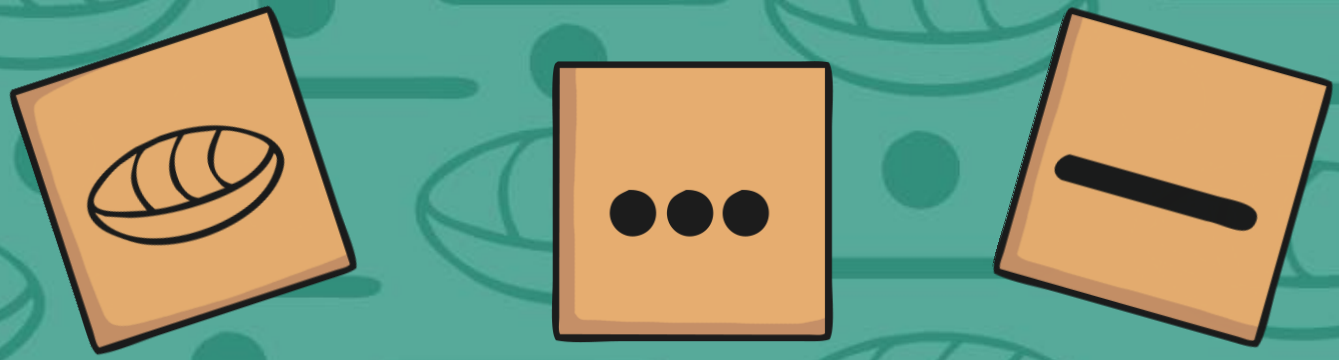
# Maya Number System



LO: to understand how the Maya number system works.

# Success Criteria

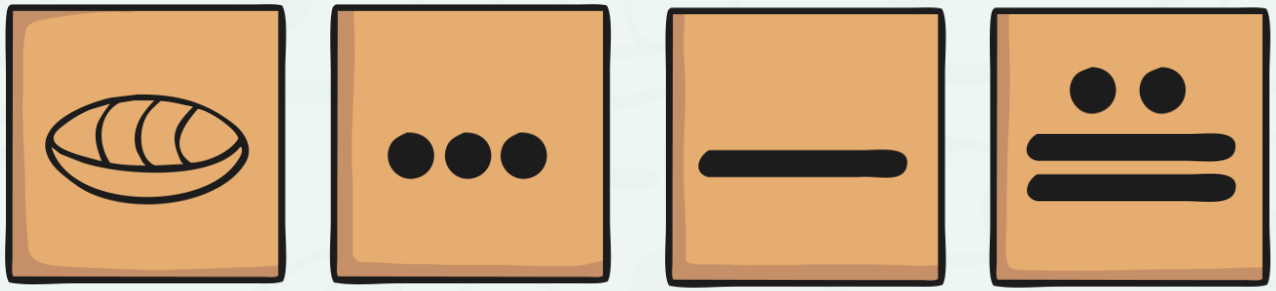
- I can read numbers using the Maya symbols for 0, 1 and 5.
- I can solve problems and write numbers using the Maya symbols for 0, 1 and 5.

# 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.

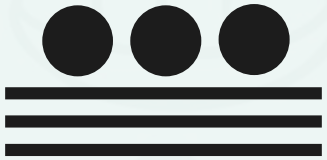


# Number Symbols

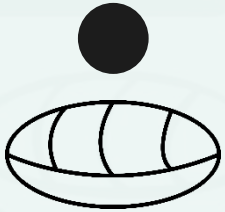
The Maya people used just three symbols in their number system. These are thought to represent items that the Maya people might have first used to count with such as pebbles, sticks and shells.

With your partner, look at the following Maya numbers. Can you work out what numbers the symbols represent and how the system works?

 = 7

 = 18

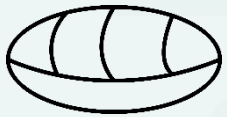
 = 11

 = 20

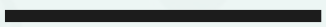
# Shells, Sticks and Pebbles

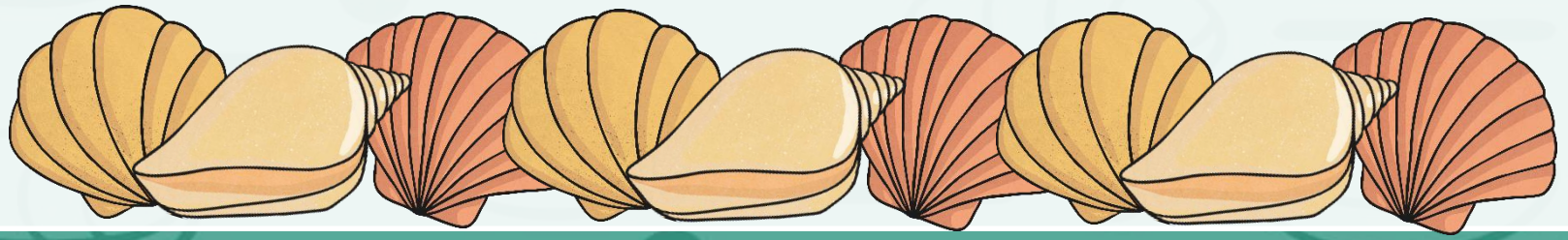
Knowing the value of each symbol, try to work out how numbers 0 – 19 would be written.

Answers on the next slide.

 = 0

 = 1

 = 5



# Maya Numbers

| | |
|---|---|
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |
| 6 |  |
| 7 |  |
| 8 |  |
| 9 |  |
| 10 |  |

| | |
|---|---|
| 11 |  |
| 12 |  |
| 13 |  |
| 14 |  |
| 15 |  |
| 16 |  |
| 17 |  |
| 18 |  |
| 19 |  |

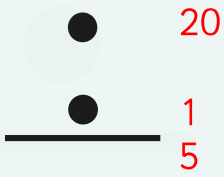
# Maya Numbers

The Maya people used a base 20 number system, so after number 19 multiples of 20 were written above the bottom number. This is called a vigesimal positional number system.

For example:


= 6

Place a dot above this number, to represents 20 ….




= 26

# Maya Numbers

 = 3

A dot above = 20 ....

 = 23

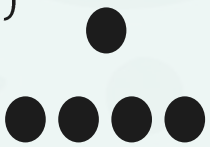
 = 12

A dot above = 20 ....

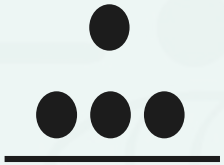
 = 32

Can you work out these values:

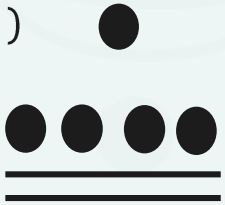
( A )



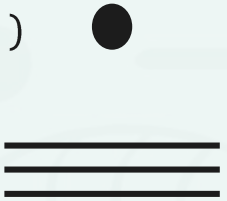
( B )



( C )



( D )



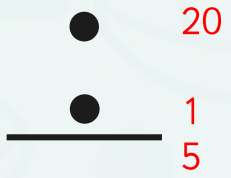
The number 20 uses a symbol for zero as a place holder below the dot representing 20, eg:

# Maya Numbers

To create larger numbers, Mayan's would use more dots to represent 20.

After 4 dots, they would draw a line to represent (5 x 20) 100

For example:

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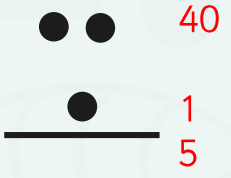


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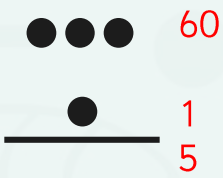
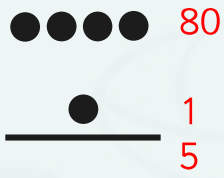
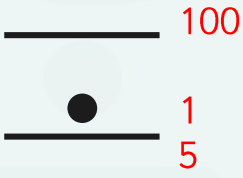



= 66




= 86

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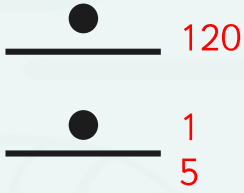


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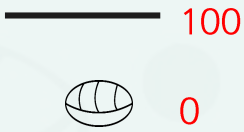
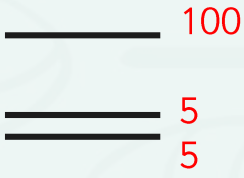



= 100

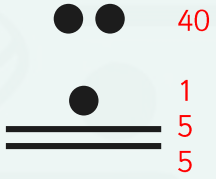



= 110

# Maya Numbers

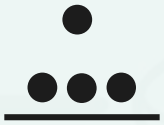
Try to write these numbers....

Example:



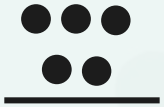

= 51

(A) 28



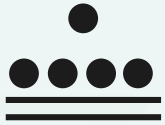
(B) 45

(C) 67

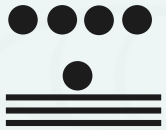


(D) 83

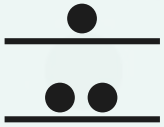
(E) 34



(F) 96



(G) 127



(H) 112

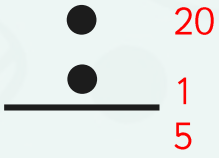
**Challenge: 200, 210, 300, 322**

# Maya Numbers

For greater numbers, Mayans used a third row representing 400!would use more dots to represent 20.

After 4 dots, they would draw a line to represent (5 x 20) 100

For example:

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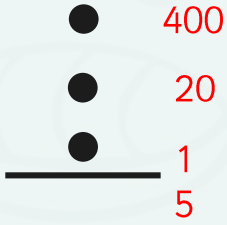


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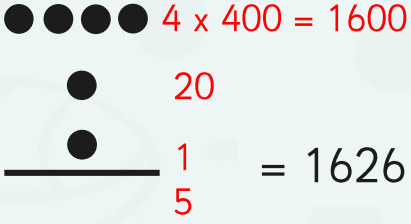
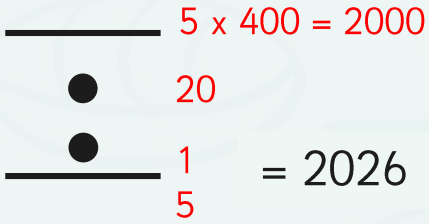



= 1626

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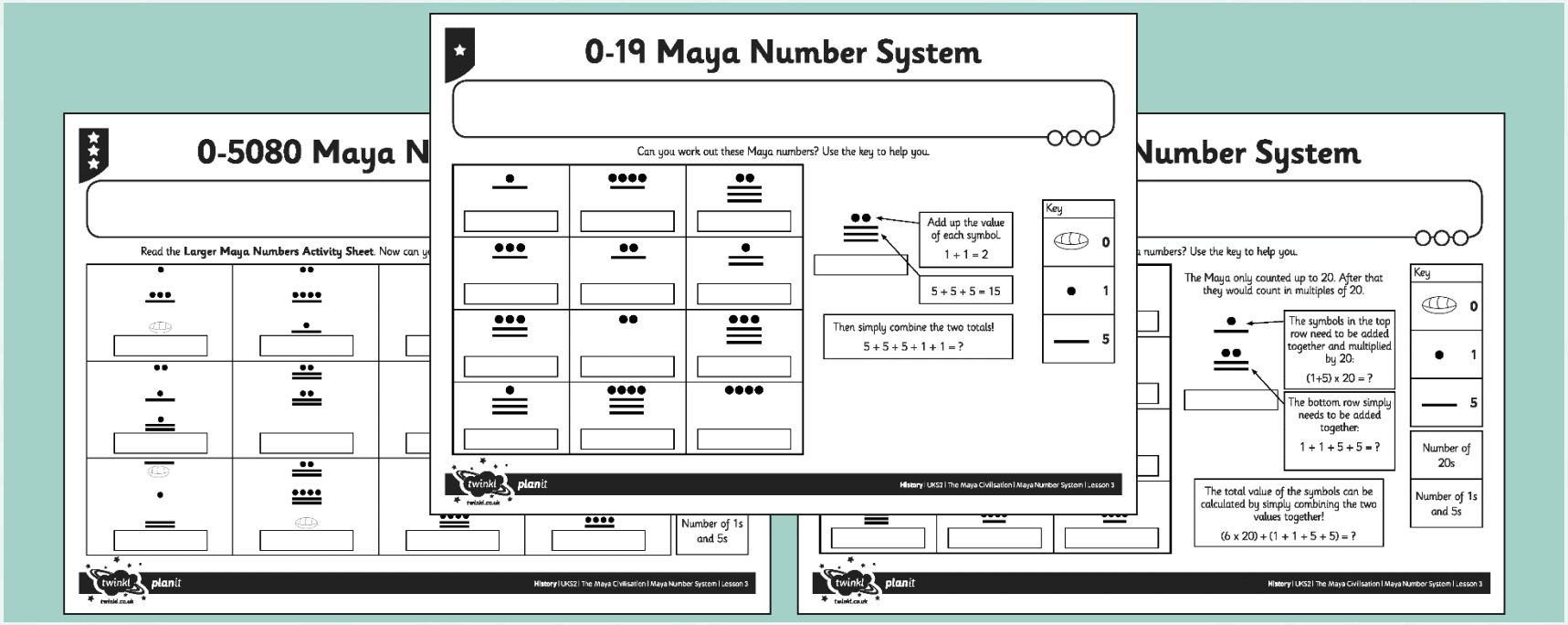
# Maya Number System Activity Sheets

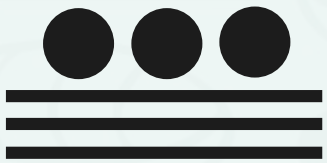
Use the information you have learnt about the Maya number system to help you work out the numbers on the **Maya Number System Activity Sheet.**



# Maya Calculations

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

Write down the answer and show me. Remember to use the Maya symbols!

 +  = 24

Now write 3 calculations of your own and challenge your partner to solve them. The calculations can be addition, subtraction, or a mixture.

Use the numbers from your activity sheet to help you write the calculations then swap with your partner and work out each other's calculations.

When you have finished, check the answers together.

# Maya Calculations

Are these numbers sentences true or false?

# Aim

- I can understand how the Maya number system works.

# Success Criteria

- I can read numbers using the Maya symbols for 0, 1 and 5.
- I can solve problems and write numbers using the Maya symbols for 0, 1 and 5.