Working in partnership with

Girlguiding South West England | STEMETTES

Stemettes Challenge 2025

Explore STEAM: A Resource for Meeting Amazing Role Models

Welcome

About Stemettes Challenge 2025

We have created an inspiring STEAM challenge pack filled with activities for all sections, allowing each unit to adapt them to their unique circumstances.

Together, Girlguiding South West England and Stemettes are committed to breaking down barriers and ensuring that every girl and young woman feels empowered, showing them STEAM is for all.

Dr Anne-Marie Imafidon MBE, CEO and Head Stemette said, "We are delighted to partner with Girlguiding South West England to support their young members to get excited about the worlds of STEM and STEAM, while earning a first of its kind Stemettes Girlguiding Badge. Connecting members to powerful follow-on opportunities like events and mentoring will lead to better representation across the field. Welcome Girlguiding members to the Stemette life!"

Feedback

Your feedback will play a crucial role in shaping the future development of these resources: **stemettes.org/ggswe/feedback**

Explore STEAM

A Resource for Meeting Amazing Role Models

Are you ready to spark your curiosity, flex your creativity, and uncover the incredible stories of STEAM (Science, Technology, Engineering, Arts, and Maths) role models who've changed the world? This resource is your gateway to discovery, innovation, and BIG dreams.

From boundary-breaking scientists to tech pioneers, visionary engineers, dazzling artists, and maths wizards, these STEAMazing individuals have shattered limits, solved mysteries, and turned their wildest ideas into reality. They've made STEAM their playground—and now it's your turn.

Here's the scoop: the Stemettes STEAM Challenge serves as a delicious menu.

- For **Starters**, you'll meet awe-inspiring role models and get a peek into their lives and careers.
- Then, it's time to dig in with **Mains**, where you'll tackle fun, hands-on activities inspired by their journeys.
- Finally, save room for **Dessert**! These are reflective moments to savour the knowledge and marvel at what you've created.

Prepare to experiment, dream big, and uncover a spark for your future career. With every activity, you'll step closer to the kinds of discoveries and achievements these trailblazing role models have made. Who knows—you could be next!

The adventure is yours to take. Dare to dream STEAM!

Contents

30-60 minutes

Diksha Moolchandani

Senior Research Scientist
Computer Architecture & Hardware Design

Image source

Starters

5-10 mins

Diksha Moolchandani is helping make the technology of our phones, computers and other devices better for the environment. Her research into multicore processors resulted in improving their efficiency by 17%. She also used game theory and game ideas to make drones fly in smarter, energy-saving paths.

Read this **information** - do you understand the difference between hardware and software?

What is a computer system? - Summary

A computer system comprises hardware (the physical parts) and software (the programs that tell it what to do).

Hardware can be inside or outside the computer, connected by wires or wireless. Different computer systems include laptops, tablets, and smartphones, each with unique features like touchscreens or built-in keyboards. Hardware in a computer system can either input information, like a keyboard or mouse, or output information, like a monitor or speakers.

Questions on Technology

1. **How could creating more sustainable tech, like phones and laptops, make a lasting difference for our planet?**

2. **Have you ever imagined creating the phones of tomorrow?** What incredible features would you design?

3. **If you could help design a phone for the future, what amazing features would you add?**

Your next adventure starts here! Meet inspiring role models like Diksha at a Stemettes Event.

Diksha Moolchandani

Senior Research Scientist
Computer Architecture & Hardware Design

30-60 minutes

Image source

Main Course

20 mins 1 activity
40 mins 2 activities

Make

Design and create a model of an energy-efficient gadget.

You could choose a phone, computer, or anything you like! Make sure you use recyclable materials.

Ingredients:

- Paper
- Colouring pencils
- Glue or tape
- recyclable materials (e.g. cardboard, plastic bottles)

Explore

Talk about why it's important to conserve energy in your lives. Create **Energy-Saving Plans** to save energy at home or school.

For this challenge, you can draw or write about the actions you can take to save energy and have a look on the internet for ideas. When you're done, display the posters at your unit.

Ingredients:

- Paper
- Internet access

Dessert

5 mins

Show and Tell

Spread the fun and excitement by sharing the challenges you've been exploring with your friends and family.

Share

We would love to see how you're doing with the challenges. Remember to tag us on social media and use the hashtag **#GGSWExStemettes**

30-60 minutes

Kay-Tee Khaw

Professor and Physician - Gerontology

Image source

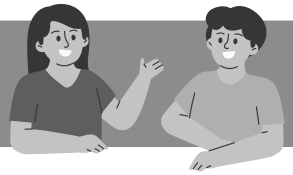
Starters

5-10 mins

Kay-Tee is a Singaporean-British physician and academic. She is a professor of Gerontology at the University of Cambridge. Gerontology is the scientific study of old age and how we age. It also looks at the particular problems of old people. Kay-Tee studies and researches how to keep people healthy as they get older. She also figures out why some illnesses happen and how to stop them.

Watch **this video** of Kay-Tee talking about how a well-balanced diet can help us stay healthy, and think about the answers to these questions:

Kay-Tee's Video Transcript



What we really are interested in as we get older is not living forever, necessarily, but having the best quality of life, preventing frailty, preventing disability, so that we live the maximum number of years with a high quality life, with good functional health. The evidence is increasing that the lifestyles, diet and physical activity that are good for preventing cancer are also good for preventing other chronic diseases such as heart disease or diabetes. So I think there's very encouraging evidence that a healthy diet, and lifestyle, once we nail that down, will be good, not just for preventing cancer, but for all the other conditions that we're interested in when we get older in terms of quality of life.

Questions on Quality of Life and Healthy Living

1. **What's your idea of a great quality of life?** Imagine you're older—what kinds of things would you want to still be able to do and enjoy? How do you think your choices now might affect that?

2. **What do you think makes it hard to stick to a healthy lifestyle,** and how could we overcome those challenges?

3. **If healthy food and exercise help prevent big health problems like heart disease or diabetes,** why do you think some people still choose unhealthy lifestyles?

Your next adventure starts here! Meet inspiring role models like Kay-Tee at a Stemettes Event.

Kay-Tee Khaw

Professor and Physician - Gerontology

30-60 minutes

Image source

Main Course

20 mins 1 activity
40 mins 2 activities

Make

Start a **My Healthy Day** journal to track your daily activities related to health and well-being. You can include your meals, activities, and relaxing moments. Add a fun twist by drawing or decorating your journal pages with themes that represent your day. Then, share it with the group and let's talk about our healthy lifestyles!

Ingredients:

- Paper
- Colouring pencils

Explore

Explore how the foods we eat can affect our health. Choose three colourful fruits and look at their nutrients. Learn about the unique benefits of each fruit. Find out what essential nutrients they have and how these contribute to our health, especially as we get older. **Let your findings inspire others by presenting them in an engaging report or presentation** that highlights the power of nutritious choices for a healthier life!

Ingredients:

- Various fruits
- Internet access

Dessert

5 mins

Show and Tell

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Share

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30-60 minutes

Image source

Sara Berkai

Founder - Ambessa Play

Starters

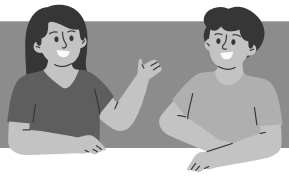
5-10 mins

Sara has a degree in child development. She founded Ambessa Play, a social enterprise that creates toy kits. Sara has worked in various jobs in technology and charity.

Watch this **video** about Sara founding Ambessa Play.

What do you think about trying to build the Ambessa Play flashlight after watching this **video**?

Video Transcript - Summary



Sara Berkai, the amazing founder of Ambessa Play, is inspired by the natural curiosity of children. She's on a wonderful mission to create toy kits for kids aged 5 to 11, and the best part is that every kit sold helps provide a toy kit for a displaced child. With a background in technology and a master's degree in Child Development from Oxford, Sara is passionate about boosting children's confidence through hands-on learning. She truly believes in the importance of giving kids around the world the chance to explore and learn. After all, it's often not a lack of potential that holds them back, but the lack of opportunities to shine!

Questions

1. **Sara loves helping children learn and have fun! She studied Child Development and started her own project called Ambessa Play.**

   What do you think about Sara's work? Would you like to have a go at building a flashlight toy kit?

2. **What toys do you have that inspire you to explore and learn about STEAM Science, Technology, Engineering, Arts, and Maths?**

Your next adventure starts here! Meet inspiring role models like Sara at a Stemettes Event.

Sara Berkai

Founder - Ambessa Play

30-60 minutes

Image source

Main Course

20 mins 1 activity
40 mins 2 activities

Make

Unleash your creativity by designing your own STEM toy kits with paper and marker pens. Illustrate each component with details that highlight their functions.

After completing your designs, share the stories behind each kit and explain how they can inspire learning and creativity in others.

Ingredients:

- Paper
- Colouring pencils

Explore

You are a junior graphic designer for a charity event to raise awareness and funds for STEM toy kits for children.

Create an eye-catching poster encouraging attendance and generous donations, highlighting the importance of sharing the gift of learning. Design a poster that is informative, inspiring, and visually exciting. You'll use your art, technology, and design knowledge to make an impact.

Ingredients:

- Paper
- Colouring pencils

Dessert

5 mins

Show and Tell

Spread the fun and excitement by sharing the challenges you've been exploring with your friends and family.

Share

We would love to see how you're doing with the challenges. Remember to tag us on social media and use the hashtag **#GGSWExStemettes**

30-60 minutes

Lisa Kudrow

Biologist, Actor

Image source

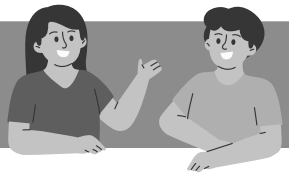
Starters

5-10 mins

Lisa Kudrow is more than just an actor; she also holds a degree in biology. Biologists are nature explorers; they study living organisms, including plants and animals, to learn about their growth and life processes. They are crucial in helping us understand and protect the natural world, acting as nature detectives. Before her television and feature film career, Lisa contributed to research on the causes of headaches in humans.

Explore this **information** about the different parts of the human brain.

Video Transcript - Summary



Your brain is an amazing organ that weighs about 1.3kg and runs everything you do – from thinking and learning to breathing and moving. It's quicker than a supercomputer, reacting instantly to keep you safe, and it's packed with 100 billion tiny cells called neurons that send messages so fast they could outrun a race car! These neurons create enough energy to light a small bulb and never stop working, helping you think, laugh, and dream. Your brain even changes every time you learn something new by building fresh connections. Plus, exercise makes your brain extra sharp, so moving your body can help you tackle tricky problems. Your brain truly is a superpower.

Questions

1. **What happens in your brain when you laugh or dream?**
2. **Why does running or playing sports make your brain work better?**
3. **How does your brain help you learn new tricks, like riding a bike?**

Your next adventure starts here! Meet inspiring role models like Lisa at a Stemettes Event.

Lisa Kudrow

Biologist, Actor

30-60 minutes

Image source

Main Course

20 mins 1 activity
40 mins 2 activities

Explore

Explore the brain's anatomy using this information. Draw the brain using your choice of materials and label the parts with their names.

- Include a brief explanation of each part's function.

Ingredients:

- Internet access
- Colouring pencils
- Marker pens
- Paper

Make

Lights, camera...action! Your mission, should you accept it, is to become the director of a TV series! Imagine your story idea as a brand-new show that everyone will want to binge-watch. It's time to bring it to life by creating a jaw-dropping storyboard for the official trailer.

- Who are your unforgettable characters? Maybe a brilliant scientist, a tech-savvy engineer, or even an artist who codes!

Ingredients:

- Paper
- Colouring pencils

Dessert

5 mins

Show and Tell

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Share

We would love to see how you're doing with the challenges. Remember to tag us on social media and use the hashtag **#GGSWExStemettes**

30-60 minutes

Katherine Johnson

Mathematician - NASA | b. 1918 d. 2020

image source

Starters

5-10 mins

Katherine Johnson had a deep fascination with numbers and mathematics, and her skills enabled others to reach for the stars. Beginning in 1953, she worked as a human computer at NASA's predecessor, the National Advisory Committee for Aeronautics (NACA). At NASA, Johnson became a vital part of the team that made history by sending humans to the moon. Her journey began with calculating the trajectory for America's first space trip, Alan Shepard's mission in 1961, a pivotal step toward a moon landing. She went on to perform the essential calculations for the first moon landing in 1969. After an incredible career at NASA, which included significant contributions to the space shuttle programme and satellite missions, she retired in 1986.

Watch this **video** - what do you think about Katherine's life?

Video Transcript - Summary

A trailblazing mathematician, Katherine Johnson (b. 1918 d. 2020) graduated high school at 14 and college at 18. Joining NASA as one of the first Black female mathematicians, she shattered racial and gender barriers in a male-dominated field. Known as a "human computer," she calculated key trajectories for space missions like Mercury and the moon landing. Katherine insisted on attending mission briefings, defying gender norms and paving the way for inclusion. Her 33 years at NASA highlighted how diversity drives progress. Katherine's story inspired many, proving anyone can excel in STEAM. She cherished letters from children, valuing the chance to spark young minds. Her enduring legacy is one of courage and potential.

Questions

1. **What do you think of Katherine Johnson's career?**
2. What do you think is the hardest activity to do in space?

Your next adventure starts here! Meet inspiring role models like Katherine at a Stemettes Event.

Katherine Johnson

Mathematician - NASA | b. 1918 d. 2020

30-60 minutes

Image source

Main Course

20 mins 1 activity
40 mins 2 activities

Make

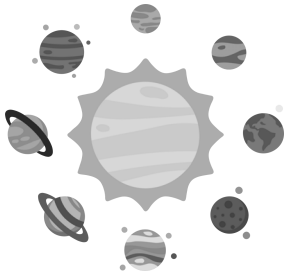
Katherine helped send humans to the moon in 1969. In this activity, you will learn about our solar system.

Start with Mercury, the smallest planet, and colour in one square to represent it. Use this **link** to find out how many times larger each planet is compared to Mercury.

Then, colour in the correct number of squares to create a scaled model of the solar system.

Ingredients:

- Paper - grid for faster activity
- Internet access
- Calculator
- Pencils



Explore

Did you know that computers don't see pictures like we do? Instead, they use a language of just 1's and 0's to build every image you see on your screen. That's called binary code, and today, you get to step into the shoes of a computer and uncover how it all works.

Your mission is to take 4 sheets of paper and carefully draw a grid of 12x12 squares on each one. These grids will become your digital playground, where you'll learn how computers transform simple data into incredible visuals. Are you up for the challenge? Let's crack the binary code together!

Ingredients:

- Colouring pencils
- 4 pieces of paper

Explore: Steps 1-4

GGSWE x Stemettes STEAM Challenge

Katherine Johnson

Mathematician - NASA | b. 1918 d. 2020

30-60 minutes

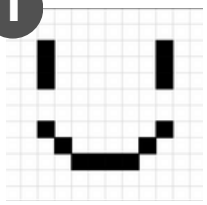
Image source

Main Course

20 mins 1 activity
40 mins 2 activities

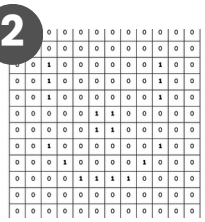
Explore: Steps 1 & 2

1



On your first piece of paper, draw a black and white pattern by colouring in each square.

2

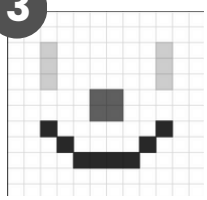


On your second piece of paper, you will recreate the first pattern you made, but by using binary!

Instead of filling in the squares with the colour, fill in the black squares with a '1' and the white/blank squares with a '0'.

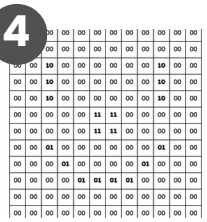
Explore: Steps 3 & 4

3



Take another piece of paper and draw the same pattern, but use blue, green, and red to colour it.

4



Take the last piece of paper and repeat step 2. Use these numbers for the colours:

- red = 11
- green = 10
- blue = 01

white/blank = 00

Dessert

5 mins

Show and Tell

Spread the fun and excitement by sharing the challenges you've been exploring with your friends and family.

Share

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30-60 minutes

Dr Nita Patel

Vaccinologist - Novavax

Image source

Starters

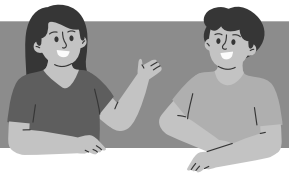
5-10 mins

Did you know an amazing woman helped fight COVID-19? Dr Nita Patel led the team that created the Novavax vaccine! She's a scientist and a leader in making life-saving vaccines.

She is dedicated to vaccine development because her dad had tuberculosis.

Watch this **video** to learn how she has supported the development of a potential new vaccine. What do you think about Dr Nita's work?

Video Transcript - Summary



Dr. Nita Patel, a senior director at Novavax, led a team that developed a COVID-19 vaccine in just 10 months, working long hours and managing a multidisciplinary team of experts. Her passion for vaccines, driven by her father's tuberculosis, has fuelled her career in developing vaccines for diseases like the flu.

Early clinical trials showed promise, with the virus failing to replicate in monkeys' noses. The company aimed to produce 2 billion doses in 2021, relying on partners like the Serum Institute of India. Patel was eager to receive the vaccine herself.

Questions

1. **Imagine being on a team like Dr Nita Patel's, developing a vaccine.** What special ability would help you solve problems more quickly?

2. Why do you think working as a team, like Dr Patel's group of experts, is important when solving big challenges like stopping diseases?

3. **How long does it usually take to develop a vaccine?**

Your next adventure starts here! Meet inspiring role models like Nita at a Stemettes Event.

Dr Nita Patel

Vaccinologist - Novavax

30-60 minutes

Image source

Main Course

20 mins 1 activity
40 mins 2 activities

Make

Cells and viruses are very small. Because of this, scientists cannot use centimetres (cm) to measure them; they need to use micrometres (µm) instead.

In this activity, we will examine how small cells and viruses are compared to each other. Using the conversion, 1 cm = 1 µm. Draw out each of these items so you can see how small they are:

Coronavirus = 0.1 µm
Bacteria cell = 1-3 µm
Red blood cell = 7 µm
Pollen particle = 15 µm
White blood cell = 25 µm
Human hair = 50 µm (up to 180 µm)

Ingredients:

- Colouring pencils
- Ruler
- Paper
- Pens

Explore

Dr Nita Patel worked hard to create a vaccine to protect us from coronavirus. But have you wondered how vaccines actually work?

Your challenge is to create a storyboard that shows how scientists create vaccines in labs, test them for safety, and how they help your body stay healthy!

Ingredients:

- Colouring pencils
- Paper

Dessert

5 minutes

Show and Tell

Spread the fun and excitement by sharing the challenges you've been exploring with your friends and family.

30-60 minutes

Ahana Banerjee

Founder - Clear App

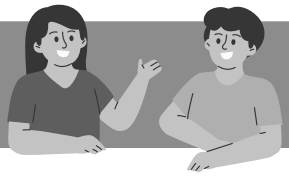
Image source

Starters

5-10 mins

Meet Ahana Banerjee—when she was just a student like you, she faced something a lot of people can relate to—having a hard time with acne. It wasn't easy, but instead of letting it get her down, she turned her experience into something amazing. At 21, she invented **Clear**, a free app that allows people to track their skincare routines, share tips, and even discover the best products. The Clear app uses selfies to explore what works. Here's the best part—Ahana didn't start out as an expert. She was just curious, determined, and unafraid to take that first step. Watch this **video** of how the app works.

Video Transcript - Summary



Ahana introduces her free skincare app, Clear, which is designed to help users find effective skincare products and track their effectiveness. The app features a community for sharing product reviews and experiences filtered by skin type and concern. It offers a catalogue of products and brands, with search filters for various criteria and AI-driven recommendations based on skin type and concern.

Users can log their skincare routines, track medications, and take progress photos, which are kept private unless shared. The app also provides personal analytics and a label scanner.

Dream Big, Create Bigger!

1. **What did you learn from Ahana's story?** Why is it important to make mindful skincare choices?
2. **If you could design your own skincare app, what features would you add to make it fun and helpful?**
3. **If you could invent a skincare product, what would it do and what would you name it?**

Your next adventure starts here! Meet inspiring role models like Ahana at a Stemettes Event.

Ahana Banerjee

Founder - Clear App

30-60 minutes

Image source

Main Course

20 mins 1 activity
40 mins 2 activities

Make

Think about common skincare issues. Why is it important to use products that are good for your skin and the environment?

- **Explore** current skincare products to identify beneficial ingredients and eco-friendly choices.
- **Design** your own skincare product, considering ingredients, packaging, and user experience.
- **Present** your ideas to the unit, explaining their health and sustainability benefits, and be ready for questions and feedback!

Ingredients:

- Paper & colouring pencils
- Internet access

Explore

Your mission is to create a skincare routine that is good for you and the planet. Think about the products you use. Are they eco-friendly? Do they harm the environment? Now is the time to look for sustainable options, like reusable cotton pads or products that come in biodegradable packaging.

Share your routine with the unit and explain how each choice helps the planet. What can you do to make a difference?

Ingredients:

- Paper & pencils
- Internet access

Dessert

5 minutes

Show and Tell

Spread the fun and excitement by sharing the challenges you've been exploring with your friends and family.

Titi Oliyide

Senior Process Safety Engineer

30-60 minutes

Image source

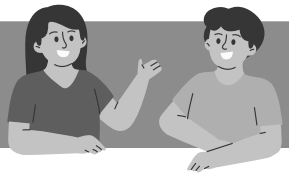
Starters

5-10 mins

Meet Titi Oliyide—a senior process safety engineer at Supercritical Solutions, who ensures the safety of the process of making hydrogen energy. She loves her job and wants more people to become engineers to help improve lives with their creativity and skills. Titi believes engineers create things we use daily, making life better for everyone.

Read this **Q&A with Titi**. What aspects of Titi's job as a safety engineer interest you, and why do you think safety is essential in engineering?

Question & Answer - Summary



Titi Oliyide is a safety engineer working on amazing projects like the Elizabeth Line in London and green hydrogen technology. From a young age, she was curious about how things worked—she even loved how cooking turned raw ingredients into tasty meals! Encouraged by her family and inspired by a chat with her sister's friend, she studied chemical engineering. She earned her degrees in Nigeria and the UK, plus a professional title as a chartered engineer. Her favourite thing about engineering? Turning ideas into real-life solutions that help people. Like riding the Elizabeth Line, knowing she helped make commuting faster and better for thousands of people.

Creativity is a Superpower!

1. **Titi believes that engineering isn't just about science—it also uses creativity and people skills.**

   How do you think creativity helps in engineering? What examples can you think of where working well with others and being creative might be important?

2. **Titi won the 2023 IET Young Woman Engineer of the Year Award.**

   What kind of award would you like to win in the future?

Your next adventure starts here! Meet inspiring role models like Titi at a Stemettes Event.

Titi Oliyide

Senior Process Safety Engineer

30-60 minutes

Image source

Main Course

20 mins 1 activity
40 mins 2 activities

Make

Think about a problem Titi might face in engineering. Write a short adventure story where she uses her skills to solve problems or create something amazing. Share your story with the unit. Describe the situation, Titi's solution, and why her skills were important. Discuss how Titi's story inspires you and what you learned about creativity and problem-solving in engineering.

Ingredients:

- Paper & pen
- Internet access

Explore

We will explore safety solutions in engineering, focusing on hydrogen energy production, drawing inspiration from Titi's work in safety engineering. First, identify a situation where safety is crucial, such as in energy production or transportation. Then, propose a safety solution that enhances safety, considering the materials, tools, or steps involved. Explain how your solution addresses safety concerns. Finally, present your idea to the unit, outlining the situation, the problem, and how your solution ensures safety.

Ingredients:

- Paper & pen

Dessert

5 mins

Show and Tell

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Share

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Chelsea Tucker

Data Scientist, Artist

30-60 minutes

Image source

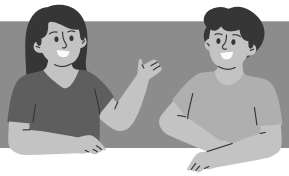
Starters

5-10 mins

Meet Chelsea Tucker — a data science star! She uses cool tech like AI and machine learning (kind of like how apps suggest music or shows you'll love) to make things smarter and faster. She's passionate about STEAM and loves sharing fun facts about maths, science, and digital art on Instagram, TikTok, and YouTube. Oh, and she's an incredible digital artist who creates jaw-dropping artwork for herself and famous brands.

Watch the first 3 minutes of this **video** to find out more about Chelsea.

Video Transcript - Summary



Chelsea, a data scientist, describes her role in managing and modelling data, specifically in the insurance industry, where she predicts outcomes such as the likelihood of accidents.

She is passionate about developing AI and machine learning models, which she compares to the functioning of the human brain.

Chelsea's career began in fine arts before she made a shift to data science. She emphasises the importance of flexibility in making career choices.

Questions

1. **Did you know you can love painting beautiful pictures and solving difficult math problems at the same time?** That's what Chelsea does—she is both an artist and a data scientist! If you could mix two things you love, what would you choose?

2. **Check out Chelsea's YouTube channel @MathsChelsea.** What do you think of her videos?

Your next adventure starts here! Meet inspiring role models like Chelsea at a Stemettes Event.

Chelsea Tucker

Data Scientist, Artist

30-60 minutes

Image source

Main Course

20 mins 1 activity
40 mins 2 activities

Make

Are you ready to become a data artist? Grab some paper, markers, and your imagination to turn boring numbers into art! Choose a simple data set—like your favourite snacks or the sunny days this week. Then, create colourful, eye-catching designs. Can you make a rainbow or a maze with your data? The more creative, the better.

Ingredients:

- Paper & pen
- Internet access

Explore

Explore different digital art styles online, from pixel art to vector illustrations. Start by looking for examples of interesting digital art, like a pixelated video game scene, a cartoon, or a bold logo. Notice what makes them special. Look at the details, shapes, and colours. Next, create your own "Digital Art Style Guide" on paper. This guide will help you keep track of the styles you discover. Choose your favourite styles and draw examples in your guide.

Ingredients:

- Paper & pen
- Internet access

Dessert

5 mins

Show and Tell

Spread the fun and excitement by sharing the challenges you've been exploring with your friends and family.

Share

We would love to see how you're doing with the challenges. Remember to tag us on social media and use the hashtag **#GGSWExStemettes**

30-60 minutes

Maryam Mirzakhani

Mathematician | b. 1977 d. 2017

Image source

Starters

5-10 mins

Meet Professor Maryam Mirzakhani - born in 1977, Maryam won two gold medals in the International Mathematical Olympiad as a teenager. She was the first woman and the first Iranian to receive the Fields Medal, often referred to as the Nobel Prize of Mathematics. Her research at Stanford University focused on complex geometry and complex systems.

Listen to Maryam share her story in her own words in this **video**.

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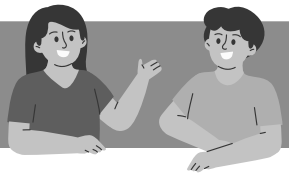


Maryam discusses her initial lack of interest in mathematics, which later developed into a passion, particularly for understanding structures on surfaces. She recounts her educational journey during a stable post-war period, attending a good school. Maryam explores mathematical problems related to geometric structures on surfaces, such as the trajectory of a ball on a billiard table, which remains an open question. She differentiates between studying the properties of a given geometric structure and deforming it to observe new surfaces. Maryam emphasises the importance of these problems for understanding higher-dimensional manifolds and other spaces.

Maths is a Superpower!

1. **How does learning about inspiring mathematicians like Maryam Mirzakhani, who explored complex geometry and became the first woman to win the Fields Medal, change the way you think about maths and its possibilities?**

2. **Who are some women who have won prestigious awards like the Nobel Prize or Fields Medal?**

Your next adventure starts here! Meet inspiring role models like Maryam at a Stemettes Event.

Maryam Mirzakhani

Mathematician | b. 1977 d. 2017

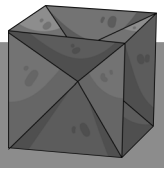
30-60 minutes

Image source

Main Course

20 mins 1 activity
40 mins 2 activities

Make



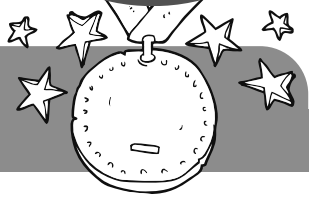
Your challenge is to make an origami cube.

- Fold the paper in half to crease, then unfold.
- Fold both sides to the centre crease, creating four sections.
- Fold the paper in half again to form a square, then unfold.
- Fold the sides into the centre crease again, then unfold.
- Repeat for the other 5 pieces of paper.

Ingredients:

- 6 sheets of squared paper
- Internet access

Explore



Prof Mirzakhani was the first female to win the Fields Medal in 2014; the Fields Medal is similar to the Nobel Prize. Make a poster about the amazing women who have won either Nobel Prizes or Field Medals. **Choose your favourite female winner and research:**

- What did they win the medal/prize for?
- When did they win?
- A brief summary of their research?
- Are they still alive?

Ingredients:

- Paper & pens
- Internet access

Dessert

5 mins

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Girlguiding South West England | STEMettes

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