

Nova's Guide to the Rock Cycle

Learning objective: To understand the formation and characteristics of igneous, sedimentary, and metamorphic rocks.

Read the text carefully and answer the questions below. Use full sentences where appropriate.

Nova the barn owl loves to spend her nights perched on high cliffs, gazing at the stars and thinking about the ground beneath her talons. She knows that our planet is constantly changing through the rock cycle. It begins deep underground, where intense heat melts rock into magma. When this cools and solidifies, it forms igneous rock, like granite. Over time, wind and rain weather these rocks into tiny fragments called sediment. These particles wash into rivers and settle in layers at the bottom of lakes or oceans. Under the immense weight of the water and sand above, this sediment is squashed together over millions of years to create sedimentary rock, such as limestone. Finally, if rocks are pushed deep into the Earth's crust, the extreme heat and pressure change their chemical structure without melting them. This transformation creates metamorphic rock, like marble. Whether it is a hard, crystalline igneous stone or a soft, layered sedimentary pebble, every rock has a story to tell about the history of the Earth. Nova finds it fascinating that the ground we walk on is always on such a slow, grand journey.

Word bank: magma · sediment · pressure · igneous · metamorphic · sedimentary · geological

1. According to the text, what are the two main factors that turn existing rocks into metamorphic rock? (2 marks)

2. Name one example of an igneous rock and one example of a sedimentary rock mentioned by Nova. (2 marks)

3. Why does the author use the phrase 'slow, grand journey' to describe the rock cycle? (2 marks)

4. Based on the description of how sedimentary rock forms, why might you find fossils in limestone but not in igneous rock? (2 marks)

5. Nova believes every rock has a story to tell. Do you agree that rocks are useful for learning about history? Explain your reasoning. (3 marks)

Draw: Draw a diagram of the rock cycle showing the transition from magma to igneous rock, then to sediment, and finally to metamorphic rock, adding Nova the owl observing from a nearby tree.



Extension challenge: Research the price of decorative stone tiles, such as marble or slate, at a local builder's merchant. If a marble tile costs £12.50 each, calculate the total cost for Nova to pave a small 4-tile square area for her outdoor stargazing platform.