

Rolls-Royce Science Prize Finalists 2017-18

Boston West Academy

March Diary

Our project is about 'Establishing Firm Scientific Foundations in Foundation Stage'. An explicit focus on Science will not only improve children's engagement with the subject and promote an enthusiasm for it, but will be the tool to impact on Communication and Language too. Children and parents will work together to see how Science is relevant in their everyday lives, promoting an enthusiasm for the subject both at home and at school, ultimately setting them off on a scientific journey that lasts beyond their first years at school.

Amanda Pickwell

This month has been a really busy one in terms of the project! We held a very successful parent afternoon where two thirds of our Foundation Stage parents attended with their children to carry out investigations as scientists together. For those children whose parents could not attend, they carried out some investigations in the classroom, with everyone taking home the pack of resources to encourage further Science learning at home. The pack included information about our project, the 40-60 and ELG statements that relate to Science to give parents an understanding of what we are aiming for, and practical resources to get started such as a pack of skittles, a straw, and a magnifier. We also included step-by-step instructions for eleven activities that could be carried out at home with the associated vocabulary to use and how that links to jobs in the wider world. From the feedback forms returned 100% of parents either agreed or strongly agreed that 'the afternoon inspired me to try some Science at home' 'the afternoon has helped me to understand what Science in Foundation Stage looks like' and 'I would like to attend another Science event in the future'. Based on the packs given, 89% of parents agreed or strongly agreed that 'I now understand more about how to help my child with Science' and 'I would like more information about where to find ideas for Science activities to do with my child'. Some parents have asked for specific ideas e.g. how they can make a glitter snow globe and one parent replied to our twitter post '*An absolutely amazing event dripping in rich scientific enquiry opportunities, technical vocabulary, problem solving and ideas to generate 'everyday science' at home! Great to see the children applying their skills and thinking like real scientists! Thank you.*

In school, we use an online Learning Journey which allows parents to also upload evidence of learning from home. Since September, parents have uploaded activities set as homework when requested but there had been no 'scientific' learning uploaded spontaneously. Since the Science parent afternoon and sending the packs home, 21 science investigations have been uploaded! On reflection, we now have plans to keep sending more home every very few weeks to keep the momentum going and to include more outdoor activities based on the natural environment.

Just this week we also held an afternoon where we invited over one of our main feeder settings- Roseberry Avenue Pre-School. The pre-schoolers worked in triads, each with a Foundation and Year 6 Scientist, modelling and developing their use of language for each activity. The impact of this will be included in the next diary.

Looking at the impact of the project so far and to help us agree any further developments/ changes to what we had already planned I decided to look at the data. We use a whole school data tracking system called Target Tracker, which is where the following figures have been taken. Looking at progress since September the two areas of learning with the highest at 6 steps+ progress is Communication and Language with 53% of children, and Understanding the World with 72%. This illustrates the link between the two the project has focused on.

In September at baseline 38% of children were on track or above in their learning in Communication and Language whereas at Spring 1 90% of children were on track or above. In Understanding the World at baseline in September 24% of children were on track or above, at Spring one this had risen to 93%. This shows a clear impact so far and has inspired us to re-evaluate what else we could do to now keep the momentum going. Making Science explicit outdoors is one area that we are going to develop next with a STEM shed in the Foundation Stage area- more news on this next time!



Becky Storey

Following-up from the Super Science afternoon and the impact of the project to date, I have this month spent time looking at the effect of the project on one child (before extending this to look more closely at the other 12 sample children from the cohort for next months diary.)

O has always be fascinated by the world around him and how things work, but since this project began, his interest has increased even further. To begin with, I noticed that O actually started to use the words 'Science' and 'experiment' – he soon understood the concept that the activities he was doing at school were all about 'finding out'. He now comes home from school, each time a new Science activity is introduced and is keen to re-create it. When doing this, I have noticed how O's patience has grown and that he now observes things more closely, and his vocabulary has developed, as he has explored new things. He now has a clearer understanding of the language associated with certain scientific activities and concepts. For example, there was a focus on 'Ice', which led to developments in O's language and conceptual understanding. He now uses words like freeze, melt, change, hard, solid, watery and liquid accurately, to describe different states, and clearly associates temperature with this. He knows that hot things make ice melt and that it has to be freezing for water to turn to ice. He has used his early investigations of ice at school to explore ice in numerous ways at home, many of the activities coming from ideas he wanted to explore (creating coloured ice cubes, making numerous ice windows and recently, melting snow). O now frequently asks if he can do a science experiment at home! He says science is exciting, and his enthusiasm for the subject has definitely grown!

As time has progressed, O had developed a greater sense of exploration. Not only does he like to recreate what he has done at school, but he likes to vary and extend it too. He says things like, "What if we do.....", "Can we try....." His curiosity is developing and he has become confident to know he can vary an idea that was originally given. He uses phrases that he has heard his teachers use, and now clearly knows very well!

At the dinner table one evening, O 're-played' events from a Science activity. When he'd described the experiment/different scenarios he said, "What do you think will happen?" just like a teacher would have done to him! He really grasps the idea of thinking about possible outcomes (predicting). O is asking a lot more "What if," questions, and really wants to explore his own ideas (his interest being sparked off by carrying out activities at school, which he then wants to adapt at home).

When I asked O what was so good about Science, he said, "It's exciting and you get to learn how things work, and the best thing, is that there's no right answer and no wrong answer." I think this it testaments to the project and how it has made him feel that he can explore his ideas, without fear of getting anything wrong! This Science project has empowered him to explore scientific ideas, with confidence!

There have been some very positive responses from parents, following the Science afternoon. Several parents that I know have gone home and used their packs to explore the Science activities with their children, and found them very manageable and fun. They have clearly been very impressed with some of the outcomes and learnt things for themselves! I had the privilege one evening of being part of a group chat, where parents were discussing the Lava Lamp

activity. It was as if the parents had become mini scientists themselves, and were discussing what they had used as alternatives to the salt tablets and how well these had worked! Even the adults are investigating!

Jade Brockington

This term we have incorporated a lot of our learning through a cross curricular approach with Science being the main starting point and focus, as we then develop the learning into other curricular areas. We have been building bridges for the Billy Goats Gruff and rafts for the Gingerbread Man. These team projects were highly beneficial for the children in my class due to many of them struggling to be able to work in a group. This allowed the opportunity to develop their listening and attention, speaking, making relationships and self-confidence, in addition to their creative and scientific skills. For many of our high ability children, they were challenged to think about the different materials they were using and how they would suit being on water. This linked to their homework from the previous week of exploring which objects floated and sank. They were able to apply this knowledge, selecting materials that would float and accurately express why they thought so! The children were very engaged and excited to test their creations, with all but one being able to carry a gingerbread man!



Engaging in this Science work allowed the children to 'immerse' themselves further into the stories we were learning, in order to then produce some great writing! The children enjoyed writing about their favourite part of the story – most choosing the gingerbread man when he tried to cross the river, which related to their scientific raft building!

To enhance our topic of 'Traditional Tales' further, we held an outdoor morning in the school grounds making food for Grandma in the mud kitchen, building a shelter in teams for the little pigs and learning about fire safety and changes that occur when toasting marshmallows in the fire pit.

We are already busy planning lots of exciting science activities for the children to engage with next term! With the weather being a lot drier and warmer, we feel with our topic of 'Minibeasts' we will be able to take full advantage of our school grounds. Already we have planned a week focusing on bees – taking the children to see our own school bees, trying on the beekeeper costumes, learning all about bee safety and seeing first hand where honey comes from! This is will provide the children with a first-hand experience of which many children do not get the opportunity. I feel it will be especially beneficial for the EAL children we have in Foundation stage, getting them excited about the topic, talking about what they can see, developing their scientific knowledge and providing a stimulus for writing!

Emma Schofield

What a busy time we have had here at Boston West. I was asked to think of some ideas to use at our Foundation Science afternoon with parents that could also be used at home. I went and looked in the grounds, just like a parent could do in their own garden and came up with the light catcher and spider window ideas. I created the parent pack worksheets and then set to making an example to share with the children and their parents. The afternoon was a great success and I was involved in the second one with the pre-schoolers. The key point we changed in our initial thinking was to involve the Year 6 children as experts too first in modelling and then supporting the young scientists with their language. So much can be gained from the collaboration of older and younger pupils in a school. The super Science vocabulary I overheard our Year 6 children using with the younger children really enriched their practical experiences and echoed the importance we place on Science development across our school.

Science is all around us at Boston West and well established in the classroom but the greater emphasis placed on it in Learning Beyond the classroom is key. This March, on one of the snowiest days in Lincolnshire, I held a Science Outdoor Learning Course in 'The Hive' and yes people came! It was a great opportunity to use the richness of the outdoor environment across all elements of Science and across all age ranges. The course was well received and made the attendees, including some of our own staff as well as from several Lincolnshire Primary Schools, really think a little differently about how making Science teaching outdoors across a range of topics explicit rather than by chance or in the traditional mini - beast hunt way! I look forward to seeing the impact in the coming months here at Boston West.

We have been busy reassessing the outdoor area in Foundation and I was excited to be part of the discussion about what to do to improve the area to encourage this explicit link with Science and the Outdoors. I am looking forward in helping the team set up our STEM shed and Science non-fiction areas for the children to enjoy and explore during next term.

Expenses Update

Total Awarded: £6000

Date	Purchases	Cost
Money spent to date		£1452,12
Packs for pre-school afternoon	Plastic wallets(x 28 @57p) Magnifying Glasses (x3 packs of 10 @£5.77) Skittles, paperclips, straws (£8.80)	£42.07
Year 1 Resources	Fossils Pack £17.49, Play Sand £32.97	£50.46
Consumables for parents afternoons	Skittles, oil, milk, plates, plastic cups, food colouring,	£51.74
Science Construction sets	Magnetic grippies (x4 sets to include builders/ curves/ links and stackers ets) Bamboo Building blocks	£266.70
Science outdoor resources	STEM Centre (£995) STEM centre compendium kit (£225) Corner library (£369) Corner cushion (£32.99) Camouflage net (335.96) Outdoor digital thermometer (£6.95) Rustic Mini Beast Tower (£42.99) Giant Tarp (15.99) Mini beast showerproof bunting (£24.99) Delivery £20	£1768
Total Expenses		£2,178.97
Total Expenses to date		£3,631.09
Remaining Money		£2,368.91