

Activity 1: Puzzles

Have a go at these puzzles and then try to explain your reasoning and thinking in a paragraph.

Find The Path ☆ 1

Start at the bottom left square and move up, down, left or right until you reach the finish.

	4	9	7	7	4	↔ Finish
	8	9	4	5	7	
	6	6	4	9	9	
	7	8	8	8	6	
Start ↔	5	5	6	5	5	

**Add the numbers as you go.
Can you make exactly 53 ?**

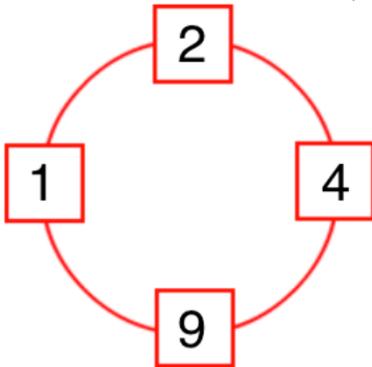
Times Table ☆ 4

**There is something strange about this addition square.
Can you work out what the missing number is?**

+	3	8	11
3	6	11	2
8	11	4	7
11	2	7	

Activity 2: Ring a Ring of Numbers

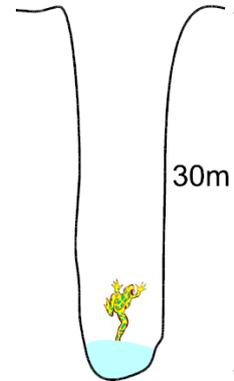
Here is a picture of four numbers placed in squares on a circle so that each number is joined to two others:



The Jumping Frog

☆ 6

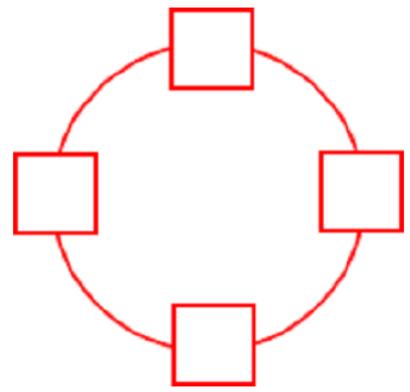
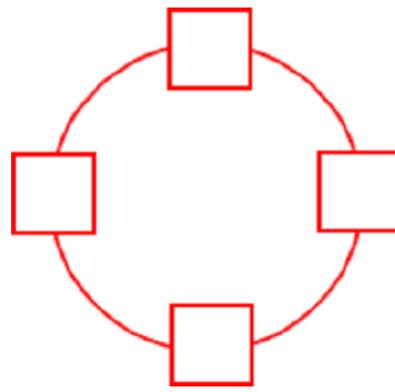
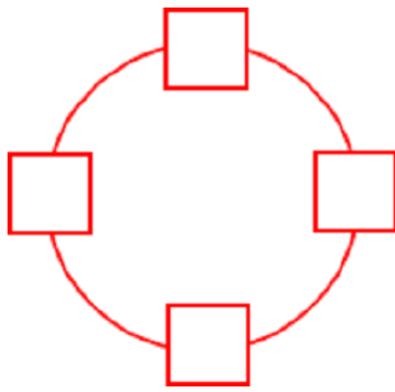
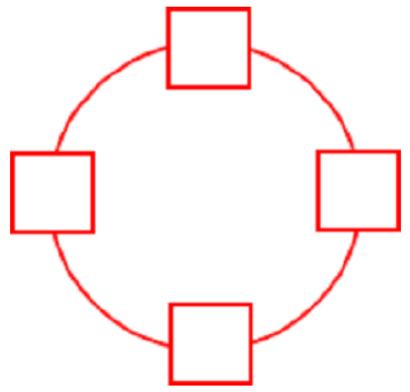
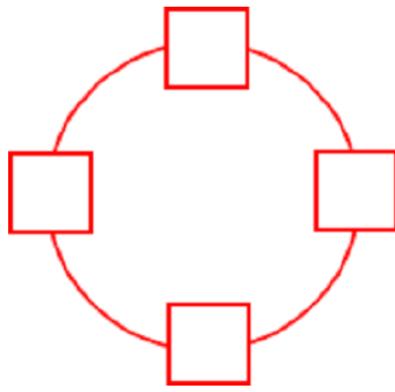
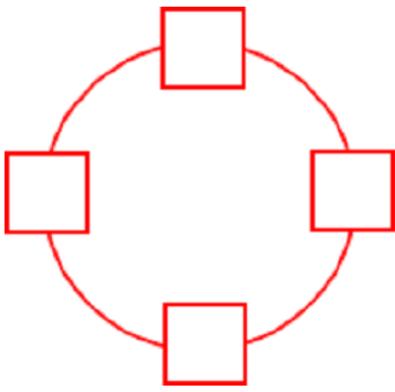
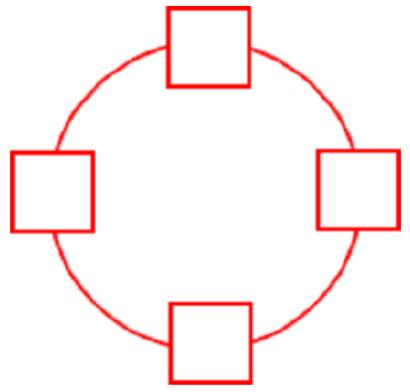
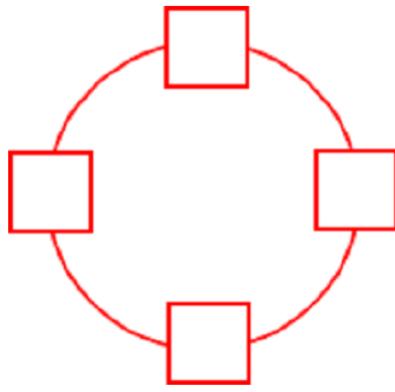
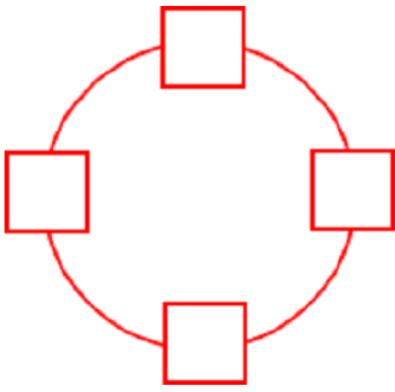
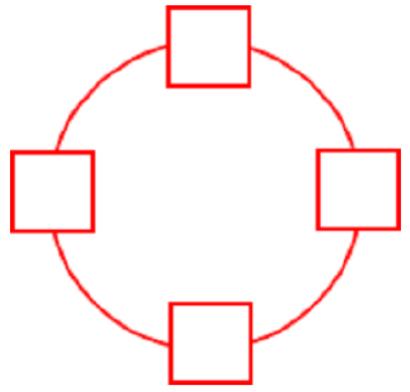
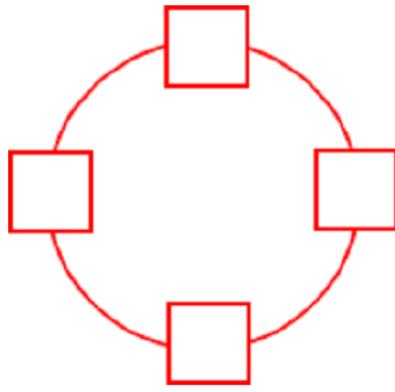
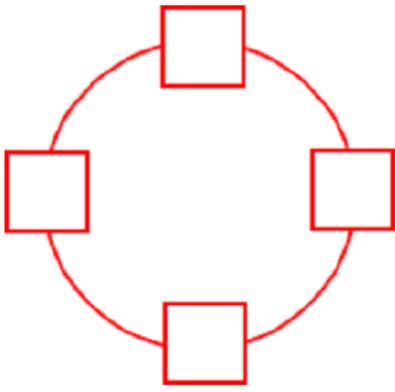
A frog has fallen into a pit that is 30m deep.



•
•
Each day the frog climbs 3m, but falls back 2m at night. How many days does it take for him to escape?

Task

- You can use the templates on the next page to record your working out
- Choose four numbers from this list: 1, 2, 3, 4, 5, 6, 7, 8, 9 to put in the squares so that the difference between joined squares is odd.
- Only one number is allowed in each square. You must use four different numbers.
- *What can you say about the sum of each pair of joined squares?*
- *What must you do to make the difference even?*
- *What do you notice about the sum of the pairs now?*



Activity 3: Reach 100

Here is a grid of four "boxes":

You must choose four different digits from 1–9 and put one in each box.

For example:

5	2
1	9

This gives four two-digit numbers:

52 (reading along the 1st row)

19 (reading along the 2nd row)

51 (reading down the left hand column)

29 (reading down the right hand column)

In this case their sum is 151.

Try a few examples of your own.

Is there a quick way to tell if the total is going to be even or odd?

Your challenge is to find four **different** digits that give four two-digit numbers which add to a total of 100.

How many ways can you find of doing it?

Activity 4: Ice Cream Investigation



The ice cream stall sells chocolate, peach, mint, lemon, strawberry and vanilla flavour.

What combinations can be created for a double cone?

Be sure to work systematically and record your solutions in an order.

How will you know once you have found all the possibilities?

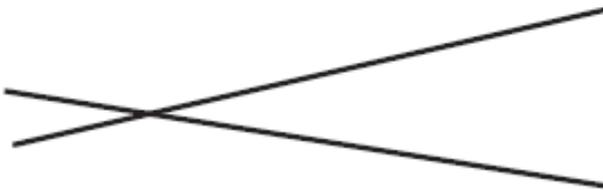
Activity 5: Sticks Investigation

Collect a number of sticks. The investigation is to find the maximum number of intersections as the sticks cross.

With one stick, no sticks cross.



With 2 sticks, there is one intersection.



See if you can work out the number of intersections for up to at least 10 sticks.

With 3 sticks, how many intersections are there? _____

Record the maximum number of intersections for each number of sticks.

Number of sticks	Number of intersections
1	0
2	1
3	

Can you spot the pattern?

Can you explain the reason for the pattern?

Predict the next number of intersections and test your idea.
