Open Day 2020

STEM Challenge: Stick and Peg Challenge

Term 2 Science and Technology STEM Unit

Year 4

NSW GOVERNMENT Education

Melrose Park Public School

Learning and Growing together

Welcome to 4L Open Day

With the COVID situation, this year our Melrose Park Public School Open Day is virtual.

We welcome you into our classrooms to view a showcase of our 'Level 1' STEM (Science, Technology, Engineering and Mathematics) Projects. We were looking forward to completing these tasks with parents, carers and our community, focusing on exploration and collaboration skills - perhaps you can complete some of these tasks at home with your child, and see where the learning takes you?

The second section of these Slides shows our STEM Term 2 unit, learning about forces.

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Part 1: S2 STEM Challenge (Craft Sticks/Wooden Pegs)

Our Challenge

Can you work with your team to build the following?

Our **Materials**

40 sticks and 40 pegs

Challenges

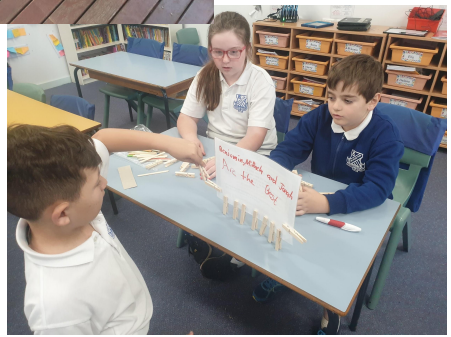
Challenge #1: Construct a stable display stand to hold an A4 card.

Challenge #2: Build a structure that can support the most possible weight.

Challenge #3: Build the tallest structure.

S2 STEM Challenge with Craft Sticks and Wooden Pegs

Challenge #1: Construct a stable display stand to hold an A4 card.



S2 STEM Challenge with Craft Sticks and Wooden Pegs

Challenge #1: Construct a stable display stand to hold an A4 card - the process...

Please also click on the link below:

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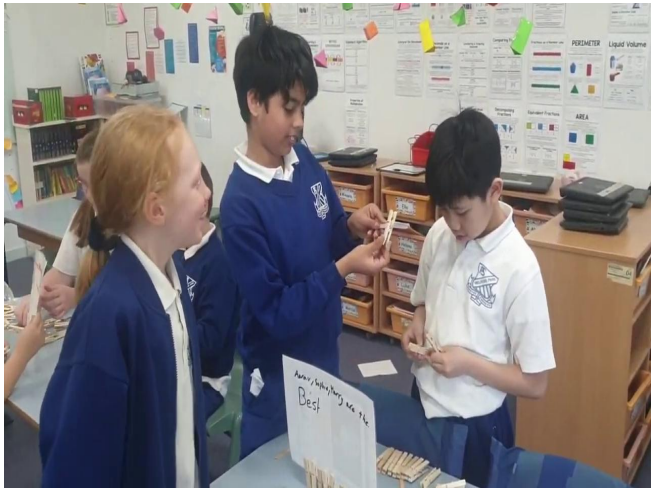
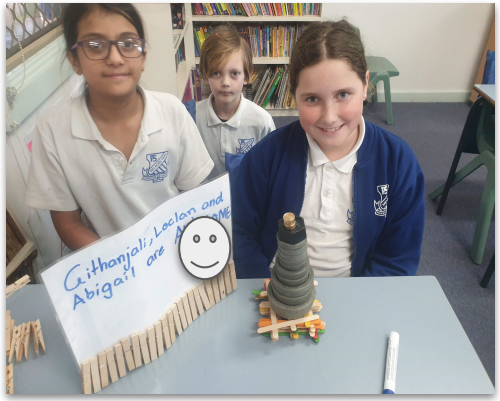


S2 STEM Challenge with Craft Sticks and Wooden Pegs

Challenge #2: Build a structure that can support the most possible weight.



S2 STEM Challenge with Craft Sticks and Wooden Pegs

Challenge #3: Build the tallest structure.

S2 STEM Challenge with Craft Sticks and Wooden Pegs

What we learnt from the challenges?

- Sometimes designs with fewer pieces work better than a more complicated design.
- We worked collaboratively within and outside friendship groups, with all the class contributing ideas and minimal ‘free-loading’.
- We applied our science and maths knowledge.

Part 2: Science and Technology/STEM Unit (Forces)

Our Challenge:

To build a ‘car’

Our Materials:

Paper Cups, Plastic Sheets, Cardboard, Tape, Paper Plates, Lego wheels, axles and bases (for Challenge #2 only)

Challenge #1

The car needs to travel at least 1.5 m from the base of a ramp.

Challenge #2

The car needs to travel at least 3m when powered by wind (a fan).

Part 2: Science and Technology/STEM Unit (Forces)

Challenge #1: Ramp-powered ‘cars’ design and building

We learnt skills in manipulating materials and weighing up the pros and cons of making the car out of different materials.

Please click on the link below:

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Part 2: Science and Technology/STEM Unit (Forces)

Challenge #1: More ramp-powered ‘cars’

We learnt what an axle was, allowing the wheels to rotate without the car body. We also learnt that cars did not need to ‘look’ like a ‘car’ to travel the distance (having passengers was not in the criteria)...

Part 2: Science and Technology/STEM Unit (Forces)

Challenge #1: More ramp-powered ‘cars’ - We learnt the value of circular wheels, balance and minimising friction between the car wheels and the ramp...

Part 2: Science and Technology/STEM Unit (Forces)

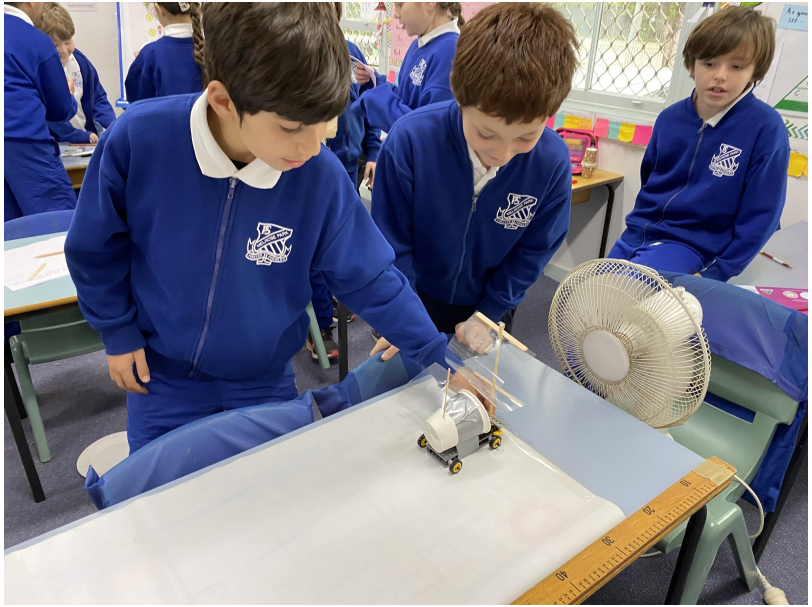
Challenge #1: Wind-powered ‘cars’ -

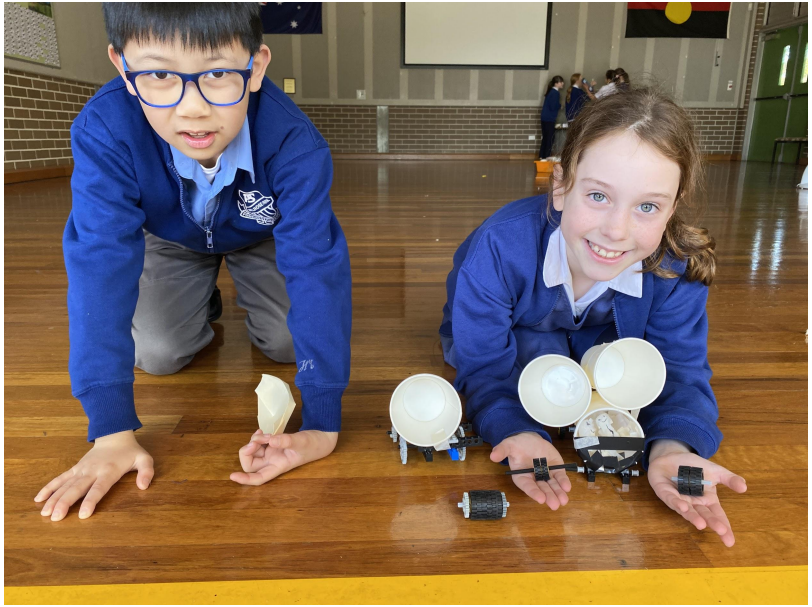
Part 2: Science and Technology/STEM Unit (Forces)

Challenge #1: More wind-powered ‘cars’

Part 2: Science and Technology/STEM Unit (Forces)

Challenge #1: More wind-powered ‘cars’





Part 2: Science and Technology/STEM Unit (Forces)

Challenge #1: More wind-powered ‘cars’

Part 2: Science and Technology/STEM Unit (Forces)

Challenge #1: Wind Powered Cars

Our learning: We learnt to work cooperatively in groups, encouraging and listening to everyone's ideas. We also learnt about surface area and the mass of different designs.

Part 2: Science and Technology/STEM Unit (Forces)

Challenge #1: More Wind-Powered ‘Cars’

Our learning: Another important learning outcome was the design process of trialling, reflecting and redesigning...and doing that all over again!

Please click on the link below:

https://drive.google.com/file/d/1siJI9nJMVURHDXqGpANf-mXnaMy150lQ/view?usp=sharing