Working Scientifically Overview and Resources

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Class 1	Autumn 1 Text: Lost and Found	Autumn 2 Text: Nibbles	Spring 1 Text: Lion Inside	Spring 2 Text: The Curious Case of the Missing Mammoth	Summer 1 Text: Toys in One Space	Summer 2 Text: Goldilocks and Just One Bear
Resources in your box: **cross section flower model** 18 small pots with lids (for scents) 4 metal detectors with base and charger Felt plant labelling resource **senses dominoes seasons game what's the tree poster**	**Observing Over Time:** Observe Autumn leaves changing and record children's observations (Seesaw, working wall etc)	**Observing Over Time:** Use the cross-section model and plant labelling to record observations of plant parts.	**Observing Over Time:** Look at photographs of everyone as babies. Consider the questions: How do we change as we get older? Observe changes over time by comparing baby photos with current ones.	**Observing Over Time:**	**Observing Over Time:** Keep a weather diary for a week, Make a rain gauge using plastic bottles to measure the rain.	**Observing Over Time:**
	Identifying and Classifying: Make a chart to show what different animals eat (firsthand, videos and photographs) Sort the animals according to hot/cold habitats	**Identifying and Classifying:** Make a chart to show our favourite plants following observations	**Identifying and Classifying:** The Chester Zoo animals have escaped. Use plastic animals and sorting circles to regroup them mammals, reptiles, birds etc.	**Identifying and Classifying:** Use toy dinosaurs and sorting hoops to sort the dinosaurs from the museum according to your own criteria.	**Identifying and Classifying:** Use toys and sorting hoops to sort according to your own criteria.	**Identifying and Classifying:** Sort some manmade and natural objects according to whether they belong in Goldilocks' apartment or the forest.
	Pattern Seeking: Are carnivores or herbivores bigger?	**Pattern Seeking:** Do the smallest leaves stay fall off the trees?	**Pattern Seeking:** Which body parts are for which sense? Use the sense dominoes to play.	**Pattern Seeking:** Explore the classrooms like he explores the museums. Do some places have more metal than others? Use the metal detectors.	**Pattern Seeking:** Measure the temperature inside the classroom and outside and wonder how different that would be in different seasons. Make a thermometer box to house a thermometer and use it outside in the playground	**Pattern Seeking:** Play 'I-Spy the Material' game in the classroom, before discussing why different materials have been used in Goldilocks' apartment.
	Research: Find out about Carl Hagenbeck who invented the first ever zoo.	**Research:** Use the what's the tree poster to discuss and answer pre-recorded questions about trees.	**Research:** Describe what Linda Buck found out about how we smell things (Nobel prize winner).	**Research:** Read the story of Mary Annings and the dinosaur fossil she discovered.	**Research:** Find out about George James Symons who invented the rain gauge (ongoing seasons work).	**Research:** What is an inventor?

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	Fair Testing: Where do woodlice like to live? Hamilton	**Fair Testing:** Set up a garden centre in the classroom and plant seeds in a jar or bag. Predict what will happen and start to watch them grow. **How will you keep your seeds healthy?**	**Fair Testing: Is our smell as good as a lion's?** Use the pots and see which children can identify all 4 smells.	**Fair Testing:** Which material would make the best enclosure for a strong mammoth?	**Fair Testing:** Look at the wind in the playground and wonder if there is a link between wind direction and rainfall. Does the wind change direction during the day? Make a wind-sock to measure the direction of the wind.	**Fair Testing:** Oh no! The bear has spilled a drink in Goldilocks' apartment! Plan an investigation to test the absorbency of different types of paper. Predict which paper will be the best at soaking up the accident and then test them to find out.

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Class 2	Autumn 1 Text: Troll Swap	Autumn 2 Text: The Owl who was Afraid of the Dark	Spring 1 Text: The Dragon Machine	Spring 2 Text: Major Glad, Major Dizzy	Summer 1 Text: Last Wolf	Summer 2 Text: Grandad's Secret Giant
Resources in your box: Wildlife stamp set of 34 2 green lenses 6 test tubes of bugs 30 plant pots bug catcher x2 **life cycles board set** **life cycles snap** **life cycle game** **insect catcher**	**Observing Over Time:** What could you do at 1 day, 1 month, 1 year, 2, 3, 4, 5?	**Observing Over Time:** Use insect catchers to catch insects from the woodland habitat each week. Do they change?	**Observing Over Time:** Can we keep a cardboard dragon dry? Which material would be best for the shelter?	**Observing Over Time:** **N/A**	**Observing Over Time:** How long does it take for a shoot to appear from different seeds?	**Observing Over Time:** Explore the school grounds on the hunt for microhabitats. Zoom in on the tiny world of these habitats and draw or photograph what is going on there. Consider and draw conclusions about what lives in these microhabitats and why.
	Identifying and Classifying: Can you match the offspring to its parents?	**Identifying and Classifying:** Use wildlife stamp set to sort animals according to the habitats they belong in.	**Identifying and Classifying:** Use sorting circles to sort materials according to different criteria.	**Identifying and Classifying:** Can you sort your toys into groups?	**Identifying and Classifying:** Identify plants from story setting (highlands)	**Identifying and Classifying:** Look at which habitat would suit a giant and why. Compare to other animals.
	Pattern Seeking: Is an animal life cycle the same as a human or troll? Play game of snap or board game.	**Pattern Seeking:** Do more insects live in dark places?	**Pattern Seeking:** Is there anything the same about the opaque, transparent, translucent materials?	**Pattern Seeking:** If the floorboards were made of glass, could we see through?	**Pattern Seeking:** Do more plants grow on the field or in the forest?	**Pattern Seeking:** Do taller people have bigger feet?
	Research: Look at a live spider, a dead spider and a toy spider. What are some of the differences between the live spider and the dead one? And the dead spider and the toy one?	**Research:** Find out about Rachel Carson. She studied ocean habitats. Compare to forest habitat.	**Research:** Find out who Charles Macintosh is. He invented waterproof fabrics. Would this be useful for the machine?	**Research:** Find out about the inventor of Lego.	**Research:** Who is Nicholas Grimshaw? What is The Eden project?	**Research:** Research creatures in larger habitats and ask: why do these living things live there? Create dioramas of different habitats and label with research information.

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	Fair Testing:	**Fair Testing:** Will a snail eat your packed lunch? Which is the woodlice/snails' favourite food?	**Fair Testing:** George has a hole in his trouser knees. Which material would be best for their new trousers?	**Fair Testing:** Test which materials for stretchiness/bendiness etc. Contextualise to story.	**Fair Testing:** How does changing the way we plant a bulb affect how it grows?	**Fair Testing:** Drawing on your knowledge of habitats, design a bug hotel! Incorporate many different microhabitats to encourage a variety of guests.

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Class 3	**Autumn 1 Text:** Seal Surfer	**Autumn 2 Text:** Winter's child	**Spring 1 Text:** Stone Age Boy	**Spring 2 Text:** Big Blue Whale	**Summer 1 Text:** Journey	**Summer 2 Text:** Zebra Giraffe
In your box: Set of 6 coloured torches with charging base Hanging skeleton model 5 big horseshoe magnets 2 medium horseshoe magnets 13 small horseshoe magnets Set of 6 prisms PH meter Rocks bag Optical Kaleidoscope Model of the eye Iron filings 10 bar magnets 1 paddle magnet Human body poster and tooth poster **metal strips** **iron filings** **bubble**	**Observing Over Time:** N/A How do shadows change over a day? When would be the best time to throw your shadow? ?	**Observing Over Time:** How does the temperature outside change in the winter?	**Observing Over Time:**	**Observing Over Time:**	**Observing Over Time:**	**Observing Over Time:**
	Identifying and Classifying: Use the model of the eye to identify parts.	**Identifying and Classifying:** Identify plants that grow in colder climates	**Identifying and Classifying:** Use the rocks bag to identify and sort rocks igneous, sedimentary etc	**Identifying and Classifying:** Use the skeleton model to identify bones and label diagrams.	**Identifying and Classifying:** Make a magnet game– sort materials that are/are not magnetic	**Identifying and Classifying:** Animal shadow puppets
	Pattern Seeking: What happens to shadows when the light source moves?	**Pattern Seeking:** Does climate affect plant growth- climate change? Find data and record in graphs.	**Pattern Seeking:** Do different types of soil allow more water to pass through?	**Pattern Seeking:** Do taller people jump further?	**Pattern Seeking:** Is there a pattern in the way magnets attract/repel?	**Pattern Seeking:** What happens when the light source is further away from the puppet?
	Research: Explain why concave or convex mirrors have been used devices or inventions;	**Research:** Explain how George Washington Carver helped farmers to grow crops.	**Research:** Describe what Inge Lehmann discovered about the Earth's core.	**Research:** Describe Marie Curie's research into X rays.	**Research:** Describe how the first electromagnets were developed and name three scientists who worked on them;	**Research:** N/A
	Fair Testing: Which material would make the best blackout blinds/curtains?	**Fair Testing:** Grow some plants will water affect their growth?	**Fair Testing:** Investigate which soil samples are soakers or drainers.	**Fair Testing:** Plan and carry out an investigation into lung capacity (Hamilton)	**Fair Testing:**	**Fair Testing:**

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Class 4	Autumn 1 Text: Gorilla	Autumn 2 Text: Leon and the Place Between	Spring 1 Text: Escape Pompei	Spring 2 Text: When Giant Stirred	Summer 1 Text: Where Forest meets the sea	Summer 2 Text: Blue John
YPO organ tunic Wildlife cam brain links digestion YPO digestion poster 5 toothbrushes and story 30 battery holders 30 lightbulb holders 30 lightbulbs 23 crocodile clips Wire roll Amp meter Ear model x2 loop cards	**Observing Over Time:** Which drinks are the most harmful to our teeth? Use eggs and a variety of drinks.	**Observing Over Time:**	**Observing Over Time:**	**Observing Over Time:** How quickly will this playground puddle take to dry?	**Observing Over Time:** Do birds come to the bird table at different times of day?	**Observing Over Time:** Is there a link between the amount of noise and the time of day?
	Identifying and Classifying: Classify types of food into food groups-create a healthy meal for family learning event?	**Identifying and Classifying:**	**Identifying and Classifying:** Decide which bathroom products are solids, liquids and gases.	**Identifying and Classifying:**	**Identifying and Classifying:** Name and classify animals from the story.	**Identifying and Classifying:** Use the ear model to identify parts of the ear.
	Pattern Seeking: Do we use some teeth more than others? Read the story and use mirrors to look at our teeth.	**Pattern Seeking:** Are magnetic materials always good conductors of electricity?	**Pattern Seeking:** At what temperature do different materials melt or boil?	**Pattern Seeking:** do all liquids evaporate at the same rate?	**Pattern Seeking:** Do birds come to the bird table at different times of day?	**Pattern Seeking:** Is there a link between the amount of noise and the time of day? Use data loggers and present data.
	Research: Use given ingredients to invent your own toothpaste. Research invention.	**Research:** Describe how Thomas Eddison's inventions changed people's lives. Use the electricity loop cards to find facts.	**Research:** Explain what Lord Kelvin called 'absolute zero'. Demonstrate what particles would look like and use a thermometer accurately.	**Research:** Explore the discovery of oxygen.	**Research:** Explore Gerald Durrell's conservation work in Madagascar.	**Research:** Who is Alexander Graham Bell? How did he invent the telephone?
	Fair Testing: Which drinks are the most harmful to our teeth? Use eggs and a variety of drinks.	**Fair Testing:** How does changing parts of our circuit affect the brightness of a bulb?	**Fair Testing:** How long does it take ice lollies to melt in different temperatures?	**Fair Testing:**	**Fair Testing:** How does changing the colour of food affect the number of birds visiting our bird table?	**Fair Testing:** Which container makes the loudest drum for gospel?

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Class 5	Autumn 1 Text: Queen of Falls	Autumn 2 Text: Lost Happy Ending	Spring 1 Text: Arthur and the Golden Rope	Spring 2 Text: Darkest Dark	Summer 1 Text: Paper bag Prince	Summer 2 Text: Hunter
In your box: Giant magnetic solar system Assorted expansion and compression springs Properties loop cards Friction and forces loop cards Classification key mat and insects Push pull spring balances Balloons Marbles Syringes	**Observing Over Time:** N/A	**Observing Over Time:**	**Observing Over Time:** N/A	**Observing Over Time:** How does the position of the sun change during the day? construct simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day; How does the moon's shape change over a month?	**Observing Over Time:**	**Observing Over Time:** How does the height and weight of a baby change in its first year?
	Identifying and Classifying: Sort items into those which sink and float. Explore resistance in water by making and testing boats of different shapes.	**Identifying and Classifying:** Identify which potions can be separated through sieving, evaporating etc	**Identifying and Classifying:** Use a branching database to classify different relics and tools.	**Identifying and Classifying:** Use the magnetic solar system to identify planets and order.	**Identifying and Classifying:** Use a branching database to show how to recycle different types of rubbish.	**Identifying and Classifying:** Use a branching database to classify animals according to how they care for their babies.
	Pattern Seeking: Do feathers fall in the same way? Do objects fall differently in different liquids? Time and present data in scatter graphs and frequency charts.	**Pattern Seeking:** link to chromatography– which ink was used to write the witch's note?	**Pattern Seeking:** Where has the most gold been found on earth? Present findings in a frequency chart.	**Pattern Seeking:** What time of day is it at different places on the earth?	**Pattern Seeking:** What sort of materials go black when they are burned? Contextualise	**Pattern Seeking:** Are the oldest children in our class the tallest? Present data in scatter graph.
	Research: Who is Isaac Newton? How did he discover gravity? Present findings in suitable formats.	**Research:** Find out how CSI investigators use chromatography to solve crimes.	**Research:** How were levers used in ancient times? Could we use them in the vault?	**Research:** Describe the life and work of Margaret Hamilton (Apollo Missions)	**Research:**	**Research:**
	Fair Testing: Explore falling paper cones or cup-cake cases, and design and make a variety of parachutes. Does the shape affect the time taken to fall?	**Fair Testing:**	**Fair Testing:**	**Fair Testing:** Implement some investigations to show why the moon appears to change shape throughout the month -	**Fair Testing:** Which materials are best to stop an ice cube melting?	**Fair Testing:**

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Class 6	Autumn 1 Text: Star of Hope, Fear	Autumn 2 Text: Can we Safe Tiger	Spring 1 Text: Selfish Giant	Spring 2 Text: Island	Summer 1 Text: Manfish	Summer 2 Text: Sky Chasers
In your box: 23 crocodile clips 30 battery holders 30 lightbulb holders 30 lightbulbs Heart model Scottish Power Wise Folders- KS2 6 pedometers Amp meter 8 stopwatches- need new batteries	**Observing Over Time:** N/A	**Observing Over Time:**	**Observing Over Time:**	**Observing Over Time:** How has the hominid skull changed over time?	**Observing Over Time:**	**Observing Over Time:**
	Identifying and Classifying: Which things make good switches?	**Identifying and Classifying:** create your own classification system that will take account of all plants and animals within your school grounds? What are micro-organisms and how would you classify them?	**Identifying and Classifying:**	**Identifying and Classifying:** Can we make up a system to sort fossils from oldest to youngest?	**Identifying and Classifying:**	**Identifying and Classifying:**
	Pattern Seeking: Are all magnetic materials good conductors of electricity?	**Pattern Seeking:** Identify features that support survival in a given environment.	**Pattern Seeking:** Explore the ways that nutrition, exercise and injury prevention impact on sports performance. Design an eating and exercise plan as well as your own warm up and warm down routine.	**Pattern Seeking:** Are there inherited characteristics that have been passed down in my family?	**Pattern Seeking:**	**Pattern Seeking:**
	Research: What did Michael Faraday and Humphrey Davy invent?	**Research:** Who was Alfred Russel Wallace and what did he do? Can you discover the special attributes that some animals and plants have to help them survive?	**Research:** Find out about the life of James Lind and link to History.	**Research:** Research the life and work of Anning, Darwin or Wallace and share as a presentation. Notice when information or data is biased or based on opinions rather than facts. Present findings in suitable formats.	**Research:** What are optical illusions and how can we produce them?	**Research:**

	Fair Testing: Investigate magnifying lenses, suggesting which cannot magnify enough in given circumstances. Explain and demonstrate that light can be bent when it is slowed down. Split white light into rainbow colours.	**Fair Testing:**	**Fair Testing:** Investigate and compare the properties of cotton and modern sports materials (Hamilton Trust)	**Fair Testing:**	**Fair Testing:** How can we make light travel around corners?	**Fair Testing:**