Year 5 Science Assessment: The Wonders of Rocks

Learning objective: To compare and group together different kinds of rocks on the basis of their appearance and simple physical properties, and to describe how fossils are formed.

Read each question carefully. Use your scientific knowledge of rock formation and properties to provide detailed, accurate answers. Ensure you use technical vocabulary where appropriate.

Nova the barn owl has been exploring the craggy cliffs near the coast. She has collected three distinct samples: Sample A is hard with visible interlocking crystals; Sample B contains tiny grains and seems to have layers; Sample C is dense but shows signs of being squeezed and changed by intense heat. She needs your help to classify these specimens.

Word bank: sedimentary · igneous · metamorphic · permeable · fossilisation · magma · sediment · pressure · erosion

1. Identify which of Nova's samples (A, B, or C) is likely to be sedimentary. Justify your answer by explaining how sedimentary rocks are formed. (3 marks)

2. Describe the process of fossilisation. Why are fossils usually found in sedimentary rocks rather than igneous rocks? (4 marks)

3. Compare and contrast the formation of igneous rocks and metamorphic rocks. What is the role of heat in both processes? (4 marks)

4. Max the monkey is testing rocks for his new building project. He pours 50ml of water over a piece of chalk and a piece of granite. Explain why the water passes through the chalk but remains on the surface of the granite. (3 marks)

5. Explain why some rocks are harder than others. How does the cooling time of magma affect the size of the crystals in igneous rock? (3 marks)

6. Extended Writing: Imagine you are a geologist studying the Earth's crust. Write a scientific report explaining the 'Rock Cycle'. Your report must describe how one type of rock can transform into another through the processes of erosion, deposition, heat, and pressure. (Total: 8 marks) (8 marks)

Draw: Draw a labelled diagram showing the layers of the Earth or the process of sediment deposition in a riverbed.

Extension challenge: Critical Thinking Challenge: If a volcanic eruption occurred, what might happen to the local landscape and the types of rocks found there over the next thousand years? Justify your prediction using your knowledge of rock classification. Total: /25