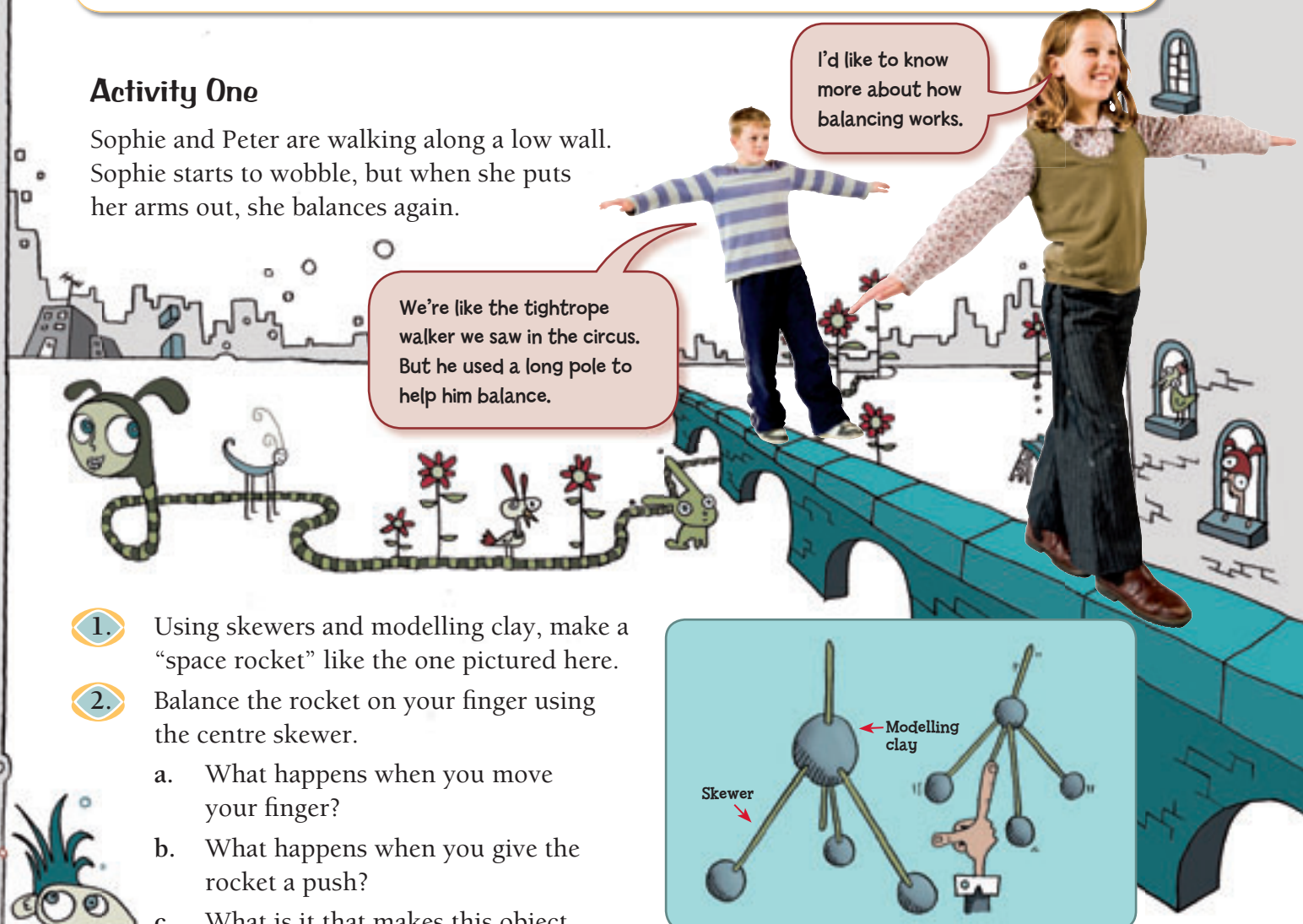
High Wire

You need
- wooden skewers
- modelling clay or other soft modelling material
- polystyrene blocks
- thin string or builders' twine
- classmates

Activity One

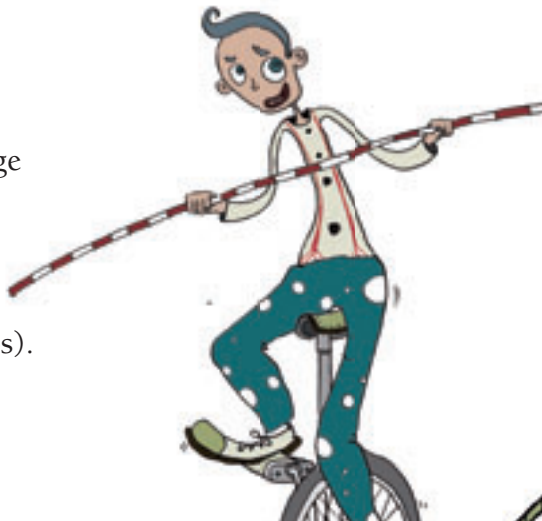
Sophie and Peter are walking along a low wall. Sophie starts to wobble, but when she puts her arms out, she balances again.



1. Using skewers and modelling clay, make a "space rocket" like the one pictured here.
2. Balance the rocket on your finger using the centre skewer.
   a. What happens when you move your finger?
   b. What happens when you give the rocket a push?
   c. What is it that makes this object balance? Explain.

Note: If the rocket doesn't balance, try changing the angle of the skewers or adding more modelling clay.

3. a. Discuss with a classmate what might happen if you change the following:
      i. the weight of the blobs of modelling clay
      ii. the angles of the skewers
      iii. the length of the skewers (the distance between blobs).
   b. Make the changes and find out what happens.
   c. Share what you find out with another pair of classmates.



Activity Two

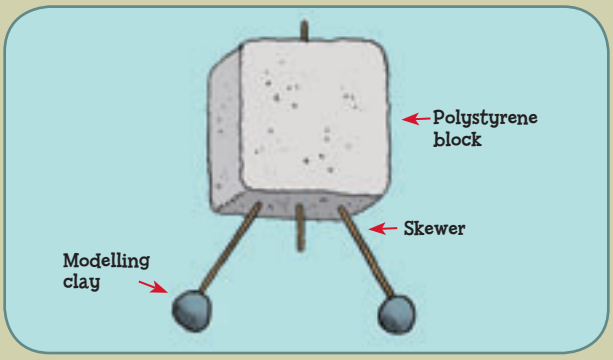
1. Using the space rocket you made in **Activity One**, try:
   - i. balancing the rocket by the centre skewer on the end of a broom handle and holding out the broom handle
   - ii. adding more skewers and modelling clay to make a giraffe, a spider, or another creature.
2. What questions do these experiments raise? Discuss with your classmate.

Activity Three

1. Make a tightrope walker by following these instructions:

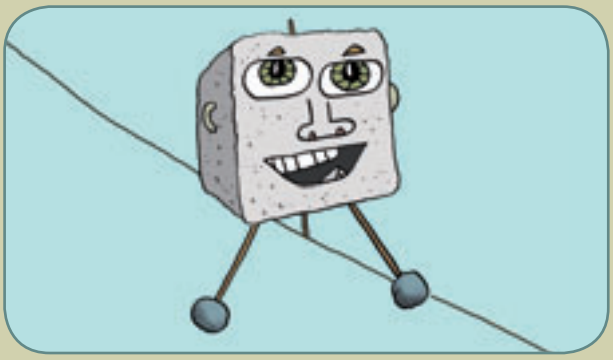
Step 1

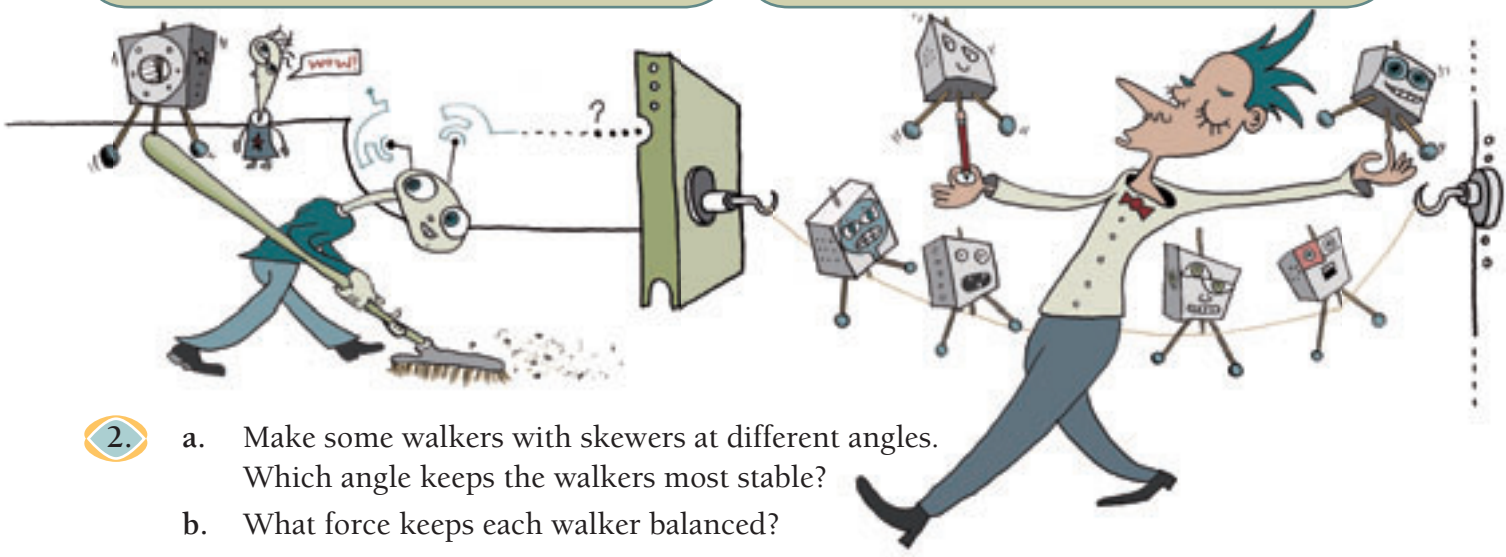
Push a skewer vertically through a block of polystyrene so that a short length sticks out from the bottom. Push 2 more skewers into the bottom of the block at an angle of about 45 degrees. Attach blobs of modelling clay to these 2 skewers so that the block balances on your finger.



Step 2

Next, tie a piece of thin string or builders' twine across the room and balance your tightrope walker on the string. You could have a whole class of tightrope walkers on the string!





2. a. Make some walkers with skewers at different angles. Which angle keeps the walkers most stable?
   - b. What force keeps each walker balanced?
   - c. Why do some walkers rebalance better than others?
   - d. How is a walker like a see-saw?
3. Discuss with a classmate what you now know about balancing and what makes an object unbalanced.

Focus Exploring angles, position, weight, and length and their relationships