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**Long Term Mapping**

**Science**

**KS2**

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|  | **KS2** | **KS2** | **KS2** | **KS2** |
| **Cycle 1 (2020-2021)** | **Cycle 2 (2021-2022)** | **Cycle 3 (2022-2023)** | **Cycle 4 (2023-2024)** |
| **Autumn**  | **1** | Biology *Animals Including Humans* - Body Parts and Senses | Biology *Animals Including Humans* – The Skeleton | Physics - Weather Seasonal Changes throughout the Year | Chemistry – Everyday Materials |
| **2** | Chemistry - Materials | Chemistry - Acids and Alkalis  | Physics - Weather Seasonal Changes throughout the Year | Chemistry – Everyday Materials |
| **Spring** | **1** | Physics - Light  | Physics - Heat  | Biology *Animals Including Humans* - Humans basic structure | Biology *Animals Including Humans* - Other Animals Basic Structure |
| **2** | Biology *Animals Including Humans* – Diet and Digestion | Biology *Things and Their Habitats* -The Environment | Biology Animals Including Humans - Humans basic structure | Biology *Animals Including Humans* - Other Animals Basic Structure |
| **Summer**  | **1** | Chemistry - Materials  | Chemistry *­Materials* - Rocks | Chemistry - Everyday Materials | Biology - Plants  |
| **2** | Physics - Sound  | Physics - Electricity  | Chemistry - Everyday Materials | Biology - Plants  |

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**Medium Term Planning**

 **KS2 Cycle 1**

**(2020-2021)**

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| **KS2 Cycle 1 (2020 – 2021)** | INTENT; To explore the world around us, observe phenomena, develop scientific vocabulary, be curious and ask questions about what we see, answer scientific questions creatively and form conclusions from our evidence gathered. | **Animals Including Humans - Body Parts and Senses** | **Materials** | **Light** | **Animals Including Humans – Diet and Digestion** | **Materials** | **Sound** |
| **Autumn 1 –** 7 weeks | **Autumn 2 -** 7 weeks | **Spring 1 –** 6 weeks | **Spring 2 –** 6 weeks | **Summer 1 –** 5 weeks | **Summer 2 –** 7 weeks  |
| To explore internal and external body parts and our senses.  | Pupils are able to explore properties materials, irreversible changes of materials and separating mixtures. | Know sources of light, know how shadows are formed and describe how light and be split.  | To recognise healthy and unhealthy foods, explore vitamins and the digestive system. | Explore similarities and differences between materials and sort them | Explore making sounds and explore how sound travels.  |
| **Suggested Practical**  |
| Draw around or make prints of hands or feet. Compare sizes.Draw around pupil’s whole body and add featuresCompare different body parts where contrasts are obvious and a bit less obviousSort and group fabrics/foods/plants into ones they like to touch and don’t like to touch. Say why they do or don’t like to touch the fabrics – Liken to a walrus that uses a sense of touch to decide if it will eat somethingInvestigate and compare the temperatures on different parts of the body. Record results by sticking numbers onto a body outline (with help at p7)Cross Curricular:DT Food Technology/ English Speaking and ListeningVISITS: sensory trail to the supermarket, seaside (smells, texture of sand, walk in the countrysideW/S Who’s hands can hold the most? Discussion to decide how to do this?W/S Devise an eye test. Which colours show up best? Can they see better with one eye?SMSC: Interest in investigating and offering reasoned views and moral and ethical issues and appreciate viewpoint of others | Sort everyday objects using obviously different properties e.g. metal and plastic, glass and wood Hoops could be used for sorting or plastic trays.Show BBC clip on recycling. Sort materials for recycling based on propertiesCook spaghetti for different amounts of time.Look at how bendy it is after 2,4,6,8 10 mins.Try different types of spaghetti.Cook potato and see changes every 5 minutes. Look at changes in waterSeparating ingredients: 3 trays, tweezers, colanders, sieves, spoons, trays could contain sand, rice, dried peas, flour, muesli - Make a pictogram of the different parts possibly using the actual ingredients. Cross Curricular:DT and ArtVISITS: Recycling centre, glass factory, slate mine, churchW/S Which material keeps things warmest outside the fridge SMSC: Ability to recognise the difference between right and wrong | Hunt for things that give out light around school on a post it note. “Do windows give out light?” “Does the computer always give out light?”Place holes in a show box. Add torches of different brightness inside. Questions pupils on what they see. “How far does the light go?” “Can you see colours?” “How could we see more of inside the box?” – make the hole bigger, or take off lid. Show photos and videos of using lights for celebrations e.g. Xmas, birthdays, fireworks, religious ceremoniesTry light stick experiment, or show video. <https://www.stevespanglerscience.com/lab/experiments/light-sticks-the-science-of-liquid-light/>Tell pupils that when we went to the moon they left some objects there that reflect light so when they shine a laser it reflects it back to Earth and they use this to measure the distance between Earth and Moon. Can they find the best reflectors to put on the Moon?Find out about lights with special jobs e.g. traffic lights, lighthouses, lights onappliancesTalk about things you can’t do in the dark. E.g. look at bookExplore using a mirror to try to reflect light from a torch onto a particular spotLook at video on how to make shadow puppets. Design and create shadowpuppets/ monstersExplore shining torches through different materials to introduce terms opaque, translucent and transparent.Show cliphttps://www.bbc.com/bitesize/clips/zyntsbkRepeat the experiment shown in the clip, providing three cards with holes in them. First ask the children to let the light travel in a straight line through the holes. Then invite them to try to direct the light in an angle using their mirrors.Explore making a mirror. Cover the back of a piece of plastic with different materials and compare how good the reflection is.Make a rainbow using a container of water In a dark room with light walls, fill a large glass container with water and place a mirror inside. Tilt the mirror slightly and shine a light onto it to create a rainbow. Alter the angle of mirror or torch until rainbow appears on the wall. Let pupils try moving mirror or torch for themselves to see what happens.Cross Curricular:Art and Literacy – stories VISITS: Hall of mirrors, theatre lights, planetarium SMSC: Recognise and value the things we share in common (cultural, ethnic, socio economic communities) | Use Michael Jackson song ‘Eat it’ to learn and recall miming moves for each of the five food groups and what they do.<http://www.youtube.com/watch?v=ZcJjMnHoIBI>Words available here <http://www.azlyrics.com/lyrics/weirdalyankovic/eait.html> and pupils could decide own mimes for certain foods.Make a meal on a paper plate or use meals from canteen and use flags to label the different groups. Use Playdough to create a pretend meal. Talk about what pupils think they need to stay alive. Show them an image of twins who have been on different diets. Show them images of people who have vitamin deficiencies and ask them to spot the differenceTell pupils, vitamins are given letters of the alphabet. Look at some large food labels to see if they can see any vitamins listed.Listen to cliphttp://www.youtube.com/watch?v=5iS8h0J\_Ows and hold up pictures of foodTeacher models sections of the digestive system using a squishy human body model and encourages pupils to think of words to describe each process (e.g.chew, swallow, squeeze, chop, mix, soak up etc)Explore pushing different types of food down tights to model the food going down the food pipe. What do they notice?Also use tights to mimic the small intestine by filling with cooked oatmeal and squeezing so that some of the liquid oatmeal comes out of intestines. Take picturesor video what happens. Keep squeezing to get nearly all liquid out and you are left with ‘poo’!Mouth – pestle, mortar and blunt knife, Weetabix, water.Food pipe – sock and ball to demonstrate swallowing.Stomach – sandwich bag for mixing, broken biscuits, diced pepper, with food colouring and water for stomach acid.Intestines - lights and wet sponge (to show absorbing into blood) lining paper, felt pens, cut outs of food pipe, stomach, intestines,Cross Curricular:PSHE VISITS: Shops, supermarket, bakery, butchers, farms, restaurants(W/S) Try Mixing different amount of dried milk with water and record results. Predict what will happen. SMSC: Interest in investigating and offering reasoned views and moral and ethical issues and appreciate viewpoint of others | Compare bread and toast Collections of objects – ask pupils to describe how things are the same and then how they are differentPlay materials ‘snap’ – pupils select two objects that are the same in some way and explain their choiceUse ‘feely’ bags to encourage using the sense of touch. Pupils describe what they can feel. Do any feel the same?Mix different thicknesses of paint and compareTap objects to listen to the different sounds they make, one pupil can stand behind another and tap an object – other pupil has to guess what it isPlay 20 Questions to help identify an objectSort objects that are transparent and not transparentSort by floating and sinking – predict first.Sort materials according to metal, plastic, wood, paper, rockPass objects round and ask pupils to identify what they are made fromW/S Which is the stickiest sticky tape?W/S Which material stretches the most? W/S Do you get the same amount of cheese from different types of milk? (1 pint of milk and ½ lemon left over night)Cross Curricular:DT and ArtVISITS: Recycling centre, glass factory, slate mine, churchSMSC: Ability to recognise the difference between right and wrong | Take part in a ‘making a storm activity.' The storm roles document, video cameras.Small container, fillings like rice, sand, lentils, beads, coins, etc. Identical bottles,water, rulers – various, cardboard tubes. - Each student has a role and uses their voice / body to make noises. The roles all put together make the noise of a fierce storm; a narrator tells the story to match with the sound effects. The sketch can be recorded and played back to the class.Also see video clip of Amazing sound and water<http://www.youtube.com/watch?v=uENITui5_jU>(Needs to be risk assessed and may not work for all children) Take pupils into the hall and blindfold them. (maybe do this as a group activity taking turns). Make sounds all round the hall andask if they can hear it. Next make a noise in the middle of the hall and get them tomove to different parts of the hall – can they still hear it. Make the point that sound travels in all directions.Investigate the best material to stop sound travelling e.g. a ticking clock or musical box or phone ring tone.Find out if sound travels through materials e.g tie string to a metal coat hanger and hold string to ear whilst coat hanger is tapped or hits the wall, put ear to table and tap a tuning fork on the table to hear sound, place tuning fork in water too or fill balloon with water and hold watch onto it (risk assess for children with sensory profiles)Cross Curricular:Music VISITS: musical concert, airport, railway station, Museum of Science and IndustryW/S Investigate which makes the best shaker.W/S Explore what happens to the sound when;a) different bottles have different amounts of water in and you blow across the neck of the bottleb) different lengths of rulers are twanged by altering the amount overhanging the table. Adult to hold in placec) blowing down cardboard tubes of different lengthsSMSC: Listening to sounds and music from different religious and ethnic backgrounds |
| **Skills To Be Developed**  |
| Makes simple records of findings. Observation and comparison.  | Recording, observation, comparison and sorting | Exploring, observation, comparing, recording and sorting.  | Communicating observations, using symbols and words, recording, using scientific vocabulary and sorting.  | Communicating observations, using symbols and words, recording, using scientific vocabulary and sorting. | Communicating observations, using symbols and words, recording, using scientific vocabulary and demonstrating simple properties of light.  |
| **Vocabulary**  |
| Sense, reflex, sight, hearing, smell, touch, taste, danger, like, don’t like and favourite | Material, tough, strong, elastic, plastic, flexible and reversible | Light, dark, bright, shine, shadow, transparent, translucent, opaque | Healthy, unhealthy, diet, balanced diet, growth, carbohydrate, protein, vegetables, fruit, fat, vitamins and fibre, mouth, food pipe, stomach and intestines. | Hard, soft, rough, smooth, light, heavy, stretchy, cold to touch, warm to touch, same, different, magnetic, strong, weak, see-through, waterproof, wet/dry, material, shiny/dull, sink/float, sticky, metal, plastic, wood, rock, stone, paper, fabric, wool, rubber, | Sound, vibration, loud, quiet, pitch, wavelength, speaker, collide, distance, ears, noise |
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| **Week 1-2** To name internal and external body parts**Week 3-4** To explore senses and responses**Week 5-6** To explore how our external and internal senses are important for survival**Week 7**  Assessment | **Week 1-2** To explore a range of materials, their properties and their uses**Week 2-3** To explore a range of reversible and irreversible changes**Week 4-7** To experience materials being separated | **Week 1-2** To be able to identify and sort sources of light.**Week 3-4** To know how shadows are formed and the terms opaque, transparent and translucent**Week 5-6** To explore how light travels and can be split | **Week 1-2** To be able to recognise foods which are healthy and unhealthy**Week 3-4** To explore how food is vital for energy, growth and health**Week 5** To explore the main parts of the digestive system and the process of digestion**Week 6** Assessment | **Week 1-3** To explore similarities and differences between materials. **Week 4-5** Sorting materials  | **Week 1-2** To explore making sounds**Week 3-7**  To explore how sound travels |

**Medium Term Planning**

 **KS2 Cycle 2**

**(2021-2022)**

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| **KS2 Cycle 2 (2021-2022)** | INTENT; To explore the world around us, observe phenomena, develop scientific vocabulary, be curious and ask questions about what we see, answer scientific questions creatively and form conclusions from our evidence gathered. | **Animals Including Humans – The Skeleton** | **Acids and Alkalis** | **Heat** | **Living Things and Their Habitats – The Environment** | **Rocks – Materials**  | **Electricity** |
| **Autumn 1 –** 7 weeks | **Autumn 2 -** 7 weeks | **Spring 1 –** 6 weeks | **Spring 2 –** 6 weeks | **Summer 1 –** 5 weeks | **Summer 2 –** 7 weeks  |
| To explore how skeletons and muscles work.  | To explore everyday uses of acids, alkalis, and how they affect the environment. | To explore heat energy and transfer. | To explore food chains and explore how plants make their own food.  | To explore rocks and soils.  | To explore the dangers of electricity and make simple circuits.  |
| **Suggested Practical**  |
| Match different bones to a large body outline on the floor<http://www.youtube.com/watch?v=ICwLlrQKVcg>Make simple skeletons to put inside puppets to make them stand up.List of jobs placed round the room, e.g. grow, shrink, move, support, protect, breathe. Pupils to collect the three jobs they think a skeleton does.Read Funny bones by Allan AhlbergUse a model heart and lungs for pupils to use cardboard tubes / straws to build the rib cage to show how the skeleton protects our organs.Create a cartoon strip using a programme like Comic life to show what would happen if there were no bones, and how the skeleton works.<http://www.youtube.com/watch?v=9vlkWUPhJCw>Measure and compare arm/ leg muscles when relaxed and contractedMake a simple arm modelhttp://www.ehow.com/how\_6762730\_build-muscle-model.htmlOr simple model hand<http://www.sciencekids.co.nz/projects/modelhand.html>Cross Curricular: PEVISITS: Museum zoology (to look at bones of instinct animals e.g dinosaurs(W/S) Do size of leg muscles affect how high someone can jump? SMSC: Interest in investigating and offering reasoned views and moral and ethical issues and appreciate viewpoint of others | Identify a range of familiar household acidic products e.g. vinegar, fizzy water.Discuss their uses and any safety precautions. Test familiar acidic household products with universal indicator to observe colour changes.Giants Hand demonstration experiment: put a small amount of vinegar into a plastic beaker, put bicarbonate of soda into fingers of a latex glove. Attach the glove to beaker and allow bicarbonate of soda to fall into the beaker. As carbon dioxide is released the glove will expand.Make indicator using red cabbage and use it to test a range of household items.Pupils try to arrange colours of pH scale in order and add numbers if appropriate.Experience using sodium bicarbonate to test for acids. It will fizz when acid is dropped onto it.Make indicator using other fruits or veg, e.g. blueberries or beetroot.Pupils to view film `Invisible menace` to show the effects of acid rain on rivers.<https://www.youtube.com/watch?v=Ms4v0Ekvyuw>Pupils test a range of different local waters, rain water and tap water for pH and begin to arrange results in order.Spot differences between plants, animals (e.g. fish) and materials that have the effects of acid rain have not been affected by acid rain using Google imagesPlace a raw egg in shell in beaker of acid (lemon juice or vinegar) and take photos every few days to show changes.Cross Curricular: Food Technology VISITS: Supermarket(W/S) Which fruit juices contain the most acid? Take equal quantities of each juice and add measured quantities of sodium bi-carbonate until the fizzing stops. The stronger the acid, the more bicarbonate needs to be added. SMSC: Understanding of the consequences of their behaviour and actions / sense of enjoyment and fascination in learning about the world around them | (W/S)Find out if heat transfers through spoons at the same speed. Feel them all after the same amount of time. Compare different sized metal spoons to see if there is a difference.Find out if different travel mugs or vacuum flasks keep things hot for the same time.Freeze the same volume of water in different shaped containers and find out which shape thaws the fastest or slowest.Attach some wax crayons of different colours to a sheet of card using wire. Stand the card upright and then heat with a hairdryer and watch the crayons melt and run down the card.(W/S) Find the best insulator to stop an ice pop melting. Talk about how to do this. E.g. ask where we need to put ice pops? Do they need to use the same colour ones?How much insulation will they use?Could develop by seeing if the colour of the ice pop makes a difference to how fastIt melts or if the number of layers of insulation makes a difference.Show pupils what happens when a blown up balloon is gradually lowered onto a candle (it bursts!). Get them to fill balloons with water and do the same thing (itdoesn’t burst!)Cross Curricular: Food Technology (heat to cook food, PE (exercise makes you hot), Geography (hot places)VISITS: Bakery, restaurantSMSC: Understanding of the consequences of their behaviour and actions / sense of enjoyment and fascination in learning about the world around them | Pupils carry out a card sort activity with pictures of familiar animals and plants.Pupils to match ‘What eats What?’ e.g. fox/ chicken, birds/worms, frogs/flies.Introduce vocabulary as appropriate e.g. carnivore and herbivore or hunter and hunted or consumer and producerShow simple videos of food chains e.g.http://www.turtlediary.com/kids-videos/food-chain.htmlShow simple videos of food chains e.g.http://www.turtlediary.com/kids-videos/food-chain.htmlAnd then make a simple food chain using physical resources to show Sun –> plant -> rabbit ->fox (or other example with very familiar organisms). Help pupils place large paper arrows to show energy flowing along and also being lost.Play the predator – prey gamehttp://www.forestry.gov.uk/pdf/WyreFOD\_life-in-the-woods-acc.pdf/$file/WyreFOD\_life-in-the-woods-acc.pdfTell pupils what animal they are i.e. predators. Cut out pictures/symbols of the different associated types of prey and hide them around the class/ outside space.Pupils to hunt their prey in a given time. Those Pupils who do not find their allocated prey to sit in a ‘Hungry Corner’. Talk about what happens if they can’t find any preyDraw pictures/ take photos of plants before and after being placed in a dark room.Match words e.g. yellow leaves, green leaves, long stems, short stems to picturesof plants before and after being grown in the darkVisit recycling collection points at local centreVisit wind turbine farmCross-curricular PSHE – care of living things.Geography/Environmental Science(W/S) Do plants grow under trees? What factors affect their growth?SMSC: Use of imagination and creativity in their learning | Present pupils with a collection of rocks explore using hand lenses. Sort by texturePupils place different rocks into water in litre bottle and observe bubbling (shows that rock is permeable).They sort rocks according to whether they bubble or not.Pupils test rocks for permeability by dropping small quantities of water onto different rocks placed onto blotting paper and observe. They find the most and least permeable ones. Pupils experience fizzing when vinegar or lemon juice is added to rocks e.g. chalk to see if they all fizz. Which is the fizziest? Which ones contain chalk?Pupils observe and compare different soilsPupils dig a deep hole outside (about 60 cm?). Take photos and then identify any changes in colour, size of particles, presence of stones or pebbles and take photosShow a video on different types of rockshttp://www.youtube.com/watch?v=acqRoasmxzg and make edible models<http://www.pages.drexel.edu/~ks73/Ediblerocks.htm>Pupils scratch rocks with different items e.g. finger nail, plastic knife, sandpaper and coin.Revisit the rock cycle using crayons and talk about different rock types.http://www.navigatingbyjoy.com/2013/03/31/how-to-simulate-the-rock-cycle-with-crayons/VISITS: Wood yard, builders yard, garden centreRecycling centreHardware storeDepartment storeChurchGlass factoryCrafts people – cooper, farrier etcQuarries, slate minesCross-curricular - DT/Art(W/S) Does soil contain water? (W/S) How much water do different rocks absorb?SMSC: Ability to recognise the difference between right and wrong | Group pictures/photos of similar electrical items e.g. TVs, clocks, CD playersAsk pupils to point to picture of familiar appliances when the name is spoken. Play the under my bed game e.g. Under my bed I have a hairdryer… the next person says hairdryer and then adds something to the list. Electrical items onlyGroup pictures/ photos according to whether they produce heat? Light? Sound?Movement?Look at video clips on electrical safety and talk about the dangers using props ifneedede.g.<http://www.youtube.com/watch?v=igK-DRB5faU>[http://www.youtube.com/watchv=6EM6I0Em1Jc&list=PL1E068DB391B7177E&index=3](http://www.youtube.com/watchv%3D6EM6I0Em1Jc%26list%3DPL1E068DB391B7177E%26index%3D3)<http://www.youtube.com/watch?v=nyk9cgEdY7U>Card sort of statements and pictures into safe/ unsafe practice and begin to say why something is safe or unsafeRead the Hair Raising Kite Flight by Hedley GriffinRecord some simple safety tips or make own video clip “How to use electricity safely”Words to use:-Electricity; safety; insulate; loose wire; socket; plug; switch; electrocution; water;conduct; wire;For example begin with: To avoid electrocution here is our solution……Let safety be your fate and wires insulate……Some pupils may need to experience the Human circuit ( see P4-6)(W/S)Investigate how to make the bulb light up? Key words to use: bulb; bright; switch; electricityAllow children to experiment to make the bulb in a circuit light. Support might be needed with components if adapted ones not available. Discuss and draw attention to the connections on the bulb. Take photos and label. Components; bulb; battery; wires/ foil conductor;Try other components in circuit e.g. motor, buzzer, LED, Take photos and labelSMSC: Recognise and value the things we share in common (cultural, ethnic, socio economic communities) |
| **Skills** |
| Makes simple records of findings. Observation and exploration | Making simple recordings of your findings, understanding scientific vocabulary, exploring similarities, differences and changes, and beginning to ask questions. |  Responds to questions requiring an informed decision e.g. how much water shall we use? Which spoons do we need? Makes a connection between the start and the end of the test.Locates some of the right equipment to use for a simple test e.g. different spoons  Records result simply e.g. puttng a red sticker on the hottest spoon or beginning to put the insulators in order | Makes a simple recording of their FindingsCommunicates related ideas and observations using simple phrases or signsBegins to ask some of their own questions e.g. about food chainsBegins to construct simple food chains | Makes more detailed observations e.g. using simple vocabulary/symbols to describe what they seeBegins to respond to encouragement to repeat or modify task e.g. Look closely at bubblesShows an awareness of amounts to use Records results simply e.g. takes photos  | Identifies and names familiar electrical appliances Makes simple record of their findings by using the pictures to make groups Describes changes when directly questioned Sorts the appliances using heat, light , sound, movement  |
| **Vocabulary** |
| Skeleton, bones, support, move, protect, muscles, protects, relax, contract, joint and pairs | Acid, alkali, indicator, solution, neutral, reaction and pH scale. | Temperature, thermometer, heat, expand, contract, insulator, conductor, hot cold, gets bigger, gets smaller and burns. | Names of common mini-beasts – worm, snail, fly, spider, environment, camouflage, names of particular plants (whichever relevant locally), names of habitats (whichever relevant locally) | Rock, mineral, sediment, crystals, permeable and air | Movement, wire, transfer, circuit, wire, fuse, socket, bulb, main electricity, flow, conduct, insulate, current, crocodile, resistance, battery and electricity |
|  |
| **Week 1-3** To explore the skeletons and its use**Week 4-6** To explore muscles and how they work**Week 7** Assessment | **Week 1-3** To explore acids and alkalis and their everyday uses**Week 4-7** To begin to recognise how acids can affect the environment | **Week 1-5** To explore heat energy and transfer**Week 6** Assessment  | **Week 1-2** To explore food chains and interdependence between plants and animals**Week 3-4 T**o explore food chains and interdependence between plants and animals**Week 5-6** To explore and explain the process by which plants make their own food**.** | **Week 1-5** To explore rocks and soils | **Week 1-2** To identify everyday things that use electricityand sort according to mains or battery powered**Week 3-4** To recognise that electricity can be dangerous and some of the dangers.**Week 5-6** To explore and make a simple circuits |

 **Medium Term Planning**

**Key Stage 1**

 **Cycle 3 (2022 – 2023)**

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| ***Aspiration for Life*** | Differentiated, aspirational targets dependent on pupil needs. | ***Language for Life*** | Explicit teaching/ exposure to new scientific vocabulary | ***Learning for Life*** | Opportunities to develop cross curricular skills e.g. maths, English and ICT |
| **KS2 Cycle 3 (2022-2023)** | INTENT; To explore the world around us, observe phenomena, develop scientific vocabulary, be curious and ask questions about what we see, answer scientific questions creatively and form conclusions from our evidence gathered. | **Seasonal and Weather Changes** | **Seasonal and Weather Changes** | **Animals (Humans)** | **Animals (Humans)** | **Everyday Materials**  | **Everyday Materials** |
| **Autumn 1 –** 7 weeks | **Autumn 2 -** 7 weeks | **Spring 1 –** 6 weeks | **Spring 2 –** 6 weeks | **Summer 1 –** 5 weeks | **Summer 2 –** 7 weeks  |
| Can name the four seasons and identify when in the year they occur.Pupil can observe changes across the four seasonsPupil can observe weatherassociated with the seasonsPupil can describe the weather associated with the seasonsPupil knows that day length varies | Can name the four seasons and identify when in the year they occur.Pupil can observe changes across the four seasonsPupil can observe weatherassociated with the seasonsPupil can describe the weather associated with the seasonsPupil knows that day length varies | Can identify the basic needs of animals for survival, as well importance of exercise and nutrition for humans. Pupil can observe processes of reproduction and growth in animals. Pupil explore that animals, including humans, have offspring which grow into adultsPupil can explore and describe the basic needs of animals, including humans, for survival (water, food and air)Pupil can describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene | Can identify the basic needs of animals for survival, as well importance of exercise and nutrition for humans. Pupil can observe processes of reproduction and growth in animals. Pupil explore that animals, including humans, have offspring which grow into adultsPupil can explore and describe the basic needs of animals, including humans, for survival (water, food and air)Pupil can describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene | Can identify and discuss the uses of different materials. To become familiar with how materials are used for more than one thing. They should begin to think about suitable or unsuitable materials for particular purposes and they should be encouraged to think about unusual and creative uses for everyday materials. Pupil can compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular usesPupil can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching | Can identify and discuss the uses of different materials. To become familiar with how materials are used for more than one thing. They should begin to think about suitable or unsuitable materials for particular purposes and they should be encouraged to think about unusual and creative uses for everyday materials. Pupil can compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular usesPupil can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching |
| **SUGGESTED PRACTICALS** *(Choose from or use suitable alternative)* |
| (W/S) Investigate what happens to the total length of daylight this term and write a report. Weather Diary – Report (measure temperature, rainfall and wind direction). Autumn walk Find the indicators of autumn Record changes in day length over a period of timeWhat clothes do we wear this seasonMatch weather to seasonVisit your tree and record what it looks likeVisiting the garden centreCross-curricular links with geographySMSC: Recognise and value the things we share in common (cultural, ethnic, socio economic communities) | (W/S) Investigate what happens to the total length of daylight this term and write a report. Compare results to last term Weather Diary – Report (measure temperature, rainfall and wind direction). Autumn walk Find the indicators of autumn Record changes in day length over a period of timeWhat clothes do we wear this season cut and stick activitiesCross-curricular links with geographySMSC: Recognise and value the things we share in common (cultural, ethnic, socio economic communities) | Observing through video or first hand how different animals, humans grow.Identify things animals need for survivalIdentify what humans need to stay healthyMake a model of the body and label partsDraw around the body on a big piece of paper and label all the parts.Name parts on a doll Sing and model head shoulders knees and toes Simon says touch your head, neck, arms etc. Go to the gym for a classwork out(W/S) Explore ways to answer questions around what humans and animals need to survive and stay healthy.Cross-curricular links with PESMSC: Use of imagination and creativity in their learning | Observing through video or first hand how different animals, humans grow.Identify things animals need for survivalIdentify what humans need to stay healthyBring in things to smell, taste, hear and feel. Sense detectives worksheet.Describe which part is associated with which sense.Make drinks or explore foods linked to Spring: Easter, Passover, St. Patrick's Day, Cinco De Mayo (W/S) Explore ways to answer questions around what humans and animals need to survive and stay healthy.Cross-curricular links with Food Technology, RE SMSC: Use of imagination and creativity in their learning | Exploring and naming different materials.  Grouping materials that are made of wood, plastic, water, metal, glass and rock. Museum of Science and Industry(W/S) Investigate the change in temperature of this term. Cross - curricular links with geographySMSC: Ability to recognise the difference between right and wrong | What clothes we wear this season cut and stickSeasonal Walk Describe the different objects in the feely bag and guess what they are. (W/S) Investigate the change in temperature and compare it to last term. Cross - curricular links with geographySMSC: Ability to recognise the difference between right and wrong |
| **SKILLS to be developed** |
| **Observe and Describe****Recording**Gather and record data to help in answering questions | **Observe and Describe****Recording**Gather and record data to help in answering questions | **Observe****Record** **Describe** |  **Observe****Record** **Describe** | **Identify and name** **Tell difference** **Describe** **Observation** **Set up enquiry – simple tests** | **Identify and name** **Tell difference** **Describe** **Observation** **Create and evaluate** |
| **VOCABULARY** *(In addition to ‘skills’ terms listed above)* |
| Leaf, flower, blossom, petal, fruit, Weather (sunny, rainy, windy, snowy etc.), seasons (Winter, Summer, Spring, Autumn) and sun.  | Leaf, flower, blossom, petal, fruit, Weather (sunny, rainy, windy, snowy etc.), seasons (Winter, Summer, Spring, Autumn) sunsunrise, sunset, day length | Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hoovesWater, food, air, exercise, hygiene  | Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hoovesWater, food, air, exercise, hygiene | Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy,  | Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, |
|  |
| **Week 1** Name and describe seasons in order - Begin weather and changes in day length diary. **Week 2** Compare trees in different seasons and visit their favourite spot by a tree.**Week 3 - 4** Autumn Walk – Describe weather associated with Autumn **Week 5** Match weather/vocabulary to season. **Week 6** Drawing different plants or in the garden (plants topic)**Week 7:** Assessment  | **Week 1:** Autumn to Winter. Observe and record seasonal changes in weather diary. Visit their favourite spot by a tree.**Week 2:** Carry on recording changes in day length. Carry on making weather diary. Autumn Walk **Week 3-4:** What clothes we wear in Autumn**Week 5** Plant HuntWild Plants: (plants topic)**Week 6** Longest day of the year and when the clocks go backwards and forwards.**Week 7** Assessment | **Week 1 - 2** Explore body parts of humans and animals.Model (Play-Doh/clay), create and label body parts. **Week 3-4** Identify and label body parts on humans and animals. **Week 5 – 6** Make their own “alien” with a range of body parts (2 heads, 5 legs, 2 arms) and simple evaluations of finished models. **Week 7 Assessment**  | **Week 1 - 2** Explore growth of humans and animals. (egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep. Growing into adults can include reference to baby, toddler, child, teenager, adult.)**Week 3-4** Use all 5 human senses to explore different objects, materials, simple drinks/food linked to seasons **Week 5 - 6** Identify and label body parts on humans and animals. **Week 7 Assessment**  | **Week 1-2** Identifying, sorting and introducing simple property names of materials (materials hunt around school or community)**Week 3-5** Use materials to make creative or unusual objects. * Air planes (made from paper and plastic coloured overlays) – measure distances when flying
* Crazy golf – use Lego, building blocks, cardboard, paper, metal to make simple structures for golf ball to travel around or through (bridges)
* Fashion week – make colourful hats or dresses
 | **Week 1-2** Identifying, sorting and introducing simple property names of materials (materials hunt around school or community)**Week 3-5** Use materials to make creative or unusual objects. (e.g. cardboard sunglasses with plastic overlays for lenses, cardboard robots, sensory rice shakers, wood insect hotels, <https://www.youtube.com/watch?v=_uqGXZlF3vA><https://www.youtube.com/watch?v=nsnyl8llfH4><https://www.youtube.com/watch?v=WBYRjdbGhEU><https://www.youtube.com/watch?v=ffYWRFGFFNg> <https://babbledabbledo.com/science-for-kids-diy-insect-hotel/> |

** Medium Term Planning**

 **KS2 Cycle 2 (2023 – 2024)**

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| --- | --- | --- | --- | --- | --- |
| ***Aspiration for Life*** | Differentiated, aspirational targets dependent on pupil needs. | ***Language for Life*** | Explicit teaching/ exposure to new scientific vocabulary | ***Learning for Life*** | Opportunities to develop cross curricular skills e.g. maths, English and ICT |
|  **KS2 CYCLE 4 (2023-2024)** | INTENT; To explore the world around us, observe phenomena, develop scientific vocabulary, be curious and ask questions about what we see, answer scientific questions creatively and form conclusions from our evidence gathered. | **Everyday Materials** | **Everyday Materials** | **Animals (Other Animals Basic Structure)** | **Animals (Other Animals Basic Structure)** | **Plants**  | **Plants**  |
| **Autumn 1 –** 7 weeks | **Autumn 2 -** 7 weeks | **Spring 1 –** 6 weeks | **Spring 2 –** 6 weeks | **Summer 1 –** 5 weeks | **Summer 2 –** 7 weeks  |
| Can identify and discuss the uses of different materials. To become familiar with how materials are used for more than one thing. They should begin to think about suitable or unsuitable materials for particular purposes and they should be encouraged to think about unusual and creative uses for everyday materials. Pupil can compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular usesPupil can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching | Can identify and discuss the uses of different materials. To become familiar with how materials are used for more than one thing. They should begin to think about suitable or unsuitable materials for particular purposes and they should be encouraged to think about unusual and creative uses for everyday materials. Pupil can compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular usesPupil can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching | Combined with Seasonal Changes, Weather Changes and Plants.Pupil can identify and name common animals including fish, amphibians, reptiles, birds and mammals. Pupils can identify carnivores, herbivores and omnivores. | Combined with Seasonal Changes, Weather Changes and Plants.Pupil can describe and compare the structure of common animals. | Combined with Seasonal Changes, Weather Changes and Plants.Pupil can identify and name common wild and garden plants including deciduous and evergreen trees. | Combined with Seasonal Changes, Weather Changes and Plants.Pupil can identify and describe the basic structure of common flowering plants including trees. |
| **SUGGESTED PRACTICALS** *(Choose from or use suitable alternative)* |
| Exploring and naming different materials.  Grouping materials that are made of wood, plastic, water, metal, glass and rock. Museum of Science and Industry(W/S) Investigate the change in temperature of this term. Cross - curricular links with geographySMSC: Ability to recognise the difference between right and wrong | What clothes we wear this season cut and stickSeasonal Walk Describe the different objects in the feely bag and guess what they are. (W/S) Investigate the change in temperature and compare it to last term. Cross - curricular links with geographySMSC: Ability to recognise the difference between right and wrong | Sorting animal Classify animals into fish, amphibian, reptile, bird and mammal and explain why they belong to that group. Can answer a, What am I riddle about an animalObserve key features on a pictureGo to the Zoo (W/S) Investigate everyone’s favourite animal in the class and right a report. Cross - curricular links with geographySMSC: Use of imagination and creativity in their learning | Large sorting circles or hulahoopsManchester MuseumTrip to a pet shop(W/S) Investigate the most common favourite animal in your classCross - curricular links with geographySMSC: Use of imagination and creativity in their learning | Flower hunt Painting flowers Pictogram of flowers Plant Journal Children dig up weeds observe using magnifying glasses and label them Tree hunt Plant hunt with identification charts of plants(W/S) Investigate the number of flowers found in the field.Cross - curricular links with Food Technology and GeographySMSC: Recognise and value the things we share in common (cultural, ethnic, socio economic communities) | Make a plant modelSort plants Go to a park Go to a garden centre (W/S) Investigate the number of flowers found in the field and compare results to last year. Cross - curricular links with Food Technology and GeographySMSC: Recognise and value the things we share in common (cultural, ethnic, socio economic communities) |
| **SKILLS to be developed** |
| **Identify and name** **Tell difference** **Describe** **Observation** **Set up enquiry – simple tests** | **Identify and name** **Tell difference** **Describe** **Observation** **Create and evaluate** | Identify and classifyGroup Discussion**Plan and Enquire**Ask simple questions and recognise they can be answered in different ways. Describe and compare  | RecordingGather and record data to help in answering questionsIdentify and classifyGroup | Observe and DescribeRecordingGather and record data to help in answering questions | Observe and DescribeRecordingGather and record data to help in answering questions |
| **VOCABULARY** *(In addition to ‘skills’ terms listed above)* |
| Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy,  | Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy,  | Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves | Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves | Names of trees in the local areaNames of garden and wild flowering plants in the local area. | Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud |
|  |
| **Week 1-2** Identify, sort and use basic properties to describe materials **Week 3-4** Compare materials between home and schooland also found in other places (trips, local park, in stories etc)**Week 5-6** Use materials to make creative or unusual objects. * Air planes (made from paper and plastic coloured overlays) – measure distances when flying
* Metal foil floats – to succeed in floating or holding paper clips on water
* Crazy golf – use Lego, building blocks, cardboard, paper, metal to make simple structures for golf ball to travel around or through (bridges)
* Fashion week – make colourful hats or dresses

**Week 7** Assessment | **Week 1-2** Identify, sort and use basic properties to describe materials **Week 3-4** Compare materials between home and schooland also found in other places (trips, local park, in stories etc)**Week 5-6** Use materials to make creative or unusual objects. (e.g. cardboard sunglasses with plastic overlays for lenses, cardboard robots, sensory rice shakers, wood insect hotels, <https://www.youtube.com/watch?v=_uqGXZlF3vA><https://www.youtube.com/watch?v=nsnyl8llfH4><https://www.youtube.com/watch?v=WBYRjdbGhEU><https://www.youtube.com/watch?v=ffYWRFGFFNg> <https://babbledabbledo.com/science-for-kids-diy-insect-hotel/>**Week 7** Sequence and evaluate creations Differentiation example: * Label parts of creation
* Sequence making process (beginning, middle and end)
* Change or improve their creations – this could be practical or through simple task sheets (pupils to learn early stages of evaluation and thinking of ways to improve experiments/creations)
 | **Week 1 Autumn to Winter.** Observe and record seasonal changes in weather diary. Visit their favourite spot by a tree. **Week 2** Carry on recording changes in day length. Carry on making weather diary. Winter Walk**Week 3** Identify common animals. **Week 4** Carnivores **Week 5** Herbivores **Week 6**  Omnivore **Week 7** Assessment | **Week 1** Winter to Spring Observe and record seasonal changes in weather diary. Visit their favourite spot by a tree.**Week 2** Define mammal and observe common mammal parts.**Week 3** Define fish and label fin tails eyes.**Week 4** Define amphibians and legs tongues and heads.**Week 5** Define reptile and label legs, heads and scales **Week 6** Define bird and label feet feathers and beaks.  | **Week 1 Spring to Summer** Observe and record seasonal changes in weather diary. Visit their favourite spot by a tree. **Week 2** Carry on recording changes in day length. Carry on making weather diary. Summer Walk**Week 3** Name 3 common wild plants – daisies, clover and dandelions Name 3 common garden plants rose, daffodil, tulips and primrose.**Week 4** Can name 3 common trees oak, pine, fir, fruit trees, sycamore, horse, cherry blossom.**Week 5** Assessment  | **Week 1** Summer observe and record seasonal changes in weather diary. Visit their favourite spot by a tree.**Week 3** Sun Safety Awareness and clothes this season**Week 4-5** Pupil can label petal, stem, leaf, fruit, branch, trunk, seeds, bulb, flowers, roots**Week 6** Pupil can sort plant parts into groups**Week 7** Pupil can point to on request petal, stem, leaf, fruit, branch, trunk, seeds, bulb, flowers, roots |