

Nova's Geological Journey: Classifying Rocks

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

Nova the Owl has collected six unique rock samples from her travels around the UK. Study the descriptions provided in the questions below. Use your scientific knowledge to classify each rock as Igneous, Sedimentary, or Metamorphic. Provide a reason for your choice based on the rock's characteristics, such as texture, layers, or the presence of fossils.

Word bank: Igneous · Sedimentary · Metamorphic · Magma · Pressure · Erosion · Crystals · Layers · Heat

1. Sample A: A dark, hard rock with visible interlocking crystals. It was found near an ancient volcanic site. Classify this rock and explain why it has crystals. (2 marks)

2. Sample B: This rock feels gritty and is composed of many small, visible grains pressed together. When viewed closely, you can see thin, horizontal bands. Classify this rock and justify your answer. (2 marks)

3. Sample C: A smooth, dense rock that appears to have been 'baked' and twisted under the Earth's surface. It contains no fossils. Classify this rock and explain the conditions required to create it. (2 marks)

4. Sample D: A soft rock containing the imprint of a prehistoric shell. Classify this rock and explain the process of how the shell became trapped inside. (2 marks)

5. Compare and contrast the formation of Igneous rock versus Sedimentary rock. What is the main difference in their origin? (3 marks)

6. Justify your answer: If you found a rock with large, beautiful crystals, would you expect it to be a Sedimentary rock? Why or why not? (2 marks)

Draw: Draw a diagram showing the 'Rock Cycle'. Include labels for magma, cooling, erosion, and the three rock types to show how one rock can change into another over millions of years.



Extension challenge: What might happen to the Earth's surface if the process of erosion suddenly stopped? Write a short paragraph explaining the long-term impact on the formation of new sedimentary rocks.