**Ely St. John’s Primary**

**Science- Year 3**

**Rocks and Soils**

Our Science Journey Year 3 Key Science Vocabulary

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| Rocks, igneous, sedimentary, metamorphic, natural, human-made, strata, anthropic  Organic matter, top soil, sub soil, base rock, additions, losses, translocations, transformations  Fossilisation, chemical/body/trace fossils, coprolite  Permeable, impermeable, semi-permeable |

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| **EYFS** | **Y1** | **Y2** | **Y3** | **Y4** | **Y5** | **Y6** |
| Being updated 2020-2021 | Animals - Humans  Plants(trees)/  Seasonal Changes | Living things and their habitats  Animals including humans | Rocks and Soils | Electricity  Sound | Forces  Earth and Space | Living things and their habitats  Light |
|  | Animals  Materials | Uses of everyday materials  Plants | Light  Plants | States of matter  Digestion and Teeth | Properties of Materials | Evolution and inheritance  Electricity |
|  | Plants  Science skills | The Environment  Scientists and Inventors | Animals including humans  Forces and Motion | Living things and their habitats | Living things and their habitats  Animals, including humans | Animals including humans |

**Science-Year 3**

**Rocks and Soils**

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| **Key Knowledge** | I can identify and describe different rocks-igneous, metamorphic and sedimentary  I know how to group rocks based on their properties, and the differences between natural and man-made rocks  I know the difference between a bone and fossil and can order the steps of how a fossil is formed  I know who Mary Anning is and can explain her contribution to Palaeontology  I know that soil is composed of different things and how to describe the four processes of soil formation | | |
| **Key Vocabulary** | |  | | --- | | Rocks, igneous, sedimentary, metamorphic, natural, human-made, strata, anthropic  Organic matter, top soil, sub soil, base rock, additions, losses, translocations, transformations  Fossilisation, chemical/body/trace fossils, coprolite | | Permeable, impermeable, semi-permeable   |  | | --- | |  | | | | |
| **Key Skills** | * asking relevant questions and using different types of scientific enquiries to answer them * setting up simple practical enquiries * making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers * gathering, recording, classifying and presenting data in a variety of ways to help in answering questions * recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables * reporting on findings from enquiries, including oral and written explanations, displays presentations of results and conclusions * using straightforward scientific evidence to answer questions or to support their findings | | |
| **Lines of Enquiry** | 1. Observing over time 2. Pattern seeking 3. Identifying and classifying 4. Research (secondary sources) 5. Fair testing 6. Problem solving | | |
| **Main Unit Line of Enquiry** | 3. Identifying and classifying | | |
| **By the end of this unit…**  **Include key skills and key knowledge** | ...all children should be able to:  Name the three different types of rocks.  Handle and examine rocks to  Identify their properties, with support.  State the four different types of matter that soil is composed of.  Make careful observations.  Work together on an experiment or investigation.  Say what happened in their experiment or investigation.  Identify people who use science to help others. | **...most children will be able to:**  Give examples of natural and human-made rocks.  Group rocks by their properties and identify simple similarities and differences.  Explain the difference between a bone and a fossil.  Make some accurate observations.  Explain, using simple scientific language, how soil is formed.  Use scientific forms of language when communicating simple scientific ideas, processes or phenomena.  Describe what they have found out in experiments or investigations.  Identify the importance of Mary Anning’s work to the field of palaeontology. | **...some children will be able to:**  Make systematic observations.  Explain the main processes of fossilisation.  Identify the importance of Mary Anning’s work to the field of palaeontology- give examples of her work/findings.  Use scientific language when communicating scientific ideas, processes or phenomena.  Describe what they have found out in experiments or investigations, linking cause and effect. |

**Science-Year 3 – Rocks and Soils**

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|  | **Session 1** | **Session 2** | **Session 3** | **Session 4** | **Session 5** |
| **LO and SC** | LO: To compare different types of rocks.  I can name the three different types of rocks.  I can explain the difference between natural and human-made rocks.  I can use the appearance of rocks to group and compare them.  I can use scientific vocabulary to describe my ideas and observations. | LO: To make systematic and careful observations.  I can name the different types of rocks.  I can describe what I have found out, linking cause and effect.  I can use scientific vocabulary when communicating simple scientific ideas. | Ely Museum Visit | LO: To explain Mary Anning’s contribution to palaeontology  I can explain what a palaeontologist does.  I can understand why Mary Anning’s fossil findings were important.  I can describe how palaeontology has changed our understanding of prehistoric animals. | LO: To identify different fossils  I can recognise a mould fossil  I can recognise a cast fossil  I can identify the body part of the dinosaur |
| **Key Knowledge** | I can identify and describe different rocks-igneous, metamorphic and sedimentary  I know how to group rocks based on their properties, and the differences between natural and man-made rocks | I can identify and describe different rocks-igneous, metamorphic and sedimentary  I know how to group rocks based on their properties |  | I know who Mary Anning is and can explain her contribution to Palaeontology  Identify the importance of Mary Anning’s work to the field of palaeontology | I can recognise different types of fossils |
| **Key Vocab** | Rocks, igneous, sedimentary,  metamorphic, form, formation, volcano,  sea, seabed, changes, compare, compare, natural, human-made, strata, anthropic. | Rocks, igneous, sedimentary,  metamorphic, permeable, impermeable, semi-permeable, hard, soft, durable, buoyancy, split. |  | Palaeontology  Mary Anning  Cuvier  Body fossil  Trace fossil  Chemical fossil  Coprolites | Cast fossil  Mould fossil  Coprolites  Amber  Dinosaurs  Organisms |
| **Key Skills** | * using straightforward scientific evidence to answer questions or to support their findings * recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables | * making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment * gathering, recording, classifying and presenting data in a variety of ways to help in answering questions * recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables |  | * using straightforward scientific evidence to answer questions or to support their findings | * recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables |
| **Lines of Enquiry** | 3. Identifying and classifying | 3. Identifying and classifying  2. Pattern seeking |  | 4. Research  (secondary sources) | 3. Identifying and classifying |
| **Session Notes**    **+ Resources** | In pairs, children discuss questions on slide 3. Onto a large piece of paper adult scribe children’s ideas, and add to the science working wall. Work through the presentation. Children then complete  Children complete activity sheet-Natural and Man-Made rocks. Place picture sheets on table with examples of the actual rocks for children to handle. Children write the name of rocks onto activity sheet. Once the activity has been completed, adult show slide 19. Children edit their work using purple pen.  Resources-  Presentation  Activity sheet natural or man-made rocks  Natural or man-made rocks picture sheet  Rocks | Work through presentation. Children then complete-   |  | | --- | | **Carousel of Activities:** Children record observations and make notes from each activity on the differentiated **Properties of Rocks Activity Sheets.**  ***Permeability and Durability Group:*** This should be a teacher led activity. Using a selection of different rocks, children to make observation in relation to their permeability and durability. To test permeability add a few drops of water using the pipette onto the rock and ask the children to observe whether it is absorbed. Use a small square of sandpaper to test how durable the rocks are. Children record their observations.  ***Books Group:*** Using a selection of age-appropriate books on rocks, children to make notes about the properties of rocks.  ***Density Group:*** Children test the buoyancy of different rocks using a large container full of water to decide which rocks have higher and which have lower density and take notes. |   Resources-  Presentation  Properties of Rocks activity sheet   |  | | --- | | A selection of igneous, sedimentary and metamorphic rocks  A selection of books on rocks  Sandpaper  Pipette  A large container or plastic box |   Email parents regards Ely Museum Visit. |  | Work through the presentation. Children then complete comprehension sheets. Adult read for less able readers, but do not support to answer questions. Use comprehension as an assessment tool.  Resources  Presentation  Differentiated comprehensions | Remind child of last weeks session- Mary Anning. Children then to become fossil hunters for the session.  Children work in pairs to identify images and record ideas onto sheet. Once the hunt is complete, adult show children what the images are, children edit their sheet using purple pen.  Resources-  Fossil hunter info sheet  Fossil hunter worksheet  Fossil hunter images  Purple pen |

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|  | **Session 6** | **Session 7** | **Session 8** | **Session 9** | **Session 10** |
| **LO and SC** | LO: To explain how fossils are formed  I can explain the difference between a bone and a fossil.  I can order the steps of how a fossil is formed.  I can use scientific vocabulary related to the fossilisation process. | LO: To explain how soil is formed  I can state that soil is composed of different things.  I can describe the 4 processes of soil formation.  I can use scientific vocabulary to describe my ideas.  I can present simple scientific data as a fact sheet. | LO: To explain how soil is formed  I can state that soil is composed of different things.  I can describe the 4 processes of soil formation.  I can use scientific vocabulary to describe my ideas.  I can present simple scientific data as a fact sheet. | LO: To make a mini compost bin  I can accurately follow a set of instructions.  I can work collaboratively in a group. | LO: To investigate how much water will filter through different types of soil  I can observe how much water has filtered through different types of soil.  I can use the same equipment and length of time for each observation.  I can record my observations accurately in a table.  I can use simple scientific language accurately in my presentation. |
| **Key Knowledge** | I know the difference between a bone and fossil and can order the steps of how a fossil is formed | I know that soil is composed of different things and how to describe the four processes of soil formation | I know that soil is composed of different things and how to describe the four processes of soil formation | To know what resources and items are needed to make a compost bin.  What foods/other items are compostable. | I know that soil is composed of different things and how to describe the four processes of soil formation |
| **Key Vocab** | Fossilisation, chemical/body/trace fossils, coprolite | Organic matter, top soil, sub soil, base rock, additions, losses, translocations, transformations | Organic matter, top soil, sub soil, base rock, additions, losses, translocations, transformations | Compost, accurately, collaboratively, equipment | |  | | --- | | Soil, formation, rock, rock type, igneous, sedimentary, metamorphic, properties, permeability, permeable, impermeable, semi-permeable, rapid, moderate, slow. | |
| **Key Skills** |  | * gathering, recording, classifying and presenting data in a variety of ways to help in answering questions * recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables | * gathering, recording, classifying and presenting data in a variety of ways to help in answering questions * recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables | * setting up simple practical enquiries * using straightforward scientific evidence to answer questions or to support their findings | * setting up simple practical enquiries * using straightforward scientific evidence to answer questions or to support their findings |
| **Lines of Enquiry** | 4. Research  (secondary sources) | 4. Research  (secondary sources) | 4. Research  (secondary sources) | 1. observing over time  6. Problem solving | 6. Problem solving |
| **Session Notes**    **+ Resources** | Work through the presentation. As a class, talk through the process. Next, children work in pairs to order the fossilisation process pictures.  Resources-  Presentation  Activity sheet fossilisation process | Work through presentation. Children then create a fact sheet about soil.  Print slides from presentation for children to use at the tables.  Remind children to make the fact sheet interesting and informative. Encourage scientific vocabulary to be used in discussions about fact sheets.  Resources-  Presentation  Printed slides from presentation  Additional books about soil  A letter needs to be sent home to parents to ask them to send their child with necessary resources for making a mini compost bin. | Remind children of last weeks lesson and continue with finishing fact sheet abut soil.  Work through presentation. Children then create a fact sheet about soil.  Print slides from presentation for children to use at the tables.  Remind children to make the fact sheet interesting and informative. Encourage scientific vocabulary to be used in discussions about fact sheets.  Resources-  Presentation  Printed slides from presentation  Additional books about soil | Work through presentation. Children then complete their own mini compost. Remind children to use scientific vocabulary in discussions.  Resources-  Presentation  Instruction sheet  Plastic bottle  Elastic band  Stones  Compost  Thin piece of fabric  Long rectangular piece of card  Scraps of food | Introduce the word ‘permeability’ and what it means. Talk children through the experiment. Then decide which sample of soil will be the most/least permeable and why. Record onto sheet. Children record their findings onto sheet.  Soil permeability investigation-children work in mixed ability groups to complete investigation.  Resources-  presentation   |  | | --- | | Samples of the different types of soil (pre-measured to ensure the children use the same amount of soil)  Beakers  Funnels  Coffee filter paper Measuring cylinders Water | |