the fun of watching the kites fly!

Snack Time! Pass out the snacks and drinks. Take this moment to read out loud your printed *Education Matters!* If time allows, read the short story.

At the end of the day, rent Mary Poppins and watch with family and have a great sing-a-long with "Let's Go Fly a Kite!"

ORIGIN
There is some debate about where kites originated. Some say China, others say it originated in the South Pacific. The The Balinese have their own story which explains the origin of kites. Nevertheless, we are left with a heritage of wonderful stories, designs, and techniques for flying kites.

HISTORY
Kites are used as a fishing aid in the Solomon Islands. Kites are used by the Koreans to announce the birth of a child. Kites were used by the Chinese during battles. They were made of bamboo and had the tendency to hum and shriek in the wind, which frightened the enemy. Kites in the Chinese and Japanese cultures were capable of holding or "flying" a person in the air so the person could spy or act as a sniper using bows and arrows. Many kite designs that were developed for the military or for scientific purposes can be seen at kite festivals and competitions today. Windsocks are a Japanese tradition that has caught on elsewhere. In the Japanese culture, the windsocks are made in the shape of a fish called a carp and they are the symbol of strength and strong will, overcoming great obstacles to achieve their goals. Like the Chinese, the Japanese have a special day for flying kites or windsocks. In Japan it is May 5th, "Children's Day." Today, we don't need a special day to fly kites and there are many kite-flying festivals throughout the year.

SCIENCE CONCEPTS
How do kites fly? Let's explore the aerodynamics of kites. Kites are heavier-than-air devices. They weigh more than the volume of the air they displace. They are flown at the end of a string, line, or rope. Kites are aerodynes. In other words, they overcome the force of gravity and are kept in the air by the force of the wind or the forces of wind pressure on the kite. The aerodynamic force involved is called lift. Lift on a kite is perpendicular to the relative wind direction.

What is relative wind? It is the actual wind, the actual direction of wind, and speed of the wind. The kite reacts to the wind pushing on it. Lift is executed in an upward direction, thereby opposing the pull of gravity on the kite.

Newton's Third Law (for every action, there is an equal and opposite reaction) helps explain the aerodynamics of kite flight. Think of the kite as flying on an inclined plane and flying in one spot. The kite exerts a downward force upon the air. The air passes over the top edge of the kite and goes down the upper surface of the kite. Remember that air is relatively heavy. As the kite pushes downward, it gets an equal push upward by the air. As this happens, the kite gets an upward counter force and it flies! Newton's Law states that for every action there is an equal and opposite reaction.

For a kite to fly, the air lift potential must be greater than the weight of the kite. For example, if the downward and upward force of the air is equal to the weight of the kite, the sum of all the forces will be zero and the kite will be in a state of equilibrium. It will not fly up or down. If the downward force upon the air is greater than the weight of the kite the upward force will also be greater and the kite will move upward and climb higher. If the downward force is less than the weight of the kite, the upward force will be less and the kite will sink, sometimes very quickly, crashing to the ground. Knowing these basic principles can help us understand how kites are designed and flown. Also, knowing the strength of the wind and wind direction are useful in developing knowledge of the basic moves and tricks in kite flying.