



Introduction (5 minutes)

Read the introduction to understand the importance of igneous rocks:

Igneous rocks are an essential part of the Earth's geology, and understanding their characteristics and properties is crucial for 14-year-old students. This worksheet is designed to help students learn about the different types of igneous rocks, their formation, and their significance in the Earth's geology.

Multiple Choice Questions (15 minutes)

Choose the correct answer for each question:

1. What is the definition of an igneous rock?
 - a. A type of rock that is formed from the cooling and solidification of magma or lava
 - b. A type of rock that is formed from the accumulation and compression of sediments
 - c. A type of rock that is formed from the alteration of existing rocks under high pressure and temperature
 - d. A type of rock that is formed from the weathering and erosion of existing rocks

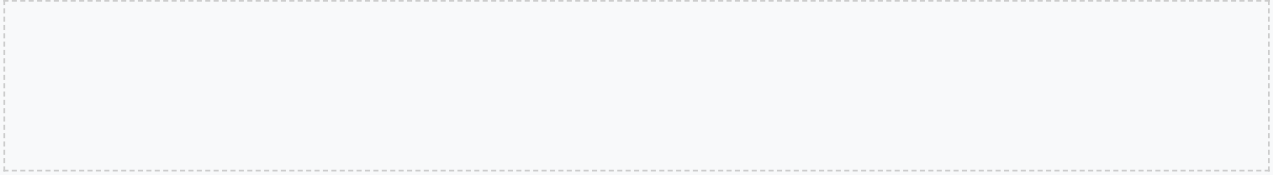
Answer: a) A type of rock that is formed from the cooling and solidification of magma or lava

2. What are the two main types of igneous rocks?
 - a. Intrusive and sedimentary
 - b. Extrusive and metamorphic
 - c. Intrusive and extrusive
 - d. Sedimentary and metamorphic

Answer: c) Intrusive and extrusive

3. What is the difference between intrusive and extrusive igneous rocks?
 - a. Intrusive rocks are formed above the Earth's surface, while extrusive rocks are formed below the surface
 - b. Intrusive rocks are formed below the Earth's surface, while extrusive rocks are formed above the surface
 - c. Intrusive rocks are formed from the cooling and solidification of magma, while extrusive rocks are formed from the cooling and solidification of lava
 - d. Intrusive rocks are formed from the accumulation and compression of sediments, while extrusive rocks are formed from the alteration of existing rocks under high pressure and temperature

Answer: b) Intrusive rocks are formed below the Earth's surface, while extrusive rocks are formed above the surface



Short Answer Questions (20 minutes)

Answer the following questions in complete sentences:

1. Describe the characteristics of granite, a type of intrusive igneous rock.

2. What is the economic significance of igneous rocks?

Essay Question (30 minutes)

Choose one of the following essay questions and write a well-structured essay response:

1. Describe the formation of igneous rocks, including the role of magma and lava.

2. Discuss the economic and environmental significance of igneous rocks.

Activities (25 minutes)

Complete the following activities:

1. Create a diagram to illustrate the rock cycle, including the formation of igneous rocks from magma and lava.

2. Research and write a short report on a specific type of igneous rock, including its formation, characteristics, and uses.

Case Study (20 minutes)

Read the following case study and answer the questions that follow:

Case Study: The Formation of Granite

Granite is a type of intrusive igneous rock that is formed from the slow cooling of magma deep within the Earth's crust. It is a coarse-grained, light-colored rock that is rich in quartz and feldspar minerals. Granite is an important source of minerals and metals, such as copper, gold, and iron. It is also used in the construction industry as a source of aggregate, dimension stone, and as a component of concrete.

1. What is the definition of granite?

2. How is granite formed?

Page

3. What are the characteristics of granite?

4. What is the economic significance of granite?



Conclusion (10 minutes)

Reflect on what you have learned:

Understanding the characteristics and properties of igneous rocks is essential for 14-year-old students. This worksheet has provided a range of questions and activities to help students learn about the different types of igneous rocks, their formation, and their significance in the Earth's geology. By completing this worksheet, students will have gained a deeper understanding of the subject matter and will be able to apply their knowledge in real-life contexts.

Differentiation (10 minutes)

For students with special needs:

- Provide additional support materials, such as visual aids and simplified texts.
- Offer one-on-one assistance and support.
- Provide extra time to complete the worksheet.

For English language learners:

- Provide bilingual resources and support.
- Offer extra time to complete the worksheet.
- Provide visual aids and simplified texts to support understanding.

For gifted and talented students:

- Provide extension activities, such as researching and writing about advanced topics related to igneous rocks.
- Offer opportunities for students to design and conduct their own experiments and investigations.
- Provide challenging questions and activities that require critical thinking and problem-solving skills.

