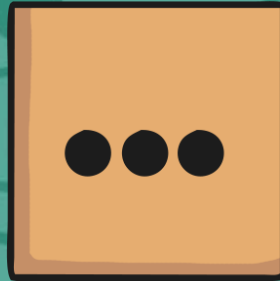


# Maya Number System

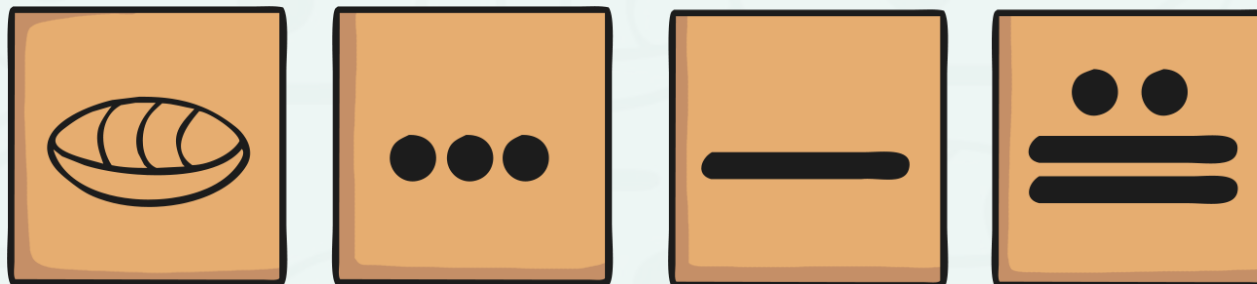


# The Maya and Numbers

The Maya had a good understanding of numbers and they developed a complex number and counting system which was advanced for their time.

They were one of only two cultures in the world to develop the concept of zero and this allowed them to develop a place value system where a zero could act as a place holder in large numbers. This enabled the Maya people to distinguish between numbers like 23 and 203, where the placement of the zero determines the value of the digit 2 as 200. This is a very important concept which many civilisations did not understand until much later than the Maya.

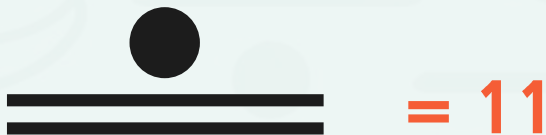
The Maya people used symbols to represent their numbers. Let's have a look at how it worked.



# Number Symbols

The Maya people used just three symbols in their number system. These are thought to represent items that the Maya people might have first used to count with such as pebbles, sticks and shells.

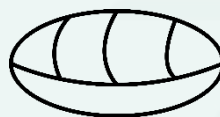
Look at the following Maya numbers. Can you work out what numbers the symbols represent and how the system works?



# Shells, Sticks and Pebbles

## Questions

1. Did you figure it out?
2. What have you learnt about the way the numbers are written?
3. What other Maya numbers can you write?
4. How is the Maya number system similar and different to our own?



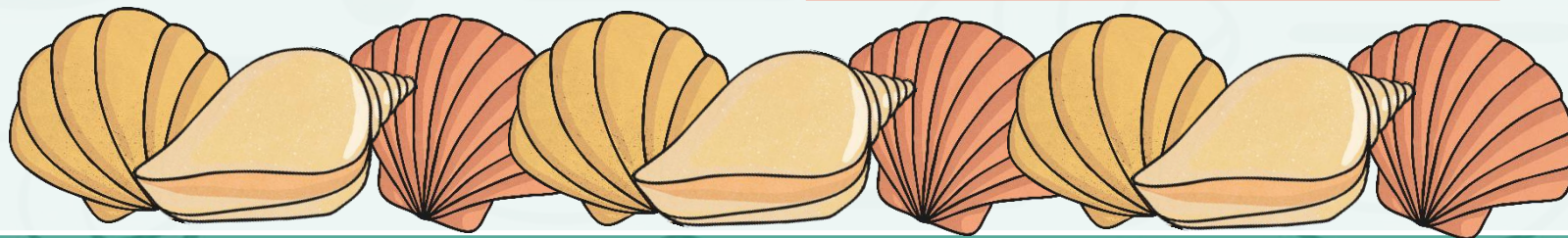
= 0



= 1



= 5



# Remember:

$$\bullet = 1$$

$$\text{—} = 5$$

Can you work out what these numbers would be?

$$\begin{array}{c} \bullet \bullet \\ \text{—} \end{array} = 7$$

$$\begin{array}{c} \bullet \bullet \\ \text{—} \\ \text{—} \end{array} = 12$$

$$\begin{array}{c} \bullet \\ \text{—} \\ \text{—} \end{array} = 11$$

$$\begin{array}{c} \bullet \\ \text{—} \\ \text{—} \\ \text{—} \end{array} = 16$$

$$\begin{array}{c} \bullet \bullet \bullet \\ \text{—} \\ \text{—} \\ \text{—} \end{array} = 18$$

$$\begin{array}{c} \bullet \bullet \bullet \\ \text{—} \end{array} = 8$$

# Maya Numbers

1	●
2	●●
3	●●●
4	●●●●
5	—
6	● —
7	●● —
8	●●● —
9	●●●● —
10	==

11	● ==
12	●● ==
13	●●● ==
14	●●●● ==
15	===
16	● ===
17	●● ===
18	●●● ===
19	●●●● ===

# Maya Calculations

Now you know all about Maya numbers are you able to solve this calculation?

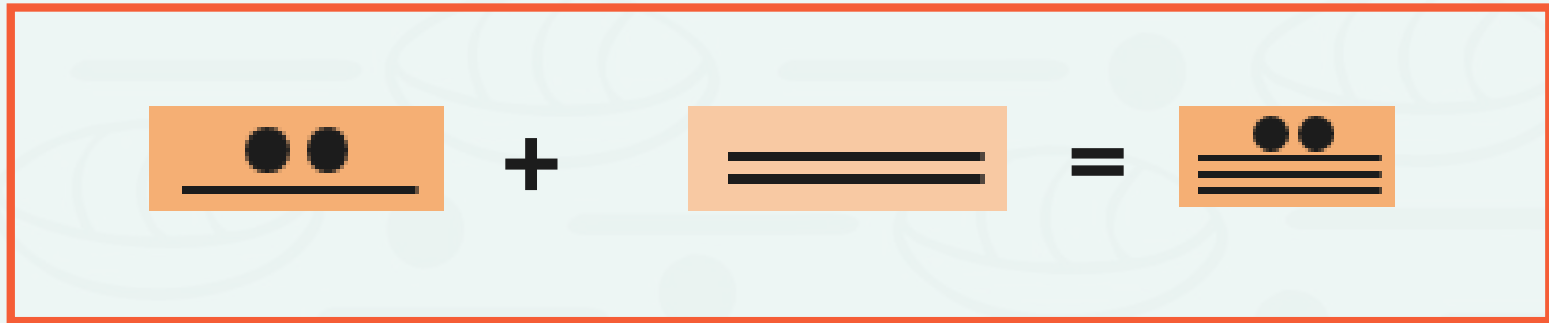
Have a go at recording the answer. Remember to use the Maya symbols!

$$\begin{array}{c} \bullet \bullet \\ \hline \end{array} + \begin{array}{c} \hline \hline \end{array} = \begin{array}{c} \hline \hline \end{array}$$

# Maya Calculations

Now you know all about Maya numbers are you able to solve this calculation?

Have a go at recording the answer. Remember to use the Maya symbols!

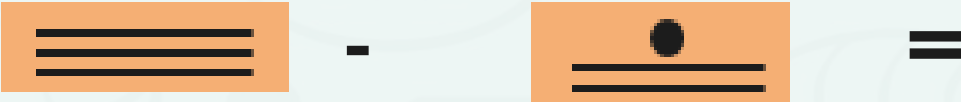


$$7 + 10 = 17$$

# Maya Calculations

Now you know all about Maya numbers are you able to solve this calculation?

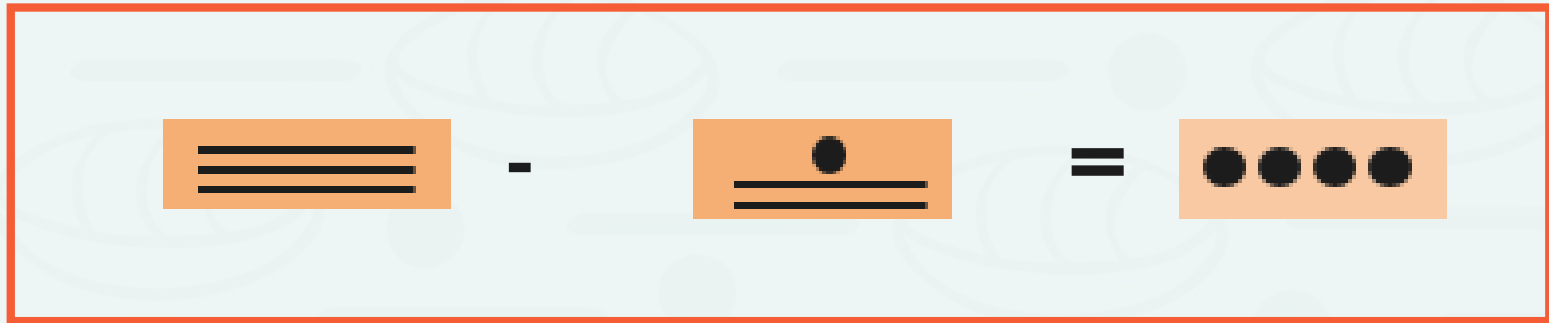
Have a go at recording the answer. Remember to use the Maya symbols!


$$\begin{array}{|c|} \hline \text{—} \\ \text{—} \\ \text{—} \\ \hline \end{array} - \begin{array}{|c|} \hline \bullet \\ \text{—} \\ \text{—} \\ \hline \end{array} =$$

# Maya Calculations

Now you know all about Maya numbers are you able to solve this calculation?

Have a go at recording the answer. Remember to use the Maya symbols!




$$15 - 11 = 4$$

# Maya Calculations

Now you know all about Maya numbers are you able to solve this calculation?

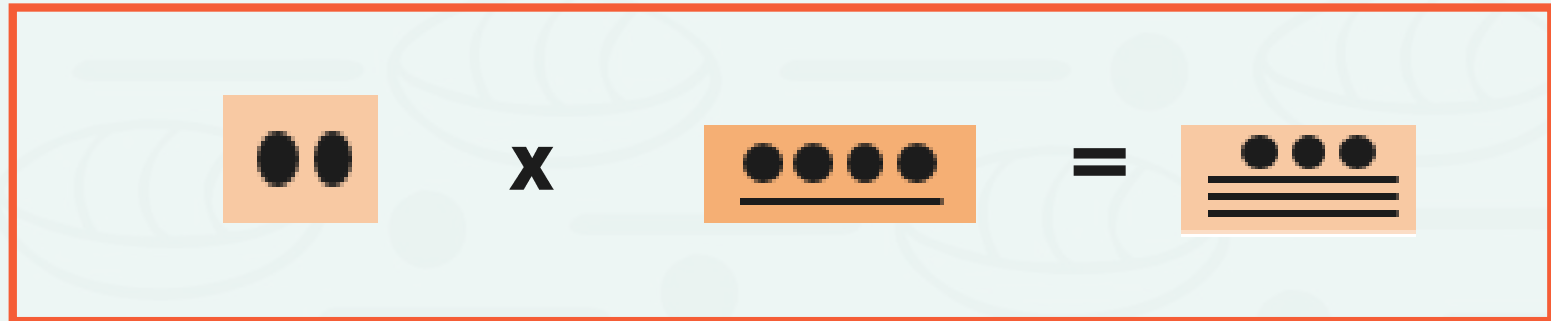
Have a go at recording the answer. Remember to use the Maya symbols!


$$\begin{array}{|c|} \hline \bullet \bullet \\ \hline \end{array} \times \begin{array}{|c|} \hline \bullet \bullet \bullet \bullet \\ \hline \hline \end{array} =$$

# Maya Calculations

Now you know all about Maya numbers are you able to solve this calculation?

Have a go at recording the answer. Remember to use the Maya symbols!



A multiplication problem using Maya numerals. The first factor is 2, represented by two black dots in an orange square. The second factor is 9, represented by four black dots in an orange square above a horizontal line. The result is 18, represented by three black dots in an orange square above three horizontal lines. The entire equation is enclosed in an orange rectangular border.

$$2 \times 9 = 18$$

# Maya Calculations

Now you know all about Maya numbers are you able to solve this calculation?

Have a go at recording the answer. Remember to use the Maya symbols!

The image shows a Maya calculation enclosed in an orange rectangular border. On the left, there is an orange box containing two horizontal black lines, representing the Maya number 20. To its right is a black division symbol (a vertical line with a dot above and below). Further right is another orange box containing two black dots, representing the Maya number 2. To the right of this is a black equals sign (=).

# Maya Calculations

Now you know all about Maya numbers are you able to solve this calculation?

Have a go at recording the answer. Remember to use the Maya symbols!

$$\text{Two bars} \div \text{Two dots} = \text{One bar}$$

$$10 \div 2 = 5$$