



PARACHUTES



Lesson Plan: What Affects a Parachute

Grade Level: 1-2
Subject Area: Science and Math
Time required: *Preparation:* 1 hour
Activity: 1-2 hours

National Standards Correlation:

Science (grades K-4)

- Science as Inquiry Standard: Understanding about scientific inquiry.
- Science in Personal and Social Perspectives: Science and technology in local challenges.

Math (grades K-2)

- Problem Solving Standard: Build new mathematical knowledge through problem solving.
- Measurement Standard: Understand measurable attributes of objects and the units, systems, and processes of measurement.
- Data Analysis and Probability Standard: Formulate questions that can be addressed with data and collect, organize and display relevant data to answer them.



Objectives:

Students will:

- Follow directions to make a simple paper parachute
- Use metric measurement
- Time the parachute's descent and record the data

Summary:

The students will be introduced to the concept of air when the teacher reads aloud the book, *Gilberto and the Wind*. The students will learn about the effect of wind as they hear about Gilberto's activities with a balloon, a pinwheel, a kite and a sailboat. This book will set the stage for a discussion about parachutes. Students will follow directions carefully and make paper napkin parachutes. Students will launch their parachutes and time how long it takes for the parachute to descend to the ground. One at a time, paper clips (mass) will be added to the parachute and students will launch and time the descent.

Materials:

You will need:

- *Gilberto and the Wind* (see resource/reference list)

For each parachute you will need:

- One paper dinner-sized napkin
- String (160 cm long)
- Ruler
- Scissors
- 5 small stickers or tape
- 5 large paper clips
- Chart paper
- Markers



Safety Instructions: Be careful to drop parachutes in an open area, away from other people.

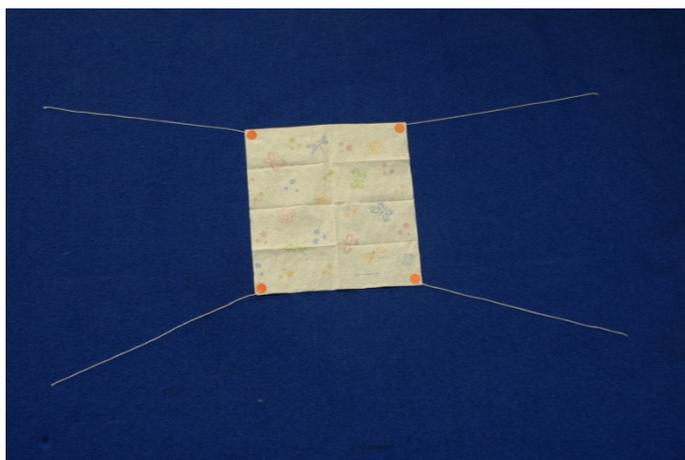
Procedure:

A. Warm-up

1. Read *Gilberto and the Wind* to the class and discuss how wind affects us and our environment. Students can be led into a discussion about parachutes.
2. Review metric measurement.

B. Activity

1. Open the napkin completely and place on the table.
2. Measure and cut string into four 40 cm lengths.
3. Lay one string at a diagonal on the each corner of the napkin and seal in place with a sticker or piece of tape.



4. Follow these same instructions for the other three corners of the napkin.
5. Gather up the ends of the strings carefully and lift the napkin into the air by the strings just above the table.
6. Make sure the strings are equal in length and attach to a paper clip with a piece of tape.

C. Wrap-up

1. Students will drop the parachute gently and observe it as it floats to the ground. Why does it fall? What force is acting upon it? Why does it float rather than drop straight down? Discuss these questions with the class. Record class observations on chart paper.
2. The students will add one paper clip at a time and observe what happens as the parachute floats to the ground. Time and record how long it takes the parachute to reach the ground. Continue to add paper clips (one at a time) and record time of descent.
3. Discuss what happens each time more mass (a paper clip) is added to the paper napkin parachute.

**Assessment/
Evaluation:**

Students will be evaluated on their ability to follow directions, measure and record data.



Extensions:

1. Make a timeline of the story of the parachute using the background information.
2. Experiment with different materials (i.e. plastic, paper, fabric) for the parachute canopy.
3. Create a line or bar graph using the parachute's time of descent for each flight.

**Resources/
References:**

Caidin, Martin. *The Silken Angels*. New York: J.B. Lippincott Company, 1964.

Ets, Marie Hall. *Gilberto and the Wind*. New York: Puffin Books, 1978.

Mackevsey, Ian. *Into the Silk*. New York: WW Norton and Company, Inc., 1958.

