

## Primary Phase

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Hither Green  
SE13 5HZ  
Tel: 0208 325 4551

## Secondary Phase

Taunton Road  
Lee  
SE12 8PD  
Tel: 0208 852 3191

## Website

Trinitylewisham.org

## Executive Headteacher

Mr. David Lucas



## Dear Trinitarians

This week we did a lot of work for children's mental health week. If you did not get to see the national virtual assembly please do visit; <https://www.childrensmentalhealthweek.org.uk/>. Our mental health awareness included running a very successful Personal Development Day in the secondary phase. Pupils had to pick activities from a menu to get them to spend quality time with their family, out in fresh air and carrying out tasks that they might not normally do. One of the aims was to get them away from their screens. We had pupils going on COVID safe walks with families, cooking together, getting involved in math's and sport challenges around the house. Trinity pupils are amazing, they really do rise up to every challenge given to them. This has been extremely successful and we are now looking at ways of running similar activities for an afternoon more regularly for both the primary and secondary phase.

February is LGBT+ History Month. To celebrate Lewisham's diverse lesbian, gay, bisexual, transgender, queer, questioning, intersex, asexual, allies and pansexual community there are a series of events and displays happening remotely and across the borough. Please check out the following website for up to date information.

<https://www.iamlewisham.uk/lgbt-plus-history-month-2021>.

This year the focus from Stonewall is on the lives and work of some courageous LGBT women. One example is Catherine Duleep Singh, who was born in 1871. Her father was the former ruler of Punjab in India. Catherine moved to Hampton Court Palace at the request of her godmother, Queen Victoria. Catherine was a strong supporter of women's right to vote, the suffragist movement. She was involved in numerous events organised by the National Union of Women's Suffrage Societies. Catherine went on to live in Germany with her partner, Lina Schafer. As the Nazi Party gained power, life was increasingly difficult for people in Germany. LGBT people and people of colour faced a huge deal of discrimination, so life will have been hard for Catherine. Despite this, Catherine lived in Germany until the death of her partner in 1937. Catherine and Linda helped several Jewish families escape

Germany and survive the persecution of the Nazi's. Catherine was inspirational on several fronts and stood up for others within her community even though she was subject to her own persecution. There is a lot we can learn from the actions of courageous people in the past. How are we being courageous today? Stonewall have created some excellent home learning packs that can be used for pupils from Reception class all the way to Post 16 (<https://www.stonewall.org.uk/resources/lgbt-history-month-packs-2021-reception-post-16>). This includes further resources on Catherine Duleep Singh as well as Gail Lewis, Jan Morris and Vita Sackville-West. Be loud, be proud, be true, be you!

Next Friday, 12<sup>th</sup> February, is also the Chinese New Year. This will be a Metal Ox year. An Ox year occurs every 12 years. Do look out for resources that you can use at home to help you celebrate this occasion

Have an amazing week.

**DAVID LUCAS**

Executive Headteacher  
Trinity Church of England School, Lewisham  
An All-Through School  
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this issue

Information, Events & News

Lateral Flow testing P6-7

Weekly Question & Answer session P8

Marvellous Math's P11

Personal Development Day P10-15

Stem Learning P16



Head of School  
Primary

Mr. Darren  
Janes

Primary Phase

## Dear Trinity families,

A big thank you to all pupils and families who participated in Children's Mental Health Week activities. Teachers have been really impressed with your thoughtful, reflective comments and outcomes. As we said last week, mental health has always been important but is even more pertinent now.

It was a pleasure seeing Miss Gibbins declare the first Sports Star of the week in celebration worship this afternoon. There have clearly been some active Trinitarians and we look forward to even more pupils participating in Miss Gibbins' challenges next week.

Next week we will also begin two more whole school initiatives across the Primary Phase. Ms Randall, our computing lead, will be setting a weekly coding challenge through Scratch, which is free to download. Keep your eyes peeled for her video on Class Dojo pages.

The second initiative beginning next week will be 'Screen Free Wednesdays'. We want to ensure that Trinitarians are still having opportunities to learn away from the screen. To ensure that pupils have meaningful activities on Wednesday afternoons, Mr Weddell and the staff team have adapted our Trinity Charter to make it relevant during remote learning. Have a look at the poster later in the newsletter to find out more.

Head of School, Primary Phase  
Trinity all Through School

### CELEBRATION WORSHIP — SPOTLIGHT ON TWO STARS

Congratulations to all badge winners this week. Our two spotlighted winners this week are Alex from RB and both Sophies from 5MW.

#### Star of the Week is Alex O!



Caring



Over the past few weeks Alex O has been caring for people in his family and his community. Alex has been a fantastic brother to his younger sister. He has also been helping his mum to bake and deliver bread. Alex delivered bread to key workers in the local community. Attached is a picture of Alex and his sister delivering bread to the Lee Fire Station!

#### Star of the Week is Sophie and Sophie

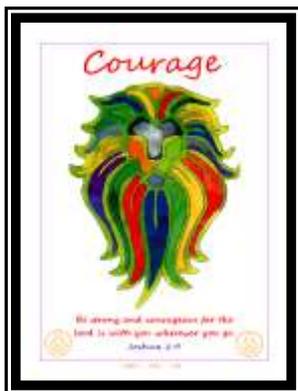


Knowledgeable



Resilient





This week we learnt about Candlemass, we were very lucky to have Rev Bridget Shepherd and Mother Juliet leading worships at both sites. This week we focused on the Feast of the Presentation, often known as Candlemass. This is when we remember how Jesus is brought to the Temple by his parents according to the law of Israel. There, he is recognized by Simeon, who declares him to be 'a light to lighten the Gentiles and the glory of God's people Israel.'

It is a time to reflect on how Jesus is the light in our lives but also to think about those that have been a light to you in your lives during this difficult time.



This week in our primary faith team we learnt about the 5 finger prayer and I encourage you, if you can, to find 5 minutes this weekend to go through it at home with your family. We have listened to many examples this week of courageous Trinitarians and Millie this week spoke over her very wobbly tooth and how

difficult it was to eat but she was brave and courageous even though it must have been really uncomfortable. How can you continue to be courageous? I have also received some more great craft worships this week, thank you to Jasmine for sending in her example

## Faith team

### Prayer for the week - Julia + Millie



*Dear God, please protect and give courage to all the staff at Trinity primary and secondary, please also help and give courage to all the pupils at home and in the keyworker provision. Amen*  
*Dear God, please help our Trinity family to dig deep and always be courageous. Amen*

## Chaplaincy competition

*Are you creative? Are you a terrific Trinitarian?*

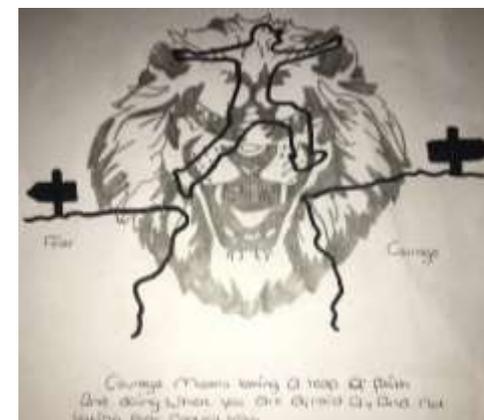
**One week to go** - All you need to do is create an image, or project which represents our theme of courage. It might be a poster, a 3D model, it can be anything you wish that shows what courage means to you.

**Primary entry:** I received to great examples in the week from Halina Dumughn (6A) and Emil Dumughn (RS). Halina's drawing is called 'Primary to Secondary' and links to the idea of being courageous during transition and Emil's is 'NHS family' focussing on the courage the NHS family have shown to us all during this time. Well done to both of you, they are really great examples.



## Secondary entry:

Here is an example of brilliant secondary entry from Skyla [yr10] with what being courageous means to her. A really powerful image.



## Advent challenge winners:

I had to do names out of a hat as there were quite a few entries which was brilliant, a huge well done to everyone who entered. Winners, your Amazon vouchers will be coming your way very soon.

### Winners are:

- Romy [Primary]
- Ofua [Secondary]
- Caleb [Secondary]

### Notices:

- Virtual zoom worships for KS1 **NEW TIME** [9:30am] and KS2 [9am] – see Class Dojo for the zoom links
- Secondary faith team Wednesday 3<sup>rd</sup> - 8:45am on teams

# SCIENCE MUSEUM CLIMATE TALKS



ONLINE EVENT  
**CLIMATE CHANGE: WHY SHOULD WE CARE?**

Available to watch now



ONLINE EVENT  
**EARTH, BUT NOT AS WE KNOW IT: LOVELOCK'S LEGACY AND OUR FUTURE**

Saturday 13 February 2021



ONLINE EVENT  
**CHANGING THE SYSTEM: BRIAN ENO AND JAMES THORNTON IN CONVERSATION**

Monday 15 February 2021

Join the **Science Museum** throughout 2021 for **Climate Talks**, a series of panel discussions, Q&As and events connecting you with leaders, experts, activists and campaigners as they discuss how to tackle the problems facing our communities due to climate change.

More events will be announced in the spring and you can sign up for a newsletter to be the first to hear more. For more information visit:

<https://www.sciencemuseum.org.uk/see-and-do/climate-talks>



## STAY AT HOME ACTIVITIES



### National Football Museum

Learn more about some of the key figures and objects in football with the museum's **First 11** videos. Explore the early history of the game, the story of the FA Cup, England's greatest players and the development of women's football in this new bite-size video series.



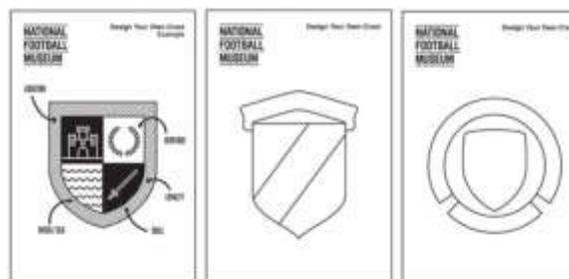
## LGBTQ+ histories and events

Each year the **Royal Museums Greenwich** mark **LGBTQ+ History Month** with a spectacular collection of events to highlight the queer histories in their collections and the magnificent communities they work with. This year, the celebrations will move **online** so you can enjoy the whole month from the comfort of your own home. Events will be focusing on the themes of chosen families and love to celebrate the incredible strength, bonds and unity of the LGBTQ+ community.

Get Crafty and make your own HMS Pride and Pride Badge or join in with a Deep Sea Dance.



For more information, visit: <https://www.rmg.co.uk/see-do/LGBT>



Fancy showing off our creative football flair in the house – without breaking any windows or plant pots? Get stuck into some of the National Football Museum's family-friendly activities. Check out the full line-up of work books, craft activities, colouring sheets and how-to walkthroughs, including make your own football trophy, creative writing challenge and design challenges. Visit:

<https://www.nationalfootballmuseum.com/>

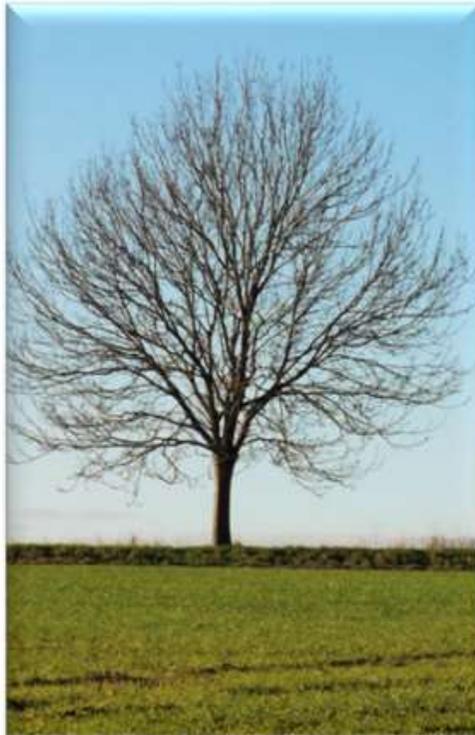


# Picture News

Advanced

8<sup>th</sup> February 2021

What's going on this week?



Tree planting is a good solution to tackle climate change and protect biodiversity but planting trees in the wrong place can do more harm than good, experts at the Royal Botanic Gardens in Kew have explained. Scientists have outlined 10 rules for tree-planting, which they say must be a top priority for all nations this decade.

An area of around 40,000km<sup>2</sup> of tropical forest is lost every year around the world. Dr Paul Smith, a conservation scientist at the Botanical Gardens Conservation in Kew believes, "Planting the right trees in the right place must be a priority for all nations as we face a crucial decade for ensuring the future of our planet."

This week's news story: [www.bbc.co.uk/news/science-environment-55795816](http://www.bbc.co.uk/news/science-environment-55795816)

This week's useful video: [www.bbc.co.uk/ideas/videos/what-if-everyone-in-the-world-planted-a-tree/p084tppq](http://www.bbc.co.uk/ideas/videos/what-if-everyone-in-the-world-planted-a-tree/p084tppq)



# Picture News

Advanced

Main question:

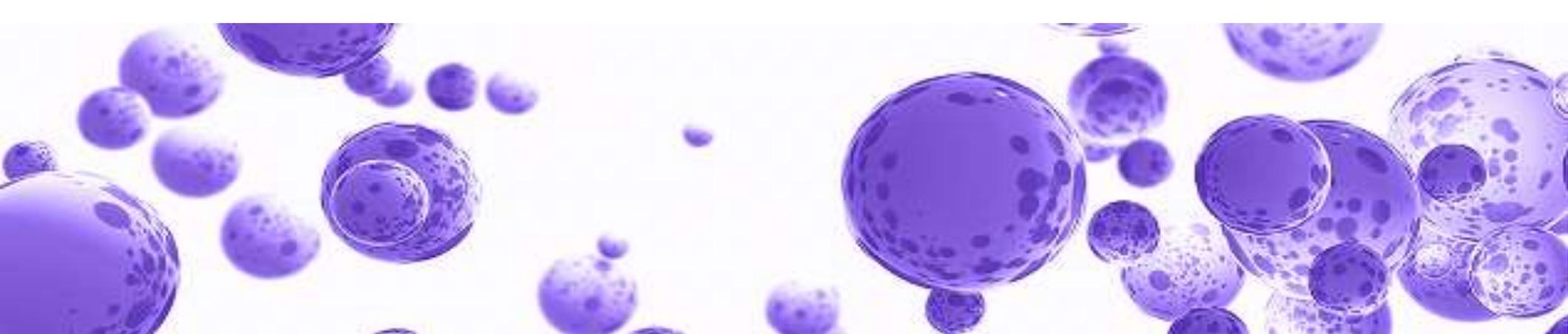
How important is it to plant more trees?

Listen, think, share

- Read through this week's story and share what we know about trees. Can we identify any different types? Talk about trees in our local area. Are there many? Are we aware of deforestation? Do we know anywhere in the world where it is taking place? Do we know why deforestation occurs? Some of the direct causes of deforestation are agricultural expansion, wood extraction (e.g. logging or wood harvest for domestic fuel or charcoal), and infrastructure expansion such as road building and urbanization. Rarely is there a single direct cause for deforestation. Who do you believe has the responsibility to prevent deforestation? E.g. the landowner, the country's government? Can you think of possible ways to help reduce deforestation?
- Since humans began practising agriculture around 12,000 years ago, it's estimated that nearly half of the world's estimated 5.8 trillion trees have disappeared (according to a 2015 study published in the journal, Nature). Does this figure surprise you? As such, it has been thought by many that planting as many trees as possible would solve the problem of deforestation - however scientists at Kew Gardens have announced that large scale tree planting schemes can be harmful if not carried out properly. What do you think some of the reasons for this could be? Dr Kate Hardwick, the scheme's Conservation Partnership Coordinator said: "When people plant the wrong trees in the wrong place, it can cause considerably more damage than benefits, failing to help people or nature."
- The scientists at the Royal Botanical Gardens at Kew have proposed rules that they believe will help to rebuild forests, safely around the world. These include, protecting existing forests first, putting local people at the heart of tree-planting projects and selecting the right tree species to maximise biodiversity. By using a mix of species, it can encourage a much richer ecosystem. Do you think it is important that new trees are only ever planted after careful consideration? Can you think of any exemptions for when the rules may not apply?
- Meg Lowman, who is the director of the Tree Foundation in Florida, USA believes, "Forests are the lifeline of our world, without them, we lose extraordinary and essential functions for life on Earth." Try to imagine a world without trees or forests. What or who do you think would be impacted most?

### Further questions for discussion

- Research an area or place in the world that has suffered from deforestation. How has the deforestation impacted the area?
- There are many proven links between spending time in nature and benefits to mental health. In Japan 'forest bathing' is a popular practice. It involves simply spending time amongst trees and wildlife to bring a sense of peace and relaxation. Talk about why you think nature evokes such a positive influence for so many?



## Trinity COVID Lateral Flow Test Permission Form

Please click on this link to open the Trinity COVID Lateral flow test consent form. Simply complete the form on-line and submit. Alternatively you obtain the form from our website.

**On-line link:**

<https://forms.gle/4UW4fkcpDjXe1EyU8>

**Website link**

<https://www.trinitylewisham.org/attachments/download.asp?file=1433&type=pdf>

Dear Secondary parents/carers

We are working to keep Trinity as safe as possible. You may have heard that testing for those without coronavirus symptoms is beginning across the country using new, quicker COVID 19 tests known as 'lateral flow tests'.

Along with the other protective measures we are taking, these tests will help staff and pupils to remain in school safely. Up to one third of people who have coronavirus experience no symptoms. By testing we will help to stop the virus spread and help to keep our school open as safely as possible. The test is voluntary, but we would encourage everyone to take it.

Since the beginning of January, we have been testing keyworker children and staff twice weekly in order to keep everyone safe. This testing is carried out in the morning on arrival at school with everyone willingly participating. Pupils have been really positive about the process and the support they get within school.

We intend to continue testing all staff and secondary school pupils on their return to school in the very near future. Hence we would be grateful if you would complete this consent form prior to your child's return so that we are prepared for their eventual return. By completing this form you are consenting to your child to have a test twice a week in school.

Those taking the test will be supervised by trained staff. The 'lateral flow' tests are quick and easy using a swab of your nose and throat. For under 18s, staff will oversee the swab process.

Results (which take around half an hour from testing) will be shared directly with staff and pupils participating. Where participants are under 16, parents or legal guardians will also be informed.

We know these tests work - in validation studies conducted by Oxford University and Public Health England, they were shown to be as accurate in identifying a case as a PCR test (99.68% specificity). The tests have lower sensitivity but they are better at picking up cases when a person has higher viral load, hence the need to test frequently.

If a pupil tests positive staff will inform the pupil immediately and they will be supported to a space where they can wait to be collected. They will need to isolate and follow the guidelines given.

By completing this form you are giving your consent to your child receiving the Lateral Flow test at Trinity twice weekly. Thank you for your support.

To read the Trinity School - COVID 19 Testing privacy statement / FAQ document please follow the links

On-line link:

<https://www.trinitylewisham.org/page/?title=Consent+form+for+COVID+testing&pid=316>

(Alternatively you can visit the website, Trinitylewisham.org. Go to 'Home Learning', 'Secondary Learning' and 'Consent Form')

Link: <https://www.trinitylewisham.org/attachments/download.asp?file=1433&type=pdf>



Some of Trinity's staff recently attended a training session with the NHS on Lateral Flow testing for COVID 19. This followed with a large delivery of test kits whose purpose was to test Trinity's pupils and staff.

Armed with the training our testers have been for the past 4 weeks testing all staff on site as well as our keyworker children. Twice weekly tests

are carried out by our testers and anyone who is 'Positive' is sent home to follow the Government guidelines. Testing has enabled Trinity to ensure that all staff and pupils remain safe and well at school and limit the spread of the virus. When school resumes in the imminent future Trinity will be ready to roll out testing on each and every pupil and staff member.

With your co-operation by consenting to your child/ren to have a lateral flow test you will be helping to keep everyone safe and for this we thank you.

Our keyworker children have been wonderful model subjects and after the initial hesitation to have the test have discovered that it is not 'scary', 'horrible' or 'painful' as they initially thought. They will tell you it is not pleasurable that it tickles, makes their eyes water and makes them sneeze but twice a week they breeze on in being mindful to keep a distance between themselves and others and have their tests without any fuss.

Staff member Jackie Ashdown in early January attended training by the NHS for the lateral flow testing of COVID 19 and is seen here checking the consent forms received for each child prior to uploading information to the test centre before any child is tested.

After 30 mins from the test the results are uploaded to the official site which are then subsequently texted to parents.



One of our young keyworker pupils participating in having his twice weekly lateral flow test. Harriet, one of staff members trained recently in test procedures undertakes swabbing of both throat and nose of one of young pupils. Some of our older pupils now undertake to take their own swabs under supervision. The process is explained to each pupil initially and after a couple of tests done by one of our trained staff members they can, if they feel confident to do the test themselves under supervision.



Staff at Trinity are also tested twice weekly to ensure everyone stays safe.

"Creativity is contagious, pass it on." Albert Einstein

# Virtual Art Club

*Teams Art club. Please let your family group leader know you want to join so I can add you to the team. Drawing, Photography and more.*

**EVERY MONDAY  
LUNCH | 12.55-  
1.15  
ART CLUB TEAMS  
GROUP**

For details, Ask Ms  
Dillon

**STEM CLUBS**

SUITABLE FOR STUDENTS AGED 11-14

## How can we live smarter?

STEM Learning activity resources

By clicking on the link you can access a collection of 50 short and practical STEM activities. Each activity requires a few resources and materials and each has a suggested list of substitute materials. Registration is free. No fees involved. There are various activities in the following age ranges:

4 – 5year, 5-11years, 7-9 years, 7-11years, 9-11years 9-14 years, 11 – 14 years, 11- 16 years and 14 – 16 years.

Click here:

<https://www.stem.org.uk/resource/s/elibrary/resource/482062/50-primary-level-stem-activities-any-classroom>

## Stem Learning



## All SECONDARY PARENTS/CARERS

Trinity Secondary are introducing a weekly Question & Answer 'Zoom' meeting. All parents/carers may join the meeting by following the Zoom links below.

Each week a different member of the school's Senior Leadership Team will endeavour to answer any questions you have relating to the education and welfare of your child/ren in this 30 minute session.

This week our Q & A meeting is hosted by our Chaplain, Miss Samantha Alder.

Please join Miss Samantha Alder on

**Thursday 11<sup>th</sup> February at 10am**

**Join Zoom Meeting**

<https://zoom.us/j/96599843254?pwd=enVxQ1QyOGdERjY2dmNIWnVicktptUT09>

Meeting ID: 965 9984 3254

Passcode: 6YsmcN

Join US!

# Weekly Step Challenge

This week's winner is



## Tauseef Haider

**Tauseef** is the champion of the PE step challenge this week. Excellent effort and the PE department would like to see more of this!!! The competition is on not only in your PE lessons but as an option task for 'Personal Development Day'. Second place and narrowly missing out with 7592 was Jack Morhen- Romero last week's champion.



**AT HOME  
PHYSICAL  
ACTIVITIES**

Dear Trinity Family,

The 1<sup>st</sup> Remote House Challenge was completed this week, congratulations to Gabriel House who got the most questions correct and it was the House with most participants in the quiz. The weekly challenge is on, here we have the tutorial video of how to spin a ball on your finger. <https://youtu.be/o7GXdqw4aKI>.

Contact your Head of House on Teams when you are ready to submit your video and they will give you more instructions. Deadline is next Monday, the 8<sup>th</sup> February.

Next Wednesday we will have our challenge, remember to attend your Family Group to register and then move on to your House Teams. The quiz only accepts answers between 9:05-9:15am, and once you have completed it, get ready to attend your period 1 lesson.

Also, next week we will have the Science House Challenge for Y7-10 during your lessons. Get ready, it will be exciting!

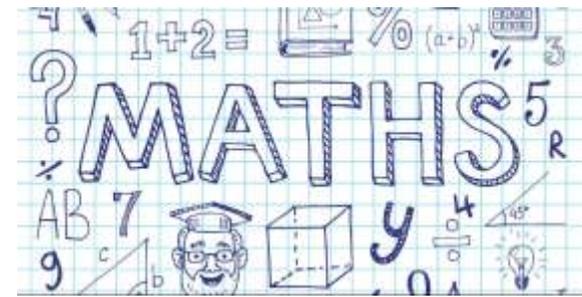
Remote House Challenges									
	Number of staff	Number of students	Total	Challenge 1 Average Result	Points	Challenge 1 Participation	Challenge 1 Participation %	Points	TOTAL
Gabriel	19	123	142	3.2698	10	63	44.37%	10	20
Michael	21	134	155	3.1346	3	52	33.55%	7	10
Raphael	18	116	134	3.1363	5	44	32.84%	5	10
Zadkiel	20	120	140	3.2093	7	43	30.71%	3	10

## BALL SPINNING



# YOUR MARVELLOUS MATHS WEEKLY ROUND-UP

This week in our Well Being Personal Development day we offered a prize for the best 3D FRACTALS – congratulations to our KS4 winners (L-R) **KATIE LINDSEY** (Y10) and **TAUSEEF HAIDER** (Y9) for their amazing creations! (Miss DiRicci also had a go, do we think she deserves a prize too??)



## Episode 15

### A conversation between Lourdes Gomez & Amanda Smart

Lourdes and Amanda chat about discovering a love of science and the importance of academic support.

<https://soundcloud.com/damien-adams-662584563/episode-15-a-conversation-between-lourdes-gomez-amanda-smart>

150  
Puzzle  
Number

**PUZZLE OF THE WEEK**

Entries open: Mon 1st Feb.

Entries close: Sun 7th Feb.



Andrew got a new magnetic building kit for Christmas.



He starts by building a tetrahedron (left). Then he adds a pyramid to every face of his tetrahedron (right).

He needed 26 pieces to build it. 18 magnetic sticks and 8 marbles.

For his next project Andrew decides he will build a cube and then add a pyramid to every face of the cube.



How many pieces will Andrew need for his next project?

SPOTLIGHT ON....



This podcast is an effort to promote visibility of women in mathematics

# Personal Development Wellness Day

Well done to all Trinitarians for getting involved in our screen free wellness day. There is so much evidence coming in of the range and variety of tasks you completed successfully. There is cake baking, bird watching, board game making, origami, blackout poetry, step challenges, photography to name but a few. Let's use this as motivation to continue to use our spare time to be creative and get out and about away from our screens! Check out the following pages to see how well everyone did!



Dinushan's "messy cake" - chocolate with vanilla frosting.



Amelia's cupcakes.



Lilliemai's delicious Nutella and jam cupcakes



Tiana's confetti cake



Mahalia Browne's red velvet with a strawberry cream filling



Cassius' chocolate layer cake

Well done on 7VAD's amazing work during the screen free personal development day. 7VAD practiced their photography skills, did some science experiments, completed exercise challenges, created some drawings, did some bird watching and many of them baked delicious cakes!

# 9NDI

Wellness Personal Development Day  
Thursday 4<sup>th</sup> February 2021

Review by TY-REECE

with contributions from CHRISTIANA, BRITNEY, SEBASTIAN, SIPHO, NOURA, GUSTAVO, CALEB and Miss DiRicci

## Review of personal development day.

My personal development day was great. We had to complete challenges we wanted to do and my first task I picked to do mindfulness colouring of a fish swimming in deep waters. My second task I chose to do was the historical board game which I based on old diseases such as the Black Death and the bubonic plague. And last but not least my third task I decided to do a courage poster for the competition and I drew a lion in the back ground and then I write these four words: **Think, dream, believe and dare.** That was my personal development.



## WE WERE CREATIVE.....

Blackout poem



"Having time away from screens today was really refreshing" – BD, 9NDI



## WE WERE ACTIVE.....



Step Challenge



Bird-watching



Biodiversity task

"It was fun" – SK, 9NDI

This week Trinity had a personal development day with plenty of activities they could choose to do (and have a break from the computers). Here is some of Year 9NDI examples of tasks chosen.

## WE WERE BAKING.....



I made banana bread



## WE WERE PHOTOGRAPHERS AND VIDEOGRAPHERS.....



Video tour of the garden



Video demonstration of the



Phone photo task

## WE WERE MINDFUL





Fantastic work produced by the students in the jammie dodger challenge held at school

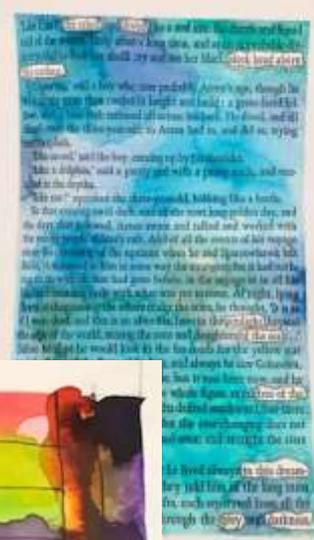
Staff best pick:

KS3: Enshan and Charlotte

KS4: Kayvia



Well done to:  
Matthew Hesman  
Tyler Baptiste-Mcintyre  
Ashton Williams  
Eric Parker  
Kayvia Banford  
Gabrielle Clark  
Ilze Taylor  
Conor Wynne  
Jamellia Meade  
Kaylee Noble-Newman  
Charlotte Topper  
Enshan Wang  
Jeremiah Wanogo-Osemwegie  
Malachi Fiam-Colblavie



### Blackout Poetry Art

KS3 and KS4 students working from school completed a blackout poetry art activity, giving all students the opportunity to get creative with their poetry and art work. Well done to all who took part, most importantly, we all had fun creating something new away from our screens.

**Blackout Poetry** is a form of "found poetry" where you select words that catch your interest from a newspaper, book, or other printed text – along with a few additional words to make it flow. Then you "redact" all the words you *don't* want. This is often (but not always) done with a black marker, hence the name "blackout poetry". Your chosen words will form a new message, giving the text a whole new meaning. The Trinity students created their own blackout poetry, which they turned into works of art using black pens detailing and watercolor paints.

Secondary



# STEM activities for ages 11-14

43 Activities



Published by Royal Academy of Engineering  
Resource Booklet Mission to Mars

**Launch crew**

Calculate the areas of the floor space for each space modules to estimate the maximum number of seats you can fit in the following space craft: Apollo, CST-100 and Soyuz.

Students can draw a scale plan of the spacecraft and either draw the seats in or create, to scale, seat templates. The latter will allow students to try different layouts.

**Suggested Materials**  
Paper; pencils; compass; scissors.

[www.stem.org.uk/rxssv](http://www.stem.org.uk/rxssv)

Mission to Mars: student guide

# MISSION TO MARS

HOW WILL ENGINEERS MAKE IT POSSIBLE TO LIVE ON OTHER PLANETS?

## STUDENT GUIDE

ROYAL ACADEMY OF ENGINEERING  
Tomorrow's Engineers  
BOEING

Generously supported by

This resource aims to give students the opportunity to investigate the science, technology, engineering and mathematics (STEM) of space exploration.

## LAUNCH

### CREW

Boeing's new CST-100 module has been designed to fit up to seven crew members comfortably, or any number of crew less than seven plus cargo. To reduce the fuel that is needed for launch, the crew and cargo need to be configured in a way that balances the forces.

**TIME TO THINK**

How many people could you accommodate in different spacecraft and does that leave enough space for cargo?

**METHOD 1**

Calculate the areas of each spacecraft to estimate the maximum number of seats you can fit in the following spacecraft:

**Apollo**  
The diameter of the Apollo module is 4.2m.

**CST-100**

## LANDING

### GRAVITY

Gravity is a force that attracts objects towards each other. The gravitational force felt by an object depends on the mass of the object and the distance between the objects.

The gravitational force felt by objects is different on different planets.

Weight is a force measured in Newtons. Caused by gravity. Therefore, objects have different weights on different planets on Earth. This can be observed when a scale is used to measure the weight of an object.

### HEAT SHIELD

When objects fall into an atmosphere of a planet at high speed, it may be able to withstand high temperatures. For example, the outside of the Space Shuttle can reach temperatures of 1500°C upon re-entry to the Earth's atmosphere.

The heating pane of steel, a commonly used material, is transported and returned from between 150°C and 1500°C. Engineers must make sure that the space craft they design can withstand high temperatures without melting or burning the people inside.

**TIME TO CALCULATE**

Weight can be calculated using the equation:

$$W = mg$$

Where:

- W = weight, in Newtons (N)
- m = mass, in kilograms (kg)
- g = gravity, in meters per second squared (m/s<sup>2</sup>)

The gravity on Earth is 9.8 m/s<sup>2</sup>  
The gravity on Mars is 3.7 m/s<sup>2</sup>

- Calculate the weight of a 10kg object on Earth
- Calculate the weight of a 10kg object on Mars
- What is the gravity on Mars if an object with a mass of 10kg weighs 300N?

## PRESENTATION ACTIVITY

HOW WILL ENGINEERS MAKE IT POSSIBLE TO LIVE ON OTHER PLANETS?

Use the information and data that you have gathered from your activities to present your answer to the big question: How will engineers make it possible to live on other planets?

**PRESENTATION SPECIFICATION**

The presentation must:

- include a suggested answer to the big question. There will be marks for this.
- include evidence of problems that led to the final answer and how they were solved.
- include a list of resources used in the presentation.

The presentation could:

- include a list of resources used in the presentation.
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The presentation could include:

- text
- photographs
- diagrams
- charts
- data

Use the information and data that you have gathered from your activities to present your answer to the big question: How will engineers make it possible to live on other planets?

## FOOD ON MARS

Imagine that you are an astronaut on Mars. You have to grow your own food. You have to grow your own food. You have to grow your own food.

How will you grow your own food on Mars? You have to grow your own food. You have to grow your own food. You have to grow your own food.

How will you grow your own food on Mars? You have to grow your own food. You have to grow your own food. You have to grow your own food.

By clicking on the link you can access a collection of 50 short and practical STEM activities. Each activity requires a few resources and materials and each has a suggested list of substitute materials. Registration is free. No fees involved. There are various activities in the following age ranges:

- 4 – 5 year, 5-11 years, 7-9 years, 7-11 years, 9-11 years
- 9-14 years, 11 – 14 years, 11- 16 years and 14 – 16 years.

Click here :  
<https://www.stem.org.uk/resources/elibrary/resource/482062/50-primary-level-stem-activities-any-classroom>