Cross-Curricular Maths Activities

5 sessions

This week's maths is cross curricular and linked to our new topic of Ancient Egypt.

Session 1

Woodloes Primary School

The Ancient Egyptian Number System

The Egyptian number system used symbols to represent numbers. There wasn't a symbol for every single number. Their number system looked like this:

	1	A simple notch, line or stroke
	10	Arch, or yoke
	100	Coil of rope
	1,000	Lotus flower
	10,000	Finger
	100,000	Tadpole or frog
	1,000,000	Egyptian God

They didn't have a symbol for the number 9, so if they wanted to write down the number 9, they wrote the symbol for number one 9 times. If they wanted to write down 40, they would write the symbol for 10 (the arch), four times.

It didn't matter what order they wrote the symbols in. In the number system we use today, 71 and 17, for example, are two different numbers, but in the Egyptian number system,  and both mean 112.

Egyptian maths task 1

Ancient Egyptian Numbers

Change the following numbers from English to ancient Egyptian symbols using the guide above. The first one is done for you:

1. 7 = 
2. 13 = ?
3. 223 = ?
4. 1025 = ?
5. 10,320 = ?
6. 200,103 = ?

We are now moving on to multiplication using the guide above. In the first set, multiply the two English numbers together and give your answer as an ancient Egyptian symbol. The first one is done for you:

7. 2 x 4 = 8 
8. 10 x 5 = ?
9. 5 x 5 = ?
10. 7 x 7 = ?
11. 700 x 10 = ?
12. 2536 x 10 = ?

In the second set, multiply the English number and the ancient Egyptian symbol together and give your answer in English (It may help to write the whole calculation in English first). The first one is done for you:

13. 10 x  = 100
14. 100 x  = ?
15. 7 x  = ?
16. 1000 x  = ?

There is a copy of the maths task 1 saved separately to make the questions clearer to read.

17. 7 x  = ?

18. 3 x  = ?

Pharaoh Baines spilt a Nile milkshake on the sheet and lost his symbols! It is your job to work out the ancient Egyptian symbols that are missing (be careful as some questions are NOT multiplication). **Write out the whole calculation including the missing Egyptian symbol.** The first one survived and is done for you:

19. 10 x  = 1000
20. 33 x 2 = 3300
21. 70 x 2 = 490
22. 1000 x 2 = 78,000
23. 47 x 2 = 4700
24. 20 x 2 = 140
25. 100 ÷ 2 = 10
26. 200 ÷ 2 = 2
27. 77 ÷ 2 = 7
28. 63 ÷ 2 = 9
29. 3090 ÷ 2 = 309
30. 840 ÷ 2 = 210

Pharaoh Baines wants you to record your answers for the following questions in BOTH English and ancient Egyptian symbols.

31. Jack and Sophie bought 58 Sphinx souvenirs each. How many did they have altogether?
32. There is room in a pyramid for 45 coffins on each of the 10 floors. How many coffins are there if the pyramid is full?
33. It takes 100 bricks to build one wall of a pyramid (each pyramid is a square based pyramid with 4 walls) - how many bricks will Pharaoh Bennett need to build TWO pyramids?
34. 20 pupils at Giza Primary School eat school dinners. On average, each pupil is given 7 chips. How many chips do the dinner ladies need to cook?
35. Pharaoh Baines bought 10 benches to go around both pyramids he built. Each bench cost £100 each. How much did Pharaoh Baines have to pay in total for his benches?

Egyptian maths task 1 (ANSWERS)

Answers

Ancient Egyptian Numbers

Change the following numbers from English to ancient Egyptian symbols using the guide above. The first one is done for you:

1. 7 = |||||||
2. 13 = ? ∩|||
3. 223 = ? 𓍢∩∩|||
4. 1025 = ? 𓆼∩|||||
5. 10,320 = ? 𓆐𓍢𓍢∩∩
6. 200,103 = ? 𓆑𓍢|||

We are now moving on to multiplication using the guide above. In the first set, multiply the two English numbers together and give your answer as an ancient Egyptian symbol. The first one is done for you:

7. 2 x 4 = 8 ||||||||
8. 10 x 5 = ? (50) ∩∩∩∩∩
9. 5 x 5 = ? (25) ∩∩|||||
10. 7 x 7 = ? (49) ∩∩∩∩|||||||||
11. 700 x 10 = ? 7000 𓆼𓆼𓆼𓆼𓆼𓆼𓆼
12. 2536 x 10 = ? 25360 𓆐𓆐|||||𓍢𓍢𓍢∩∩∩∩∩

In the second set, multiply the English number and the ancient Egyptian symbol together and give your answer in English (It may help to write the whole calculation in English first). The first one is done for you:

13. 10 x ∩ = 100 10 x 10 = 100
14. 100 x 𓍢||||| = ? 100 x 15 = 1,500
15. 7 x ∩∩ = ? 7 x 20 = 140
16. 1000 x 𓆼| = ? 1,000 x 101 = 101,000
17. 7 x 𓆐 = ? 7 x 10,000 = 70,000
18. 3 x 𓁹 = ? 3 x 1,000,000 = 3,000,000

Pharaoh Baines spilt a Nile milkshake on the sheet and lost his symbols! It is your job to work out the ancient Egyptian symbols that are missing (be careful as some questions are NOT multiplication). Write out the whole calculation including the missing Egyptian symbol. The first one survived and is done for you:

19. 10 x 𓆼 = 1000
20. 33 x ? = 3300 ? = 𓍢 (100)
21. 70 x ? = 490 ? = ∩∩∩∩∩∩∩ (70)
22. 1000 x ? = 78,000 ? = ∩∩∩∩∩∩∩|||||||| (78)
23. 47 x ? = 4700 ? = (100) 𓍢
24. 20 x ? = 140 ? = ||||||| (7)
25. 100 ÷ ? = 10 ? = (10) ∩
26. 200 ÷ ? = 2 ? = 𓍢 (100)
27. 77 ÷ ? = 7 ? = ∩| (11)
28. 63 ÷ ? = 9 ? = ||||||| (7)
29. 3090 ÷ ? = 309 ? = ∩ (10)
30. 840 ÷ ? = 210 ? = |||| (4)

Pharaoh Baines wants you to record your answers for the following questions in BOTH English and ancient Egyptian symbols.

31. Jack and Sophie bought 58 Sphinx souvenirs each. How many did they have altogether? 116 = 𓍢∩||||||
32. There is room in a pyramid for 45 coffins on each of the 10 floors, How many coffins are there if the pyramid is full? 450 = 𓆼𓆼𓆼𓆼∩∩∩∩∩
33. It takes 100 bricks to build one wall of a pyramid - how many bricks will Pharaoh Bennett need to build TWO pyramids? 400 x 2 = 800 𓆼𓆼𓆼𓆼𓆼𓆼𓆼𓆼
34. 20 pupils at Giza Primary School eat school dinners. On average, each pupil is given 7 chips. How many chips do the dinner ladies need to cook? 140 = 𓍢∩∩∩∩
35. Pharaoh Baines bought 10 benches to go around both pyramids he built. Each bench cost £100 each. How much did Pharaoh Baines have to pay in total for his benches? 10 x £100 = £1,000 = 𓆐

It is a square based pyramid with 4 walls

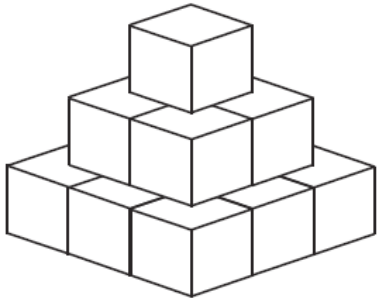
There is a copy of the maths task 1 answers saved separately to make the answers clearer to read.

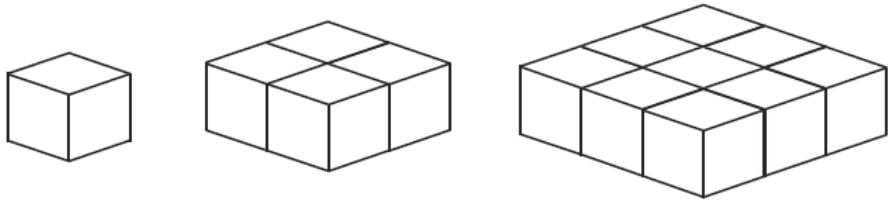
Session 2

Woodloes Primary School

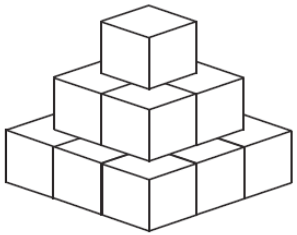
The Ancient Egyptian Pyramids

The Ancient Egyptians made their pyramids (square based pyramids) by cutting stone into blocks and placing them in layers in a square arrangement, one layer on top of another, getting smaller and smaller as they got to the top. They would have to predict how many blocks they would need to make pyramids of different sizes.





In a pyramid that was 3 blocks high (like the one above), they would need: 1 + 4 + 9 = 14 blocks



In a pyramid that was 3 blocks high (like the one above), they would need:
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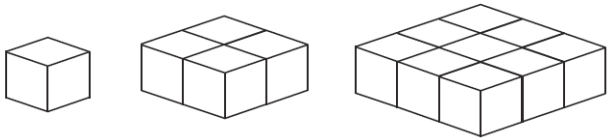
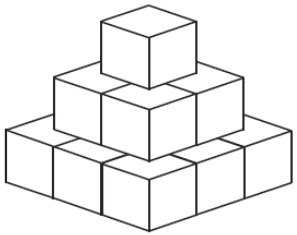


Calculate how many blocks would be needed to build the following pyramids. Draw each layer out (like in the example) to show how you calculated your answer.

Height of pyramid	1 block	2 blocks	3 blocks	4 blocks	5 blocks	6 blocks
Total number of blocks needed			14			

- Can you work out how many blocks would be needed to build a pyramid 10 blocks high? Check your answer by drawing each layer out.
- How many blocks would be needed to build a pyramid 20 blocks high? How do you know?



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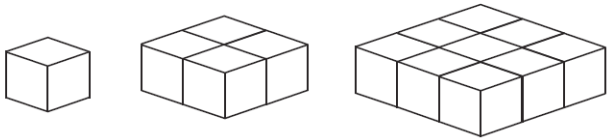

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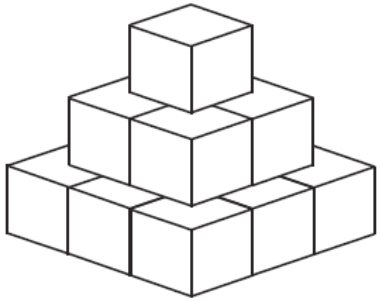
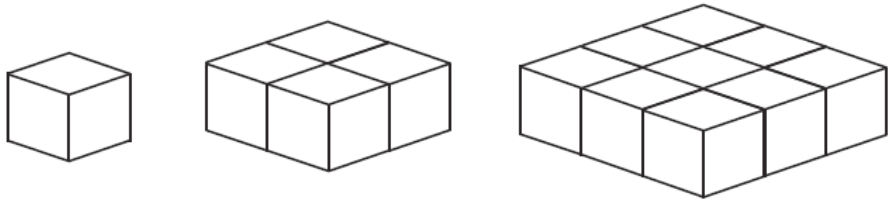




In a pyramid that was 3 blocks high (like the one above), they would need: 1 + 4 + 9 = 14 blocks

Egyptian maths task 2 ANSWERS

Calculate how many blocks would be needed to build the following pyramids. Draw each layer out (like in the example) to show how you calculated your answer.

Height of pyramid	1 block	2 blocks	3 blocks	4 blocks	5 blocks	6 blocks
Total number of blocks needed	1	5	14	30	55	91

- Can you work out how many blocks would be needed to build a pyramid 10 blocks high? 385
- How many blocks would be needed to build a pyramid 20 blocks high? 2870

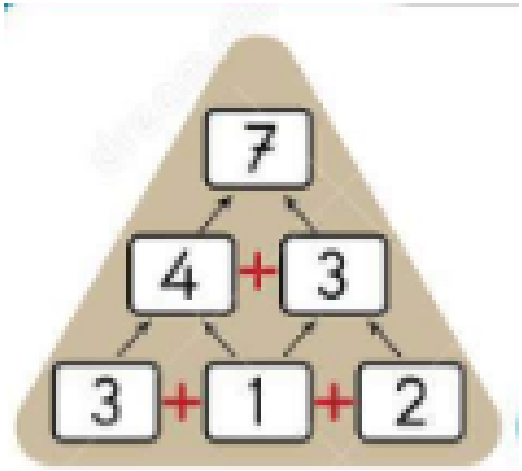
Session 3

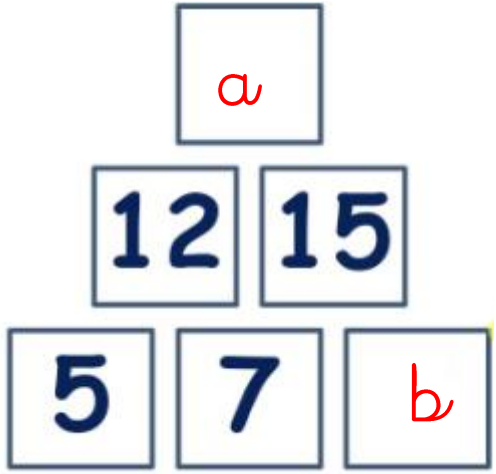
Woodloes Primary School

Missing number pyramids

In missing number pyramids, each number in the pyramid is equal to the sum (addition) of the two numbers in the squares below it.

E.g.





How do you calculate missing numbers?

You would calculate a by working out the answer to 12 + 15 = 27

You would calculate b by calculating 15 – 7 = 8

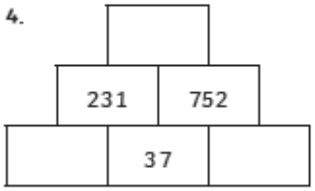
Egyptian maths task 3

1.

2.

3.

4.



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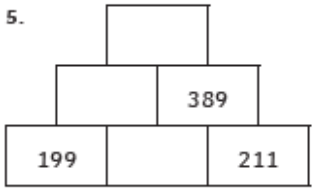

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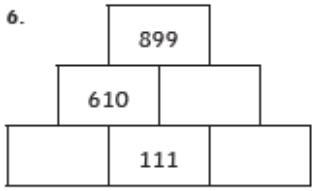

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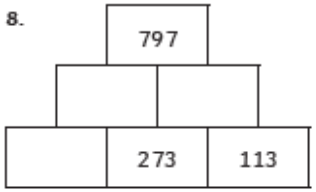

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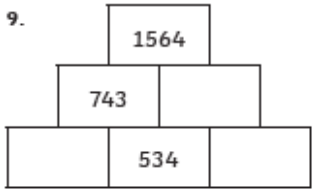

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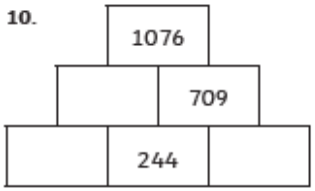

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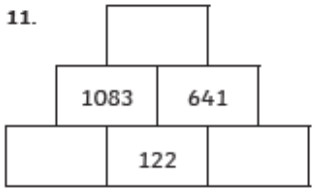

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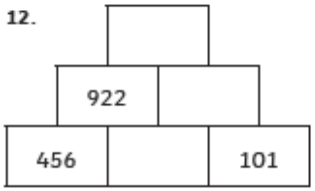
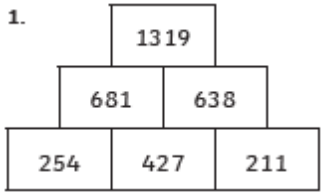


Use your knowledge of addition and subtraction, and inverse operations, to complete the given number pyramids

Can you create your own number pyramids for a shoulder buddy to complete?

Egyptian maths task 3 ANSWERS

1.



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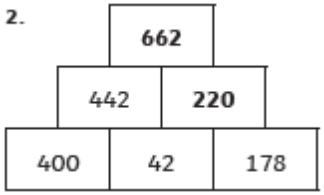

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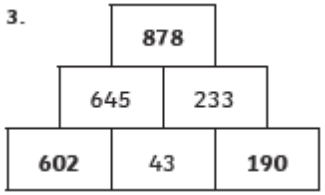

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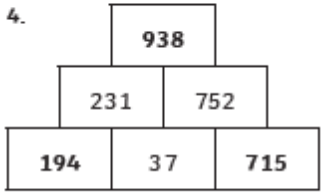

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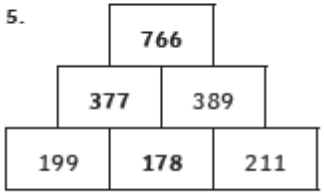

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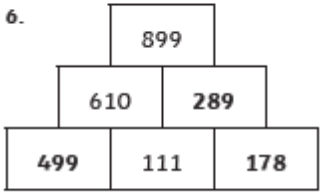

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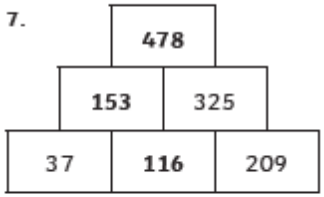

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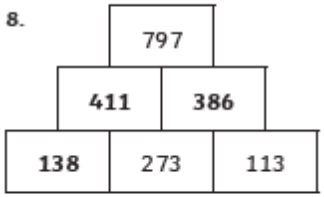

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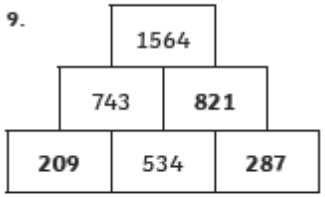

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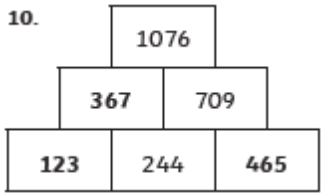

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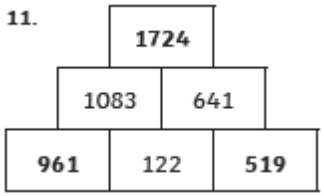

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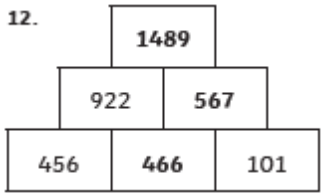


Session 4

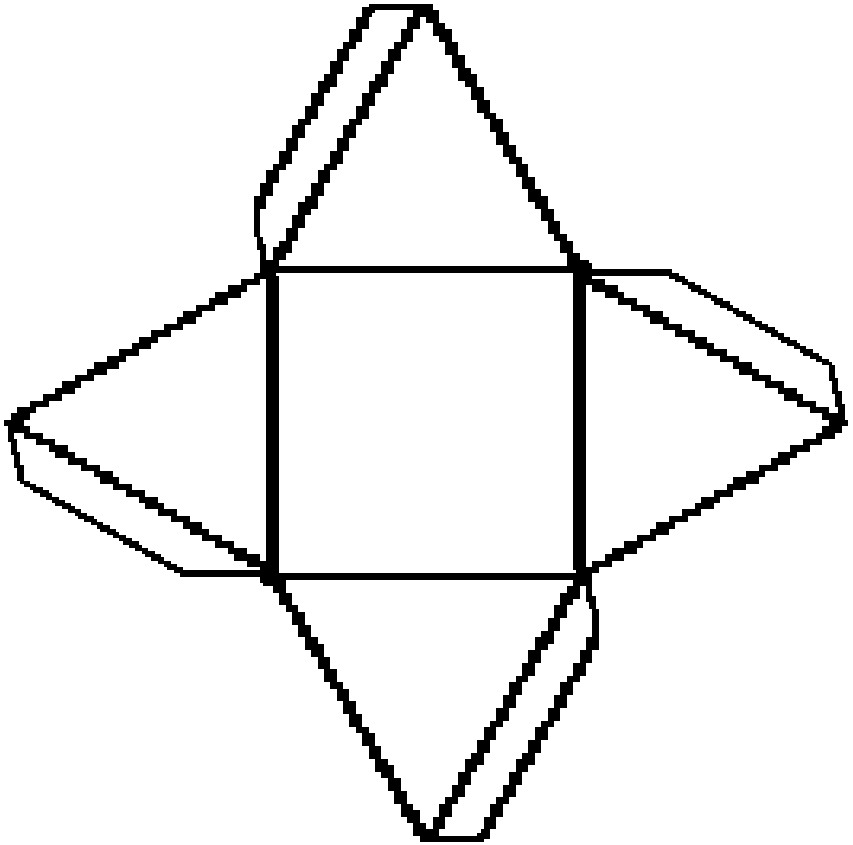
Woodloes Primary School

The Ancient Egyptian Pyramids

The Ancient Egyptians pyramids were square based pyramids.

Can you create a net for a 3D square based pyramid?
(If you are finding this tricky, click on the next slide)

Net of a square based pyramid



Egyptian maths task 4

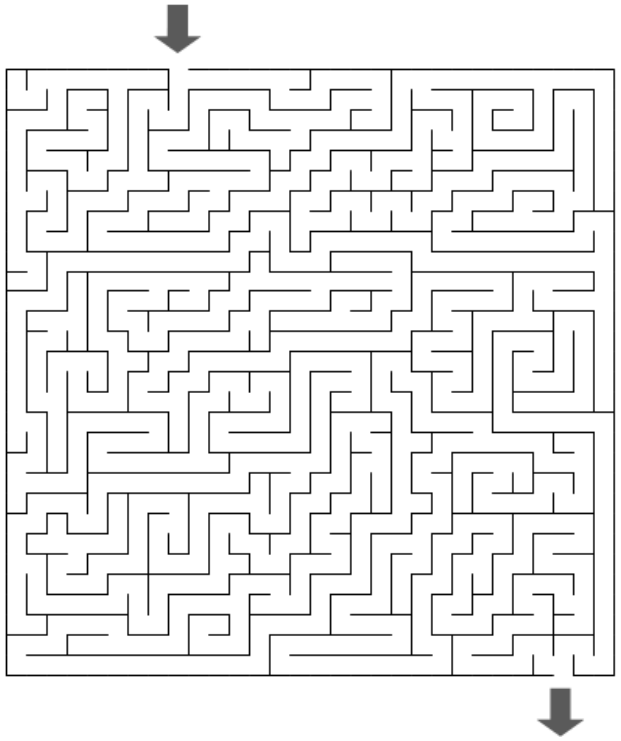
Have a go at creating your own square based pyramid from a net. Can you create different sized square based pyramids?

Which other 3D shapes can you draw nets for?

Additional optional activity

A tourist is inside an Egyptian pyramid. Can you guide them through the maze?

The tourist wants to visit the pyramids. Can you guide him through the sands to get to them?



Can you create your own maze at the bottom of one of your square based pyramids?

Session 5

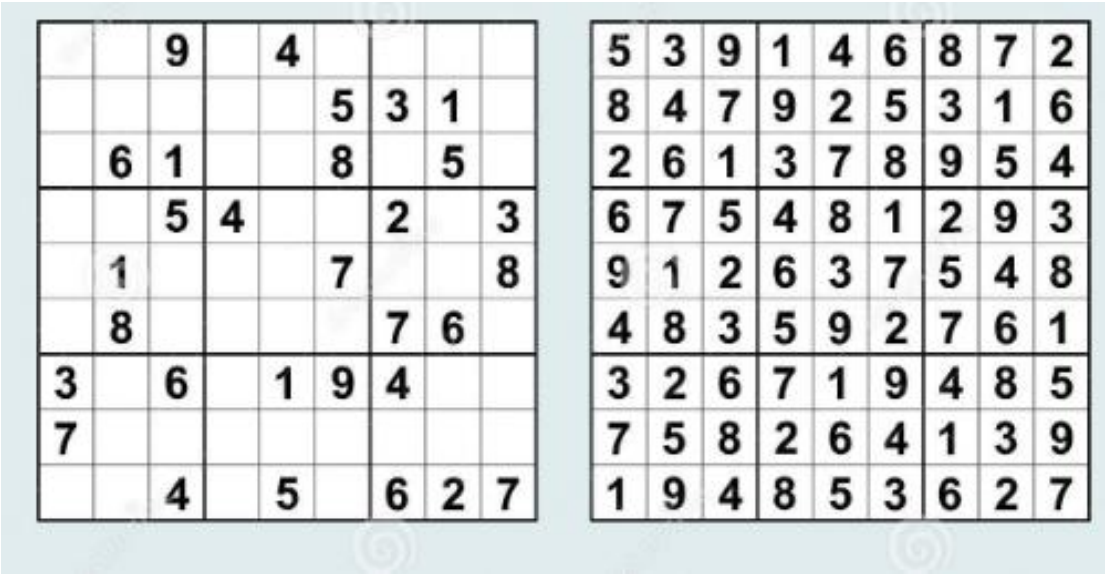
Woodloes Primary School

Sudoku

What is a sudoku?

A **sudoku is a puzzle** in which missing numbers are filled into a 9 by 9 grid of squares which are subdivided into 3 by 3 boxes. Each mini 3 by 3 boxes must contain the numbers 1, 2, 3, 4, 5, 6, 7, 8 or 9 only once. Each row and column in the larger 9 by 9 grid of squares must also contain the numbers 1 through to 9 only once.

Here is an example of a sudoku: and its solution:



		9		4				
					5	3	1	
	6	1			8		5	
		5	4			2		3
	1				7			8
	8					7	6	
3		6		1	9	4		
7								
		4		5		6	2	7

5	3	9	1	4	6	8	7	2
8	4	7	9	2	5	3	1	6
2	6	1	3	7	8	9	5	4
6	7	5	4	8	1	2	9	3
9	1	2	6	3	7	5	4	8
4	8	3	5	9	2	7	6	1
3	2	6	7	1	9	4	8	5
7	5	8	2	6	4	1	3	9
1	9	4	8	5	3	6	2	7

Egyptian maths task 5

Have a go at completing the Egyptian sudoku:

Fill in the grid with numbers 1 to 9 making sure no number is repeated in every row, every column and within each mini grid.

	8		7	1	2	5		
			3	9			7	
		3	4		5		8	
	2	8			9	3	6	1
4		1		2	3	7	9	8
	9	6			1	2	4	5
		4	9		6		5	
			1	5			2	
	6		2	8	7	4		

Egyptian maths task 5 ANSWERS

6	8	9	7	1	2	5	3	4
5	4	2	3	9	8	1	7	6
1	7	3	4	6	5	9	8	2
7	2	8	5	4	9	3	6	1
4	5	1	6	2	3	7	9	8
3	9	6	8	7	1	2	4	5
2	1	4	9	3	6	8	5	7
8	3	7	1	5	4	6	2	9
9	6	5	2	8	7	4	1	3