



WBHS INDUCTION LESSONS 2020

MATHS




Welcome Year 8!

WBHS

MATHS
DEPARTMENT

Summer 2020





Hello Year 8,



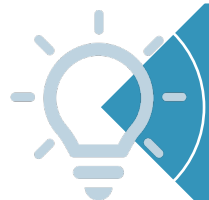
We are all so excited to meet you when you come to WBHS!



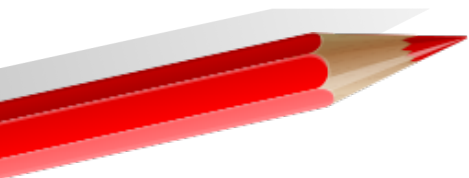
We wanted to introduce you to all the maths staff



Let you try some of the maths you will be doing



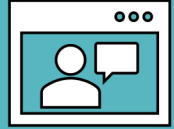
Inspire you to do some extra challenges over summer



Meet your teachers

Each teacher has made a slide introducing themselves and giving you two tasks to do based on their skill:

- The first one is a question for you to do some maths
- The second is a longer challenge



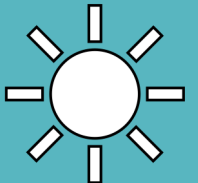
Sowe would like you to pick 3 teachers

3

Try to complete the maths questions



Have a go at completing the challenges



We are so lucky to have a fantastic maths department full of heroes. Everyone has a unique skill (some of them perfected in lockdown!) and adds something different to make us a brilliant team.

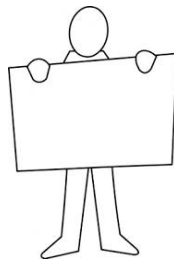
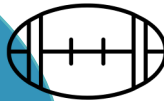




If you like baking, try Miss Lilley's challenge



Are you a sportsperson:
Mr Grayson's a rugby man
Mrs Berry loves a run
Ms La Broy has a work out for you
Mr Charlton is our golf expert



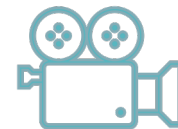
Task summary -

1. Pick 3 teachers
2. Have a go at their Maths question
3. Try the challenge and find a creative way to evidence these challenges

If you're a maths pro, try Mr Johnson's or Mr Pankhurst's tasks

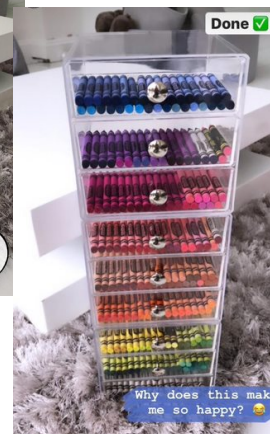


Do you want to make a great first impression?
Push yourself -how many challenges you can do? Can you do them all?





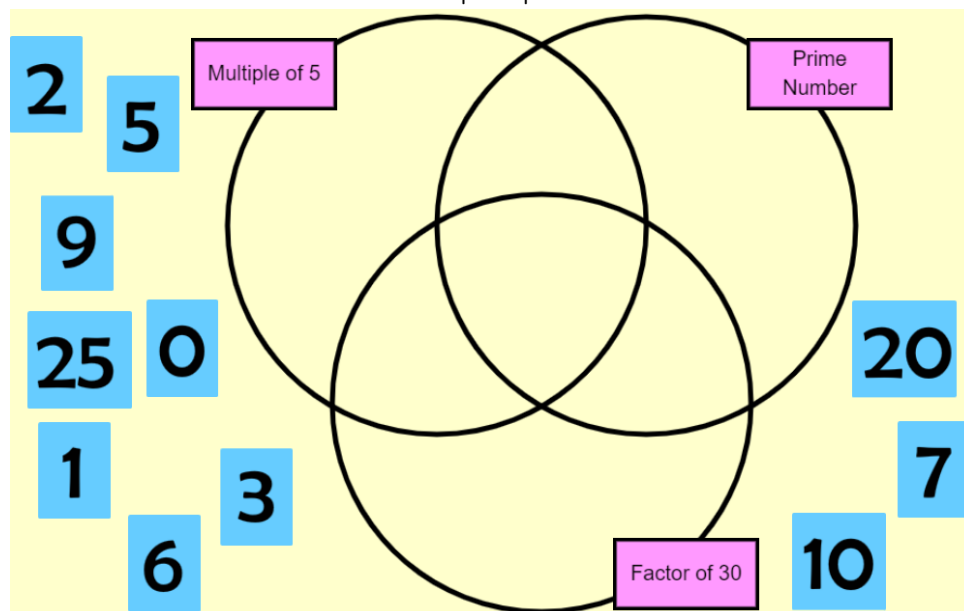
Name: Mrs Branch
Skill: Organisation
Mrs Branch is our head of department



Task 1: Maths question

Difficulty: ★☆☆

A big part of my job is sorting jobs, colleagues and students into groups. Try this task sorting the numbers into their properties:



Task 2: Summer challenge: Tap to Tidy

Inspired by instagram I've been challenging my department to tidy up and organise around their house.

Can you do your own "Tap To Tidy" before and after photos?





Name: **Mr Johnson**

Skill: **Mathematic genius**

Mr Johnson is in charge of our sixth form students

$$F(\omega) = \int_{-\infty}^{\infty} f(t) e^{-i\omega t} dt$$

$$f(t) = \frac{1}{2\pi} \int_{-\infty}^{\infty} F(\omega) e^{i\omega t} d\omega$$

$$e^{i\pi} + 1 = 0$$

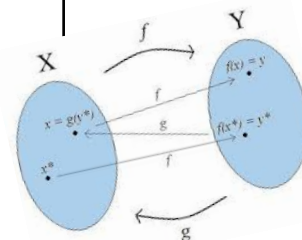


Task 1: Maths question

Difficulty: ★★ ★

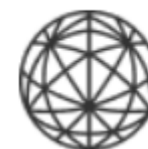
Express $(2^{1/2} + 1)(2^{1/4} + 1)(2^{1/8} + 1)(2^{1/16} + 1)(2^{1/16} - 1)$

in its simplest form.



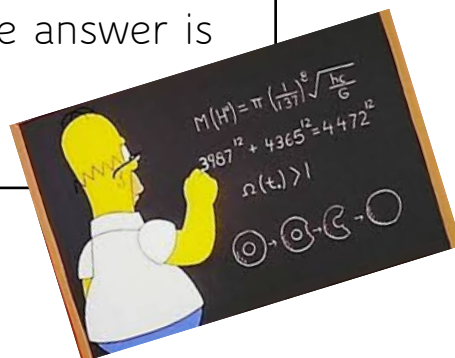
Task 2: Summer challenge:

Sign up for a free trial on <https://brilliant.org/>.
How many challenges can you complete in the trial window?



BRILLIANT

Clue: Start from the right and expand the last 2 brackets. Can you see a pattern? The answer is much easier than you may think!



PLAN
(P+L)(A+N)
PA+PN+LA+LN

Your plan has been
foiled

$$f(x) = |x|$$

AVOID NEGATIVITY



Name: Mrs Davison

Skill: Thinking outside the box.

Mrs Davison is in charge of your transition from middle school to high school.

STA4NCE

For instance

ylqitlum

ebivib

tsritduz

noitibbs

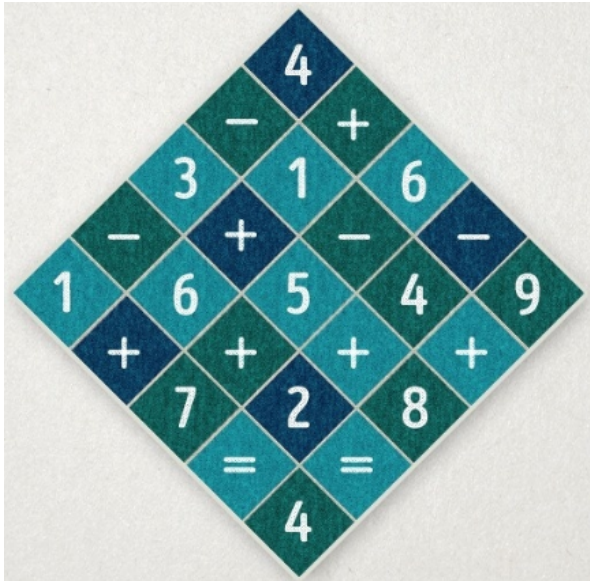
Inverse operations

Task 1: Maths question

Difficulty: ★★☆☆

Find the way from the upper square to the lower one to get the right equation.

You may need to think outside the box!



Task 2: Summer challenge

I love creating challenges which require you to think outside the box. Here are some examples of visual puzzles from which a well-known phrase or saying can be identified.

Can you create your own? Can you think outside the box to create one using household objects? Better still, can you incorporate a maths word, sign or symbol?



Finding Nemo

HIJKLMNO

H₂O



Name: Miss Anderson
Skill: Comedy
Miss Anderson is the assistant Head of Year 11



#7

Task 1: Maths questions

Difficulty ★☆☆

SOLVE CAREFULLY...

$$25 - 55 + (85 + 65) =$$

**YOU PROBABLY WON'T BELIEVE IT,
BUT THIS EQUALS 5!**

Clue: You may have to investigate what the '!' symbol means in maths



Task 2: Summer Challenge

I just love setting myself new fitness challenges!
One of the lockdown challenges dominating social media was the toilet roll keepy up challenge!



Your challenge is to try and beat my score of 7!
Trust me, it is harder than it looks! Good Luck!



Name: Ms Parlett

Skill: Staying motivated and smiling

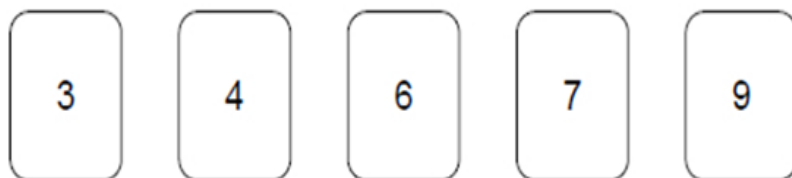
Task 1: Maths question

Difficulty: ★☆☆

This problem takes a bit of time.

Can you stay motivated and make it to the end?

Lucy makes 5-digit numbers using all of these cards.



How many different numbers greater than 50 000 can she make?



Task 2: Summer challenge

Seeing so many rainbows in windows has really made me smile. The maths department have been making our own rainbows.

Can you make or find your own rainbow?





Name: Mr Charlton

Skill: Golf

Mr Charlton runs our Core maths A level

Task 1: Maths question

Difficulty: ★★☆☆

A rectangular floor has dimensions 7m x 4m. Wood flooring is going to be used to cover the floor area.

The wood planks that will be used have dimensions of 120cm x 20cm and come in packs of 9.

What is the minimum number of packs needed to cover the floor?

Can you justify why your number of packs is correct?

Task 2: Summer challenge

Make a crazy golf course in your house/garden?





Name: **Mr Pankhurst**

Skill: **Team Leader**

Mr Pankhurst manages our School Maths Challenge Team



Task 2: Summer challenge

Fancy taking part in the team Maths Challenge?
One aspect would be the 'Crossnumber round'.
Team up with someone and see how far you get!

<https://www.ukmt.org.uk/sites/default/files/ukmt/tmc/tmc-2019-rf-crossnumber.pdf>



Task 1: Maths question

Difficulty: ★★ ★

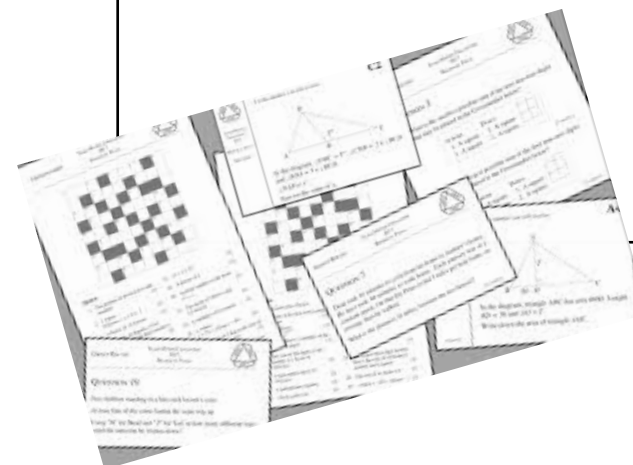
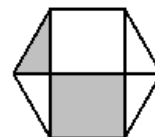
Which of these is equal to $\frac{10}{9} + \frac{9}{10}$?

- A 1 B 2 C 2.01 D 2.1 E 2.2

The diagram shows a regular hexagon which has been divided into six regions by three of its diagonals. Two of these regions have been shaded. The total shaded area is 20 cm^2 .

What is the area of the hexagon?

- A 40 cm^2 B 48 cm^2 C 52 cm^2 D 54 cm^2 E 60 cm^2





Name: Miss Lilley
Skill: Creative baking



Task 1: Maths questions

Difficulty: ★★☆☆

Abby is going to make 50 shortbread biscuits.
The box shows the amount of ingredients required to make 20 shortbread biscuits.

- Work out the amount of each ingredient Abby needs.
- Abby already has 250g of butter.
How much more butter does she need?

Ingredients to make 20 shortbread biscuits

130g butter
60g sugar
180g flour

The box shows the amount of ingredients required to make 24 muffins.

- Marie uses the recipe with 600g of flour.
How much sugar does Marie use?
- Lisa has 500g of sugar, half a litre of milk, 300g of flour, 6 eggs and 100ml of vegetable oil.

Work out the greatest number of muffins Lisa can make.

Ingredients to make 24 muffins

240g sugar
300ml milk
400g flour
2 eggs
120ml vegetable oil

Task 2: Summer challenge

My neighbours and I have been baking surprises for each other over the past few months. Can you bake a treat for someone who isn't expecting it? Use your maths skills to scale up the recipe so you can share your efforts with others and take a picture of the result!





Name: **Mrs Berry**
Skill: **Determined runner**

When lockdown is over, why not try a parkrun?
There is one in Whitley Bay and one in Blyth! It's a free 5km walk/run every Saturday morning!



Task 1: Maths question

Difficulty: ★★ ★

Mrs Berry's half marathon (13.1miles) personal best is **1 hour, 27 minutes and 55 seconds**.

Her 5km (3.1miles) PB is **18mins and 49 seconds**.

How much slower, per mile, is Mrs Berry over a half marathon than she is in a 5km race?

Task 2: Summer challenge:

Choose your distance:

1km (0.62miles)

1mile (1.6km)

5km (3.1miles)

Your challenge is to walk, run or cycle this distance three times over the summer.
Record your results! Did you improve over time?
Can you work out your average pace per mile?



Name: **Miss Davey**
Skill: **Creative perfectionist – glams up anything!**



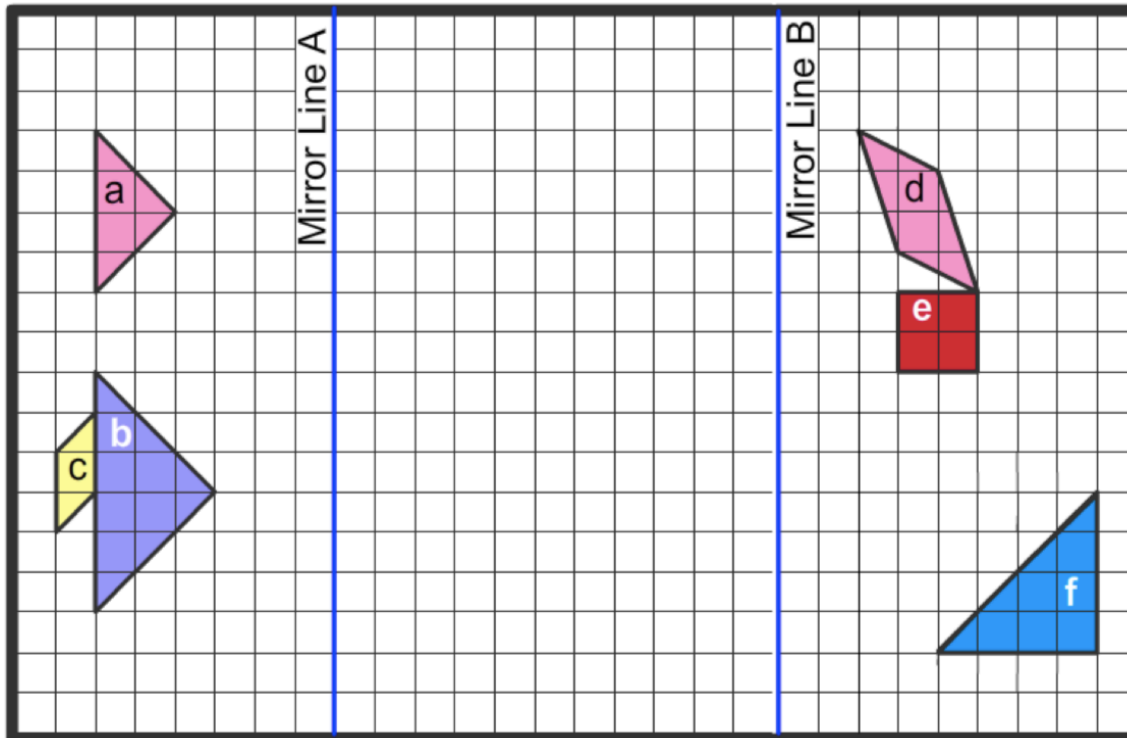
Task 1: Maths question

Difficulty: ★☆☆

Instructions

Reflect
shapes **a**, **b**
and **c** in
Mirror Line A

Reflect
shapes **d**, **e**
and **f** in
Mirror Line B



Task 2: Summer challenge:

**ART
ATTACK**
Challenge!

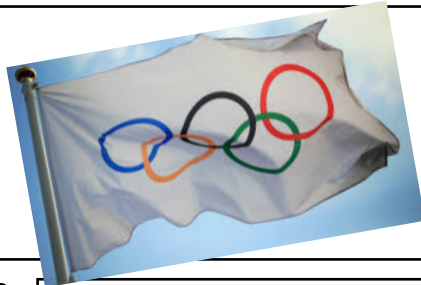


Can you create a big art attack? Use anything you can find to help create an image. I made Mickey Mouse out of a variety of clothes. Here is an example by Neil Buchanan

<https://www.youtube.com/watch?v=MzcZVXWRmZE>



Name: Miss La Broy
Skill: Creating home workouts



Task 1: Maths question

Difficulty: ★★☆☆

Below are some interesting measurements and records from events at the Olympic games. Unfortunately, they have been muddled up. Can you regroup them correctly?

Usain Bolt's 100 metres World Record	40	km
Mass of Women's Discus	02:15:25	mph
Women's Discus World Record	1500	km
Average speed of World Record Men's 50 km Walking race	1	metres
Men's Shot put World Record	76.8	hr:min:sec
Paula Radcliffe's Women's Marathon World Record	6.16	metres
Triathlon Swim (distance)	8.77	kg
Triathlon Bicycle ride (distance)	10	metres
Triathlon Run (distance)	9.58	seconds
Men's Pole Vault World Record	23.12	metres

Women's Long Jump World Record	18	cm
Men's High Jump World Record	21.34	hr:min:sec
Basketball hoop diameter	10	metres
Basketball hoop height	01:49:55	seconds
Diameter of Archery target	7.52	metres
Archers' distance from the target	01:46:25	metres
Height of Diving platform	2.45	hr:min:sec
Men's 10km Swimming 2012 Olympics winner's time	70	inches
Men's 50m Freestyle Swimming 2012 Olympics winner's time	122	metres
Men's Triathlon 2012 Olympics winner's time	10	feet



Task 2: Summer challenge:

How many of the following can you tick off in 30 days!

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30 Day Fitness Challenge

Do 10 star jumps. Day 1 ★	Hop around like a frog for 20 seconds. Day 2 🐸	Touch your toes 10 times. Day 3 🧘	Balance a ball on your head. Day 4 🐉	Spin in a circle for 10 seconds. Day 5 🩰
Walk like a crab for 1 minute. Day 6 🦀	Stretch as high as you can. Day 7 🦒	Choose a song and create your own dance routine for the song! Perform it in front of your family. Day 8 🕺	Pick up a ball from floor without using your hands. Day 9 🧒	Take 10 giant steps. Day 10 🏃
Balance on one leg for 30 seconds. Day 11 🧘	Do 6 cartwheels. Day 12 🤸	Lay on your back and peddle your legs like you are on a bike. Day 13 🚲	Skip the rope for 1 minute. Day 14 🧒	Make your own hopscotch. Play it for 1 minute. Day 15 🧒
Stretch like a cat. Do it 5 times. Day 16 🐱	Do an egg and spoon race with your sibling. Day 17 🏃	Dance like a chicken for 1 minute. Day 18 🐔	Walk backwards 10 steps and then skip back. Day 19 🧒	Do 10 squats in 30 seconds. Day 20 🧘
Wiggle like a worm for 20 seconds. Day 21 🪲	Do Yoga for 10 minutes. You can find videos on YouTube. Day 22 🧘	Tiptoe for 15 seconds. Day 23 🧒	Throw a ball in the air and catch it. Repeat 10 times. Day 24 🧒	Shake your arms and clap your hands. Do this 5 times. Day 25 🖐️
Create your own obstacle course and time yourself doing it! Day 26 🏃	Do gorilla shuffle for 15 seconds. Day 27 🦍	Lay on the floor. Lift your arms and legs above the floor for 10 seconds. Day 28 🧒	Balance a book on your head for 15 seconds. Day 29 🧒	Do 10 sit ups in one minute. Day 30 🧘










Name: **Mr Grayson**
Skill: **Rugby Referee**



Task 1: Maths question

Difficulty: ★☆☆

Here are the number of tries scored by a few international rugby players and how many games they have played.

Name	Nationality	Tries	Matches
Beauden Barret		36	83
Jessica Breach		22	13
Adam Ashely Cooper		38	119
Stuart Hogg		22	71
Sarah Hunter		98	19
Makazole Mapimpi		14	14
George North		40	95

Can you work out the mean, mode, median and range for the number of tries?

Challenge: Can you rank the players in order of their tries per match average?

Task 2: Summer challenge:

Can you find any kind of sports ball lying around your house. It could be Tennis, Rugby or Football. You could even try a frisbee.

Your challenge is to stand 10 steps away from a target and try to hit it with the ball. I would love you to show me your attempts in September if you video them.

Can you get even further away?

Click the link below to see my attempt.

<https://whitleybayhighschool.sharepoint.com/:v:/r/sites/WBH-Subjects/Ma/Staff%20Resources/2019%20-%202020/Admin/TMG/Video.mp4?csf=1&web=1&e=wFDqZ6>



Name: Mrs Thurlow

Skill: Planning

Mrs Thurlow is responsible for the whole school timetable.



Task 1: Maths question

Difficulty: ★☆☆

I spend a lot of time working on school timetables.
See if you can use timetables too:

	Departure times			
Antrim	12:30	13:00	14:00	16:00
Randalstown	12:45	13:15	14:15	16:15
Ballymena	13:01	13:31	14:31	16:31
Ballycastle	13:39	14:09	15:09	17:09

Jennifer lives in Antrim and her friend lives in Ballymena.

Jennifer lives a 5 minute walk from Antrim train station.
Her friend lives a 30 minute walk from Ballymena train station.

Jennifer wants to arrive at her friend's house **before** 3pm.

Plan Jennifer's journey to her friend's house.

Task 2: Summer challenge

Make your own sundial outside in the garden so you don't lose track of time.

This youtube video might help:

<https://www.youtube.com/watch?v=oSMsX7cwzjk>

Or for the very creative, try a human sundial:

<https://www.youtube.com/watch?v=SDzaivKKXhk>

