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| **Pendeen SCIENCE SCOPE, CONTENT and SEQUENCING Year A LOWER KEY STAGE 2** |
| Year Group: 3 / 4 | Half term: Year AAutumn 1 | SCOPE: States of Matter | CONTENT / INTENT: [LINK TO NC Learning OBJECTIVES](https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study#upper-key-stage-2--years-5-and-6)Compare and group materials together, according to whether they are solids, liquids or gasesObserve that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C). |
| Prior Learning | Lesson 1 | Lesson 2 | Lesson 3 | Lesson 4 | Lesson 5 | Lesson 6 | Future Learning |
| **Yr.2 – Uses of Everyday Materials –** Identify and compare the suitability of a variety of everyday materials including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. | **LO:** What is a particle? Initial assessment.Introducing Particles and Particle Diagrams | **LO: Solids** | **LO: Liquids**Exploring DensityAnd Viscosity of Liquids | **LO: Gases** | **LO:**Teacher assessment**Classification of Everyday Objects** also begin the activities around state of matter depending on activities chosen. | LO: **Activity: Rates of Evaporation –** choose experiment from PZAZ that highlight the change of each state of matter.**The Water Cycle** | Continue to reflect on Memory book and use low stake questioning to embed into long-term memory. Continue learning in Autumn Term 2.Next subject focus:Electricity.States of Matter will be formally explored again in years 5. |
| **Success Criteria**Children will know particles are what materials are made from. They are so small that we cannot see them with our eyes.The properties of a substance depend on what its particles are like, how they move and how they are arranged Particles behave differently in solids, liquids . | **Success Criteria**Solids:In the solid state, the material holds its shape. Solids have vibrating particles which are closely packed in and form a regular pattern. This explains the fixed shape of a solid and why it can’t poured. Solids always take up the same amount of space | **Success Criteria**In the liquid state, the material holds the shape of the container it is in. This means that liquids can change shape, depending on the container. Liquids have particles which are close together but random. Liquid particles can move over each other. Liquids can be poured | **Success Criteria**In the gas state, particles can escape from open containers. Gases have particles which are spread out and move in all directions | **Success Criteria**Confidence in knowledge demonstrated by children being able to identify solids/liquids and gases and draw particle diagrams to represent each**.**Cross Curricula Link - English: Produce a report showing what the particle diagrams of solids, liquids and gases look like, with an explanation of some of the properties of each. | **Success Criteria**Understanding that changes of state are reversible changes and explain what that means.Define the terms melting, freezing, evaporation and condensationExplain that changes in temperature are required to cause changes in state of a substance. |
| See previous year groups vocabulary box in this document. | **Vocabulary:** Solid, Liquid, Gas, State of Matter, Fluid, Compressed, Particle, Evaporation, Condensation, Boiling, Melting, Freezing. Evaporation, Precipitation, Condensation, Liquid, Gas, Vapour. |

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| **Pendeen SCIENCE SCOPE, CONTENT and SEQUENCING Year A LOWER KEY STAGE 2** |
| Year Group: 4 | Half term: Autumn 2 | SCOPE: Electricity – circuitsElectricity - Conductors  | CONTENT / INTENT: [LINK TO NC Learning OBJECTIVES](https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study#upper-key-stage-2--years-5-and-6)Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.Recognise some common conductors and insulators, and associate metals with being good conductors.identify common appliances that run on electricity. |
| Prior Learning | Lesson 1 | Lesson 2 | Lesson 3 | Lesson 4 | Lesson 5 | Lesson 6 | Future Learning |
| No previous learning, but pupils may understand that some devices require electricity to work, and that switches can turn devices off and on.Electricity is a form of energy that can be carried by wires and is used for heating and lighting, and to provide power for devices. Sources of light and sound may be needed for electricity to work. | **LO: Electricity - Circuits**Where does electricity come from and what is a circuit? | **LO: Electricity - Circuits**How does a circuit work?Activity: Circuit DiagramsActivity: Adding the switch | **LO: Electricity - circuits**How does a circuit work? Activity: Circuit Game | **LO: Conductors and Insulators**What are electrical conductors and insulators?Activity: Conductor or Insulator? | **LO: Common Appliances that run on electricity.**Which appliances run on Electricity?Activity: Electrical Appliances Activity: Uses of Circuits | **LO: How can demonstrate what you know?**Activity: Building a Burglar Alarm | Continue to reflect on Memory book and use low stake questioning to embed into long-term memory. Continue learning in Spring Term 1.Electricity will be formally explored again in years 5 and 6. |
| **Success Criteria:**Building a circuit and adding a switchDeveloping knowledge around the symbols and how components work in a circuit. | **Success Criteria:**Building a circuit and adding a switchDeveloping knowledge around the symbols and how components work in a circuit. | **Success Criteria:**Children know the answer to the following assessment: the symbols Can explain why components work in a circuit.Can explain how does a switch works. | **Success Criteria:**Can demonstrate knowledge around a conductor and insulator. | **Success Criteria:**Know which appliances need electricity to run. | **Success Criteria:** Children have learnt to:Explain how you decided whether a material is a non-metal or a metal.The difference between an insulator and a conductor.What the name is of the non-metal that is a good conductor of electricity. Children are challenged by problem solving to build a burglar alarm. |
|  | **Vocabulary:** Component, Circuit, Loudness, Brightness, Buzzer, Cell, Battery, Crocodile Clip, Voltage, Current. |

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| **Pendeen SCIENCE SCOPE, CONTENT and SEQUENCING Year A LOWER KEY STAGE 2** |
| Year Group: 3 / 4 | Half term: Year ASpring 1 | SCOPE: Animals inc. Humans Digestive System, Teeth and food chains | CONTENT / INTENT: [LINK TO NC Learning OBJECTIVES](https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study#upper-key-stage-2--years-5-and-6)Describe the simple functions of the basic parts of the digestive system in humansIdentify the different types of teeth in humans and their simple functionsconstruct and interpret a variety of food chains, identifying producers, predators and prey |
| Prior Learning | Lesson 1 | Lesson 2 | Lesson 3 | Lesson 4 | Lesson 5 | Lesson 6 | Future Learning |
| Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat.Yr. 2 – Animals including Humans I know how to group animals according to what they eat, describe how animals get their food from other animals and/or plants, and use simple food chains to describe these relationshipsI know how to describe the basic needs of animals, including humans, for survival (water, food and air) | **LO**: Anatomy Class.Introduce Digestive System – check knowledge and share Digestive Diagram. | **LO**: How long is the intestine and Digestion Starts in the Mouth | **LO**: Learn about the Digestive System by creating a working model.**Function Report**Cross Curricula with Writing. | **LO**: Types of Teeth and their Function.**What Stains Teeth? - Experiment**  | **LO**: To understand why we brush our teeth | LO: **Predator, Prey or Producer? (WS)** What eats me and what do I eat? (WS) | I know how to describe the changes as humans develop to old age I know how to identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and bloodI know how to recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies functionI know how to describe the ways in which nutrients and water are transported within animals, including humansContinue to reflect on Memory book and use low stake questioning to embed into long-term memory. Continue learning in Spring Term 2. |
| **Success Criteria:**Children can label parts of the digestives system and begin to locate them on the body. | **Success Criteria:**Children learn:The mouth starts the digestive process! | **Success Criteria:**Children carry out a practical experiment to understand how the digestive System works. They can understand the stages and the simple functions of the parts of the Digestive System. Using computers and/or books for research, children will research and write a report on the following. Mouth, Oesophagus, Stomach, Liver, Pancreas, Small Intestine, Large Intestine, Rectum, Anus. – selecting most appropriate to the children’s abilities. | **Success Criteria:**Children will research and learn about the different types of human teeth and their functionsWhat Stains Teeth? – Experiment. Children will learn which liquids stain teeth over time – without brushing. | **Success Criteria:**To consolidate knowledge about human teeth and their functions we will learn why they need protecting and how best to do so. | **Success Criteria:**Children learn: Producers are always plants.Predators can be prey and vice-versa.Information cards and research to complete table – Animal classification and Food Chain Comprehension. |
| See previous year groups vocabulary  | **Vocabulary:** Mouth, Oesophagus, Stomach, Intestine, Colon Rectum, Anus, Faeces, Digestion, Nutrients. Canine, Incisor, Molar, Pre-molar, Plaque, Decay, Producer, Predator, Prey, Food Chain, Habitat, Carnivore, Herbivore, Omnivore. |
| **Pendeen SCIENCE SCOPE, CONTENT and SEQUENCING Year A LOWER KEY STAGE 2** |
| Year Group: 3 / 4 | Half term: Year ASpring 2 | SCOPE: SoundHow Sounds Travel | CONTENT / INTENT: [LINK TO NC Learning OBJECTIVES](https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study#upper-key-stage-2--years-5-and-6)* identify how sounds are made, associating some of them with something vibrating
* recognise that vibrations from sounds travel through a medium to the ear
* find patterns between the pitch of a sound and features of the object that produced it
* find patterns between the volume of a sound and the strength of the vibrations that produced it
* recognise that sounds get fainter as the distance from the sound source increases
 |
| Prior Learning | Lesson 1 | Lesson 2 | Lesson 3 | Lesson 4 | Lesson 5 | Lesson 6 | Future Learning |
| Will understand that we use our ears to hear sounds.May understand that different objects, such as musical instruments, make different sounds. | LO: Introduction to Sound | LO: How Sound Travels. Sounds through liquids/Gases/Solids | LO: Sound and Pitch | LO: Sound and Volume | LO: Sound and Distance | LO: Week for review/completion of any outstanding tasks/Assessment. | Continue to reflect on Memory book and use low stake questioning to embed into long-term memory. Continue learning in Autumn Term 2.Children will progress onto Summer 1 term of learning. |
| Success Criteria: Children understanding that sounds are made when materials vibrate.The quality of sound to the physical properties of the material vibrating.Observe that the length of time a material vibrates for depends on that material’s physical properties | Success Criteria:Children can say that sounds start with particles vibratingThey can describe how sound travels by these vibrations being passed on from particle to particleThey can explain why solids are better at passing these vibrations from particle to particle. | Success CriteriaChildren can say that pitch is the ‘squeakiness’ of a soundState that loudness and pitch are not the same thingState that the higher the pitch, the higher the frequency of the sound | Success Criteria:Children know that that volume describes the loudness of a soundThey can state the relationship between the energy used to make the sound and the loudness of the sound | Success Criteria:Children can state that louder sounds will travel further than quieter sounds.Describe sounds as getting fainter with distance from the origin of the sound.Explain why sounds get fainter with distance | Success Criteria:LO: Week for review/completion of any outstanding tasks/Assessment. |
| See previous year groups vocabulary box in this document. | **Vocabulary:** Pitch, frequency, loudness, volume, solid, liquid, gas, particle, vibration, dissipate, propagate.  |
| **Pendeen SCIENCE SCOPE, CONTENT and SEQUENCING Year A LOWER KEY STAGE 2** |
| Year Group: 3 / 4 | Half term: Year ASummer 1 | SCOPE: Living things and their habitats - Classification | CONTENT / INTENT: [LINK TO NC Learning OBJECTIVES](https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study#upper-key-stage-2--years-5-and-6)Recognise that living things can be grouped in a variety of waysExplore and use classification keys to help group, identify and name a variety of living things in their local and wider environmentRecognise that environments can change and that this can sometimes pose dangers to living things |
| Prior Learning | Lesson 1 | Lesson 2 | Lesson 3 | Lesson 4 | Lesson 5 | Lesson 6 | Future Learning |
| **Yr. 1 – Animals including Humans –** identify and name a variety of common animals including fish, animals, reptiles, birds and mammals.Identify and name a variety of common animals that are carnivores, herbivores and omnivores. | LO: ClassificationLiving things and their habitats | LO: ClassificationLiving things and their habitats | LO:Learning Review and written report – Cross Curricular writing. | LO: | LO: | LO: | Year 3 children will complete Science year B curriculum.Year 4 Children will move onto year 5 curriculum learning: How to recognise that living things can be grouped in a variety of ways I know how to explore and use classification keys to help group, identify and name a variety of living things in their local and wider environmentI know how to recognise that environments can change and that this can sometimes pose dangers and have an impact on living things |
| Success Criteria:Children will be able to identify and name some living thingsClassify living things based on their characteristicsUse classification key to classify living things | Success Criteria:Classify living things based on their characteristics | Success Criteria: | Success Criteria: | Success Criteria: | Success Criteria: |
| **Habitat**: A natural environment or home of a variety of plants and animals**Micro-habitat**: A very small habitat, for example for woodlice under stones, logs or leaf litter | Vocabulary: Classification, Mammal, Reptile, Amphibian, Bird, Fish, Vertebrate, Invertebrate, Key. |
| **Pendeen SCIENCE SCOPE, CONTENT and SEQUENCING Year A LOWER KEY STAGE 2** |
| Year Group: 3 / 4 | Half term: Year ASummer 2 | SCOPE: Living Things and their habitats - Extinction | CONTENT / INTENT: [LINK TO NC Learning OBJECTIVES](https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study#upper-key-stage-2--years-5-and-6)Recognise that living things can be grouped in a variety of waysExplore and use classification keys to help group, identify and name a variety of living things in their local and wider environmentRecognise that environments can change and that this can sometimes pose dangers to living things |
| Prior Learning | Lesson 1 | Lesson 2 | Lesson 3 | Lesson 4 | Lesson 5 | Lesson 6 | Future Learning |
| **Yr. 3 – Rocks -** compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock | LO: Extinction | LO: Extinction | Learning Review and written report – Cross Curricular writing with English and Geography – supporting knowledge for Long Term Memory from Spring Term 2. |  |  |  | Continue to reflect on Memory book and use low stake questioning to embed into long-term memory. Continue learning in Autumn Term 2.I know how to describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird I know how to describe the life process of reproduction in some plants and animals |
| Success Criteria:Able to identify some of the natural phenomena that contribute to changing land and seascapes. | Success Criteria:To describe why sudden changes to the environment can adversely affect living things. |  |  |  |  |
| See previous year groups vocabulary box in this document. | Vocabulary: Extinction, Volcano, Earthquake, Asteroid, Crater, Environment, Endangered, Plate Tectonics, Adaption. |