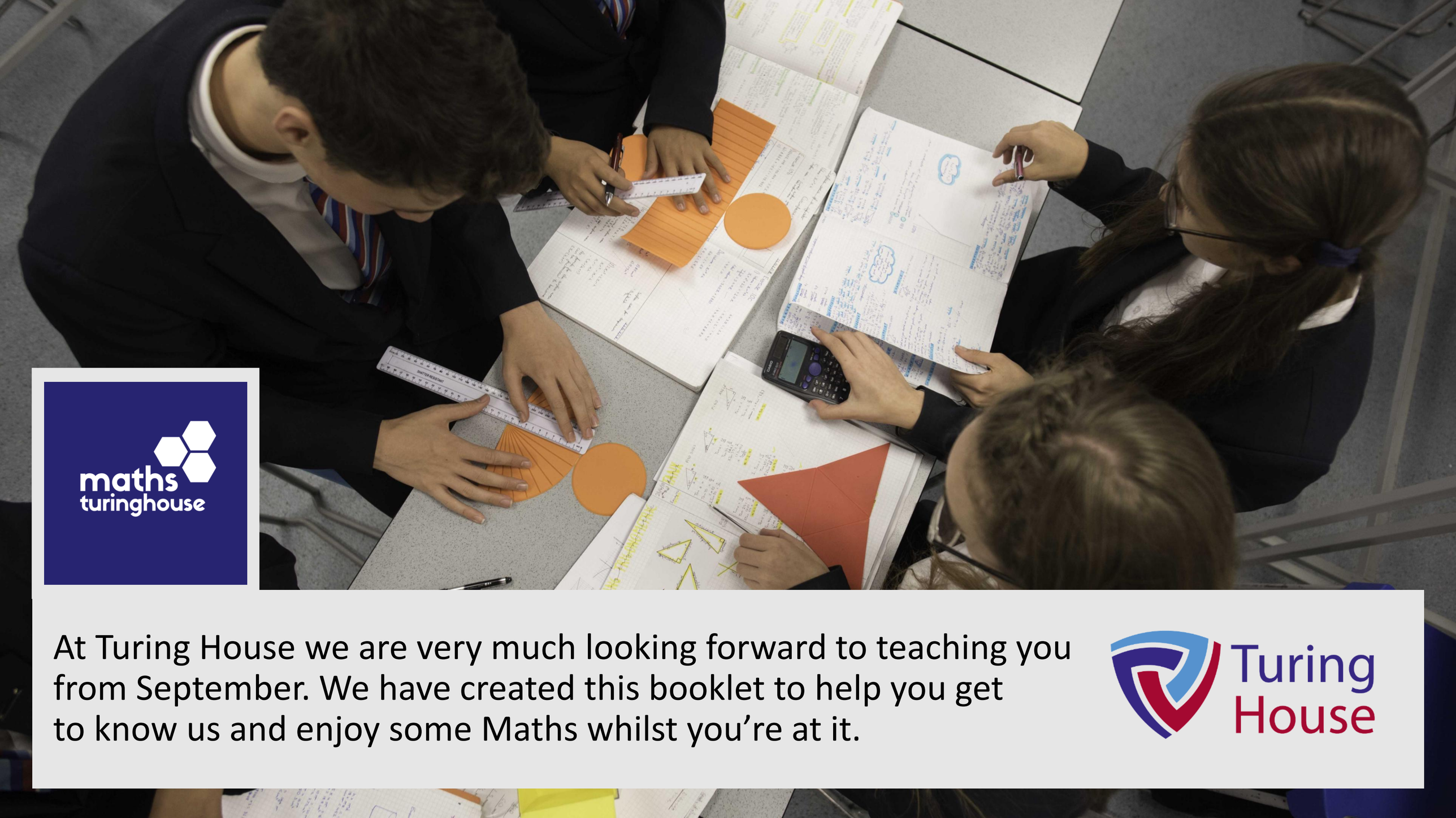


maths turinghouse

At Turing House we are very much looking forward to teaching you from September. We have created this booklet to help you get to know us and enjoy some Maths whilst you're at it.

Turing House

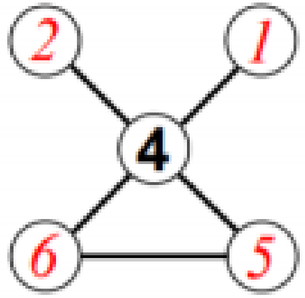
# Meet the Maths Department

Can you find out all our favourite maths related thing and fill in the section below?

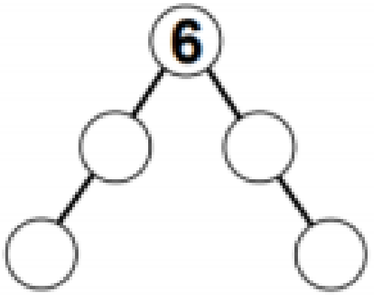
| | Mathematician | Number | Joke |
|---|---|---|---|
|  Mr Winstanley | | | |
| Mrs Evans  | | | |
|  Miss Ward | | | |
| Mr Mohieldin  | | | |
|  Miss Winstanley | | | |
| Miss Thomson  | | | |
|  Mrs Johal | | | |
| Mr Prashar  | | | |

# Totalines

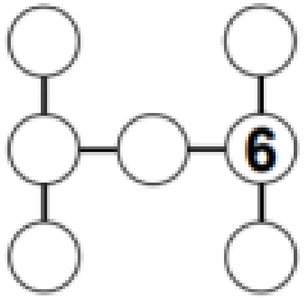
Numbers have to be placed in the empty circles. The numbers to be used are listed under each diagram and no given number may be used twice. The object is to place the numbers so that all those which lie along a straight line add up to the total.



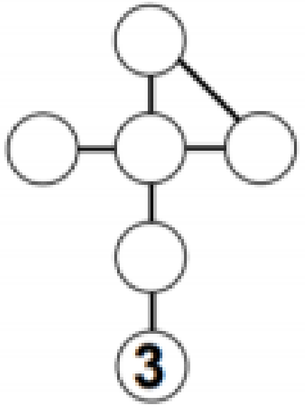

Use 1, 2, 5, 6
Total **11**



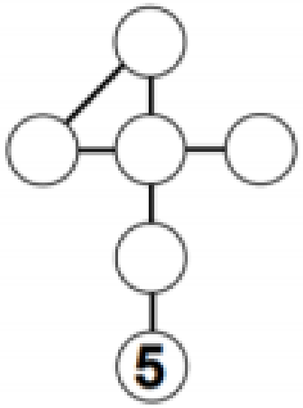

Use 2, 3, 4, 5
Total **13**



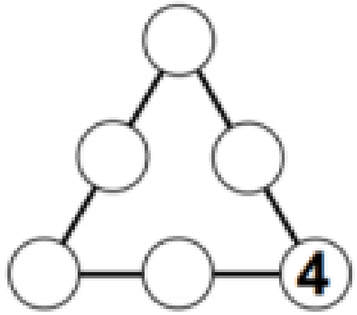

Use 0, 1, 2, 3, 4, 5
Total **10**




Use 1, 2, 4, 5, 6
Total **11**




Use 0, 1, 3, 4, 6
Total **10**



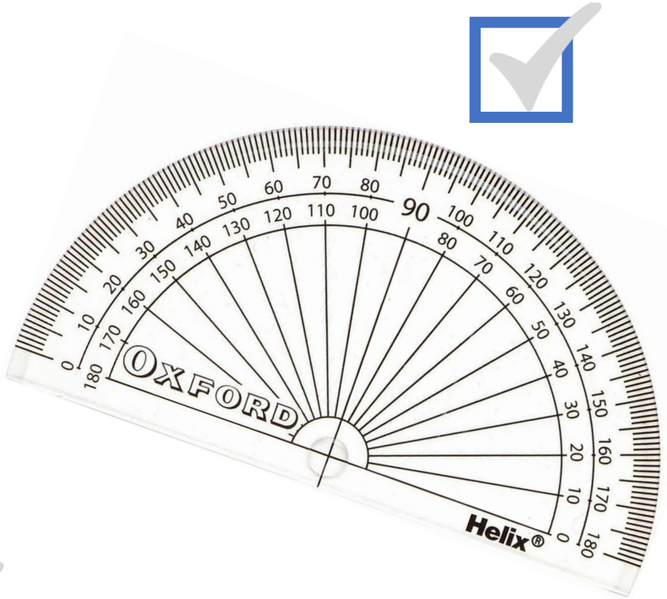

Use 0, 1, 2, 3, 5
Total **9**

Mr Mohieldin's and Mrs Johal's favourite number is $\pi$. **Pi** is a name given to the ratio of the circumference of a circle to the diameter.


Mr Prashar's favourite number is the square root of 100

# Maths Equipment

You will be sent a full list of equipment you will need to be prepared for each lesson at school. Here's the essential maths equipment. Tick off the items to ensure you're all ready for September.


Mr Mohieldin is a big fan of Al-Khwarizmi. He was a 9th-century Muslim mathematician and astronomer - known as the "father of algebra".

Mrs Johal's favourite mathematician is Isaac Newton. He changed the way we understand the Universe. Revered in his own life, he discovered the laws of gravity & motion and invented calculus.

# Word Searches

Each of the blocks of letters below represents a maze. A way has to be found through the maze moving (up and down or across but not diagonally) from letter to letter. No letter may be used twice. The arrows show where the maze is to be entered and left. The number of dashes show how many letters are in each word.

↓ ↑

M E R E E R U
R T G E E A S
E D E D M M U
M I C E R E S
A L N V A U Q
E H 0 E I C S
X A G R T A L

*METRE*
*DEGREE*
*DECI* _ _ _
– – – – – – –
– – – – – – – – –
– – – – – – –
– – –
– – – – – – –

↓ ↑

C E R T I L – – – – – –
I R O R L E – – – –
L C T C I N – – –
E O D A F T – – – – – – –
A A D B T C – – – – – –
R E S U R A – – – –
– – – – –

O I T D I O – – – – – –
R R A O U B – – –
E D T C C N – – – – – –
I N A G T O – – – – – –
L Y C O E S ← – – – – – –
B U S N R Q – – – – – – –
M O H R A U – – – – –

Mr Prashar’s favourite joke


Mr Mohieldin’s favourite maths joke is:
Why was 6 afraid of 7?
Because 7 8 9

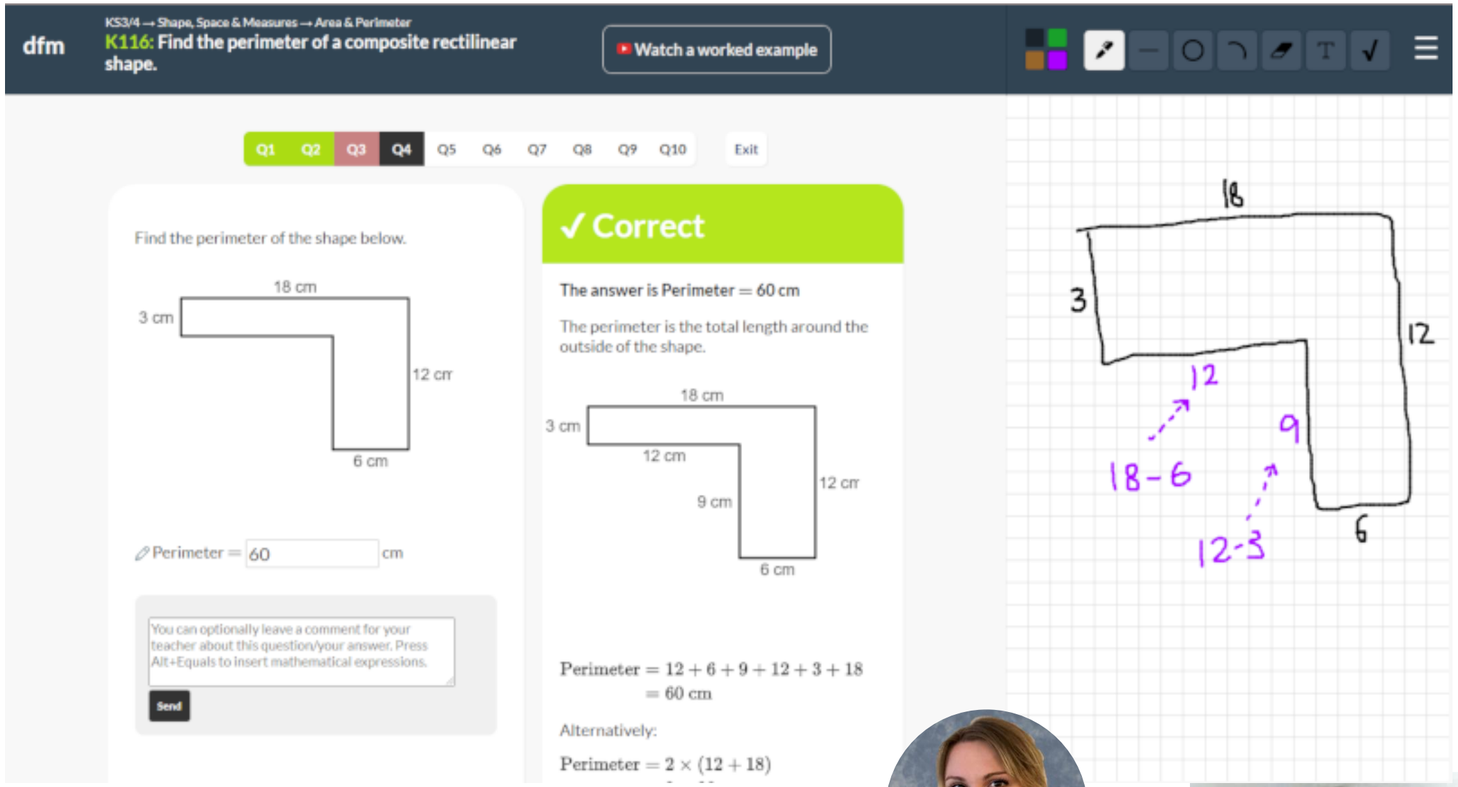
Here is Mr Winstanley’s joke. Why did the chicken cross the Möbius strip? To get to the same side.

# Dr Frost Maths

At Turing House all of our students use the excellent online learning tool Dr Frost Maths. When you join us in September, we will set up your Dr Frost Maths account and teach you how to use it.

Mr Winstanley's favourite number is i. The number is irrational and has that name because it is an imaginary number. Make sure you ask him about it when you meet him in September!

Mrs Evans' joke: Why can't the number 4 get into the nightclub? Because he's $2^2$.



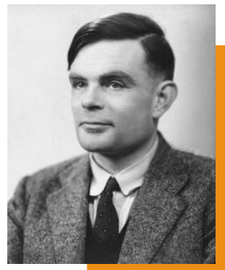

Miss Winstanley's favourite mathematician is Joan Clarke. As another key cryptanalyst in the Enigma project, and good friend of Alan Turing, Joan Clarke was instrumental in breaking coded Nazi messages.

# Code Breaking

In 1939 Great Britain went to war against Germany. During the war, Turing worked at the Cypher School at Bletchley Park. Turing and others designed a code-breaking machine known as the Bombe. Try cracking this code.

| A | B | C | D | E | F | G | H | I | J | K | L | M | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | @ | 4 | ☺ | 6 | 7 | 8 | ☠ | 10 | 11 | 12 | ✈ | 14 |

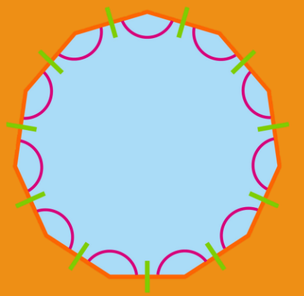
| O | P | Q | R | S | T | U | V | W | X | Y | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 🡅 | 16 | 17 | 18 | 🖫 | ∞ | 21 | 22 | 23 | 24 | 25 | 26 |

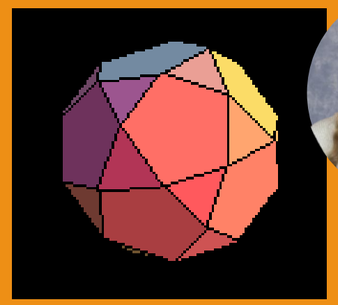


| Question | Multiple choice | | |
|---|---|---|---|
| Where was the centre of @-🡅-4-☺-2-18-☺-1-11-☠-14-7 during 23-23-B? | HMGCC | MI5 | Bletchley |
| The man who designed the machine that @-18-1-@-11-☺-4 the ☺-14-☠-7-✈-1 @-🡅-4-☺ was... | Turing | Moore | Lorenz |
| The fundamental 2-21-☠-12-4-☠-14-7 block of ☺-12-☺-@- ∞-18- 🡅-14-☠-@ devices is the... | Algorithm | Transistor | Firmware |

Miss Thomson's favourite mathematician is Alan Turing. He was a British mathematician who made major contributions to the fields of mathematics, computer science, and artificial intelligence. He worked for the British government during World War II, when he succeeded in breaking the secret code Germany used to communicate.

Miss Winstanley's favourite number is the number of Archimedean solids.





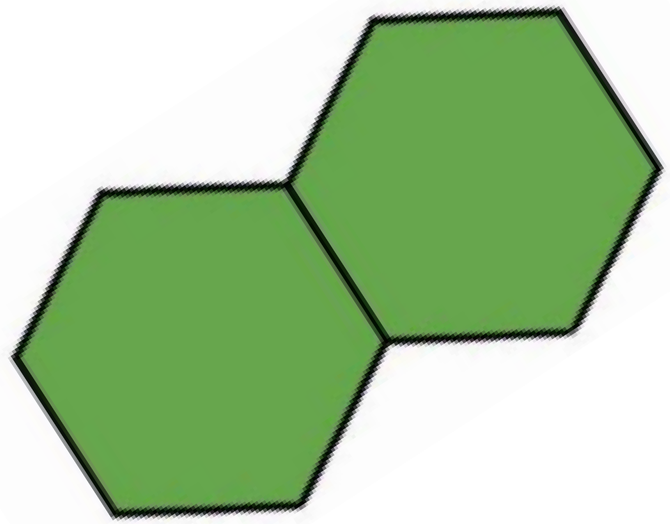
Miss Ward's favourite number is the only number that is twice the sum of its digits.

# A Hexagon Problem

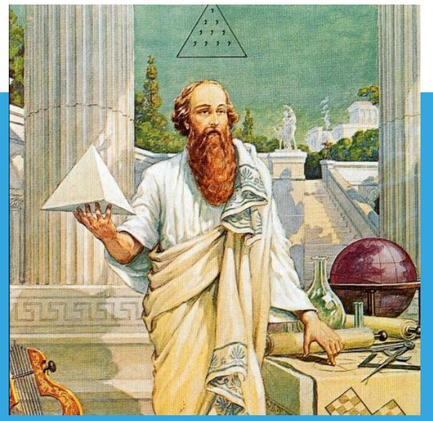
Heather can make two connected hexagons by drawing 11 lines. What is the minimum number of lines Heather needs to draw 12 hexagons? Extension: What numbers of hexagons are the most efficient to draw and why?

Mrss Johal gets a giggle out of this one…
Which triangles are the coldest?
An Ice-sosceles triangles.

Miss Ward’s favourite joke is - 'What did the triangle say to the circle?', 'You're pointless'.



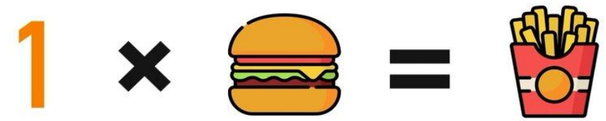
Mrs Evans’ favourite mathematician is Pythagoras of Samos. You’ll learn all about his famous theorem in Year 9. Pythagoras was a controversial character in Ancient Greece. He believed that everything in the world could be explained by numbers.

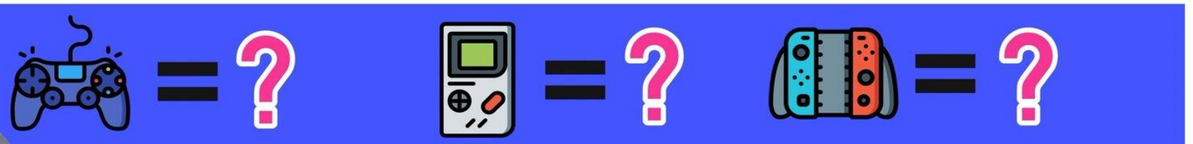


# Picture Puzzles

These picture puzzles are part of your first experience in the world of algebra. You'll get to explore it's application in your first term at Turing.

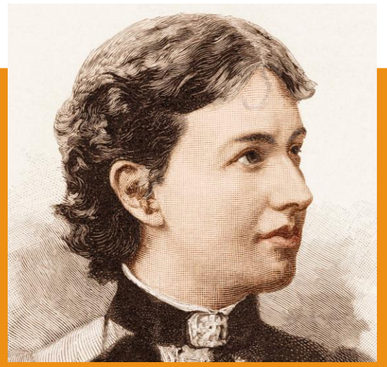
Miss Winstanley thinks this is hilarious. Who's the king of the pencil case? …The Ruler.





Miss Thomson's favourite number is the only even prime number.


Miss Ward's favourite mathematician is Sofia Kovalevskaya as she was the first woman to get a doctorate in maths!



# Crossnumber

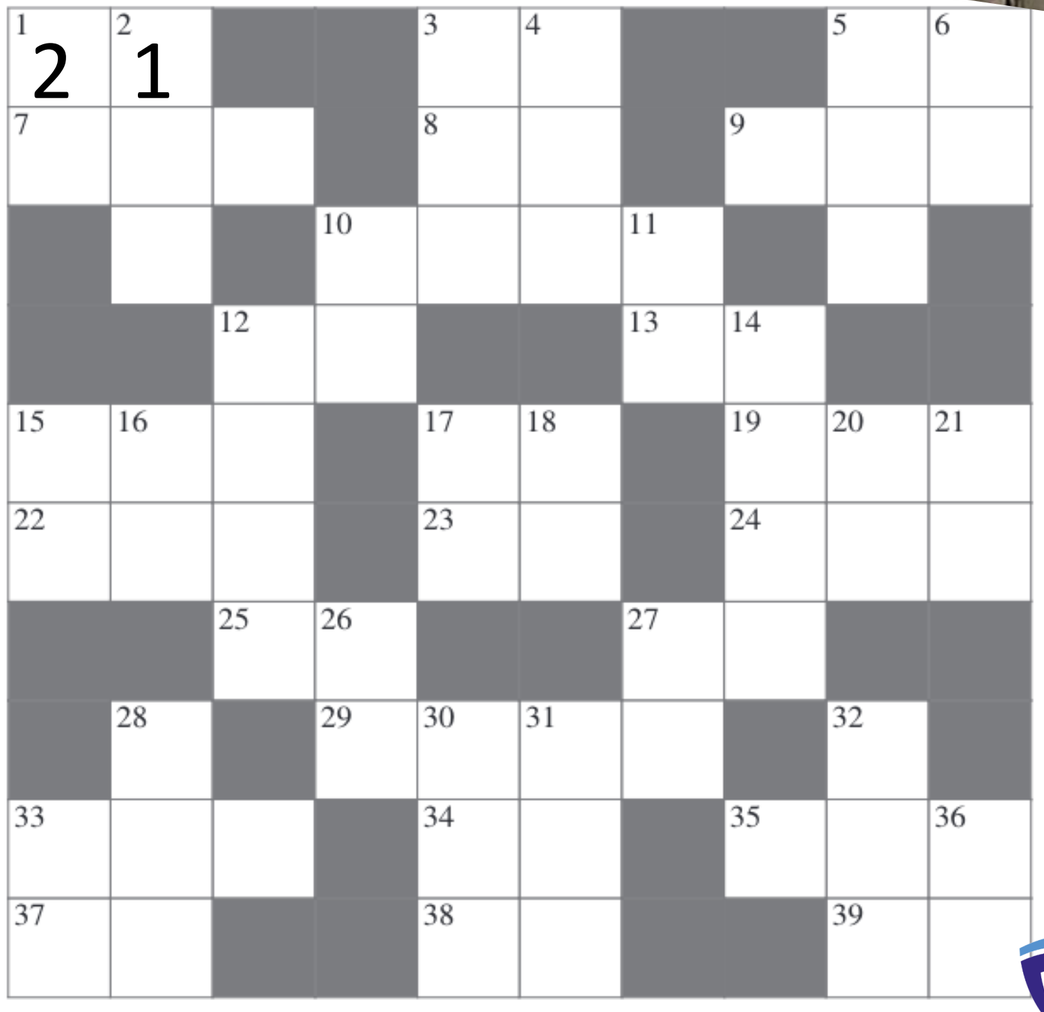
Mr Winstanley's favourite mathematician is Katherine Johnson. Katherine studied how to use geometry for space travel. She figured out the paths for the spacecraft to orbit Earth and to land on the Moon utilising the power of Maths.

## Across

1. The number of spots on a standard dice (2)
3. The largest two-digit multiple of 13 (2)
5. One more than 8 Across (2)
7. One quarter of the square of 6 Down (3)
8. $2 \times 2 \times 2 \times 2 \times 2$ (2)
9. A cube number (3)
10. 15 Across + 3 Down + 6 Down + 21 Down + 36 Down (4)
12. 39 Across − 33 Down (2)
13. Twice (1 Across + 1 Down) (2)
15. 1 Down × 38 Across (3)
17. 36 Down − 8 Across (2)
19. A square number (3)
22. The smallest three-digit square number with all its digits different (3)
23. 1 Across + 6 Down (2)
24. A multiple of 4 Down (3)
25. 27 Across + 37 Across (2)
27. 39 Across + 1 Down (2)
29. 200 × 12 Across + 27 Down (4)
33. 10 times 2 dozen (3)
34. A square of a square number (2)
35. 5 × 1 Across + one-seventh of 12 Across (3)
37. A half of 8 Across (2)
38. A cube number (2)
39. One less than 6 Down (2)

## Down

1. A prime number (2)
2. The sum of the first ten prime numbers (3)
3. The number of hours in 39 days (3)
4. $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$ (3)
5. 22 Across + 28 Down (3)
6. The number of minutes in three-fifths of an hour (2)
10. A multiple of 7 (2)
11. 3 × 37 Across (2)
12. (22 Across − 6 Down) × 9 (4)
14. A number all of whose digits are the same (4)
15. A prime number (2)
16. 27 Across − 8 Across (2)
17. A multiple of 9 (2)
18. A prime number (2)
20. A square number (2)
21. The square of a square number (2)
26. 3 × 12 Across (2)
27. Two-thirds of 36 Down (2)
28. 22 Across − 1 Down (3)
30. 1 Across × 26 Down (3)
31. 25 Across + 4 Down + 5 Down (3)
32. 17 Down + 27 Across (3)
33. The sum of the digits of 1 Down, 17 Across and 17 Down (2)
36. One and a half times 27 Down (2)



# Welcome to Turing House.
# See you in September!