YEAR 3 ROCKS PLANNING

Class: **Term: Summer 1** **Subject: Science** **Unit: Rocks**

Differentiation and support (Detailed differentiation in weekly plans.) SEN: write up investigations on writing frames. Support from more able partners in mixed ability work. Additional adult support. GT: provide headings for experiment sections. Send off to experiment sooner than rest of group. Provide with equipment, but provide less scaffolding on how to conduct the experiment. Encourage conclusions that draw on scientific knowledge and enquiry skills.	English: writing up experiments in sequence using technical language, using dictionaries, storyboard Maths: measuring length and volume, drawing result tables and charts ICT: explanatory videos History: thinking about geological time, fossils D&T: drawing and annotating diagrams

For this unit a range of rocks (ideally granite, sandstone, pumice, marble, chalk and clay) and soils (ideally peat, sandy and clay) are needed. Check that these are in school, and if not, then order them

W	Learning Objective	Skills/knowledge/activities	Resources	Assessment: Success criteria	Evaluation
1a	Self-assess knowledge of rocks and soils (15 mins)	Children complete a mind map on what they already know about rocks and soils.	Mind maps	Formative assessment exercise	
1b	To know that there are different types of rock To know that different rocks have different uses (45 mins)	Intro: Ask children to think, pair, share the names of rocks that they know and any words they know to describe them. Take ideas as a class Explain independent work Split children up into teams Main: Sheet with two columns – one has the names and images of rocks and key vocabulary associated with rocks. The other column has definitions. The two columns do not match up. The children need to cut them up in their teams and rearrange them so that they match. Give children the actual rocks as well if have them. Plenary: Go through correct answers Discuss how some rocks are natural e.g. pumice, sandstone etc and some rocks are man-made e.g. concrete and bricks	Sheets (jumbled up) Sheets (correct) Scissors Glue A3 paper	MUST: realise that there are different types of rock SHOULD: realise that different types of rock have different uses COULD: learn the characteristics of several types of rock and make the link between these characteristics and their uses	

2	Investigate the hardness of different rocks (Moh's test)	Experiment: Children will be given various types of rocks and some sugar / sand paper. Children rub each rock against the paper to see how much of the rock comes off on to the paper **Aim and prediction** Discuss what investigation we could carry out using this equipment and how we could do it. Think, pair, share (explaining what we will be doing if children don't suggest it in a timely way) Revise different types of rock and how they are formed Think, pair, share what might affect the hardness of the rocks? (how they were formed e.g. sedimentary rock will be the softest) **Method** Think, pair, share what we would need to do to make a 'fair test' Plan a fair test fair, with these conditions being the same. • Force with which you rub the rock • Timing (how long you rub for) • If you use a sharp or a flat part of each rock • What surface the paper is on when you rub the rock against it Model how changing these things would be unfair and explain why this is the case. Emphasise need to be careful with sharp edges and with heavy rocks Children write aim, prediction and method, then carry out the investigation by rubbing each rock against the paper 10 minute break **Results** Model how to draw a results table. What will it need to include? (create a scale e.g. 6 being a heavy mark and 0 being no mark at all left on paper) Model recording of investigation in a bar chart and explain how to use tick list on investigation frame **Conclusion** Think about: • Did our predictions match our results? Why / why not? • What scientific language could we use? • Evaluation – how could we have made a better 'fair test' / how could the investigation be improved? • Reliability – did other people get the same results as us? Why / why not?	Rock Sugar or sand paper Investigation frames Bar graph frame	MUST: plan and carry out an experiment by using an investigation frame, with adult support SHOULD: plan and carry out an experiment by using an investigation frame, without adult support COULD: link predictions and conclusions to scientific knowledge and use scientific language	

3	To know how soil is formed from rocks (1 hour)	Intro: Revise what we did last lesson – rocks can be eroded (worn away) Ask children to think, pair, share how they think soil is formed Explain that soil is formed by rocks being broken into smaller pieces and by erosion of rocks. Watch video of 'Rock meets lichen' on YouTube at: http://www.youtube.com/watch?v=zv2JNaqnYxU&feature=related Explain that the sun, wind and river / the sea also erode and break rocks. Main: Children need to complete a storyboard to show how 'Rob the Rock' becomes 'Sam the Soil'. They can include speech bubbles if they like, and need to make sure Rob gets smaller and broken into more pieces progressively through the storyboard. Plenary: Children share and discuss their storyboards on their table	Video (play and skip adverts) Worksheet	MUST: understand that rocks are eroded to form soil SHOULD: remember some of the processes involved in soil formation COULD: remember all of the processes involved in soil formation	