

Experiment: Make a Paper Bridge

How strong can you make a paper bridge?

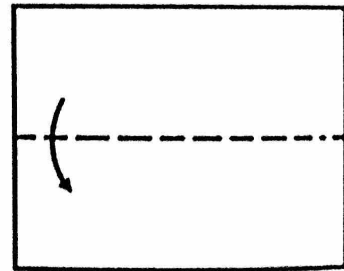
What You Need

- 50 nickels (or more)
- Notebook paper
- Books
- Ruler

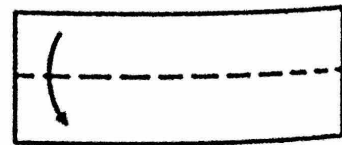
What You Do

1. Make two stacks of books. Each stack should be the same height.
The stacks should be at least 5 cm tall and about 15 cm apart.
2. Place the sheet of paper flat across the two stacks to make a bridge.
3. Put nickels on top of the paper one at a time. Count how many nickels you can add before the bridge collapses. Record your results on the next page.

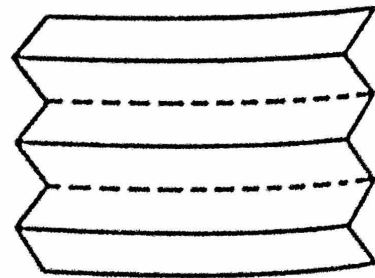
4. Fold the paper in half as shown.



5. Fold the paper in half again, as shown.
Repeat steps 2 and 3.



6. Unfold the paper and fold it again as if you were making a paper fan.
Repeat steps 2 and 3.



"Experiment: Make a Paper Bridge"—Observations

Observations

Use the chart below to record your observations.

Step	How the bridge was made	How many nickels did the bridge hold without collapsing?
3		
4		
5		
6		

Think About It!

1. Which of the paper bridges was strongest? Tell why you think it was strongest.

2. How could you build a strong bridge with two pieces of paper? Think of different ideas and test them. On another piece of paper, make a chart to record your observations.

Experiment: Centre of Gravity

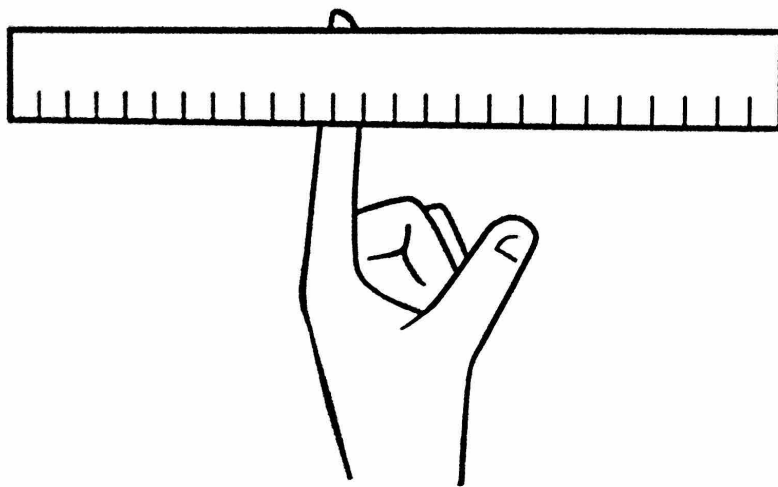
Every object has a spot that is called the centre of gravity.
Try this experiment to find the centre of gravity of a ruler.

What You Need

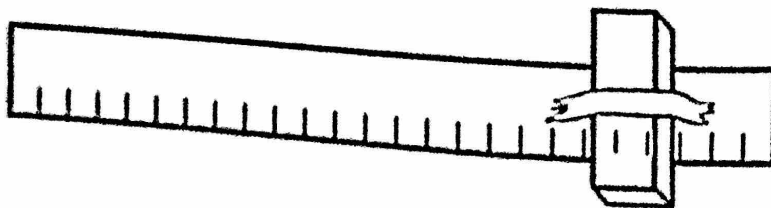
- 30 cm ruler
- Masking tape
- Eraser
- Partner

What You Do

1. Balance the ruler on your finger. (Move your finger right or left to find the spot where the ruler balances.) This spot is the ruler's centre of gravity.



2. Mark the centre of gravity with a small piece of masking tape.
Write "1" on the masking tape.
3. Place an eraser 3 cm from the end of the ruler and tape it in place.



4. Repeat steps 1 and 2. This time, mark the centre of gravity "2" with masking tape.

"Experiment: Centre of Gravity"—Think About It!

1. The ruler had a different centre of gravity in each test. Use the drawings of rulers on page 54. Mark the centre of gravity you found each time.
2. What would happen if two erasers were taped to one end of the ruler? Would the centre of gravity be in the same place? Explain your thinking.

3. A circus acrobat does a balancing act. She balances plates on a pole. Mark where you think the centre of gravity is on the pole. Draw the acrobat holding the pole.



Try It!

Tape an eraser over the 15 cm mark on the ruler. Where do you think the centre of gravity will be? Try balancing the ruler. Was your prediction correct?