

Ages:

8 to 13

Parachute: Bail Out

(Adapted from: *The Fabric/Flight Connection*. See “More Great Resources for Grab and Go with Science Activities” at the end of this publication for more information, including activities for older youth.)

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Main idea: Weight of payload helps determine how quickly the parachute descends.

Objectives:

- q Make a parachute
- q Test parachute performance with different payloads

Materials:

- q Handkerchief or other square of fabric (1 piece per parachute)
- q 4 strings at least 12 in. (30.5 cm) long
- q Film canisters or plastic containers with snap -on lids

- q Miscellaneous items to add weight by increments (e.g., popcorn, beans, washers)
- q Stopwatch or watch with second hand (optional)

Motivator: The first parachutist was a dog. His owner made the first successful human jump 8 years later in 1793.

Questions:

Before you start the activity, ask the students:

- q What shape is a parachute? (A: Most are umbrella shaped; modern ones are rectangular or wing-shaped. Create drag to slow descent through the air.)
- q How are parachutes used? (Drop people or supplies; skydiving; slow the speed of race cars.)

Activity:

See diagrams that follow, **Parachute 2: Bail Out.**

1. Gather corner of handkerchief or fabric. Wrap piece of string around point three times, and tie. Repeat for other corners.
2. Bring ends of strings together, trying to make them equal in length, and tie an overhand knot.
3. Place knotted string ends inside film canister and fasten lid.
4. Wrap strings around canopy and toss it in the air. Practice until canopy opens and canister floats to the ground.
5. Repeat several times, loading more weight into canister with each toss.
6. Rank speed of descent of each trial and compare. For example, first place (fastest) carried 25 beans; second place, 15 beans; third place (slowest), 5 beans. For more accurate times, use a stopwatch.

Learning checks:

- q Did all the parachutes open?
- q What happened if the parachute strings crossed?
- q Did you toss the parachute to the same height every time?
- q What worked best, a high toss or a low toss?
- q What happened when you added weight to the canister? Was it harder to toss? Did the parachute open better? Did it drop faster or slower?

Background:

Size of parachute and air permeability of parachute material are also important in rate of descent.

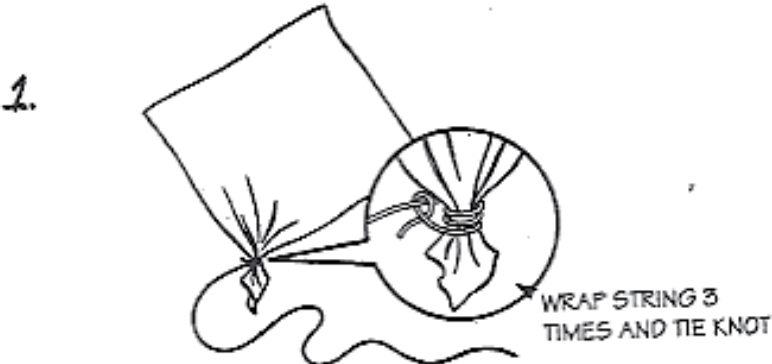
Vocabulary:

Parachute: A canopy that traps and holds air.

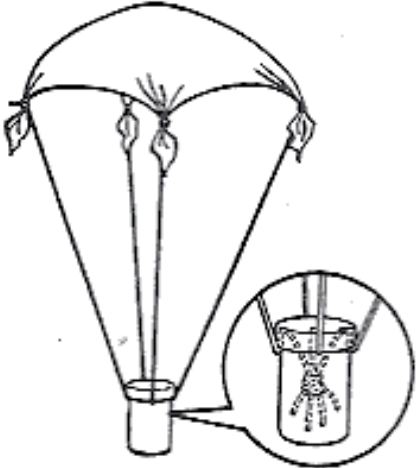
Payload: Person or object carried by the parachute.

Extensions:

Repeat drops, but add extra weight to the parachute instead of the canister. Add weight by applying metallic tape, cloth appliqués, painted designs, or glued objects.



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4.

