



Activity 13: Parachute Plunge

Question

How can you drop a fragile, uncooked egg without breaking it? (Note: you will use this experiment for Assessment 4-2).

Manipulated (Independent) Variable

1. What is the one thing you will be changing to protect your egg? (For example, canopy type and size, shroud line length, type and amount of packing in the basket)

Materials

- stop watch or timer
- an uncooked egg (as in Assessment 2-4)

The materials you need for the canopy, packing, basket, and shroud lines will depend on your actual parachute design.

Hypothesis

2. Based on the manipulated variable you chose, how can you protect your egg so that it does not break when you drop it?

Instructions

1. Use the **Planning and Designing** section to guide your planning.
 - Be sure to consider all the parts of your design and be sure you have access to the materials you will need.
 - You will be building three parachutes. All parachutes must be exactly the same **except** for the manipulated variable that you chose.
2. After checking with an adult to make sure your design and materials are safe, start building your parachutes. Do **NOT** attach your parachutes to your load until immediately before testing. You must use the same load for each test.
3. When you have finished building your parachutes, you can prepare for your parachute testing. Be sure you have adult permission and supervision.
4. Be prepared for problems! You may need more materials for repair at the test site.
5. Choose an area high enough up to give your object space to fall. Be sure you are in an open space with nothing directly beneath. If you are testing outside, try to avoid doing it on a windy day.
6. Your first test is to drop your test object **WITHOUT** the parachute attached. Time how long it takes to fall. Record this on the **Parachute Testing** section of your worksheet.
7. Now, attach parachute 1 to the load. Drop it from the **same height** and record the time.
8. Attach parachute 2 to the load. Drop it from the **same height** and record the time.
9. Attach parachute 3 to the load. Drop it from the **same height** and record the time.

Parachute Planning and Design

- Construct a sketch showing what your parachute looks like.
- On your sketch, label the various parts and the materials of which they are made.
- For each version of your parachute, be sure to indicate how you changed **ONE** thing (such as canopy size or material, string length, etc.)
 - ❑ Remember that you want to produce **more** drag to increase the amount of time the load takes to fall. Refer to the section on drag to refresh your memory.
 - ❑ You can use the following websites for ideas on your parachute design, but experiment—and have fun! You can access the website links from the online course.
 - ♦ [Zoom Kids Parachute](#)
 - ♦ [Make a Parachute](#)
 - ♦ [Parachutes: Does Size Matter?](#)
 - ♦ [How to Make Homemade Parachutes](#)
 - ♦ [Egg Drop](#)

My Parachute will look like this: (Be sure to label all the parts.)

<p>Attach images in the spaces provided.</p> <p>Parachute #1:</p>	
<p>Parachute #2:</p> <p>(Remember to show the ONE thing you changed.)</p>	
<p>Parachute #3:</p> <p>(Remember to show the ONE thing you changed.)</p>	

Observations

Parachute Testing

Test #	Observations
No Parachute	
1	
2	
3	

Conclusions

Which parachute protected the egg the best? Was your hypothesis correct?