

Learn

We see lines everywhere around us all the time, for example on buildings, books, televisions, photo frames, roads etc.

Did you know that different types of lines have different names?



Types of lines

- A **vertical** line goes up and down.
- A **horizontal** line goes left to right.

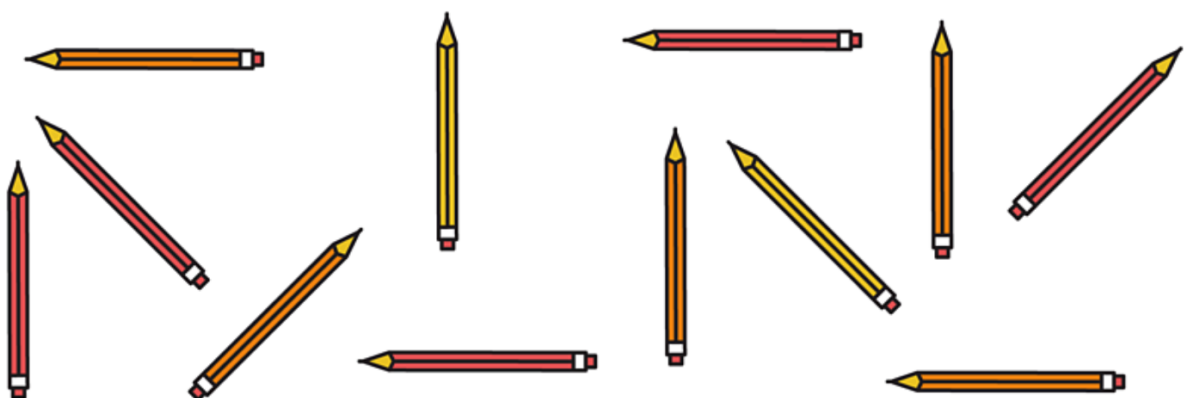


Vertical



Horizontal

Now have a look at the pencils below. Can you count how many **vertical** and **horizontal** pencils there are?



How many did you find? You can see that there are **4** vertical pencils and **4** horizontal pencils.

Now watch THIS VIDEO on **BBC Bitesize** to find out how to recognise parallel and perpendicular lines.

Link <https://www.bbc.co.uk/bitesize/articles/zxc9ydm>



Practise

Activity 1

Parallel names

Write your name in capital letters, like in the example below.

- How many pairs of **parallel** lines can you find?
- How many pairs of **perpendicular** lines?
- Which capital letter has the most **parallel** lines in it?
- Which capital letter has the most **perpendicular** lines in it?



Activity 2 (and answers) at the end

Parallel lines are two lines that are always the same distance apart and never meet, just like railway tracks.

To show that two lines are parallel, you draw matching arrows on each line facing the same direction.



Perpendicular lines are lines that meet at a right angle (90°), like a corner of a room or the edge of a book.

To show that two lines are perpendicular, you draw the right-angle sign in the corner where the two lines meet.



Example 1:

Look at the **trapezium** below.




The top and bottom lines are parallel because they will never meet and will stay the same distance apart, no matter how long the lines go on for!

The parallel lines have been marked with matching arrows.

The trapezium also has perpendicular lines, which have formed two right angles. They are marked with the small square symbol in the corners.

- 1) Complete the sentences:

Straight lines that never meet and stay the same distance apart are called _____ lines.

Straight lines which meet at a right angle are called _____ lines. 



- 2) Write the number of pairs of parallel and perpendicular lines you can see in each shape.
Mark the right angles for the perpendicular lines.

pairs of parallel lines: _____

pairs of perpendicular

lines: _____



pairs of parallel lines: _____

pairs of perpendicular

lines: _____



pairs of parallel lines: _____

pairs of perpendicular

lines: _____



- 1) Robin wants to draw parallel lines.

Which points should he join up to create a pair of parallel lines? _____



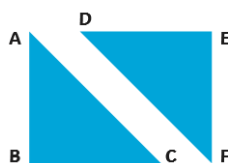
He says, "If I draw a line from A to D, and one from B to C, the lines will be perpendicular to each other."

Is he correct? _____

Prove it on the picture!

- 2) Tick the correct statements:

- ☐ Line AC is parallel to line DF.
☐ Line DE is perpendicular to line EF.
☐ Line AB is perpendicular to line AC.
☐ Line AB is parallel to line EF.



- 1) This pentagon has no parallel lines. Can you explain, or show on the diagram, how you know?



- 2) Draw a picture of a house which has at least three pairs of parallel lines and three pairs of perpendicular lines.

- 1) Complete the sentences:

Straight lines that never meet and stay the same distance apart are called **parallel** lines.

Straight lines which meet at a right angle are called **perpendicular** lines.



- 2) Write the number of pairs of parallel and perpendicular lines you can see in each shape.

pairs of parallel lines: 0
pairs of perpendicular lines: 1



pairs of parallel lines: 2
pairs of perpendicular lines: 4



pairs of parallel lines: 6
pairs of perpendicular lines: 6



- 1) Robin wants to draw parallel lines.

Which points should he join up to create a pair of parallel lines? **AB and CD or AC and BD**

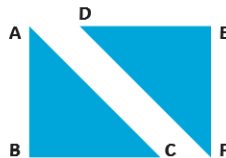
He says, "If I draw a line from A to D, and one from B to C, the lines will be perpendicular to each other." Is he correct? **No**

Prove it on the picture! **Children should draw the lines on the diagram to show that they do not meet at a right angle.**



- 2) Tick the correct statements:

- ☒ Line AC is parallel to line DF.
☒ Line DE is perpendicular to line EF.
☐ Line AB is perpendicular to line AC.
☒ Line AB is parallel to line EF.



- 1) This pentagon has no parallel lines. Can you explain, or show on the diagram, how you know?

If the lines were continued, they would all eventually meet each other. Children may choose to show this on the picture.



- 2) Draw a picture of a house which has at least three pairs of parallel lines and three pairs of perpendicular lines.
Multiple answers possible.