

Drop Zone

You need

- ★ parachute materials (e.g., plastic bags, foil, paper, cellophane, cloth)
- ★ string
- ★ sticky tape
- ★ a stopwatch
- ★ classmates

TECHNOLOGY

Models can be used to investigate how something will perform. For example, it would be very difficult for you to build and trial a full-size parachute, but you could make a small version to use as a working model. A prototype is a finished version of a design. Prototypes are full-sized and made of the same materials that will be used in mass production.

Activity One

Isaac's class is designing model parachutes.

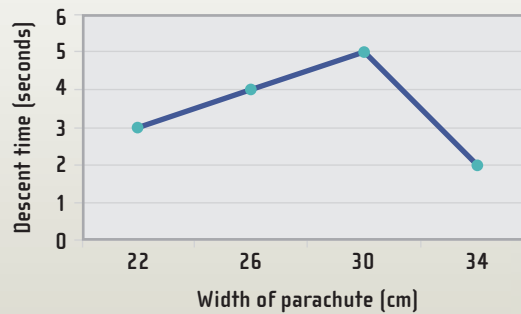
1. Each person in Isaac's group works on their own design. Then they get together and test them. For their tests, they drop the parachutes from the same height 3 times and time how long each takes to land. Then they modify their designs and test them again. Here are their best results.

Descent time in seconds				
Student	Design 1	Design 2	Design 3	Design 4
Isaac	3	4	5	2
Meri	4	2	3	5
Alex	4	5	9	7
Amanda	2	3	4	5

The first parachute I made was 22 centimetres wide. For my next parachutes, I made the width 4 centimetres wider each time.



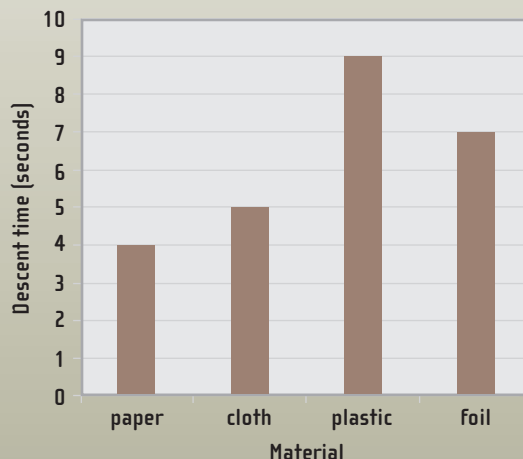
Isaac's Results



I made my parachutes from paper, cloth, plastic, and foil.



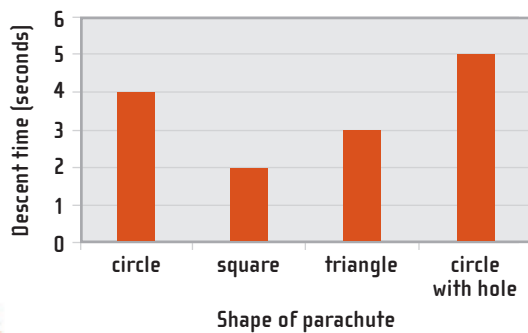
Alex's Results



I tried different shapes: a circle, then a square, then a triangle, and lastly a circle with a centre hole.



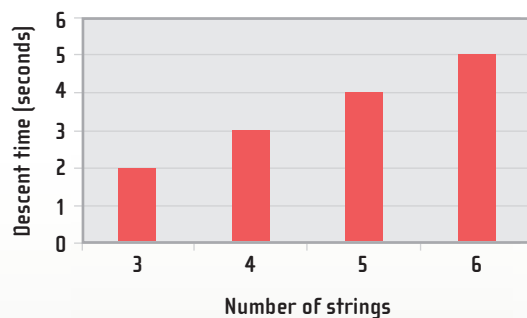
Meri's Results



I used a circle each time. I started with 3 strings and then tried 4, 5, and 6.



Amanda's Results



With a classmate, discuss the students' results:

- Which model gave the best result (slowest descent)?
- Which shape worked best for Meri?
- Should Isaac make his next parachute bigger? Why or why not?

- Based on the students' data, what characteristics should the best parachute have?

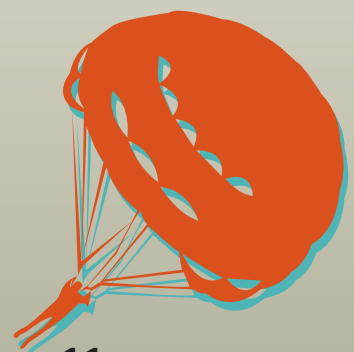
Activity Two

- In groups, design and construct your own parachutes. Decide what you will attach to add weight.
 - Agree how you will test your designs.
 - Test your models and record the results.
 - Make changes and then test the parachutes again.
 - Discuss which modifications were successful and which didn't help.



- Compare your parachutes with those of other groups.
 - What features, if any, do the best designs have in common?
 - What features, if any, do the less successful parachutes have in common?

- Modify your parachute if necessary and then repeat the tests.
 - Discuss why you should do repeated tests on your models.
 - Compare your new results with those of other groups. Which group's parachute performed well most of the time? Why?



Focus

Using statistics to evaluate models