Objective

By the end of this lesson, the student will have designed and created their own parachute using everyday materials. They will understand the principles of aerodynamics, gravity, and the scientific method through hands-on experimentation and analysis.

Materials and Prep

- Plastic bag (any size)
- String or yarn
- Scissors
- Small weight (like a toy or a small bag of rice)
- Measuring tape or ruler
- Pencil and paper for notes

Before the lesson, ensure you have a safe space to drop the parachute from a height (like a staircase or balcony) and a flat area for landing. Familiarize yourself with basic concepts of gravity and air resistance.

Activities

- **Research and Discussion:**

  Start by researching how parachutes work. Discuss the concepts of gravity, air resistance, and how parachutes slow down descent. Ask questions like, "What materials do you think would work best for a parachute?"

- **Design Your Parachute:**

  Using the plastic bag, design a parachute. Cut the bag into a circular shape and attach strings to the corners. Discuss how the size and shape of the parachute might affect its performance.

- **Testing and Observation:**

  Drop your parachute from a height and observe how it falls. Measure the time it takes to reach the ground. Make adjustments to your design and test again. Keep track of which designs worked best!

- **Reflection and Analysis:**

  After testing, write a short report on what you learned about parachutes. Include what worked, what didn't, and how you could improve your design in the future.

Talking Points

- "Gravity is the force that pulls objects toward the Earth. How do you think this affects the way a parachute falls?"
- "Air resistance is the force that opposes gravity. Can you think of other examples where air resistance plays a role?"

- "The size and shape of your parachute can change how it falls. What changes can you make to improve its performance?"
- "Testing is a key part of the scientific method. Why do you think it's important to test and adjust your design?"
- "Reflection helps us learn from our experiences. What did you learn from your parachute design process?"