

The following questions are to put your head into gear but are not meant to be an exhaustive list of questions.

General Questions

1. Why are intrusive igneous rocks coarse-grained and extrusive rocks fine-grained?
2. What kinds of minerals would you find in a mafic igneous rock? Does your answer change if the mafic igneous rock is coarse- or fine-grained?
3. What is the more technical term for when an igneous rock is fine-grained? Coarse-grained?
4. What kinds of igneous rocks contain the mineral quartz?
5. Where can you go in the earth to find a partial melt of basaltic composition?
6. Which types of plate boundaries would expect to find magmas?
7. Why do melts migrate upward?
8. What are sills and dikes? Compare them to plutons.
9. What causes some volcanism to be *explosive* while others are not?
10. Name two intrusive igneous rock with a higher silica content than that of gabbro.

Thought Questions

1. How would you classify a coarse-grained igneous rock that contains about 50% pyroxene and 50% olivine?
2. Suppose an igneous rock sample has one mineral of much larger size than the rest (*porphyritic*), i.e. the rest of the rock looks to be fine-grained. What kind of cooling history could the magma have gone through to form such a rock?
3. What might be the origin of a rock composed almost entirely of olivine?
4. Water is abundant in the sedimentary rock and oceanic crust at subduction zones. How does water affect melting in these zones?