

<p>Sc4/1.3 making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <p>Sc4/1.4 gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>Sc4/1.5 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>Sc4/1.6 reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>Sc4/1.7 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>Sc4/1.8 identifying differences, similarities or</p>	<p>scientific enquiry they might use to answer questions</p> <p>Set up simple practical enquiries, comparative and fair tests</p> <p>Recognise when a simple fair test is necessary and help to decide how to set it up</p> <p>Talk about criteria for grouping, sorting and classifying; and use simple keys</p> <p>Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations</p> <p>Make systematic and careful observations</p> <p>Help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used</p> <p>Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them</p> <p>Take accurate measurements using standard units</p> <p>Learn how to use a range of (new) equipment, such as</p>	<p>animals have skeletons and muscles for support, protection and movement.</p> <p>Get introduced to clients in need of advice on diet, health and exercise and take on the task of becoming a personal trainer. Tabulate, draw graphs and analyse data from a survey of their client's diet and use it to answer questions. Continue on the quest as personal trainers by becoming experts on nutrition. Use knowledge of food groups and a balanced diet to design healthy meals by creating lifelike models of food on paper plates. This session you will become an expert on bones, joints and skeletons, acquiring scientific vocabulary and understanding whilst playing games and building your very own dancing skeleton string puppet. Learn how muscles work in pairs and investigate the question 'Do people have stronger muscles because they use them more?' Make predictions, gather data, discuss, display and interpret findings.</p>	<p>have lived are trapped within rock</p> <p>Sc3/3.1c recognise that soils are made from rocks and organic matter.</p> <p>Begin your quest to become rock and fossil experts and start to build up exhibits for your Amazing Rock and Fossil Museum by observing, grouping, drawing, describing and naming rock samples. Discover how different rocks were made by Planet Earth. Design your own fair test for rocks to check their hardness and permeability. Use a rock identification key to learn which type of rock our samples are. Help Dr Sarah Stone from the British Rock Society to gather important rock data from your area by going out on a Rock Survey! Gather evidence and discover the bedrock in your area and the variety of other rocks used to do different jobs. Meet the great fossil hunter Mary, Anning, ask questions and discover fascinating facts about her</p>	<p>water, nutrients from soil, and room to grow) and how they vary from plant to plant</p> <p>Sc3/2.1c investigate the way in which water is transported within plants</p> <p>Sc3/2.1d explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p> <p>You agree to help Zinnia, a friendly alien who wants to farm human food in space. She needs you to find out what plants need to grow strong and healthy. Are you up to the challenge? You will need to do some scientific investigation and research over the coming sessions. It's time to check up on your investigation and see which seedlings are growing strong and healthy and which are not. Further broaden your plant knowledge by observing whole plants closely and making detailed, labelled drawings. Zinnia makes contact again to check on your progress.</p>	<p>giving examples that support, help them move or provide protection</p> <p>Can describe how muscles and joints help them to move</p> <p>Can classify food into those that are high or low in particular nutrients</p> <p>Can answer their questions about nutrients in food based on their gathered evidence</p> <p>Can talk about the nutrient content of their daily plan</p> <p>Use their data to look for patterns (or lack of) when answering their enquiry question</p> <p>Can give similarities e.g. they all have joints to help the animal move, and differences between skeletons</p> <p><u>Light</u></p> <p>Can describe how we see objects in light and can describe dark as the absence of light</p> <p>Can state that it is dangerous to view the sun directly and state precautions used to view the sun, for example in eclipses</p> <p>Can define transparent, translucent and opaque</p>
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<p>changes related to simple scientific ideas and processes</p> <p>Sc4/1.9 using straightforward scientific evidence to answer questions or to support their findings.</p> <p>Sc3/2.1a identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p> <p>Sc3/2.1b explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant</p> <p>Sc3/2.1c investigate the way in which water is transported within plants</p> <p>Sc3/2.1d explore the part that flowers play in the life cycle of flowering plants,</p>	<p>data loggers/ thermometers appropriately</p> <p>Collect and record data from their own observations and measurements in a variety of ways: notes, bar charts and tables, standard units, drawings, labelled diagrams, keys and help to make decisions about how to analyse this data</p> <p>With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions</p> <p>Use relevant simple scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences, including oral and written explanations, displays or presentations of results and conclusions</p> <p>With support, they should identify new questions</p>	<p>Learn how the diaphragm is used in breathing and build an instrument to measure lung capacity. Plan and carry out an investigation to answer a health and fitness question.</p> <p>Test and review all your knowledge on Health and Fitness gained so far. Then it's time to make final preparations before meeting your clients to answer all their Health and Fitness questions in an impressive presentation illustrated with the fabulous research and resources you've produced.</p> <p><u>Light</u></p> <p>Sc3/4.1a recognise that they need light in order to see things and that dark is the absence of light</p> <p>Sc3/4.1b notice that light is reflected from surfaces</p>	<p>life and work. Learn how fossils are made and make your own one from plaster of Paris.</p> <p>It's time to put your scientific detection skills to the test with some exciting soil investigation activities. Discover the answers to some important questions about soil and learn just how important it is to life on our planet!</p> <p>It's time to get ready for the opening of the Amazing Rock and Fossil Museum. Divide into groups and work as a team to plan and prepare your exhibits and activities. How can you share your learning and give visitors an exciting Rock and Fossil experience?</p> <p><u>Forces and Magnets</u></p> <p>Sc3/4.2a compare how things move on different surfaces</p> <p>Sc3/4.2b notice that some forces need contact</p>	<p>Play a game to create a list of top human plant foods she will need to grow and discover the different parts of plants people eat. Discover the difference between fruits and vegetables and use your knowledge to classify food plants. Make close observations and create models of sections through different fruits.</p> <p>It's time to do a health check on all the seedlings that are growing without something - light, air, water, soil, warmth and space and begin to think about the differences they are showing and why.</p> <p>Investigate how water is transported in plants and also set up data loggers to record temperature and light over a 24 hour period. You have 3 scientific investigations to review and you need to gather all the data to give to Zinnia next session. It's time to draw graphs, make drawings and</p>	<p>Can describe how shadows are formed by objects blocking light.</p> <p>Can describe patterns in visibility of different objects in different lighting conditions and predict which will be more or less visible as conditions change</p> <p>Can clearly explain, giving examples, that objects are not visible in complete darkness</p> <p>Can describe and demonstrate how shadows are formed by blocking light</p> <p>Can describe, demonstrate and make predictions about patterns in how shadows vary</p>
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<p>including pollination, seed formation and seed dispersal.</p> <p>Sc3/2.2a identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat</p> <p>Sc3/2.2b identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p> <p>Sc3/3.1a compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <p>Sc3/3.1b describe in simple terms how fossils are formed when things that have lived are trapped within rock</p> <p>Sc3/3.1c recognise that soils are made from rocks and organic matter.</p> <p>Sc3/4.1a recognise that they need light in order to</p>	<p>arising from the data, making predictions for new values within or beyond the data they have collected and finding ways of improving what they have already done.</p>	<p>Sc3/4.1c recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>Sc3/4.1d recognise that shadows are formed when the light from a light source is blocked by a solid object</p> <p>Sc3/4.1e find patterns in the way that the size of shadows change.</p> <p>Investigate what we need in order to see objects in a dark place and discover how light travels. Design a stage for a shadow puppet theatre and discover first-hand how the light we see is really made of a spectrum of colours. What's it like to see in a very dark place? Go into a dark "cave" and observe which colours show up best and which do not. Shine a torch to reveal reflectors and high visibility items and discover why they gleam! Paint and decorate your shadow puppet theatre. Investigate the strange world of mirrors. Discover</p>	<p>between 2 objects, but magnetic forces can act at a distance</p> <p>Sc3/4.2c observe how magnets attract or repel each other and attract some materials and not others</p> <p>Sc3/4.2d compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials</p> <p>Sc3/4.2e describe magnets as having 2 poles</p> <p>Sc3/4.2f predict whether 2 magnets will attract or repel each other, depending on which poles are facing.</p> <p>You receive the letter from Mr Newton of the British Scientific Society and agree to help him develop some exciting activities on the theme of Magnetism for their annual science fair. But first you need to get to grips with what a force is!</p>	<p>write reports. Can you explain your findings? Zinnia is about to make contact one last time so you need to have all your data, drawings, graphs and findings ready. Test your knowledge with a quiz then design a space farm for Dock 5. Zinnia is so impressed with your research and your designs. She hopes that one day you may visit Dock 5 and stay in the Space Hotel.</p> <p>Discover some amazing facts about flowers and make close observations of different flowers with magnifiers. Learn about the work of artist Georgia O'Keeffe and create some beautiful watercolour paintings from life and press flowers for a future project.</p> <p>Learn how insects and other creatures are important in the pollination of flowers. Discover the secrets of how bees communicate using a waggle dance and give it a go yourself. Create some stunning bee and flower models.</p> <p>Check out some real plant specimens to discover what</p>	<p><u>Spring:</u> <u>Rocks</u> Can name some types of rock and give physical features of each Can explain how a fossil is formed Can explain that soils are made from rocks and also contain living/dead matter Can classify rocks in a range of different ways using appropriate vocabulary Can devise tests to explore the properties of rocks and use data to rank the rocks Can link rocks changing over time with their properties e.g. soft rocks get worn away more easily Can present in different ways their understanding of how fossils are formed e.g. in role play, comic strip, chronological report, stop-go animation etc. Can identify plant/animal matter and rocks in samples of soil Can devise a test to explore the water retention of soils</p> <p><u>Forces and Magnets</u> Can give examples of forces in everyday life Can give examples of objects moving differently on different surfaces</p>
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<p>see things and that dark is the absence of light</p> <p>Sc3/4.1b notice that light is reflected from surfaces</p> <p>Sc3/4.1c recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>Sc3/4.1d recognise that shadows are formed when the light from a light source is blocked by a solid object</p> <p>Sc3/4.1e find patterns in the way that the size of shadows change.</p> <p>Sc3/4.2a compare how things move on different surfaces</p>		<p>what happens to writing in a mirror and how this can be used to write in secret code. Navigate a mirror maze and use mirrors to make objects multiply. Learn the secrets of mirrors and how they can help you see round corners. Discover how shadows are made and investigate first-hand how changing the orientation of an object or the material it is made from can affect the nature and shape of the shadow. Create shadow puppets in preparation for a shadow puppet performance. Add a screen to your puppet theatre then use it to freely investigate how moving the light source changes the shadow. Conduct a fair test to find the precise relationship between the distance of the torch and the size of the shadow.</p>	<p>Recap by thinking about the different forces involved in various sports. Discover that gravity is a force that doesn't need contact - but is it the only one? No: magnetism can also pull objects from a distance. Experiment with magnetism, ask questions and design fair tests to answer them. Begin to think about which items are attracted to magnets and why. Ask questions and test them out e.g. Is it just metal things? Are all metal things attracted? Why not? Explore how magnets behave towards each other in a variety of different exciting challenges. Discover that magnets have 2 poles and that same poles repel whilst opposite poles attract. Learn that the world itself is a giant magnet!</p>	<p>happens to flowers after pollination. Make a beautiful illustrated zigzag book to explain how fruits develop from pollinated flowers. Explore the huge variety of different fruits - asking questions and making observational drawings and notes. Sort fruits according to your own criteria based on their similarities and differences. Begin to understand why fruits are so varied - to help with the dispersal of their seeds. Make your own paper seed and investigate wind dispersal by testing different versions to find the best flier.</p>	<p>Can name a range of types of magnets and show how the poles attract and repel Can draw diagrams using arrows to show the attraction and repulsion between the poles of magnets Can use their results to describe how objects move on different surfaces Can use their results to make predictions for further tests e.g. it will spin for longer on this surface than that, but not as long as it spun on that surface Can use classification evidence to identify that some metals but not all are magnetic Through their exploration they can show how like poles repel and unlike poles attract and name unmarked poles Can use test data to rank magnets</p>
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<p>Sc3/4.2b notice that some forces need contact between 2 objects, but magnetic forces can act at a distance</p> <p>Sc3/4.2c observe how magnets attract or repel each other and attract some materials and not others</p> <p>Sc3/4.2d compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials</p> <p>Sc3/4.2e describe magnets as having 2 poles</p> <p>Sc3/4.2f predict whether 2 magnets will attract or repel each other, depending on which poles are facing.</p>		<p>Find out how coloured acetate filters can change a beam of light or a shadow. Use this together with all your knowledge and skills on Light and Shadows to create an amazing shadow puppet performance.</p>	<p>Play a fast paced game to practise your knowledge of whether magnets attract or repel each other depending on which poles are facing. Devise an exciting activity on magnetism to fascinate visitors to the science fair. It's time to test your knowledge of magnetic forces in a quiz before setting up your exhibit ready for the science fair. You will need to write some questions to really get visitors thinking and then write your own explanations and answers. Test run each other's exhibits and discuss possible improvements before all the photos and ideas get sent off to Mr Newton.</p>		<p><u>Summer:</u> <u>Plants</u> Can explain the function of the parts of a flowering plant Can describe the life cycle of flowering plants, including pollination, seed formation, seed dispersal, and germination Can give different methods of pollination and seed dispersal, including examples Can explain observations made during investigations Can look at the features of seeds to decide on their method of dispersal Can draw and label a diagram of their created flowering plant to show its parts, their role and the method of pollination and seed dispersal</p>
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