

2.19 Introducing lines

Topic: Shapes
Subtopic: Lines
Activity type/skill: Orientation
Literacy focus: Vocabulary

Objective

- Provide orientation to the subtopic.
- Make links with prior knowledge.
- Link to the mathematics curriculum.

What you need

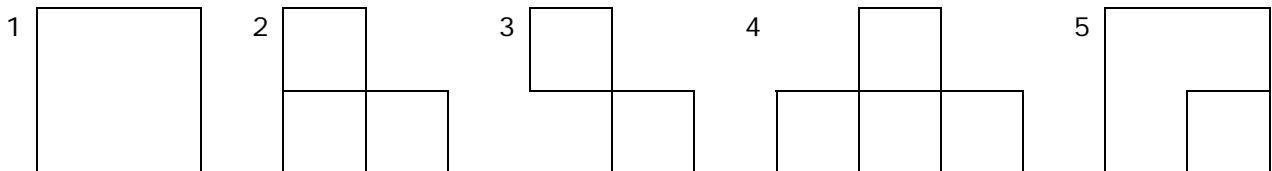
- Student worksheet (see next page)
- Audio track 2.19a
- Audio track 2.19b

What to do

1. Look at the first and second pages of the student worksheet and the illustration of lines. Explain that these are more technical words for maths.
2. Play track 2.19a (Track 5 for this topic). Have students listen to the text while they look at the pictures.
3. Have students complete the listening activity.
4. Discuss what they drew in the boxes and make any corrections by referring to the text.
5. Look at the third page of the student worksheet. This page is mostly for reference and to expose students to target vocabulary in context – straight, equal, length and so on. They do not need to be able to name the polygons, but should be able to describe them. This is best done as a group.
6. Play track 2.19b (Track 6 for this topic). After students have listened, have them take turns to point to a shape and ask another student to describe it.
7. Look at the fourth and fifth pages of the student worksheet. The purpose of this activity is to present more of the target vocabulary in the context of a set of instructions.
8. Have students read and complete the activities.

Answers:

horizontal line	point	diagonal line	vertical line
curved line	parallel lines	angle	straight line



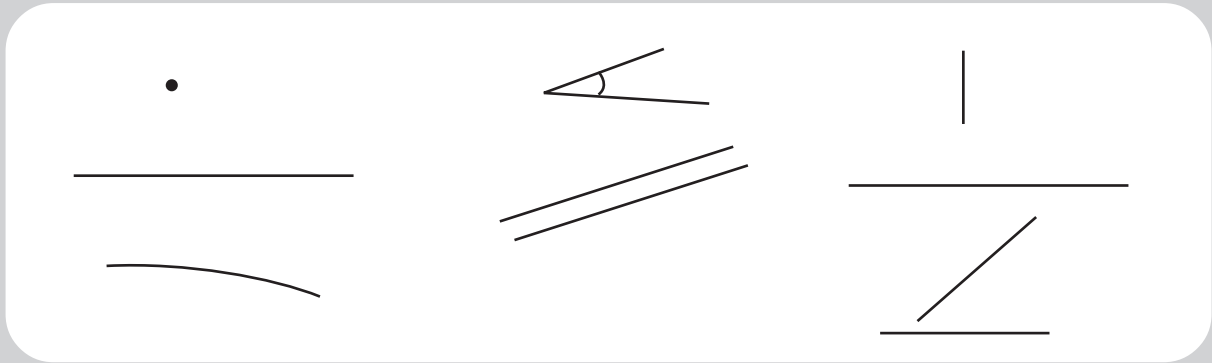
Extending the activity

- Play Simon Says by having students make lines with their bodies, for example 'Simon says make a vertical line' – students put arms in the air for vertical.
- Have the student who first solves the matchstick puzzle tell the others how to do it.
- Have students make a pentagon following the instructions in 'A Perfect Pentagon' by Barbara Beveridge, *School Journal*, Part 3, Number 2, 1998.

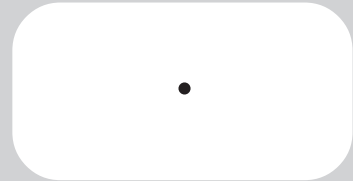


Track 5

Lines



A **point** is a place on a line or shape. It is usually shown as a dot.



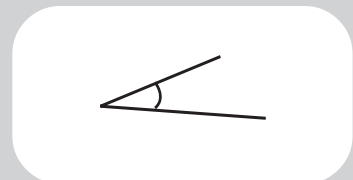
A **straight line** does not curve. It always goes the same way.



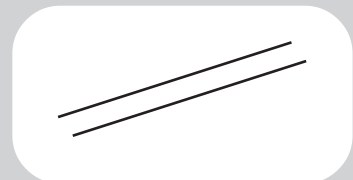
A **curved line** is a smooth, bending line like the edge of a circle.



An **angle** is the distance between two lines or surfaces where they join.



Parallel lines are always the same distance apart all along their length.



Activity nineteen

A **vertical** line stands straight up from a flat surface.

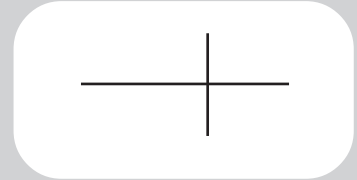


A **horizontal** line is flat and level.

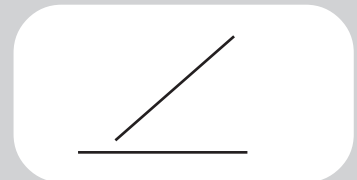


A **perpendicular** line crosses another line at 90°.

A perpendicular line can lie flat or stand up from a flat surface.



A **diagonal** line goes in a slanting direction away from another line (A slash / is a diagonal line).



1	2	3	4
5	6	7	8



Track 6

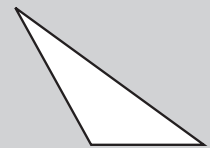
Describing shapes with many sides

The word for a many-sided shape is **polygon**. Polygons have many sides. The sides are all straight lines.

Three-sided shapes (triangles)

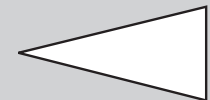
A scalene triangle has three straight sides. It has no sides of equal length.

A scalene triangle



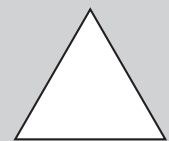
An isosceles triangle has three straight sides. It has two sides of equal length.

An isosceles triangle



An equilateral triangle has three straight sides. It has all sides of equal length. All the angles are equal (60°).

An equilateral triangle



Four-sided shapes

A rectangle has four straight sides. This rectangle has two pairs of equal sides. All the angles are equal (90°).

A rectangle



A square has four straight sides. It has all sides of equal length.

A square



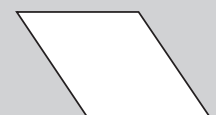
A parallelogram has four straight sides. It has two pairs of equal sides.

A parallelogram

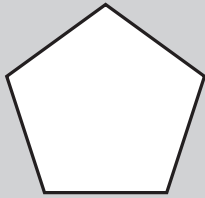


A rhombus has four straight sides. It has all sides of equal length.

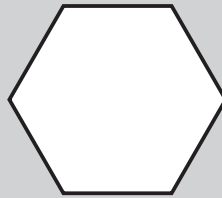
A rhombus



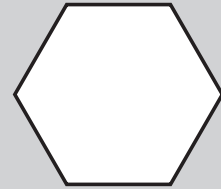
There are many more polygons. These are common polygons.



Five sides = a pentagon.



Six sides = a hexagon.



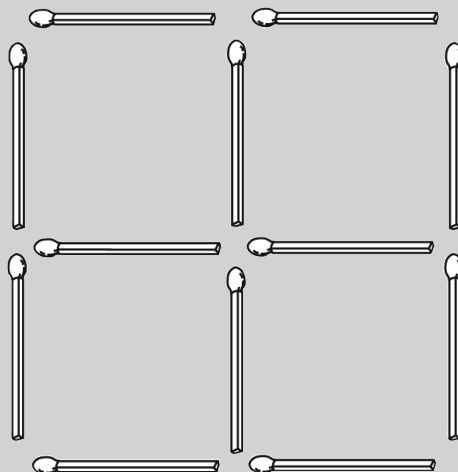
Eight sides = an octagon.

Making shapes with rods or matchsticks

Use 12 rods or matchsticks to make this shape.

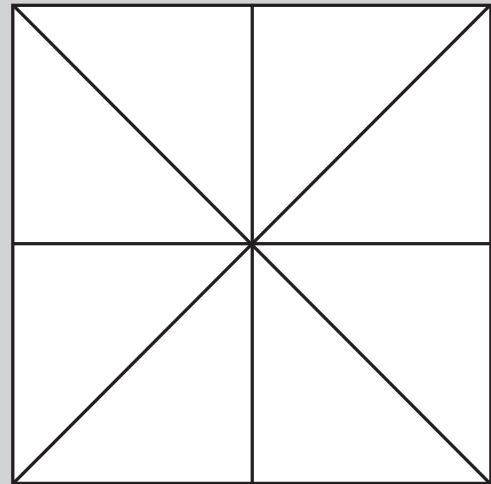
Put the 12 rods back in their places when you finish each part of the activity.

1. Take away four rods to leave one square.
2. Take away two rods to leave three squares.
3. Take away four rods to leave two squares.
4. Move (but do not take away) three rods to make three squares.
5. Take away two rods to make two squares.

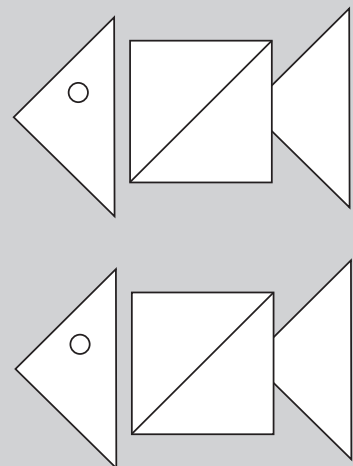
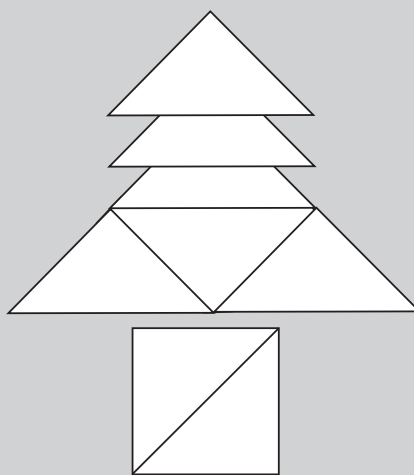
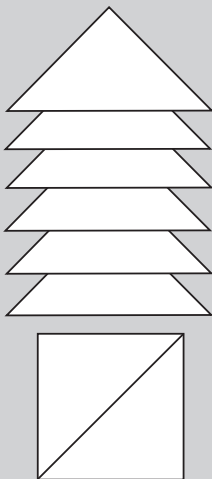


Making shapes with triangles.

1. Copy this square on to cardboard and cut it into the shapes shown.



2. Now place the shapes to make the following pairs of shapes.



3. Then use the triangles to make one other shape.

4. Draw your shape here.

