

Name: _____ Course/Section: _____ Date: _____

A REFLECT & DISCUSS Describe the rock below (Fig. A4.1.1), where it may have formed, and how it may have formed.

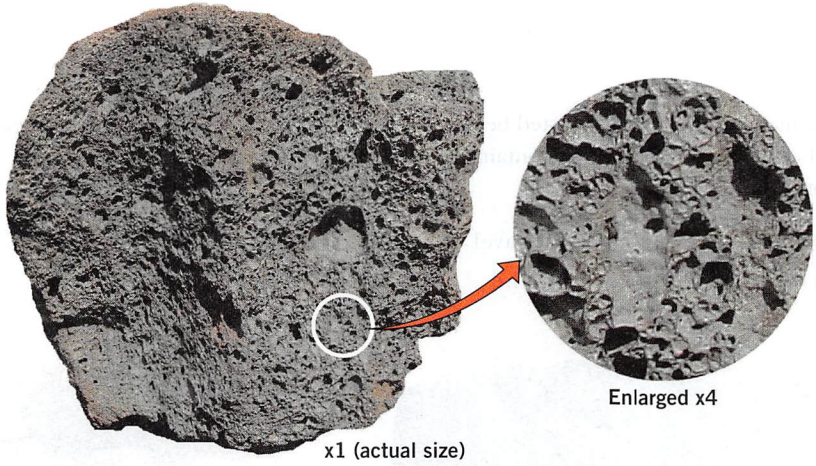


Figure A4.1.1

B REFLECT & DISCUSS Describe the rock below (Fig. A4.1.2), where it may have formed, and how it may have formed.



Figure A4.1.2

C REFLECT & DISCUSS Describe the rock below (Fig. A4.1.3), where it may have formed, and how it may have formed.



Figure A4.1.3

Activity 4.2

What Are Rocks Made Of?

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A What are some visible differences between intergrown mineral grains and detrital or clastic mineral grains?

B REFLECT & DISCUSS Rocks are made of the materials listed below and described within the chapter. Under each sample in [Fig. A4.2.1](#), write the name of every kind of material it contains from the list. Be prepared to compare your observations with the observations of others in your class.

Intergrown Crystals

Clasts (detrital minerals)

Gravel

Silt & Clay

Fossils (bioclasts)

Clasts (rock fragments)

Sand

Glass

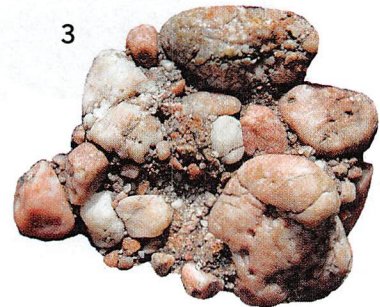
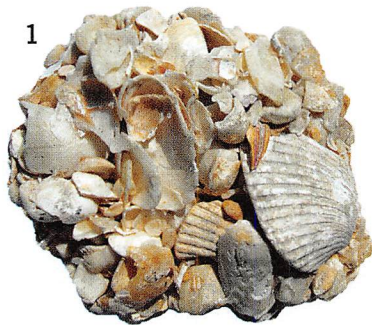


Figure A4.2.1

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A REFLECT & DISCUSS Refer to Fig. 4.7 and identify each rock-forming mineral below (Fig. A4.3.1). Write its name below the picture. Be prepared to compare your observations with the observations of others in your class.

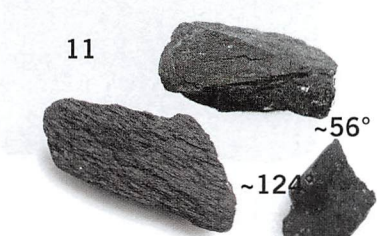
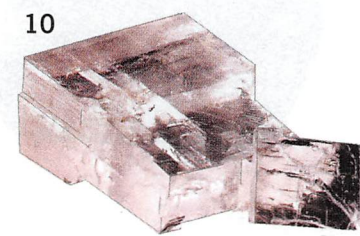
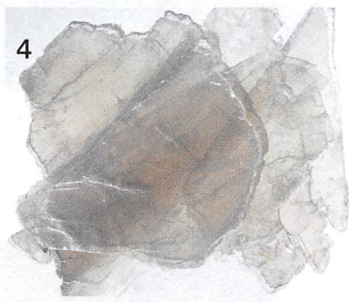
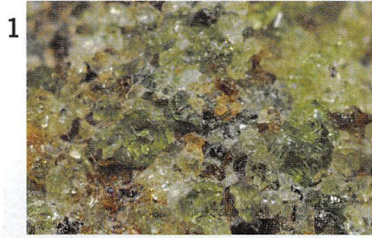


Figure A4.3.1

Activity 4.4

What Is Rock Texture?

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Under each specimen in Fig. A4.4.1, list the textures evident in the rock using the terms below, and write whether you think it is an igneous, sedimentary, or metamorphic rock. Why did you make that interpretation?

Glassy Fine grained Intergrown crystals (crystalline) Bioclastic Layered (bedding)
Vesicular Coarse grained Clastic (gravelly, sandy, silt/clay) Layered (folded) Layered (foliated)

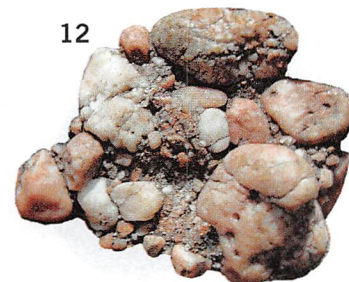
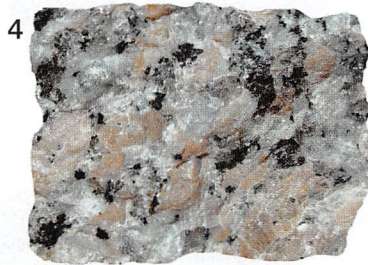
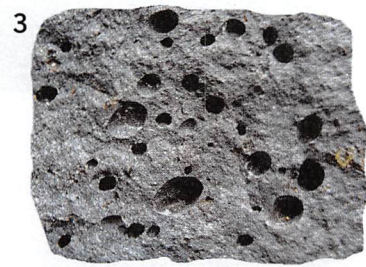
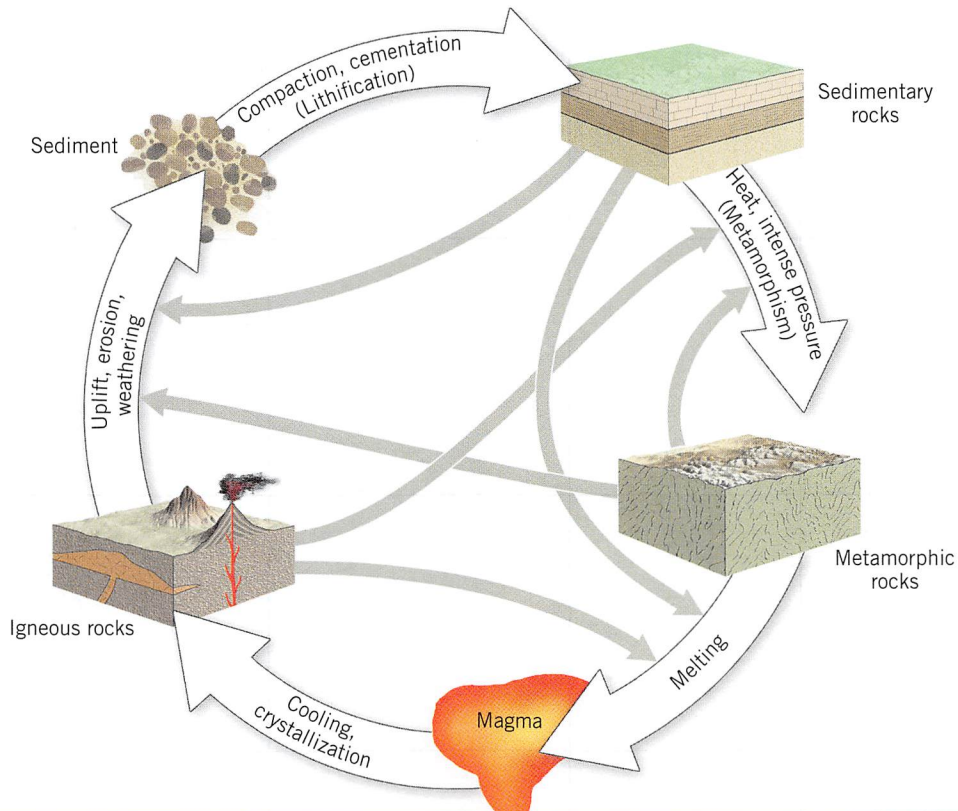


Figure A4.4.1

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A On the rock cycle below (Fig. A4.5.1), color arrows *orange* if they indicate a process leading to formation of igneous rock, *brown* if they indicate a process leading to formation of sedimentary rock, and *green* if they indicate a process leading to formation of metamorphic rock. Place check marks in the table to indicate what rock group(s) is(are) characterized by each of the processes and rock properties.



Processes and Rock Properties	Igneous	Sedimentary	Metamorphic
lithification of sediment			
intense heating (but no melting)			
crystals precipitate from water			
solidification of magma/lava			
melting of rock			
compaction of sediment			
cementation of grains			
folding of rock			
crystalline			
foliated			
common fossils			

Figure A4.5.1

B Fig. 4.14 has photographs of four rocks, labeled **a** through **d**. For each photograph, record the following information in the chart (Fig. A4.5.2) on the next page:

1. In Column 2 (blue), list the rock properties that you can observe in the sample.
2. In Column 3 (pink), classify the rock as igneous, sedimentary, or metamorphic.
3. In Column 4 (yellow), describe, as well as you can, how the rock might have formed.

4. On the rock cycle diagram on the previous page (Fig. A4.5.1), write the figure number of the photograph/rock sample to show where it fits in the rock cycle model.
5. In Column 5 (green), predict from the rock cycle (Fig. 4.13) three different changes that the rock could undergo next if left in a natural setting.

Sample	ROCK PROPERTIES (grain types, textures)	ROCK CLASSIFICATION (igneous, sedimentary, metamorphic)	HOW DID THE ROCK FORM?	WHAT ARE THREE CHANGES THE ROCK COULD UNDERGO? (according to the rock cycle, Figure 4.13)
Figure 4.14A				1. 2. 3.
Figure 4.14B				1. 2. 3.
Figure 4.14C				1. 2. 3.
Figure 4.14D				1. 2. 3.

Figure A4.5.2

C REFLECT & DISCUSS Starting with sedimentary rock, describe a series of processes that could transform the rock into each of the other two rock groups and back into a sedimentary rock.