



Canadian Geological Foundation



Fondation géologique du Canada

SD68 Professional Development Day February 24, 2020

# Igneous Rock Activity

Magma chambers are areas of molten (liquid) rock beneath the earth's surface. Magma moves towards the surface through fissures (cracks) in the overlying rocks and erupts as lava to the surface forming volcanos.

The bag of Lego® represents your magma chamber, the Lego® itself represents crystals of a variety of minerals that crystallize from your magma chamber.

Assemble the Lego® into any logical form.

Let's assume white Lego® represents quartz, red Lego® represents feldspars, flat Lego® represents biotite, \_\_\_\_\_ Lego® represents hornblende which are common constituents of the granitic rock you see in front of you.

Replace the white Lego® with the cotton balls and use your Lego® to assemble a granitic rock.

- 1) What conclusions did you have to make to get all of the pieces to fit together to form your granite?

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- 2) Would you expect magma chambers to be cooling / warming with time?

Examine rocks \_\_\_ and \_\_\_. These specimens contain approximately the same minerals in similar abundance.

- 3) Describe the differences you see in these rocks

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The size of crystals formed from a magma chamber reflects the cooling rate of the magma.

- 1) Would a large magma body cool slower / faster than a smaller one?
- 2) If a magma cools quickly would we expect larger / smaller crystals? (circle one)
- 3) If a magma body crystallized closer to the surface would we expect larger / smaller crystals? (circle one)
- 4) Which of these rocks might we expect to come from a volcano? \_\_\_\_\_
- 5) Indicate where you predict you would find each rock on the diagram provided?

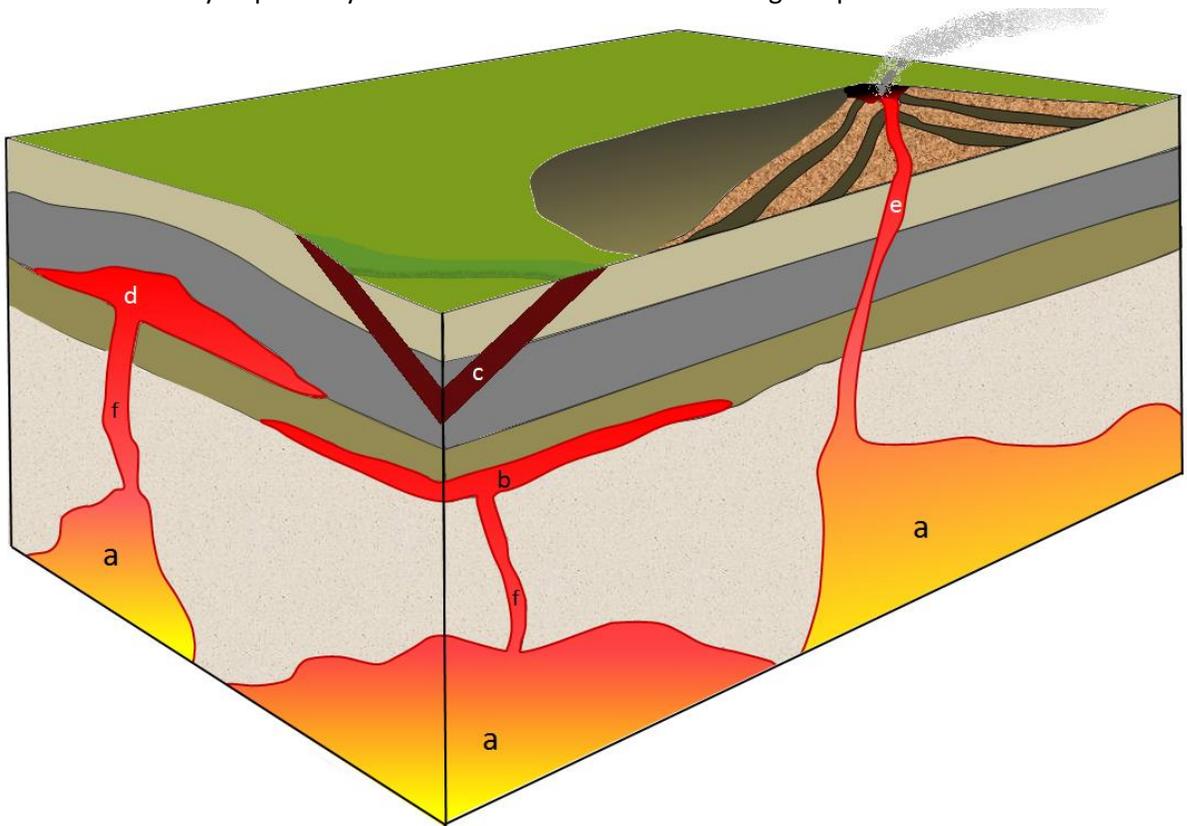


Figure 1.. Tectonic Environments for Igneous Rocks. Physical Geology, S. Earle

Rock	Tectonic Environment

On the diagram, rank environments in terms of which areas would cool fastest to slowest.

Tectonic Environment	Rank Fastest (1) to Slowest (7)	Larger (1) to Smaller (7) Crystals



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A		
B		
C		
D		
E		
F		
Lava		

6) Compare rocks \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_

Describe the differences you see in these rocks.

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Given what you've learned so far, what might be responsible for these differences?

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