



Science at Wellsprings 2020-21



There have been many challenges this academic year due to Covid. With remote learning and hygiene routines around sharing equipment, there has been particular challenges regarding the practical side of the Science curriculum which is so important as it often the most engaging, memorable part of Science lessons for pupils.

To combat this, and enthuse our children, we held STEM week which was a fun, engaging week celebrated across the school focussing on careers involving STEM in the hope it would inspire our pupils and help them relate the skills they learn to everyday life.

The week included many things including:

- Visitors from STEM careers in the local community such as a paramedic
- Videos from parents/carers and others showing them doing their STEM job
- Practical Science investigations and demonstrations
- STEM challenges to have a go at at home with a winner from each class receiving a K'Nex set
- Assemblies – one with a practical challenge for all
- Design and Technology projects, daily paper engineering challenges and daily maths challenges - accessible to all
- An off-timetable week that gave staff the opportunity to make curriculum links, follow the interests of the children by going on tangents when needed. This resulted in a focus on practical and verbal skills as opposed to individually written work - particularly regarding the working scientifically objectives from the curriculum which enabled increased engagement by all.

Having this week at the end of the school year also gave teachers the perfect opportunity for assessment against the working scientifically objectives, looking at whether individual pupils were below, at or above age-related expectations. I also checked what areas of the science curriculum were impacted due to Lockdown, what I support I could offer as subject leader and also what they felt was beneficial about STEM week and what they would take from it and use in September: Below are some quotes from the staff:

'The children were really enthused. Almost secretly got them thinking scientifically.'

'A longer term or whole day science investigations would work nicely, as well as ensuring cross-curricular.'

'Time off-timetable to dedicate to discussion, experimentation and wasn't necessarily recorded as a written response by children so many more involved in discussions and shared ideas.'

'Tell me more about the use of the floor books.'

'Proper time to dedicate to STEM topics and have a full run at them. In September I may consider doing science investigations/ DT booklets over the course of 1 week (in the afternoons) as it kept up the momentum.'

When teachers discussed where their children were based on end of key phase, working scientifically objectives, we felt that it was difficult to make a judgement as to whether they were working below age related expectations. The reasons given by staff included:

- missed language building and hands-on experiences due to covid. We find that regular and frequent integration of vocabulary throughout the year is important (particularly verbally, through class discussions).
- Children with SEND struggling with the written side or communicating their ideas verbally.

What we are going to do about it

- Introduce a class 'floor book' to encourage all children to participate and share their ideas with the emphasis being on class discussion and modelling of language.
- Encourage and enthuse the children through regular STEM activities and pilot 'STEM Ambassadors' in Key Stage 2 where children take a leadership role in their class, setting challenges and recording findings.
- Use questioning and starters that every child can participate in.
- Ensure resources are organised clearly and all staff aware of what is available particularly for topics not covered practically due to covid such as Electricity.
- Regular staff meeting time to check-in on implementation and coverage of the curriculum, sharing successes and good practice and offering support where needed. Work scrutiny in Spring term.

STEM week questionnaire

I asked each class teacher to ask their class questions about their experience of STEM week to gauge what was enjoyed, learnt and how we could develop scientific skills in the future based on the opinions of the pupils.

2) I enjoyed STEM week:

☐ No ☐ A little bit ☒ Yes! 100%

3) What did you enjoy most about STEM week and why?

"The experiments" - Ariana
 "When the bottle exploded" - Thomas
 "When we did the skittle experiment" - Charlie O.
 "EVERYTHING!" - Charlie A.
 "I had fun cleaning the pens" - Thomas
 "I enjoyed the playing" - Charlie A.

4) Would you like to do more STEM activities in the future?

☐ Not really ☐ It would be ok ☒ Definitely 100%

3) What did you enjoy most about STEM week and why?

When we got a new tooth brush.
 Dressing up
 brushing babies teeth
 listening to our heart beats with a stethoscope
 when you (Mrs Tiffany) pretended to be a dentist

3) What did you enjoy most about STEM week and why?

The paper challenges - more hands-on, using creativity and experimenting (using Science Skills)
 Making, trying things out and working together, amending designs.

4) What skills did you use during the week?

Engineering, lots of predicting what would happen, creativity, thinking 'out of the box', evaluating.

1) What do you think STEM is?

Science Technology Engineering Maths
 "If you put them all together and have fun, you get STEM week."

7) Would you like to do more STEM activities in the future?

☐ Not really ☐ It would be ok ☒ Definitely 25% everyone!

8) Any other comments?

More activities/learning about real-life things
 It was challenging and I wanted to succeed.
 Thinking more 'out of the box' was fun.

3) What did you enjoy most about STEM week and why?

Designing - drawing
 Making ambulances - saving etc
 Maths morning challenges
 Ambulances - finished results
 Visit from paramedic
 Making electrical circuits (lights for our ambulances)

4) What skills did you use during the week?

What to do with wounds (paramedic)
 Saving
 Using maths
 Problem-solving
 Electricity
 Cutting and folding, gluing (nets)
 Drawing, designing, colouring

5) What were you proud of achieving last week?

Ambulance designs
 Teamwork
 Learning about paramedics
 Final ambulances
 Making my ambulance move

6) What did you discover about STEM jobs? Was there anything that you found out during the week that surprised you?

Being a paramedic sounded very interesting
 Scientists find out new things every day
 Scientists are working to stop the Coronavirus
 There are so many different STEM jobs
 Inspired to become a scientist
 Inspired to become a paramedic

Photos of STEM week fun


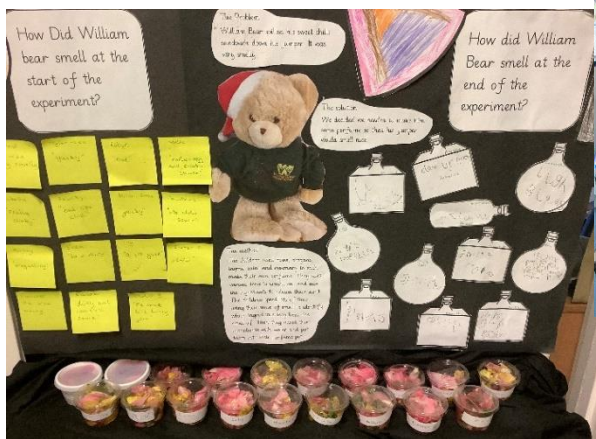
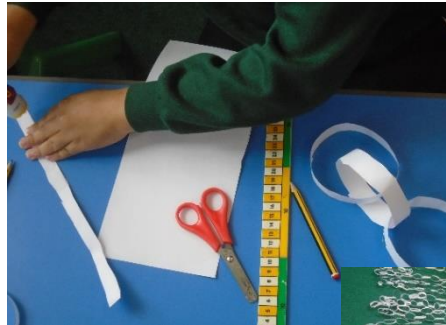
Challenge! Make the longest paper chain!

You have:

- ★ 1 sheet of A4 paper
- ★ glue
- ★ scissors
- ★ ruler
- ★ tape measure

You must measure it!

Can you build the longest paper chain?

Challenge: Make the tallest earthquake proof structure!


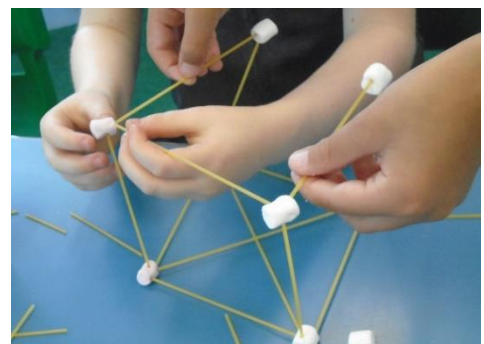
You have:

- ★ spaghetti
- ★ mini marshmallows

You must measure it!

1) Does it stand up?

2) Does it stand on a wobbly earthquake? JELLY platform!

Badgers 58metres / 5800cm
Kingfishers 47metres / 4700cm
Hedgehogs 38metres / 3800cm

writing play

Action Plan for 2021-22

- Review and update the Science policy.
- Look at possible implementation of 'STEM Ambassadors' in KS2 – an opportunity for older pupils to become Science Ambassador for their class (promoting leadership) and introduce challenges and take part in investigations.
- Introduce a Science 'floor book' for each class – one investigation per half term to be competed as a class and recorded in book in any way the teacher would like (In FS and KS1 primarily through photos and scribed quotes and in KS2 encourage children to volunteer and take ownership of presenting their collaborative learning). This should focus on encouraging responses from the children practically and verbally looking at the core working scientifically skills.
- Purchase Data Loggers using grant from a successful application through Hinkley Point. Provide training to staff if needed to introduce how they can be used.
- Collate clear examples of Science skills across the year groups in order to show how they progress through the school and highlight the expectations at each key phase.
- Complete a work scrutiny in the Spring Term to look at coverage, collect high-quality examples of work and review how the floor books are working then provide support as needed.
- Peer support project with a 'Questioning in Science' focus.