Medium Term Unit Planning

Subject Name: Science – Rocks and Fossils	
Learning outcome: By the end of this topic the children will have a good understanding of how rocks and fossils are formed and how they make up lots of objects on this planet that we see and use everyday.	
Hook: We are going to build a rocks and fossils museum for some alien visitors (Zultan).	**Topic Showcase (e.g. display, museum, performance, presentation) Museum designs to be presented to the aliens.**
Oracy: Present their museum ideas to the class and the aliens.	**Key Vocabulary: Rock, sandstone, limestone, chalk, granite, slate, marble, classification, observation, Petrologist, man-made rocks, brick, tile, concrete, igneous, sedimentary, metamorphic, permeable, impermeable, acid, erosion, marble, chalk, limestone, slate, granite, sandstone, identification key, Survey, petrologist, data, database, Fossil, ichthyosaur, plesiosaur, ammonite, sediment, minerals, mould, cast Soil, micro-organisms, organic matter, particles, sand, silt, fair test, compare, sort, predict**
Key Texts (whole class reading/end of the day book/Talk for Writing Texts etc.): **The Pebble In My Pocket by Meredith Hooper and Chris Coady.**	

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Citizenship/Community Opportunities: ***(Focus – change in attitude/increase knowledge and awareness/make a difference)*** ***The children will have a better understanding of how our world came to be and developed up in layers over time. They will also have a great understanding of how rocks are everywhere around them.***
Experiences/Visits/Visitors
Main Subjects covered: Science (chemistry)
Subject 1 Threshold concepts ○ **Work scientifically** **This concept involves learning the methodologies of the discipline of science.** ○ **Investigate materials** **This concept involves becoming familiar with a range of materials, their properties, uses and how they may be altered or changed.**
Notes:

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Lesson title and learning Intention	Threshold concepts (success criteria)	Milestones (success criteria)	Lesson structure/differentiation
1. Become rock stars Observe rocks closely and discover that they have different qualities and features. Group rocks in different ways according to their observable features. Be able to name 6 common rocks.	○ **Work scientifically** ○ **This concept involves learning the methodologies of the discipline of science.** ○ **Investigate materials** ○ **This concept involves becoming familiar with a range of materials, their properties, uses and how they may be altered or changed.**	• Compare and group together different kinds of rocks on the basis of their simple, physical properties. • Relate the simple physical properties of some rocks to their formation (igneous or sedimentary). • Describe in simple terms how fossils are formed when things that have lived are trapped within sedimentary rock. • Recognise that soils are made from rocks and organic matter.	○ Activities ○ Collectively make a list of questions on rocks that can be answered through a range of scientific enquiries during the course of the topic. ○ Undertake The Hard Rock Challenge – a game that requires them to begin to observe rocks carefully and group them in different ways according to their features. ○ Make detailed labelled drawings of 6 common rocks and write descriptions of their observable features. ○ Learn the names of 6 common rocks whilst playing an active game – Rock Stars!
2. Rock detectives Understand that rocks are formed in 3 different ways. Devise comparative tests for rocks, record and evaluate observations and results.	○ **Work scientifically** ○ **This concept involves learning the methodologies of the discipline of science.** ○ **Investigate materials**	• Compare and group together different kinds of rocks on the basis of their simple, physical properties. • Relate the simple physical properties of some rocks to their	○ Activities ○ Devise their own fair test for the hardness of rocks and put a group of samples in rank order of hardness. ○ Devise a fair test for permeability and record

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	○ **This concept involves becoming familiar with a range of materials, their properties, uses and how they may be altered or changed.**	formation (igneous or sedimentary). • Describe in simple terms how fossils are formed when things that have lived are trapped within sedimentary rock. • Recognise that soils are made from rocks and organic matter	results and observations in tabular form. ○ Test rocks with acid (vinegar) to discover if they are made of the shells of dead creatures. ○ Use a rock identification key to discover what type of rock each sample is.
3. Rock Survey Collect evidence of the local bedrock and other rocks in the local area by doing a rock survey. Use knowledge of the properties of rocks to determine why particular rocks were selected for different tasks.	○ **Work scientifically** ○ **This concept involves learning the methodologies of the discipline of science.** ○ **Investigate materials** ○ **This concept involves becoming familiar with a range of materials, their properties, uses and how they may be altered or changed.**	• Compare and group together different kinds of rocks on the basis of their simple, physical properties. • Relate the simple physical properties of some rocks to their formation (igneous or sedimentary). • Describe in simple terms how fossils are formed when things that have lived are trapped within sedimentary rock. • Recognise that soils are made from rocks and organic matter	○ Activities ○ Take part in an active quiz game to assess and reinforce prior learning on rocks. ○ Undertake a rock survey of the local area to answer questions on the local bedrock and other rocks seen. ○ Determine why particular rocks and man-made rocks were used for particular purposes.
4. Fantastic fossils Discover the contribution to science of the great	○ **Work scientifically** ○ **This concept involves learning the**	• Compare and group together different kinds of rocks on the basis of their simple, physical properties.	○ Activities ○ Engage (through role play) with the great fossil hunter Mary

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19th century fossil hunter Mary Anning. Understand the process of fossil formation and be able to describe it in simple terms.	**methodologies of the discipline of science.** ○ **Investigate materials** ○ **This concept involves becoming familiar with a range of materials, their properties, uses and how they may be altered or changed.**	• Relate the simple physical properties of some rocks to their formation (igneous or sedimentary). • Describe in simple terms how fossils are formed when things that have lived are trapped within sedimentary rock. • Recognise that soils are made from rocks and organic matter	Anning and ask questions to discover her story. ○ Learn how fossils are made and record by writing and illustrating the stages or through sequencing a text. ○ Make their own "fossil" of a shell using a plasticine mould and plaster of Paris. ○ Handle real fossils and rehearse the stages of fossil formation through oral retelling.
5. Soil detectives Investigate, discover and classify the different components of soil. Gather evidence on how different soils can vary and suggest reasons for this.	○ **Work scientifically** ○ **This concept involves learning the methodologies of the discipline of science.** ○ **Investigate materials** ○ **This concept involves becoming familiar with a range of materials, their properties, uses and how they may be altered or changed.**	• Compare and group together different kinds of rocks on the basis of their simple, physical properties. • Relate the simple physical properties of some rocks to their formation (igneous or sedimentary). • Describe in simple terms how fossils are formed when things that have lived are trapped within sedimentary rock.	○ Activities ○ Play a guessing game to learn some amazing facts about soil and the crucial role it plays in supporting life. ○ Closely observe soil with hand lenses and list and classify the constituent parts. ○ Actively investigate and compare 3 different soils and

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		• Recognise that soils are made from rocks and organic matter	their properties, recording findings. ○ With support, draw conclusions on the reasons for variation between soils.
6. Amazing fossil museum Recap on all our previous learning and vocabulary by playing a Rock, Fossil and Soil Quiz. Work as a team to share learning with visitors by creating exhibits and activities.	○ **Work scientifically** ○ **This concept involves learning the methodologies of the discipline of science.** ○ **Investigate materials** ○ **This concept involves becoming familiar with a range of materials, their properties, uses and how they may be altered or changed.**	• Compare and group together different kinds of rocks on the basis of their simple, physical properties. • Relate the simple physical properties of some rocks to their formation (igneous or sedimentary). • Describe in simple terms how fossils are formed when things that have lived are trapped within sedimentary rock. • Recognise that soils are made from rocks and organic matter	○ Activities ○ Recap on or assess all the learning in this block by doing a Rock, Fossil and Soil Quiz (see Teachers' Notes). ○ Work in a team to plan and prepare a display of exhibits and activities for visitors to the Amazing Rock and Fossil Museum. ○ Share learning through written and oral presentations to a real audience.