

Round: 10A

The Ontong Java Plateau, near the Solomon Islands, covers an area of 2,000,000 km². You collect a series of rock samples across the Plateau and all the samples have similar textures and compositions. Figure 1 illustrates a sketch of one sample under a microscope.

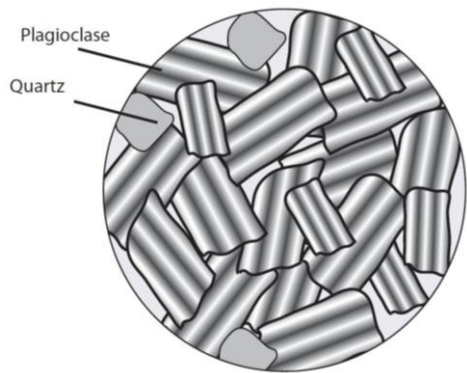


Figure 1: Rock sample under a microscope. The field of view is 5mm

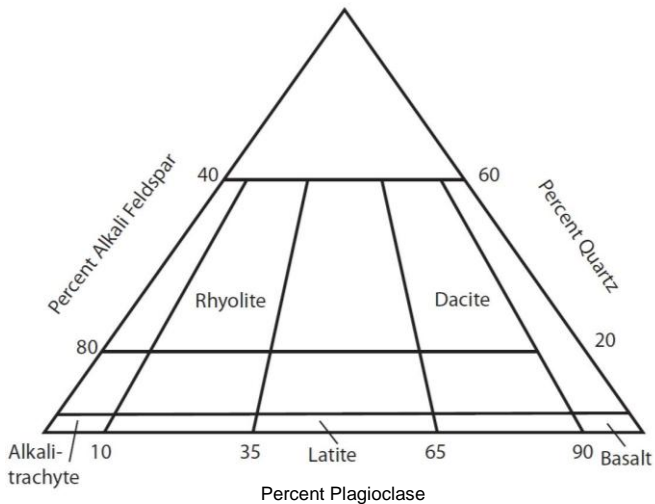


Figure 2: Rock Classification System

1. Compare the minerals seen in Figure 1 to the rock type classification system in Figure 2. What type of rock have you collected? (3 pts)
2. How does this type of rock form? (3 pts)
3. The Ontong Java Plateau covers an area of 2,000,000 km² and is on average 30 km thick. What is the volume of the plateau? (4 pts)
4. The Ontong Java Plateau formed over a period of 5 million years. How many cubic kilometers of rock were produced each day? Show your work. (4 pts)
5. Based on the type of rock you have found, what can you tell about the geologic history of the Otong Java Plateau? (2 pts)
6. Formation of the Ontong Java Plateau occurs at about the same time as the early Aptian anoxic event. Describe what happens during an oceanic anoxic event. (4 pts)