Physical Geology
South Sevier High School
Lecture Notes – Chapter 3

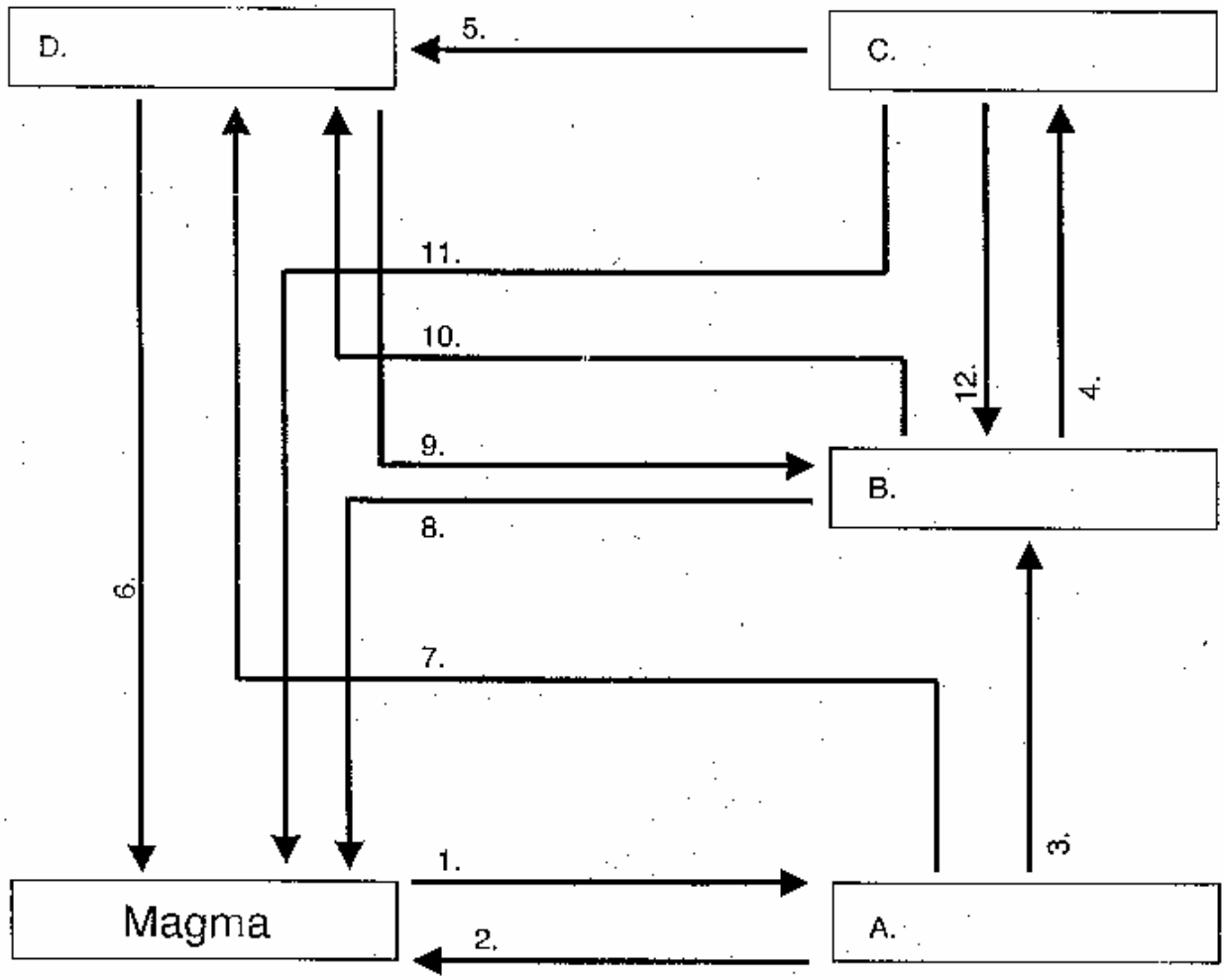
75

Name _____
Date _____
Per _____

1. Fill in the Rock Cycle diagram below with the correct information:

Rock Types (A-D)
Sediments
Sedimentary Rock
Igneous Rock
Metamorphic Rocks

Processes (1-12 – May be used more than once)
Melting
Heat & Pressure
Compaction & Cementation
Weathering
Crystallization



1. _____ is molten rock beneath the Earth's surface, and is created above a subduction zone.
2. Less-dense magma rises and cools to form _____ rock.
3. Igneous rock exposed at the surface is weathered into _____.
5. Sediments transported to low-lying areas, buried and hardened into _____ rock.
4. Sedimentary rock heated and squeezed at depth to form _____ rock.
5. Metamorphic rock may heat up and melt at depth to form _____.

6. Fill in the table below:

Rock Characteristics	Intrusive Rock	Extrusive Rock
Where do they form?		
What is the rate of cooling?		
What is their texture?		
What are some examples?		

7. A _____ is an extremely coarse-grained igneous rock (most crystals >5 cm) formed when magma cools very _____ at _____.

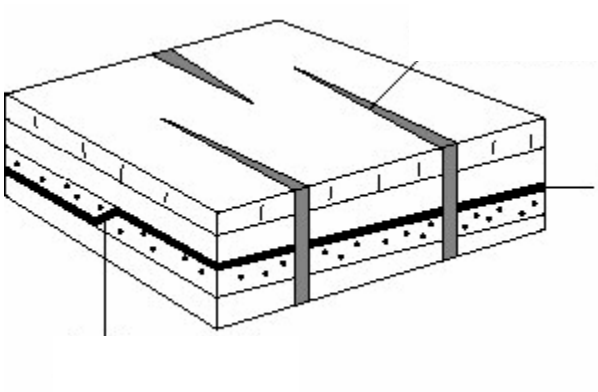
8. A glassy textured rock contains no crystals at all, and is formed by extremely rapid _____.

9. A _____ texture includes two distinct crystal sizes, with the larger having formed first during slow cooling _____ and the small forming during more rapid cooling at the Earth's _____.

10. Define the following terms:

Textural Classification	
Plutonic Rock	
Volcanic Rock	
Compositional Classification	
Mafic Rock	
Intermediate Rock	
Felsic Rock	

11. Label the following diagram with the words Dike and Sill (3pts).



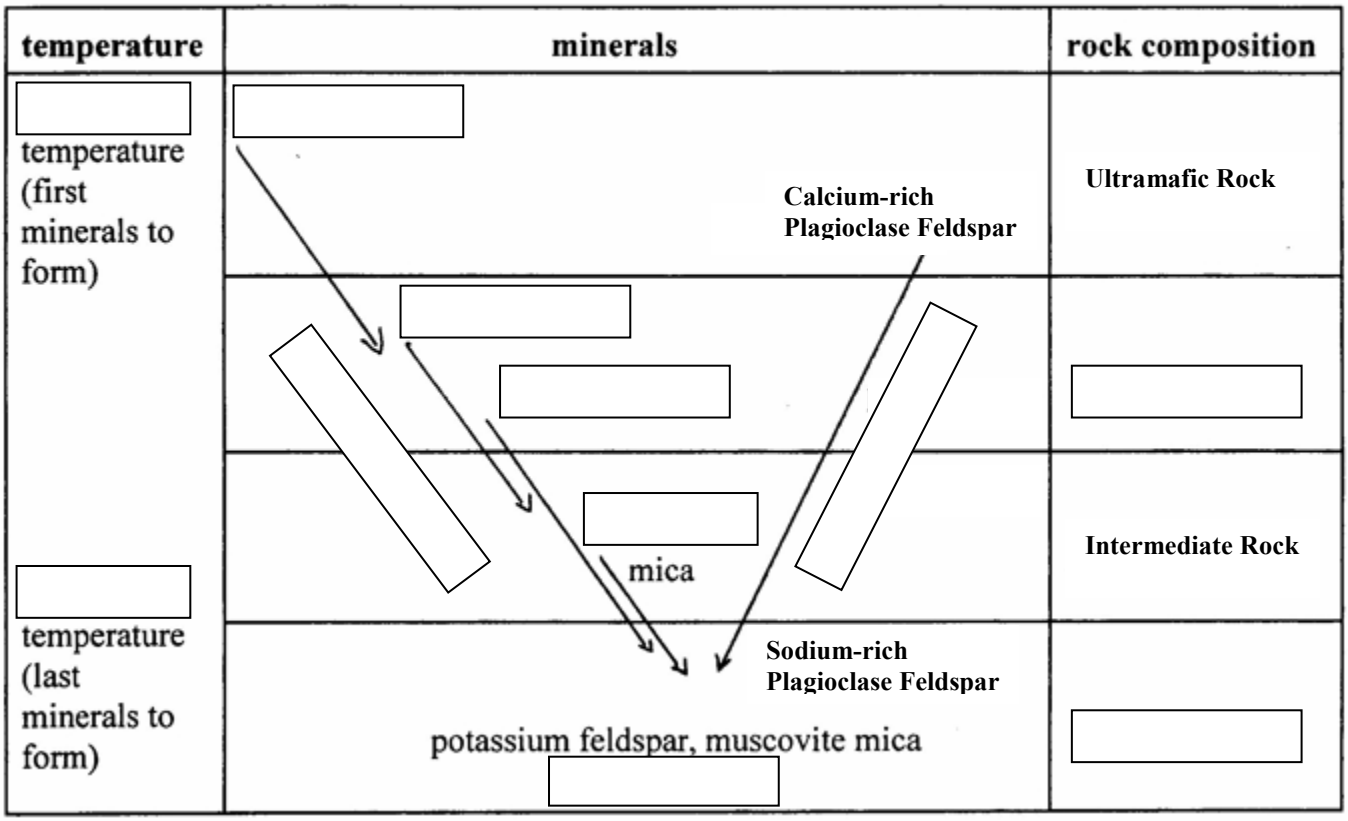
12. A pluton is a large, blob-shaped intrusive body formed of coarse-grained igneous rock, commonly granitic. Small plutons (exposed over <100 km2) are called _____, large plutons (exposed over >100 km2) are called _____.

13. The rate at which temperature increases with increasing depth into the Earth is called the _____ _____.

14. The Red Hill Hot Spring located East of Monroe, Utah has an average water temperature of 171 °F. The approximate geothermal gradient of the Earth is 15 °F per 1000 feet of depth. Using this information, how deep must the water go into the Earth for it to reach this temperature? (Hint: there is 5,280 feet in a mile)
    a. 1.2 miles
    b. 2.0 miles
    c. 5.0 miles
    d. 27.6 miles

15. Fill in the missing components of Bowen's Reaction Series below:

BOWEN'S REACTION SERIES



16. Based on Bowen's Reaction Series, _____ is the most stable mineral at Earth's Surface.

17. Mafic igneous rocks are commonly formed at _____ boundaries.

18. Intermediate igneous rocks are commonly formed at _____ boundaries.

19. Felsic igneous rocks are commonly formed adjacent to _____ boundaries.

20. How can you prove that an igneous rock exposure is intrusive (5pts)?

21. How are igneous rocks classified (5pts)?