

Name _____

Melting Magic: The Rock Cycle's Fiery Transformation

Open-Ended Response Answer Key

1. Melting occurs when minerals within rocks reach their melting points due to high temperatures deep beneath the Earth's surface. These melted minerals combine to form magma, a hot, molten substance.
2. Magma rises through the Earth's crust and can erupt from volcanoes, creating igneous rocks when it cools and solidifies. The texture of igneous rocks depends on the cooling rate of magma, with rapid cooling leading to small crystals and slow cooling resulting in large crystals.
3. Melting is significant in the rock cycle as it forms the basis for igneous rocks. It also provides the materials for other types of rocks, such as sedimentary rocks, when igneous rocks weather and erode. The constant melting and solidifying of rocks contribute to the Earth's dynamic geology.
4. To determine if rocks on a volcanic island are of igneous origin, a geologist could look for characteristics like a crystalline texture, evidence of volcanic activity, and the presence of minerals commonly found in igneous rocks, such as quartz and feldspar. They could also study the rock's location and geological context to make a more informed assessment.

