

Rock Detectives with Nova the Owl

Learning objective: To identify and describe the properties of igneous, sedimentary, and metamorphic rocks, and understand how fossils are formed.

Read each question carefully and use your knowledge of geology to provide detailed, scientific answers. Remember to use technical vocabulary where possible.

Nova the Owl has been observing the landscape from high above the cliffs. She has noticed that the ground beneath her is made of different types of rocks, each with its own unique history and characteristics. Using your knowledge of how rocks are formed, help Nova solve these geological puzzles.

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

1. Nova finds a rock that is made of layers of sand and pebbles pressed together over millions of years. Name this type of rock and explain how it became layered. (2 marks)

2. Compare and contrast igneous rocks and metamorphic rocks. How do their methods of formation differ? (3 marks)

3. Explain why fossils are almost exclusively found in sedimentary rock rather than igneous or metamorphic rock. (2 marks)

4. If you were testing a rock to see if it was 'permeable', what experiment would you conduct and what result would you look for? (2 marks)

5. Justify your answer: If a geologist finds a rock containing large, visible crystals, is it more likely to be an intrusive igneous rock or a sedimentary rock? Explain your reasoning. (3 marks)

Draw: Draw a diagram showing the process of fossilisation. Include labels for the layers of sediment and the fossil remains.



Extension challenge: What might happen to the Earth's surface if the 'rock cycle' suddenly stopped? Write a short paragraph predicting the impact on the landscape and the natural world, using your knowledge of erosion and weathering.