Join the Dots

In this investigation, you will investigate the number of lines that can be used to join a different number of dots.

- Here is one dot. No lines can join a single dot.

Here are 2 dots that can be joined by 1 line.

Draw 3 dots. How many lines can be used to join the 3 dots?

Continue with 4, 5 and 6 dots.

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Join the Dots

Draw a table and record your results. Use the example to help you.

Number of dots	Number of lines
1	0
2	1

Can you spot any patterns?

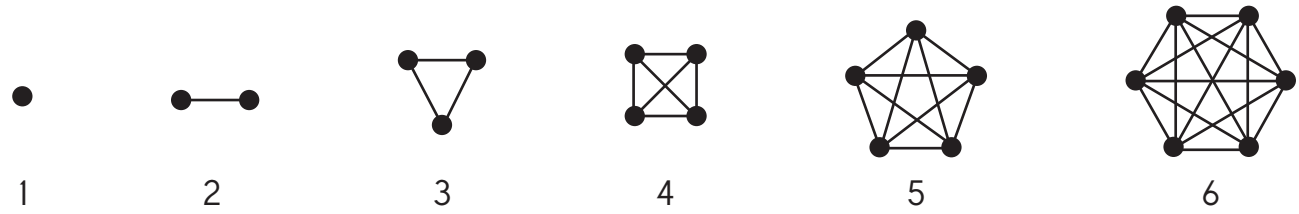
Can you predict the number of lines used with 7, 8, 9 and 10 dots?

Test your answers.

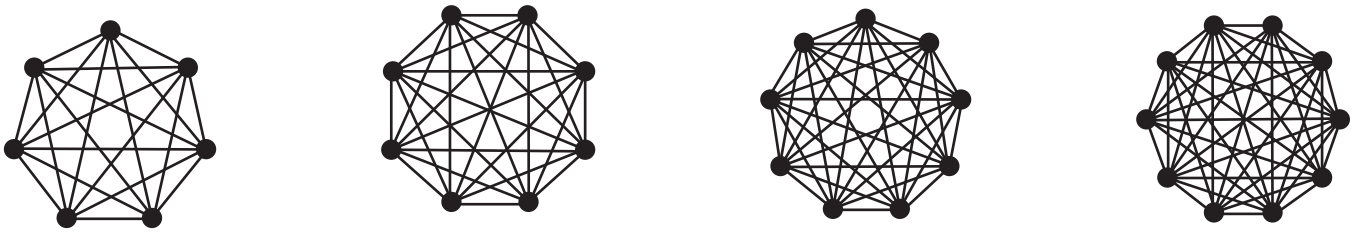
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Teacher Guidance

You may wish to model how to lay out the three dots and connect all of them so that the children find the correct number of lines.



1 2 3 4 5 6



7 8 9 10

Number of dots	Number of lines
1	0
2	1
3	3
4	6
5	10
6	15
7	21
8	28
9	36
10	45

The pattern of the number of lines are the triangular numbers.

It works because with 2 dots, you join the first dot to the other. (1)

With 3 dots, you join the first dot to 2 dots and the second to one dot. (2 + 1)

With 4 dots, first dot to 3 dots, 2nd dot to 2 dots, 3rd dot to 1 dot. (3 + 2 + 1)