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**Long Term Mapping**

**Science**

 **KS3**

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|  | **KS3** | **KS3** | **KS3** |
| **Cycle 1** **(2022 – 2023)** | **Cycle 2** **(2023-2024)** | **Cycle 3** **(2024-2025)** |
| **Autumn**  | **1** | Physics - Seasonal Changes  | Living Things and their Habitats  | Biology - *Animals Including Humans* Skeletons and Movement |
| **2** | Chemistry - *Materials* Rocks | Chemistry - *Materials*  | Chemistry – *Materials* Rocks  |
| **Spring** | **1** | Physics Light  | Physics - Light  | Physics - Seasonal Changes |
| **2** | Biology – *Animals Including Humans* Health  | Biology - Plants  | Physics - Light |
| **Summer**  | **1** | Biology - Plants  | Physics - Seasonal Changes  | Physics - Forces and Magnets |
| **2** | Physics - Forces and Magnets  | Physics - Forces and Magnets  | Biology - Plants |

**Medium Term Planning**

**Key Stage 3**

**Cycle 1 (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. |
| **KS3 Cycle (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 Changes** | **Rock/Materials** | **Light** | **Health** | **Plants**  | **Forces and Magnets** |
| **Autumn 1 –** 7 weeks | **Autumn 2 -** 7 weeks | **Spring 1 -** 6 weeks | **Spring 2 -** 6 weeks | **Summer 1 -** 5 weeks | **Summer 2 -** 7 weeks  |
| Pupil can name the four seasons and identify when in the year they occur.Pupil can observe changes across the four seasons.Pupil can observe weatherassociated with the seasons.Pupil can describe the weather associated with the seasons.Pupil know that day length varies e.g. the length of sunlight per day (24hours) varies through the year. | Pupil can distinguish between an object and the material from which it is made.Pupil can identify a variety of everyday materials including wood, plastic, glass, metal, water and rock. | Pupil knows and can name the body part that sense light. Pupil knows that they need light to see things.Pupil explores light and shadow. | Pupil can describe the basic survival needs of animals.Pupil understands the importance of exercise, eating the right amount of different foods and the need for hygiene. | Pupil explores and are able to describe what plants need to grow survive as healthy plants. - Water, light and a suitable temperature. | Pupil to explore/experience how objects move on different surfaces.Pupil to use magnets to test whether objects are magnetic or not.Pupil to explore forces through practical experiments in a controlled environment. |
| **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 time (sunrise and sunset).What clothes do we wear this season, why?Match weather to season.Visit a tree and record what it looks like in autumnCross Curricular – ArtVISITS – Local park, Astronomy Centre, TodmordonSMSC: Recognise and value the things we share in common (cultural, ethnic, socio economic communities) | (W/S) Investigate which material is the most resistant by scrubbing sandpaper on it.(W/S) Investigate which material is best for specific purposes – e.g. umbrellas, swimsuits, sound proofingExploring and naming different materials.  Grouping materials that are made of wood, plastic, water, metal, glass and rock Sort and classify rocks and soilsDescribe the different objects in the feely bag and guess what they are.Group materials according to properties Testing objects to see if they are bendy or not.Which material/s are best for … Make a soundproof box.Make a umbrellaMake a lunchbox – bag etc.Brass rubbingsCross Curricular – ArtVISITS – Local park and church yard.SMSC: Ability to recognise the difference between right and wrong | (W/S) By looking for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes. Draw around partner’s body and name body parts. Emphasise eyes need light to see. Use a box with a small whole in the middle, place objects inside and get the pupils to guess what’s inside. Add torch into the box and switch it on. When pupils look in the whole again they can see the objects. Get them to guess what’s inside the box first. – we need light to see objects. Make shadow puppets. Go on a shadow walk. Explore materials using torchesMake a pinhole camera. Use prisms to explore bending light. Explore rainbows. Think about why it is important to protect our eyes from bright lights.Cross Curricular: Food Technology, ICTVISITS: sensory trail, Boo Theatre to make puppets. Astronomy Centre, Todmordon, National Science and Media Museum BradfordSMSC: Recognise and value the things we share in common (cultural, ethnic, socio economic communities) | (W/S) Practical: Time yourself doing 5 different exercisesPlace pictures of animals and what they eat. Get pupils to match them to what they eat. Those that can’t go to the hungry corner. Ask them what happens if their animals don’t find their food?Keeping clean activities sheet.Hygiene Hero’s game How to wash your hands- carry outGlitter Bugs Record Hygiene Bingo Hand washing song Create a healthy menu/lunchbox and an unhealthy menu/lunchboxFood pyramid – health eating postersCross Curricular: PSHE, HistoryVISITS: GP, nurse, dietician, dentist, ambulance service to visit school. Or visit a pharmacist or supermarketSMSC: Respecting for different people’s feelings and values | (W/S) Comparative tests, do plants grow better in sunlight and water, just sunlight, just water or neither sunlight and water?Measure the length of the stem for your method, draw a graph/take pictures of results and make a conclusionObserve real plants and draw what they look like. Label different parts of the plant and describe its function.Undertake comparative tests to test hypothesis of the optimum conditions for plants to grow, recording your evidence.How to plants reproduce? Look at seed dispersal and how different plants are-produce.Use the outdoor classroom and poly-tunnels to grow plants from seeds.Cross Curricular: Geography, danceVISITS: Garden centre, local nursery or parkSMSC: Recognise and value the things we share in common (cultural, ethnic, socio economic communities) | (W/S) Investigate which surfaces are easier to push objects on e.g. toy car.(W/S) Investigate which objects are magnetic and which are non-magnetic. Investigate how surface affects how far an object travels (friction - compare carpet and table)(W/S) Explore the effects of gravity and air resistance using a variety of parachutes. Pushing and pulling different materials – tug of warExperiencing a variety of push and pull in everyday objects e.g. wheeled toys, opening and closing doors, rolling and cutting out pastry’s or dough, making bread and magnetsIdentify photographs of push and pullMake objects faster and slower, e.g. cars up and down ramps Use the running resistance/drag parachute to explore air resistance.Make paper airplanes/spinners to explore air resistance, drag and friction.Cross Curricular: DT/ PEVISITS: Railway Station, airport, fairground. SMSC: Cooperating well with others and being able to resolve conflicts effectively  |
| **SKILLS (*to be developed)*** |
| **Observe and Describe****Recording**Gather and record data to help in answering questions | **Describe and Observe** Identify and name Tell difference  | Observe Explore **Recording**Gather and record data to help to answer questions**Interpret/report** Identifying and classifyinginterpreting | Identify Describe **Evaluate** Using observations and ideas to suggest answers to simple questions. | **Recording**Observe and explore in order to gather and record data to help to answer scientific questions | **Recording and Sorting**Gather and record data to help in answering questionsInterpret/ report Identifying and classifyingInterpretingPlan and Enquire Ask simple questions and recognise they can be answered in different ways |
| **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, axis, tilts, Earth, Sun, planets, rotates, solstice, equinox, orbits, hemisphere. | Object, material, wood, plastic, glass, metal, water, rock, soil, crystal, fossil, sedimentary, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, translucent, opaque, dull, shiny, soundproof, waterproof, synthetic, composite, manmade, natural, ceramics, properties. | Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, shadow, reflection, refraction, prism, dispersion, spectrum, light waves, particles, photons, optic, energy, camera, telescope, eye, iris, pupil, lense.  | Exercise, heartbeat, breathing, hygiene, germs, disease, infection, the different food groups, blood pressure, stethoscope, thermometer.  | Stem, roots, flower, leaves, petals, flower, seeds, dispersal, reproduction, sunlight light, water, growth, nutrients, photosynthesis, germinate, chlorophyll, oxygen, carbon di-oxide, DNA | Force, push, pull, twist, contact force, bend, stretch, gravity, air resistance, fast, slow, rough, smooth, magnet, magnetic, strength, bar/horseshoe magnet, |
|  |
| **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** Autumn Walk – Describe weather associated with autumn **Week 4** Match weather/vocabulary to season.**Week 5** What clothes do we wear at different point in the year.**Week 6** Longest day of the year. When the clocks go backwards and forwards.**Week 7:** Assessment  | **Week 1** Name different materials and group them**Week 2** Describe everyday properties of materials**Week 3** Compare everyday materials on the basis of their properties**Week 4** Make a soundproof box**Week 5 - 7** Explore,rocks and soils – differences and similarity – compare and group together different rocks based on their appearance and simple properties, make fossils from clay and simple salt crystals. | **Lesson 1 -2** Explore the difference between like and dark**Lesson 3-4** Know which part of the body detect slight**Lesson 5** How do we see objects around us? Make pinhole camera**Week 6** Assessment  | **Week 1** Discuss the basic needs of humans (water, food and air).**Week 2** Define healthy and unhealthy foods and sort them.**Week 3** Plan and complete a series of investigations to see which exercise makes your heart beat faster?**Week 5-6** Design a poster to explain a simple hygiene routine like washing our hands – why is personal hygiene important. | **Week 1** What conditions do plants grow best in? Begin comparative tests.**Week 2** Re-cap parts of the plant and their functions. **Week 3** Life cycle of a plant - DNA extraction activity**Week 4** Record results for what conditions plants grow best in**Week 5 Assessment**  | **Week 1 -2** Find out which materials objects travel fastest on?**Week 3** Know that some forces need contact between 2 objects but magnetism acts from a distance **Week 4** Define magnet and explore a bar magnet to test whether objects are magnetic or not. Group objects into magnetic and non-magnetic**Week 5** Look at gravity and air resistance, make paper airplanes, helicopters, spinners, hula-hoops**Week 6** Define basic forces as push and pulls – push and pull activities including ICT push and pull games.**Week 7** Football – to represent push and pull, basketball to represent throwing/pushing  |

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**Medium Term Planning**

**Key Stage 3**

**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 |
| **KS3 Cycle 2 (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.  | **Living Things and their Habitats** | **Rocks/Materials** | **Light** | **Plants** | **Seasonal Changes** | **Forces and Magnets** |
| **Autumn 1 -** 7 weeks | **Autumn 2 -** 7 weeks | **Spring 1 -** 6 weeks | **Spring 2 -** 6 weeks | **Summer 1 -** 5 weeks | **Summer 2 -** 7 weeks  |
| Pupil can explore and compare the difference between things that are living, dead, and things that have never been alive. Pupil is able to identify different habitats and the animals that live in them. Pupil understands that living things adapt to a habitat to which they are best suited, and how living things depend on each other to survive | Pupil can identify a wider variety of materials.Pupil can compare the suitability of a wider variety of materials.Pupil can change the shape of solid objects by squashing, bending, twisting and stretching.Pupil can select solid objects which are likely to change shape if squashed, bent, twisted and stretched.Pupil can identify creative uses of everyday materials and give a reason why. | Pupil knows that they need light to see things.Pupil explores light and shadow.Pupil to explore how we see colour | Pupil can observe and describe how seeds and bulbs grow into mature plants, and discuss the similarities and differences they observe. | Pupil can name the four seasons and identify when in the year they occurPupil can observe changes across the four seasons.Pupil can observe weather associated with the seasons.Pupil can describe the weather associated with the seasons.Pupil knows that day length varies. | Pupil notices that some forces need contact between two objects, but magnetic forces can act at a distance.Pupil knows that magnets have 2 poles. Pupil can name different forces.Pupil can describe how different forces can affect objects |
| **SUGGESTED PRACTICALS** *(Choose from or use suitable alternative)* |
| (W/S) Sorting and classifying things according to whether they are living, dead or were never alive, and recording their finding using charts.Woodlice HabitatsSorting Living and Non-living (sorting hoops)Visit a suitable local habitat Record number of each mini-beast on a your habitatMake your own habitat – bee, butterfly, wormery, insect.Choose a habitat to go back to and observe throughout the yearCross Curricular: Geography, Art, PSHEVISITS: Chester Zoo, Manchester Museum, Lancaster Butterfly, Bleakholt Animal Sanctuary, House, Insect/owl man to visit school, SMSC: Use of imagination and creativity in their learning | (W/S) By observing rocks, including those used in buildings and gravestones and exploring how and why they might have changed over time. Using a hand lens to identify and classify rocks according to whether they have grains, crystals on fossils in them. Exploring and naming different materialsIdentifying common materials that objects are made fromDescribe the different objects in the feely bag and guess what they are and what they are made fromGo out in the school grounds and local community, identify uses of different materials, are they manmade or naturalProvide a range of objects (e.g spoon, ruler, glass) to explore. Name the objects and the materials they are made from. Pupils to give suggestions why these objects are made from these materials..Explore changing the shape of different objectsCircus activity – can objects be squashed twisted or bended?Sort out recycling Choose the correct material to build something that would stop an egg from smashing when it fallsCross Curricular: DT, ArtVISITS: Wood/builders yard, garden/recycling centre, Church, Glass factory Crafts people – to visit school SMSC: Ability to recognise the difference between right and wrong  | (W/S) Investigate how many materials around school you can find that are translucent, opaque and transparentMaking Shadows: Punch holes in the centre of three equal-sized pieces of card. Hold the pieces of card so that the holes line up. Shine a torch so that the beam of light can travel straight through the holesSearch of objects in a light space and dark space. Search for light and dark in the MSE roomMake shadow puppetsLightbox activities Cross Curricular: ArtVISITS: Hall of mirrors, theatre lights, planetariumSMSC: Recognise and value the things we share in common (cultural, ethnic, socio economic communities) | (W/S) To identify and describe the basic structure of a variety of common flower plants, including trees. Observe real plants and trees and draw what they look like. Label different parts of the plant or tree and describe its functionsTo go on a walk in the school grounds, local community to identify plants in the school. Make a map of what plants, trees they found and where.Make models of how different seeds can disperse.Plant seeds and seedlings using the outdoor classroomWhat plants can we eat? Cross Curricular: GeographyVISITS: Garden CentreSMSC: Ability to recognise the difference between right and wrong / understanding the consequences of their behaviour and actions  | (W/S) By making tables and charts about the weather: and making displays of what happens in the world around them, including day length, as the seasons change. Weather Diary – Report (measure temperature, rainfall and wind direction)Summer walk Find the indicators of summer 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 likeObserve changes across the 4 seasonsCross Curricular – ArtVISITS – Park SMSC: Recognise and value the things we share in common (cultural, ethnic, socio economic communities) | (W/S) By planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. By identifying scientific evidence that has been used to support or refute ideas or arguments Role play freeze-frames for different actions that involve push or pull. Ten Pin Bowling – Can use a ball and tin cansBall games, riding bikes, balloons, blowing bubblesPlay games or use PE activities to demonstrate understanding of faster and slowerTalk about when it is useful to change direction, go faster and go slowerMake levers and pulleys to move objectsCross Curricular DTVISITS – Railway station, fairgroundsSMSC: Cooperating well with others and being able to resolve conflicts effectively  |
| **SKILLS (*to be developed)*** |
| **Recording**Gather and record data to help in answering questions**Interpret/ report** Identifying and classifyingInterpreting**Plan and Enquire** Ask simple questions and recognise they can be answered in different ways | Observation **Recording** Making models | **Observe and Explore**RecordingGather and record data to help in answering questionsInterpret/ report Identifying and classifyingInterpreting | Observe Explore Recording**Identify** **Describe**  | **Observe and Describe****Recording**Gather and record data to help in answering questions | Observation **Record** Gather, record, classify and present data in a variety of ways to help in answering questionsRecord findings using simple scientific language, drawing, labelled diagrams |
| **VOCABULARY** *(In addition to ‘skills’ terms listed above)* |
| Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, habitats names e.g. pond, woodland, savannah, etc., names of micro-habitats e.g. under logs, in bushes, adaptation, evolve, organism, micro-organism | Shape, push/pushing, pull/puling, twist/twisting, squash /squashing. Bend/bending, stretch/stretching, absorbent, waterproof | Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow | Stem, roots, flower, leaves petals, flower, blossom, trunk, branch, fruit, seed, evergreen, deciduous, annual, perennial, wild plant, garden plant, vegetable  | Leaf, flower, blossom, petal, fruit, Weather (sunny, rainy, windy, snowy etc.), seasons (Winter, Summer, Spring, Autumn) and sun. | Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, resistance, bar/ring/button/horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole |
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| **Week 1** Define living, dead and alive and sort animals into living dead or alive **Week 2** Define habitat, look at examples and describe the habitat you live in**Week 3** Research an animal and its habitat how has it evolved, adapted to survive**Week 4** Define Micro habits and go on a mini beast hunt**Week 5**  Define food chains and construct them**Week 6** Food Webs**Week 7 Assessment** | **Week 1** Identify a wide variety of materials (brick, paper and cardboard). Discuss their properties.**Week 2** Identify possible uses for brick, paper and cardboard, make paper.**Week 3** Squashing, twisting and bending; make playdoh cloud dough, kinetic sand and gloop. Discuss the properties of each material. **Week 4-5** Sort objects into those that will twist, bend and squash**Week 6-7** Making models from rocks and clay e.g. fossils and crystals | **Lesson 1** Explore the difference between like and dark **Lesson 2** Search for objects in light and dark spaces**Week 3** Make shadow puppets **Week 4** Experiment with making your shadow longer and shorter**Week 5** Explore changes in light through different materials, translucent, opaque and transparent, prisms. Make rainbow with bubbles and black and white, coloured spinners, thaumatrope.**Week 6** **Assessment**  | **Week 1** Re-cap parts of the plant and functions**Week 2** Follow a method to plant a seed. Over the coming weeks watch it grow**Week 4** Seed Dispersal**Week 5-6** Order the simple life cycle of a plant Collect plants to take home from week 2.Describe weather associated with summer in the UK. | **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** Summer Walk – find a name 3 or more wild flowers, 3 trees or more trees. Draw and describe your flowers and trees **Week 4 - 5** Match weather vocabulary to season – Look at sun safety What clothes we wear in summer? Why?**Week 6** Longest day of the year and when the clocks go backwards and forwards**Week 7** Assessment  | **Week 1-2**  Push and Pull activities**Week 3-4** Observe and compare and find out the different friction and a magnetic force (One is a contact force the other is a non-contact force)**Week 5** Understand the magnets have a north and a south pole – practical activities using magnets**Week 6 – 7** Resistance – air and water resistance practical activities – design and make paper airplanes, helicopters spinners – which design worked best? How far did it fly, how quickly did it drop? |

**Medium Term Planning**

**Key Stage 3**

**Cycle 3 (2024 – 2025)**

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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 |
| **KS3 Cycle 3 (2024 – 2025)** | 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 Skeletons and Movement** | **Materials Rocks** | **Seasonal Changes** | **Light** | **Forces and Magnets** | **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  |
| Pupil can identify that humans and some otheranimals have skeletons and muscles forSupport, protection and movement. | Pupil can compare and group different kinds of rock on the basis of their appearance.Pupil can compare and group different kinds of rock on the basis of their simple physical properties.Pupil can describe in simple terms how fossils are formed.Pupil can recognise that soil is made of rocks and organic matter.Pupil knows that some rocks can be weathered to become smoother. | Pupil can name the four seasons and identify when in the year they occur.Pupil can observe changes across the four seasons.Pupil can observe weather associated with the seasons.Pupil can describe the weather associated with the seasons.Pupil knows that day length varies according to the seasons and the Earth’s tilt. | Pupil notices that light is reflected from surfaces.Pupil recognises that shadows are formed when light from a light source is blocked by a solid object and finds patterns in the way that the size of shadows change. | Pupil knows that magnets have 2 poles.Pupil can name the two magnet polesPupil can identify and name different forces | Pupil can explain the function of the parts of a flowering plant.Pupil can carry out investigations to find the optimal growing conditions for plants.Pupil can describe the life cycle of flowering plants, including pollination, seed formation, seed dispersal, and germination.Pupil can give name different methods of pollination and seed dispersal, including examples. |
| **SUGGESTED PRACTICALS** *(Choose from or use suitable alternative)* |
| a(W/S )By observing changes in an animal/human over a period of time (for example, by hatching and rearing chicks), comparing how different animals including reproduce and growSorting skeletons activity human and animalSkeleton functions activity sheetMake card board skeletonsLook at x-rays of bonesCirculatory system – make heart pumpMake lung model with balloons Muscles and jointsDigestive systemWhich activity is the best exercise for our muscles?Hatch chicksWhat foods are good for bones?Cross - curricular links with PEVisit Tesco to look at all the foods SMSC: Interest in investigating and offering reasoned views and moral and ethical issues and appreciate viewpoint of others | (W/S)Find and record the best and worst material for a new paved area in school Investigate what happens when different rocks are added to water and rubbed together and record results(W/S)Testing permeability of soil – (Rock reports)Use a microscope or hand lense to look at the surface of rocksExplore, discuss and draw rocks Name the 3 different types of rocksGroup rocks - similarities/differencesMake fossils Make crystalsMake edible rocksMake cave drawings using chalkExcavation activities for fossilsMake rock display Make rock cycle diagram (song) *beakersandbumblebees.blogspot.com*Weight rocks, do large rocks weight more than small rocks?Cross - curricular links with geography – ArtVisit an area with different rock formation to observe – Yorkshire dales. SMSC: Ability to recognise the difference between right and wrong | (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) – handling data and measurementsSpring walk Find the indicators of springRecord 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 likeHow does spring effect plants and animalsMeasuring temperatureThe Water CycleMake a spring collage using colour, pattern and shapeUse a globe to find the UK and the equatorLearn the Makaton signs for the seasons and months of the year.Cross Curricular – Maths, Art, GeographyVISITS – Local parkSMSC: Recognise and value the things we share in common (cultural, ethnic, socio economic communities) | (W/S) Compare which reflective different pupils reflective bags in the classroom to find out which one is the best(W/S)Test which materials make shadowsDesign a reflective book bag Mirror games- use a mirror to show your partner something you have drawn. Swap messages to decipher what has been written Mirror Games – walk on a wavy line while looking in a mirror held overhead. Making Shadows: Punch holes in the centre of three equal-sized pieces of card. Hold the pieces of card so that the holes line upShine a torch so that the beam of light can travel straight through the holesBend light with prisms.Make a kaleidoscopeResearch how animals use camouflage Light, colour and heat – do some colours absorb more light than others?Light source sorting game Cross Curricular: Art VISITS: Hall of mirrors, theatre lights, planetariumSMSC: Recognise and value the things we share in common (cultural, ethnic, socio economic communities) |  (W/S) By exploring falling paper cones, or cupcake cases, and designing and making a variety of parachutes and carrying out fair tests to determine which designs are the most effective. They might explore resistance in water by making and testing boats of different shapes. They might design and make products that use levels, pulleys, gears and/or springs and explore their effects.Investigate which poles of a magnet attract or repelInvestigate materials that are magnetic and non-magneticTest the strength of magnets using paper clips etcInvestigating friction using a toy car and boards with different surfacesResearch Galileo Galilei and Isaac Newton to begin to understand the theory of gravityExplore the effect of levers, pulleys and simple machine on movementsMake boats to test water resistance airplanes to test air resistance and carry out fair tests to record findingsUse force arrows in diagramsMake Lava lampsCross Curricular: DTVISITS: WOW science to visit schoolSMSC: Cooperating well with others and being able to resolve conflicts effectively  | (W/S) Compare the speed of water transportation using different temperatures and food colouring in different plants**Practical:** Measure how much water do plants need to grow? Investigate if a plant will grow better at different temperatures, light and soil conditionsMatch picture of plant part to its function Practical - Food colouring to show water transportation in plantsLook at photosynthesis: the reactants in, and products of, photosynthesis, and a word summary for photosynthesisResearch the adaptations of leaves for photosynthesisTry to grow new plants from different parts of a plantObserve life-cycle changes in a variety of living things, for example, plants in the vegetable garden or flower bed.Watch David Attenborough – life of plants – which looks at the lengths plants go to surviveThe Plant Detective – ICT - Interactive presentation looking at reproduction, photosynthesis and adaptationWatch Why Are Plants Important video – living things need plants to live – they eat them, live in them. Plants help to clean water too.Investigate if plants grow better with fertilizer – nutrients Egg box and cress/grass headsCross - curricular links with geography and food technology Go to Garden CentrePlant MuseumSMSC: Cooperating well with others and being able to resolve conflicts effectively  |
| **SKILLS (*to be developed)*** |
| **Ask questions and plan enquiry**Ask relevant questions and use different types of scientific enquiries to answer them | Compare Group Describe **Observe and Measure**Making systematic and careful observationsDescribe**Interpret + Report** Reporting on findings from enquiries, including oral and written explanations, displaysor presentations of results and conclusions | **Observe and Describe****Recording**Gather and record data to help in answering questions | DefineDesign**Record**Gather, record, classify and present data in a variety of ways to help in answering questionsRecord findings using simple scientific language, drawing, labelled diagrams, keys, bar charts and tables | Observation **Record** Gather, record, classify and present data in a variety of ways to help in answering questions**Interpret + Report** Reporting on findings from enquiries, including oral and written explanations, displaysor presentations of results and conclusions | **Observe and Measure**Making systematic and careful observations and measurements using standard units**Recording**Gather and record data to help in answering questions**Evaluate** Using observations and ideas to suggest answers to simple questionsExplore |
| **VOCABULARY** *(In addition to ‘skills’ terms listed above)* |
| skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints, heart, lung, move, rigid, cartilage, scientific name of the human bones, name of the muscles and joints, amphibians, birds, reptiles, mammals, fish, exoskeletons, endoskeletons | Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil, absorbent, porous, permeability, geology | Leaf, flower, blossom, petal, fruit, Weather (sunny, rainy, windy, snowy etc.), seasons (Winter, Summer, Spring, Autumn), Water cycle, equator, deciduous, evergreen | Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous, camouflage, prism, light wave, kaleidoscope, mirror | Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole air resistance, water resistance, gravity, fair test, hypothesis, conclusion, variable, friction, floating, sinking, equilibrium | Stem, root, tuber, shoots, pollination, dispersal, nutrient, fertiliser, germination, flower, leaves, petals, flower, blossom, trunk, branch, fruit, seed, evergreen, deciduous, annual, perennial, wild plant, garden plant, vegetable, photosynthesis, succulent, hydroponics |
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| **Week 1** - **2** Identify that humans have skeletons and muscles for support, protection and movement - Identify the similarities and differences between animal and human - What would happen if we didn’t have a skeleton? skeletons**Week 3** Muscles are responsible for maintaining posture, physical movement and movement of internal organs (such as keeping the heart pumping to circulate blood and moving food through the digestive system – find and name these muscles.**Week 4** Make a model of the hear (muscle) using balloonsDefine muscle and answer the question how we can exercise this muscle**Week 5-6** Write a plan to describe how we can find out which activity is the best exercise for our muscles**Week 6** Carry out investigation to find out which activity is the best exercise for our muscles and come up with a conclusion **Week 7 Assessment** | **Week 1 :** Look at the surface of rocks under a microscope, use your senses to explore the rocks, describe what you can see, feel etc.**Week 2** Grouping man-made, natural rocks. What are the differences?**Week 3** Grouping rocks into igneous, metamorphic and sedimentary learn the rock song.**Week 4** Investigate the best material for a new paved area in the school. Write a scientific report**Week 5** Define fossil and group rocks that have fossils and those that don’t.**Week 6** Describe how fossils are formed – make fossils from clay**Week 7** Investigate what happens when different rocks are added to water and rubbed together and record results | **Week 1** Name and describe seasons in order - Begin weather and changes in day length diary. Discuss what clothes we wear in spring. **Week 2** Compare trees in different seasons and visit their favourite spot by a tree – can you name 3 trees? **Week 3** Spring Walk – Describe weather associated with spring, what signs of spring can you find, take pictures, list, or draw your findings - **Week 4** Spring usually brings lots of rain, which has an effect on the landscape. Learn about the Water Cycle. **Week 5** Finish work on the Water Cycle - Make a spring collage**Week 6 Assessment**  | **Week 1** Define reflection and design a reflective book bag **Week 2** Define reflection and play mirror games **Week 3** Define shadows, make a shadows and test to see which materials make shadows**Week 4** Changing Shadows – camouflage games**Week 5** Make a kaleidoscope**Week 6** Make a rainbow and experiment with light, colour and heat. | **Week 1** Predict and investigate which poles of a magnet attract and which repel – draw and label the poles on a magnet in the correct colours**Week 2** Investigate materials that are magnetic and non-magnetic – record findings in a simple chart**Week 3-4** Carry out fair tests exploring water and air resistance by designing boats and airplanes – record your results on a chart.**Week 5** Investigating friction. Complete a range of fair tests to explore how friction can effect speed distance, time a toy car can travel over a set distance.**Week 6 Assessment**  | **Week 1** To identify and name the different parts of the plant and their functions – plant vegetables and attempt to grow plants from different parents of the parent plant**Week 2** Compare the speed of water transportation using different temperatures and food colouring in different plants**Week 3-4** Describe what plants need to grow including habitat - Take cuttings and grow plants – make cress/grass heads**Week 6** Plan an investigation to find out which temperature a plant will grow in **Week 7** Assessment To find out about pollination (flower dissection |