



Maths Transition Booklet



Normally around this time of year we would be meeting our future year 7s and doing lots of fun maths activities on transition day. Unfortunately due to the strange situation we find ourselves in this year we won't get a chance to do that. All the maths teachers at Wellington can't wait to finally meet you in September, so we have put together a booklet of some great things you can be doing at home over the summer. You might even want to get your parents involved!

numerise

Let's get Secondary Ready

All our students at Wellington use the excellent online learning tool **Hegarty Maths** for homework and revision. When you join us in September we will get you set up with an account and show you how to use it.

We were delighted to find out that the team behind Hegarty Maths have set up a new programme called **Numerise Secondary Ready** designed to get your maths up to speed before starting secondary school in September. There are twelve lessons you can complete over the summer and it is completely free to use. Just go to <http://numerise.com/secondary-ready> to get started.

This is the symbol for the the number ***pi*** (also a Greek letter).

Every year at Wellington we celebrate "Pi day" on 14th March with students trying to remember pi to as many decimal places as possible.

Here are some things you can be doing at home:

- Research what **Pi** is and when it is used.
- How many decimal places can you remember it to? Maybe have a competition with your family.
- Read the book or watch the film **Life of Pi** - it doesn't have much to do with maths but is still really good!



LET'S GET READY

In secondary school mathematics we get the chance to solve some really complex and challenging problems. For some of these we will need to use a calculator.

The **Casio FX83GTX** is the calculator we recommend you have in your pencil case. If you put your name on it and look after it safely it will serve you well all the way up to your GCSEs!



All those buttons can seem a little bit scary at first but don't worry, we will teach you how to use them!

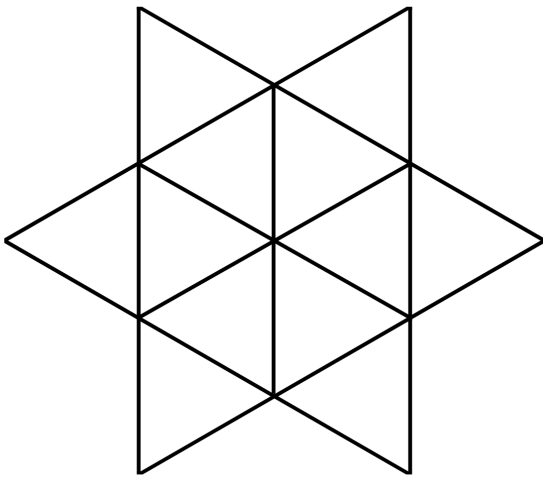


TRANSITION TEASERS

The next few pages contain some number puzzles for you to have a go at at home. If you're stuck, why not get some other members of your family involved?

We would love to see your attempts at these teasers. If you email us with a photo of your efforts (admin@wellington.trafford.sch.uk – FAO: Mr Riley) we will send you the answers so you can check how you have done and come September we will make sure there are some prizes ready for the best entries!

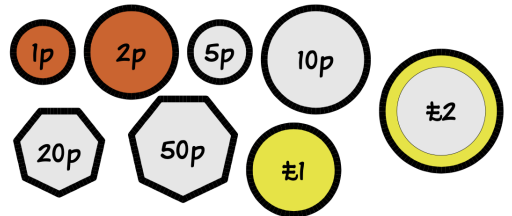
How many triangles can you see in this picture?



DID YOU KNOW?!

The word hundred is derived from the word "hundrath", which actually means 120 and not 100!

These are the coins commonly used in Britain today



What is the **fewest number of coins you need to make (a) 83p (b) £1.34 (c) £5.27?**

What is the **smallest amount that needs **more than 5** coins?**

**FAMOUS
MATHEMATICIAN**



Ava Lovelace was the daughter of famous poet Lord Byron and is considered to be the first "computer programmer" after she wrote a computing machine algorithm in the 19th Century.



TRY THIS...

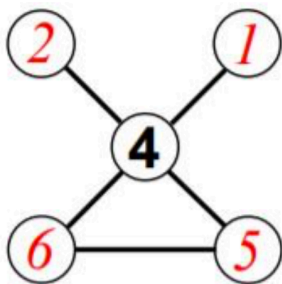
Calculate 11111111×11111111 (you can use a calculator)
 Try it with other calculations like 111×111 , can you see a pattern?

TOTALINES

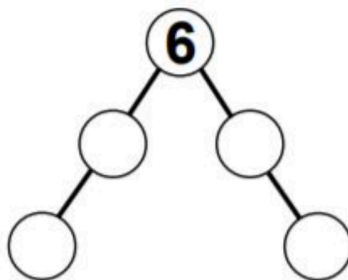
Numbers have to be placed in the empty circles. The numbers to be used are listed under each diagram and no given number may be used twice.

The object is to place the numbers so that all those which lie along a straight line, as shown by the lines drawn, add up to the total which is also given under the diagram.

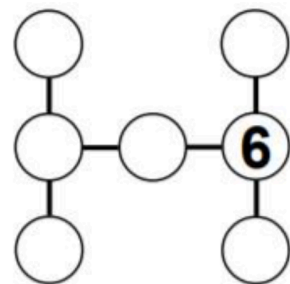
The first one has been done for you.



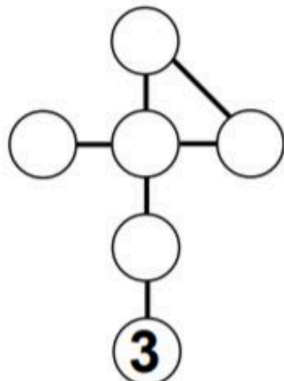
Use 1, 2, 5, 6
 Total 11



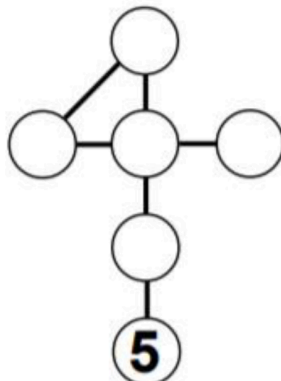
Use 2, 3, 4, 5
 Total 13



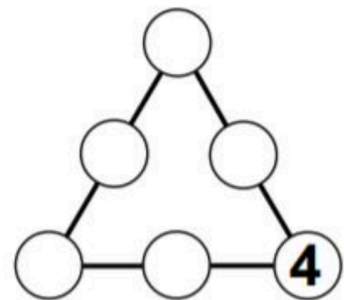
Use 0, 1, 2, 3, 4, 5
 Total 10



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

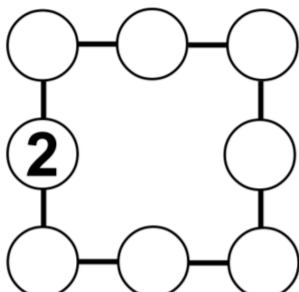


Use 0, 1, 3, 4, 6
 Total 10

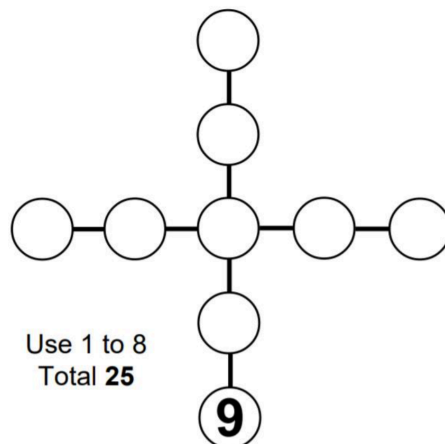


Use 0, 1, 2, 3, 5
 Total 9

CHALLENGE!



Use 3, 4, 5, 6, 7, 8, 9
 Total 18



Use 1 to 8
 Total 25



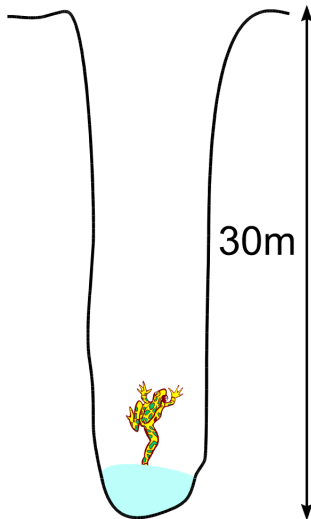
6 is a very special number.

The factors of **6** are **1, 2, 3** and **6**.

If we add the factors other than **6** we get **1+2+3=6**.

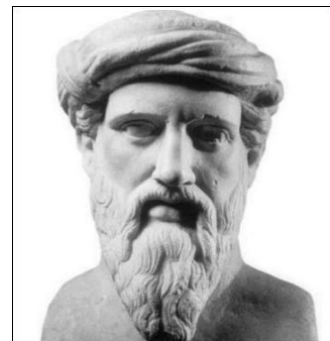
Can you find another perfect number?

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?

FAMOUS MATHEMATICIAN



Pythagoras was an Ancient Greek mathematician who discovered an amazing fact about right angled triangles. You will learn about this in GCSE maths. You can watch this video to find out about his "stupid death"...

<https://youtu.be/iBqEpC-dHqk>

Did you hear about the maths teacher who was afraid of negative numbers?

She'd stop at nothing to avoid them...



Can you correctly continue these sequences?

1. 1, 1, 2, 3, 5, 8, 13, 21,,
2. 1, 4, 9, 16, 25, 36,,
3. 1, 4, 3, 11, 15, 13,,

USE THE QUESTIONS BELOW TO COMPLETE THE CROSS NUMBER.

1	2			3	4		5	6	
2	1								
7				8			9		
			10			11			
		12				13	14		
15	16			17	18		19	20	21
22				23			24		
		25	26			27			
	28		29	30	31			32	
33				34			35		36
37				38				39	

CROSS NUMBER



ACROSS

- The number of spots on a standard dice (2)
- The largest two-digit multiple of 13 (2)
- One more than 8 ACROSS (2)
- One quarter of the square of 6 DOWN (3)
- $2 \times 2 \times 2 \times 2 \times 2$ (2)
- A cube number (3)
- $15 \text{ ACROSS} + 3 \text{ DOWN} + 6 \text{ DOWN} + 21 \text{ DOWN} + 36 \text{ DOWN}$ (4)
- $39 \text{ ACROSS} - 33 \text{ DOWN}$ (2)
- Twice (1 ACROSS + 1 DOWN) (2)
- $1 \text{ DOWN} \times 38 \text{ ACROSS}$ (3)
- $36 \text{ DOWN} - 8 \text{ ACROSS}$ (2)
- A square number (3)
- The smallest three-digit square number with all its digits different (3)
- $1 \text{ ACROSS} + 6 \text{ DOWN}$ (2)
- A multiple of 4 DOWN (3)
- $27 \text{ ACROSS} + 37 \text{ ACROSS}$ (2)
- $39 \text{ ACROSS} + 1 \text{ DOWN}$ (2)
- $200 \times 12 \text{ ACROSS} + 27 \text{ DOWN}$ (4)
- 10 times 2 dozen (3)
- A square of a square number (2)
- $5 \times 1 \text{ ACROSS} + \text{one-seventh of } 12 \text{ ACROSS}$ (3)
- A half of 8 ACROSS (2)
- A cube number (2)
- One less than 6 DOWN (2)

DOWN

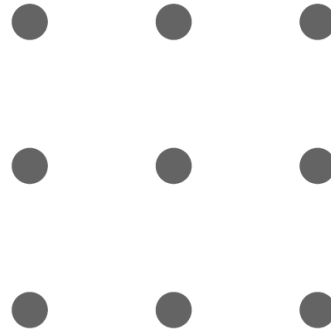
- A prime number (2)
- The sum of the first ten prime numbers (3)
- The number of hours in 39 days (3)
- $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$ (3)
- $22 \text{ ACROSS} + 28 \text{ DOWN}$ (3)
- The number of minutes in three-fifths of an hour (2)
- A multiple of 7 (2)
- $3 \times 37 \text{ ACROSS}$ (2)
- $(22 \text{ ACROSS} - 6 \text{ DOWN}) \times 9$ (4)
- A number all of whose digits are the same (4)
- A prime number (2)
- $27 \text{ ACROSS} - 8 \text{ ACROSS}$ (2)
- A multiple of 9 (2)
- A prime number (2)
- A square number (2)
- The square of a square number (2)
- $3 \times 12 \text{ ACROSS}$ (2)
- Two-thirds of 36 DOWN (2)
- $22 \text{ ACROSS} - 1 \text{ DOWN}$ (3)
- $1 \text{ ACROSS} \times 26 \text{ DOWN}$ (3)
- $25 \text{ ACROSS} + 4 \text{ DOWN} + 5 \text{ DOWN}$ (3)
- $17 \text{ DOWN} + 27 \text{ ACROSS}$ (3)
- The sum of the digits of 1 DOWN, 17 ACROSS and 17 DOWN (2)
- One and a half times 27 DOWN (2)



Take a photo of yourself doing some **real life maths**... Maybe you are baking? Or saving money in the sales?

Prizes will be awarded for the most imaginative entries!

Put 9 dots in a square like this



Can you go through all 9 dots with **four straight lines**?

You **can't** take your pen off the paper.

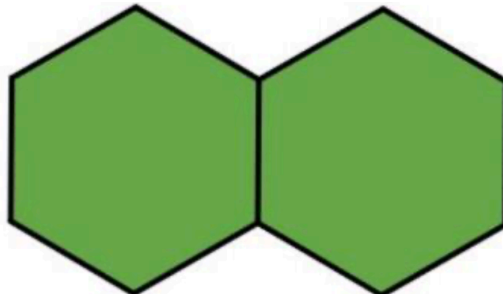
You **can** start where you like.

Did you enjoy these challenges?

If you enjoyed doing these challenges there are loads more available on the internet for you to have a go at.

parallel.org.uk is a programme set up by Dr Simon Singh where you can sign up to do a 15 minute weekly challenge that goes beyond the maths you will learn at school...

www.puzzleoftheweek.com also send out a weekly challenge for you to get your teeth into. We encourage all our students at Wellington to have a go at these and you will see them on posters around the maths corridor each week. Here is an example of a previous puzzle which you can have a go at now...



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?