



A Science Round-Up with our new Scientist in Residence Linda

All the children have had an opportunity to work with Linda van Keimpema, our new Scientist in Residence (SIR). She has really added to our Science curriculum and learning with some fun and hands on experiments and the children are very excited about seeing her again next term!

Reception

Reception kicked off their SIR workshops with Linda with an overview about Science. The pupils learned about the different states of matter: gas, liquid and solid. They looked at short experiments and discussed how matter can go between the states, for instance by melting or freezing and that these processes are reversible. Processes which are reversible are normally the part of Science we call Physics. Next, they looked at irreversible processes, which is Chemistry, for instance a banana ripening or a match changing after it has burned. Then, they went outside to do their own experiments. They started discussing solids, liquids and gases by looking at water and oil and observing what happens when you shake it. They used food colouring and fizzing tablets to see what would happen to the liquids. They finished with a Chemistry experiment where they changed the colour of pennies by soaking them in vinegar with salt.



Year 1

Year 1 joined the SIR, Linda, for a Science class on fair testing. After discussing what Science is and what a Science test is, the pupils learned about fair testing through three experiments. In the first, the pupils were testing who could stand longest on one leg, though some could hold the table, while others had to move their upper body or clap. Discussing this is not a fair test, they repeated the test in a fairer way where only one condition was changed. In the next experiment, they considered if an effervescent tablet would dissolve quicker if they stirred the water. They discussed how to make this a fair test: having two cups with the same amount of water and dropping the tablet in at the same time. The only condition to change was stirring in one cup. For the third experiment they studied colours in felt tip pens. Using water and coffee filter paper, the students learned that some are made of multiple colours, especially brown and black giving colourful results. They discussed fair testing, including the size of the dots and the height above the water.



Year 2

Year 2 joined Linda, to learn about the states of matter: solids, liquids and gasses. The session started discussing the different types of Science – Biology, Physics and Chemistry – and what is the differences between them. They discussed Chemistry, where things change irreversibly like lightning a match or ripening of a banana. The pupils did Chemistry experiments: first changing the colour of a coin using salt and vinegar, then changing the colour of a nail using the same mixture. They discussed Physics, like the transitions between solid, liquids and gasses, for instance melting of an ice cube or the evaporation of tea. The pupils learned about the reversible nature of Physics by using a jar with water to flip the image of a drawing. They continued with experiments looking at properties of liquids. They discovered how oil and water behaved when mixed, and how food colouring mostly mixes with the water but not the oil. They finished with an experiment where dishwashing soap is used to push food colouring around in high fat to form pretty shapes.



Year 3

Year 3 Lear joined our SIR, to do experiments with rocks. After a short introduction about what rocks are, the pupils choose two rocks to do their experiments on. For the first set of experiments, the pupils used four of their senses – sight, touch, hearing and smell – to investigate the rocks and evaluate differences and similarities. Next, the pupils used tools - a magnifying glass, a magnet and water – to further investigate their two rocks. Pupils investigated the measurements of their two rocks, measuring the size, weight and volume, and the hardness of each rock by scratching it with the other rock, a pencil and scissors. Pupils shared with the whole class their evaluation of the rocks they investigated.



Year 4

Year 4 groups joined Linda for Science Lesson on animal classification. The children participated in a variety of activities where they had to classify organisms. They learned to work with different classification keys, and even made their own classification key. The lesson ended with the pupils making a classification chatterbox. The pupils decorated their chatterbox with organisms belonging to four self-chosen groups of organisms.



Year 5

Year 5 pupils joined Linda to learn about the planets in our solar system. After discussing the stars and galaxies in our universe, they focused on learning about the 8 planets in our solar system. While Linda was discussing various facts about each planet, the pupils filled in a worksheet to note down if each planet was hot or cold, how many moons they have, the colour of the planet and other facts. With this fact sheet the pupils produced their own card set with the 8 planets. First, they made the four terrestrial planets, and then the four giant planets. Each card had the name and order of the planet, one or multiple facts about the planet, and a drawing of how the planet looks. The pupils brought their cards with them to play a card game to learn all their chosen facts on the planets.



Year 6

Year 6 joined our SIR, to learn about evolution. After discussing what characteristics would make someone human, they dived into the human evolution. They started with the split from the common ancestor with the chimpanzee. To learn about key points in human evolution – like walking on two feet, developing tools and controlling fire – the pupils worked on a timeline starting seven million years ago. They cut and pasted main events into places on the timeline. The pupils also had to match human ancestors (specific hominin and homo species) onto the timeline. After discussing where the human evolution fits into the larger timeline of evolution of all species, they discussed the influence of humans on animal evolution. For this, the students answered questions related to 5

influences on biodiversity – habitat loss, invasive species, overexploitation, climate change and pollution – including what can be done to revert this.



SEND

Some children from across the school were chosen to work with Linda and to explore pull and push forces. The pupils discovered the differences in force by pushing light and heavy things and pulling one or multiple rubber bands. Linda showed the children some experiments where an electrostatic balloon could push a straw or pull a soap bubble, the pupils got their own balloon to give these experiments a try, and to pull kitchen foil and soap. The pupils also discovered they could hang the balloons from the walls or tables!

Ambitious Scientists

Selected pupils from Years 1, 2 and 3 joined our Scientist in Residence to learn about push and pull forces including electrostatic and magnetic forces. Linda started demonstrating experiments using an electrostatic balloon, and interactions with soap bubbles and a straw to show push and pull electrostatic forces. After this the pupils were handed a balloon to do their own experiments with sugar and kitchen foil. Next, the pupils discovered magnetic forces as they used magnets to find out which materials are attracted by magnets, and to develop their own hypothesis and outcomes of experiments and observations.

Selected pupils from Years 4, 5 and 6 joined our Scientist in Residence Linda to learn about the brain and our senses. The pupils learned about the functions of the brain, how our senses work together with our brain, and discussed the evolution of the brain and how the brain is different in specific animals. To test this, the pupils did experiments studying their reaction speed. The first experiment, using sight, tested pupils' speed of reaction speed to seeing something being dropped. For the second experiment, pupils closed their eyes and had to respond to a sound. The pupils discussed the outcomes and how other experiments to measure reaction speed and senses could be designed.

World Sickle Cell Day

Year 5 joined our Scientist in Residence, Linda, for a special session to celebrate World Sickle Cell Day, which is every year on 19th June. First, the pupils learned about the different cells in the blood: the function of red blood cells, white blood cells and platelets, what they look like and which disease they are linked to. Next, they learned about Sickle Cell Disease through a quiz, which sparked a lot of great questions. They watched the story of Louisa, who is a friend of Linda's and living with Sickle Cell Disease. After watching the video the pupils created messages and art to send to Louisa. Linda is part of the Invisible Warrior SCD project, which is a Sickle Cell Awareness project at Imperial College London.



Heart Dissection

The Year 6 classes joined our Scientist in Residence, Linda, for a special Science workshop on the heart. The class started with discussing the heart and the circulatory system, going over its functions and anatomy. They focused on the anatomy of the heart, including the four chambers, heart valves and heart chords, and discussing the size of the muscles. This led to the heart dissection part. First, Linda showed an ox heart, indicating on the outside which parts are the muscles and blood vessels, and how to see the fat on the heart. Then, Linda opened the ox heart and showed the four chambers of the heart, the valves and the heart chords. By looking at the muscles, they could see the left and the right side of the heart. Next, the pupils went over the same steps with a lamb's heart, which they studied and dissected in groups.



Pupil Voice

"I love Science, it is sooo much fun. I want to be a scientist when I am older!"
"It is so cool that we have our very own Scientist in Residence to do amazing experiments with!"
"I wish I could do Science experiments everyday. The messier Science experiments are my favourite!"
"Science really is all around me and I just want to keep learning all about it."

Kind regards, Miss Kelly & Mrs Hayes – Science co-ordinators

