



Aga Khan Education Board
for the United Kingdom | akeb@iiuk.org
Every Step, together

STEM Learning at Home

Sunday 26th April 2020

EARLY YEARS | PRIMARY | SECONDARY | TERTIARY | LIFE-LONG LEARNING

Housekeeping

- Please keep your microphone muted throughout the session to avoid disruption
- Please write questions for our speakers in the 'Chat' area to be addressed at the end of the session



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Farzana Meru

AKEB Board Member



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Jenna Magan

- Born and raised in Toronto
- Studied Early Childhood Education at Ryerson University in Toronto
- Moved to London in August 2009
- Teaches the Early Years (mainly Reception) for the past 10 years
- Mom of 2 boys (Ezra – 4 years, Noah 4 months)



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Tasleem Kanji

- 17 years teaching experience in different Primary settings
- Teaching across Primary age range (5-11 years)
- Specialist in SEND and Inclusion



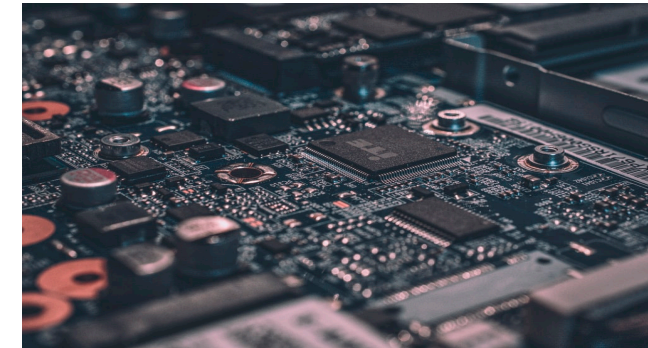
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So...What is this thing called S.T.E.M?

- STEM – Science, Technology, Engineering and Maths
Not just studying each subject separately but introducing knowledge through real world application and example



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And...Why is STEM learning so important?

- STEM develops vital skills
- STEM subjects drive change...Leaders of the future
- High demand for a workforce trained in STEM subjects
- Employers in non-STEM industries highly value STEM graduates
- Shortage of females and minority ethnic groups in these areas

But don't worry STEM at primary is fun!



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Different Areas of STEM - Explained

- **Science** is a way of thinking. Science is observing and experimenting, making predictions, sharing discoveries, asking questions, and wondering how things work.
- **Technology** is a way of doing. Technology is using tools, being inventive, identifying problems, and making things work.
- **Engineering** is a way of doing. Engineering is solving problems, using a variety of materials, designing and creating, and building things that work.
- **Math** is a way of measuring. Math is sequencing (1, 2, 3, 4...), patterning (1, 2, 1, 2, 1, 2...), and exploring shapes (triangle, square, circle), volume (holds more or less), and size (bigger, less than).

*Source: <https://www.bostonchildrensmuseum.org/sites/default/files/pdfs/STEMGuide.pdf>



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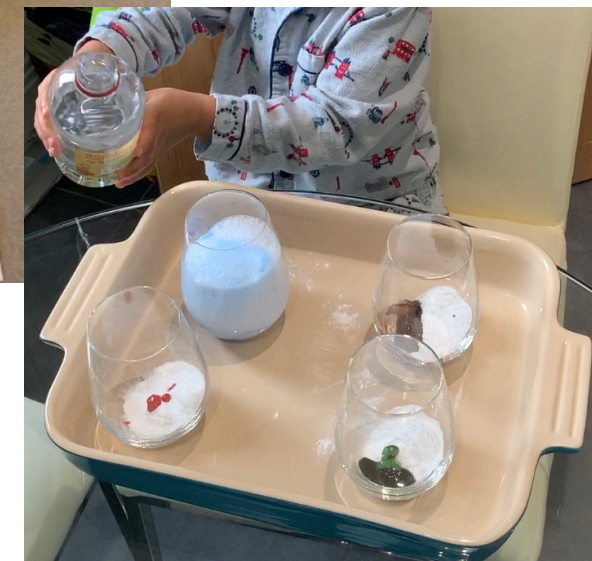
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What STEM looks like in the Early Years

Science

- Earth and Space Science – learning about the earth, oceans and space. Learn about the different plants in outer space.
- Life Science – studying living things. Read the story, “The Very Hungry Caterpillar” and discuss the life cycle of a butterfly.
- Physical Science – observing natural forces and substances. Mix baking soda, food colouring and vinegar to make a volcano.



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What STEM looks like in the Early Years

Technology

- Using tools to develop fine and gross motor skills such as scissors. Draw straight and curved lines on paper and practice cutting along them
- Fill a bucket with water and use different sized jugs to empty and fill
- Use a spade to shovel a variety of wet and dry materials such as soil
- Use a magnifying glass to observe objects in nature such as leaves and bugs



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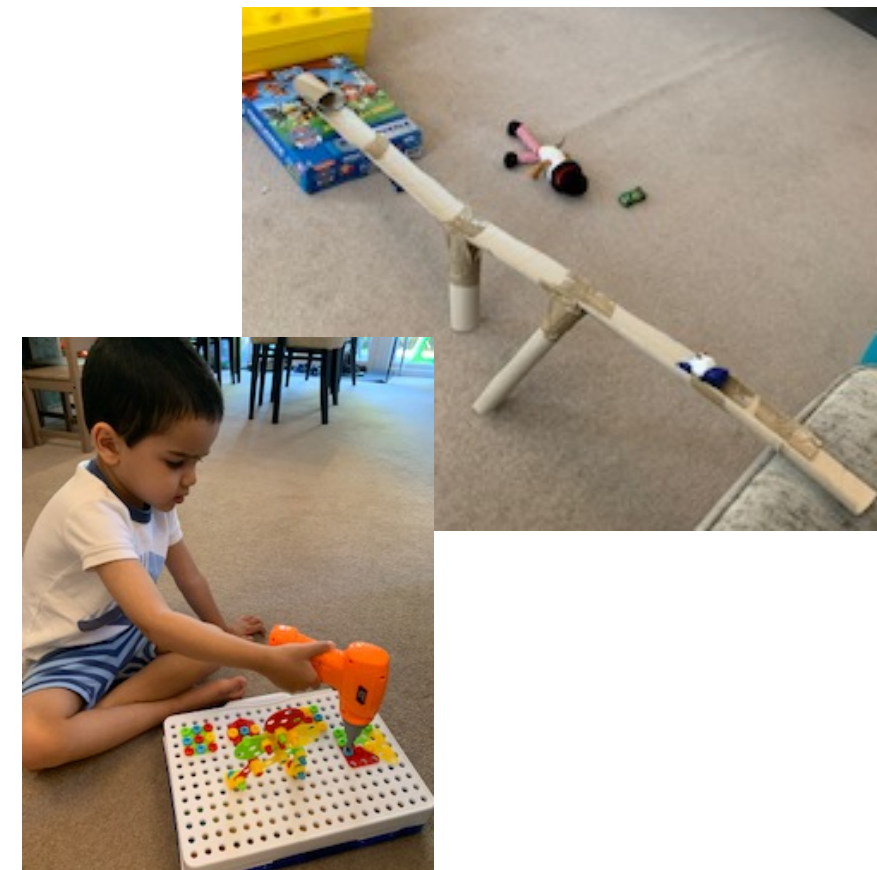
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What STEM looks like in the Early Years

Engineering

- Build a city out of blocks and design the tunnel so different sized cars can fit
- Build a sand castle and work out how much water is needed to make it sturdy
- Use a variety of recyclable materials at home to build and construct



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What STEM looks like in the Early Years

Mathematics

- Sorting objects in different categories such as size, colour or shape
- Make number or colour patterns
- Measure objects using different units of measures such as cubes
- Have your child set the table and work out how many items you need based on the size of your family



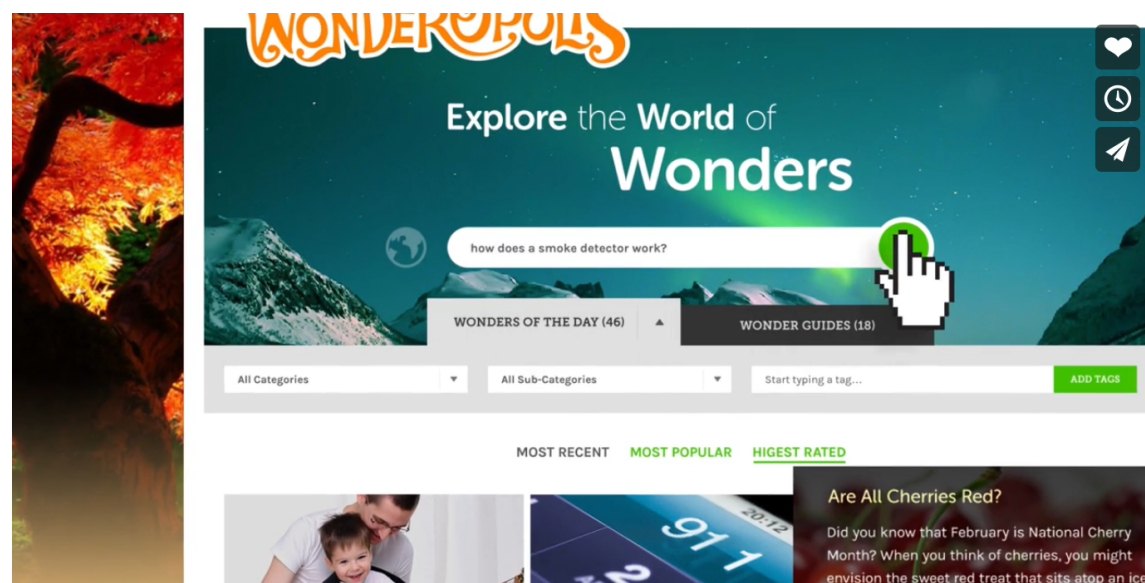
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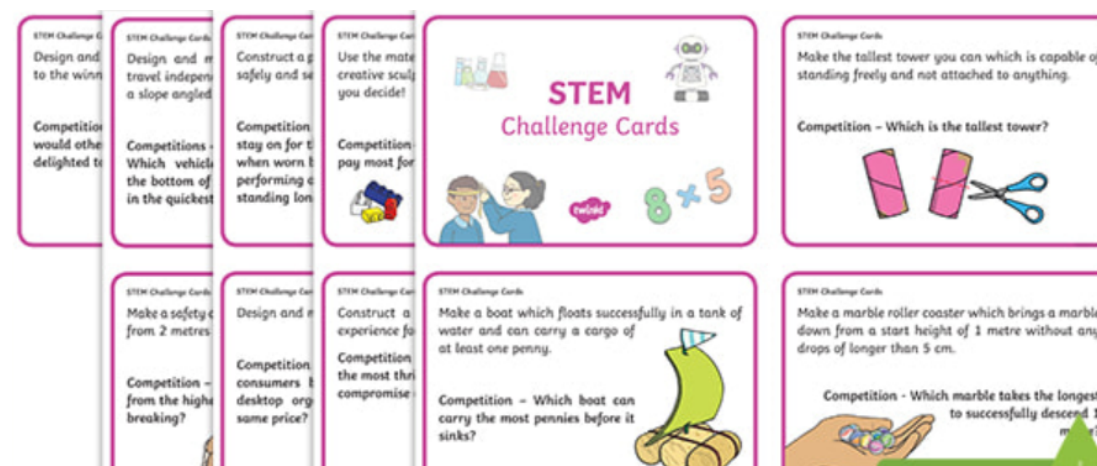
Primary Resources to support you at home

Wonderopolis.org



Twinkl.co.uk:

Currently available for free



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STEM.org.uk

- Fun Challenge Cards
- Short video's of easy experiments
- Coding /Computing Tutorials



Star Wars: Building a Galaxy with Code
Grades 2+ | Blocks, JavaScript



Code with Anna and Elsa
Grades 2+ | Blocks



Write your first computer program
Grades 2+ | Blocks

Littlebinsforlittlehands.com

How does our body work?

Go outside and use chalk to draw around someone's body.

Can you think of any special adaptations that would help someone live inside a house like this?

www.stem.org.uk/rx34

Spooky sounds

Sit quietly for 60 seconds.

Fun with flight

Design and make a paper aeroplane that will travel the furthest.

Does changing your design make it go further?

www.stem.org.uk/rxfiy7

Who would live in a house like this?

Design a creature that would live in the boot of your car, or the bottom of your bag.

What special adaptations/characteristics would it have?

www.stem.org.uk/rxq7nj

STEM CHALLENGES

STEM JOURNAL

STEM JOURNAL

STEM JOURNAL

FREE Science Process Pack!

CLICK HERE TO GRAB THE PACK

FREE Quick STEM Activities Guide



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Engineering Toys

<https://www.chainsawjournal.com/best-engineering-toys-for-kids/>



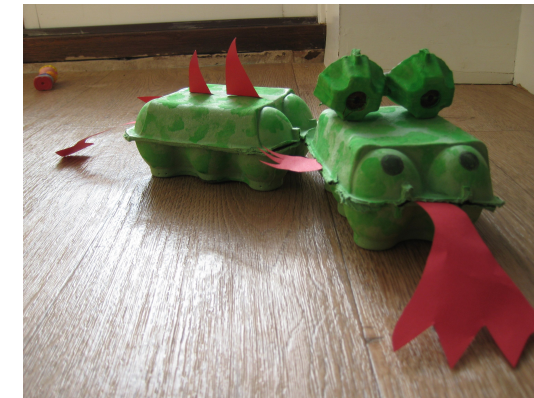
Lego



K'nex



Meccano



Junk Modelling



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QUESTIONS

- **I don't have science equipment at home — what do I do? What practical activities can we do with things that are easily available at home?**
- Can you recommend TV programs, online streaming services or online resources and Apps that will help with STEM Learning?
- How can we support our children's interests and build their confidence?
- Can you suggest what equipment and activities can be used to help with learning about the human body? What home resourced experiments can be done that relate to biology and medicine?
- Are there any activities available for gifted students?
- Suggestions for equipment/activities to help with learning the periodic table



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Additional activities to encourage STEM in the Early Years

- Look at shadows outside throughout the day and see how they move around based on the location of the sun. Trace objects near a door based on their shadow
- Put skittles around a plate and pour warm water in the middle and see the rainbow form



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- Make shapes out of cotton buds / toothpicks / match sticks
- Do simple number matching or addition problems using spaghetti or cheerios



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- **DFE** – <https://www.gov.uk/government/publications/coronavirus-covid-19-online-education-resources/coronavirus-covid-19-list-of-online-education-resources-for-home-education>
- **Science with Konnie Huq** - 10am Mondays, Wednesdays Fridays <https://www.youtube.com/channel/UCDISobQTc4lifJEu6Lt22eA>
- **Brian Cox** - Science based Q & A on The Cosmic Shambles https://www.youtube.com/channel/UC6JQx_K7LKktuQXruCwgbFg
- **STEM.org** <https://www.stem.org.uk/enrichment/stem-directory/activity/family-connect-home-learning-resource>
- **Remote Learning Camp (paid for)** <https://www.stem.org.uk/enrichment/stem-directory/activity/remote-learning-courses-kids-aged-9-17>
- **E Bug** - <https://e-bug.eu/> Fun games and teaching resources about microbes and antibiotics
- **National Geographic** - <https://www.natgeokids.com/uk/teacher-category/primary-resources/>

Curriculum Mapped Video Resources

- **BBC Teach live lessons** - <https://www.bbc.co.uk/teach/live-lessons/primary-live-lessons/zmc9jhv>
- **Dyson Engineering Foundation** - Ideas to watch and then create! Have fun! <https://m.youtube.com/watch?v=2x-ixR7E3xA>
- **3D Interactive Models** – Visiblebody.com (Highly detailed 3d Imaging)

Handpicked Apps

- **Games and Learning** - <https://gamesandlearning.co/>



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AKEB Resources - HeadStart

<https://headstart.iiuk.org/learning-at-home-english/>

<https://headstart.iiuk.org/materials/STEM-Home-Learning-Resources-and-Activities.pdf>



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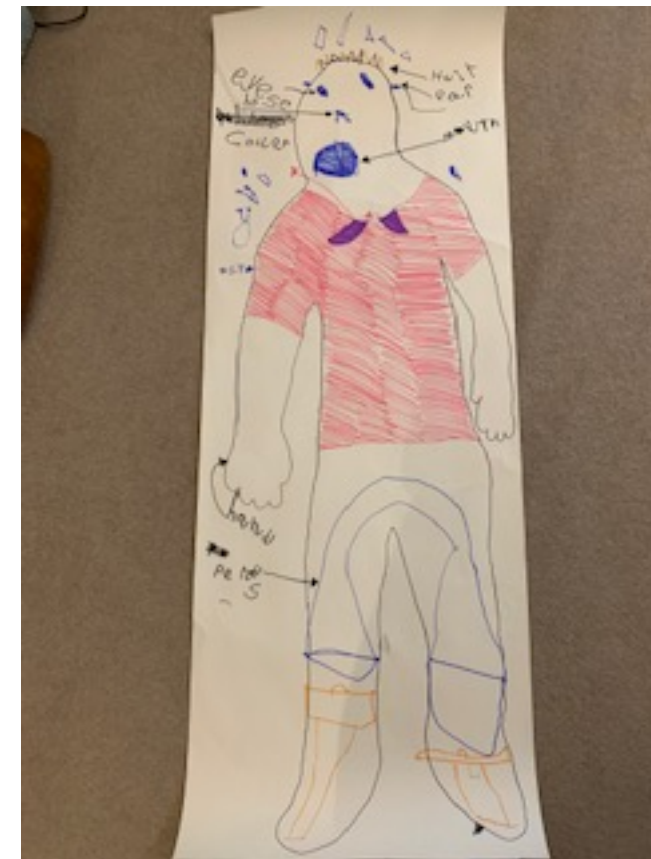
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How to teach the human body in the Early Years

- Sing head, shoulders, knees and toes
- Trace your child's body and talk about the different parts. Talk about what each part is used for.



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Human Body - Primary

- **Games**

Snap with body part names (extend to functions)

Bingo

Pelmonism (a matching game)

Kim's Game (images/ models)

- **Mnemonics**

eg 'MRS GREN' is an mneumonic for learning the common attributes for all living things: Movement, Respiration, Sensitivity, Growth, Reproduction, Excretion, Nutrition

- **Practical Resources**

Inside the human Body- Interactive Simulation:

<https://www.stem.org.uk/resources/elibrary/resource/35233/human-body>

- BBC Bitesize – videos to watch, quizzes and related games to play



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Biology / Medicine - Primary

Other experiments that can be completed at home:

- Egg shell
- Celery



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AKEB STEM programmes



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Feedback Poll



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Phonetics and the importance of Reading

- **Sunday 3rd May, 2-3pm – Early Years and KS1**
- **Zahra Boyd**, an experienced practitioner in Early Years and Key Stage 1, will explain how to teach phonics from birth to the end of Year 2 ensuring that children have the tools and skills to be the best readers
- https://us02web.zoom.us/meeting/register/tZEtf-CsrD4iHdZ_ZPWmbrO3OXOxX6udqB1m



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Thank you for participating

To give more feedback or for any further questions, please email:
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