

Semester 1 Study Guide

Name _____ Period _____

1. List the 4 characteristics of a mineral. (Chapter 2 *Earth's Surface*)

(1) natural (2) solid (3) definite chem. makeup (pure)
(4) crystal structure

Mohs Hardness Scale

Talc	1
Gypsum	2
Calcite	3
Fluorite	4
Apatite	5
Orthoclase	6
Quartz	7
Topaz	8
Corundum	9
Diamond	10

**Mohs Hardness Scale
Common Objects**

Fingernail	2 to 2.5
Copper Penny	3
Nail	4
Glass	5.5
Knife Blade	5 to 6.5
Steel File	6.5
Quartz	7

2. A mineral will scratch gypsum. What number must the mineral be at the least? 3

3. A mineral can be scratched by quartz, but the same mineral will scratch calcite. What is the possible hardness of this mineral? 4-6

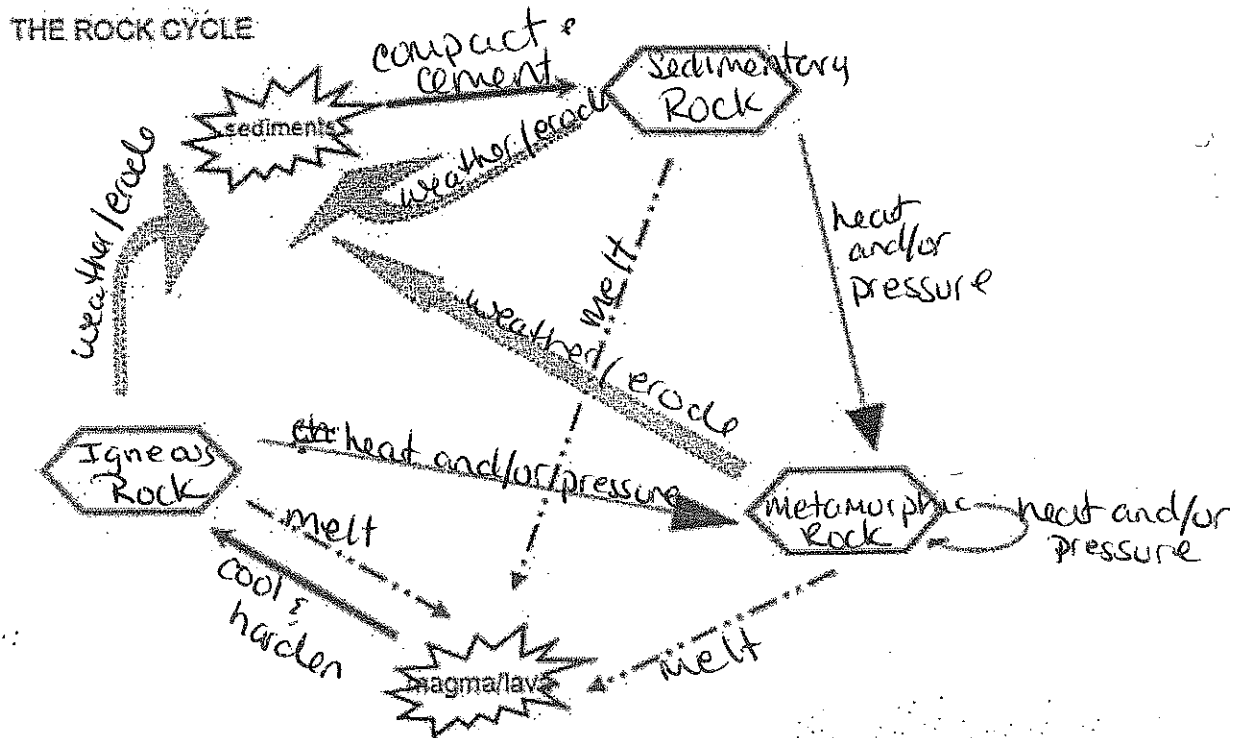
4. True or false: penny will scratch gypsum, but not fluorite. True

Explain why Penny has hardness of 3 so it can scratch anything with a hardness of 2 or lower but will not scratch anything 4 or higher

5.	How is this formed?	Where are these formed?	Important characteristics
Intrusive Igneous	molten rock cooling & hardening	under the surface	large crystals
Extrusive Igneous	molten rock cooling & hardening	above surface	small or no crystals
Sedimentary	Sediments compact & cement	at the surface	grain size
Metamorphic	a rock changes due to heat and/or pressure	under the surface	foliated or non-foliated

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6. Complete the following rock cycle diagram. The arrows represent the processes by which one rock type becomes a different rock type. Fill in the process that each arrow represents. For example, for sediments to become sedimentary rock, the processes are compaction and cementation.



7. What 3 forms of evidence did Wegener gather that supported continental drift?

Fossils

landforms

climate evidence

puzzle

Don't forget the rules below:

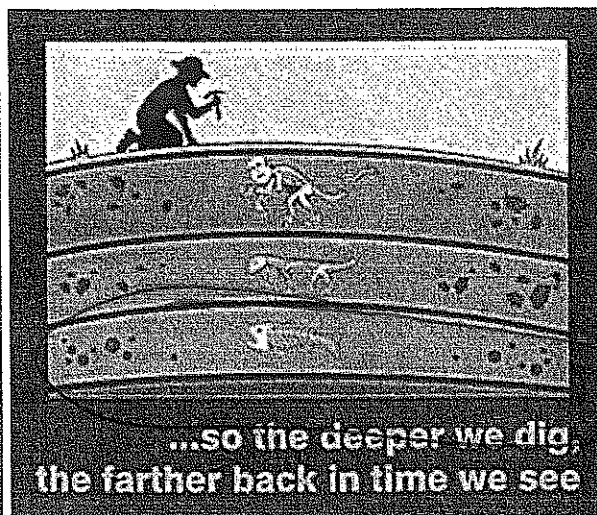
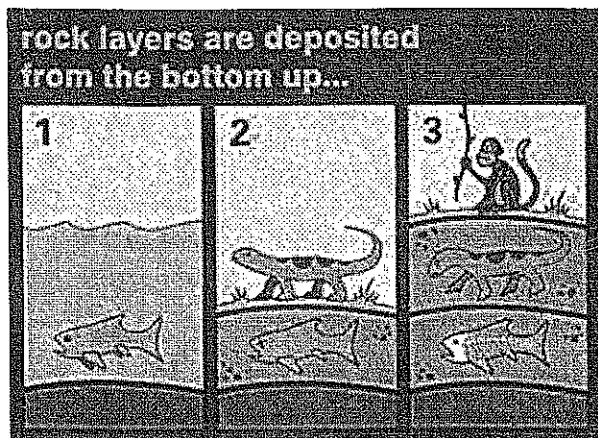
The Law of Original Horizontality

This law of science tells us that dirt, mud, sand and other sediments are almost always deposited in horizontal layers. As these sediments stack up, they often harden, forming rock layers.

The Law of Superposition

Rock layers are usually ordered with the oldest layers on the bottom, and the most recent layers on top. The Law of Faunal Succession explains that fossils found in rock layers are also ordered in this way.

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8. What layer was deposited first? Top/middle/bottom? (Circle one) How do you know this?

oldest layer is always on the bottom
(law of sup)

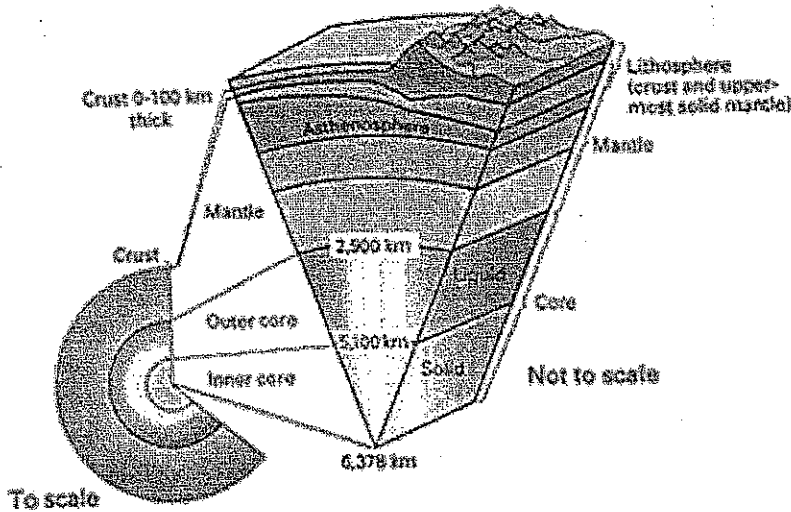
9. Describe the long-term effects of large volcanic eruptions on Earth. (Page 98 Changing Earth)

Mudslides

10. Describe the layers of the Earth:

Layer	State of matter	Composition
Crust	Rigid / Solid	Rock
Lithosphere	Rigid / Solid	Rock
Asthenosphere	Soft / plastic	Molten rock
Mantle	hot / soft	Molten Rock
Inner core	Solid	iron / nickel
Outer Core	liquid	iron / nickel

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11. What makes the layers of the Earth in this specific order seen above? Why?

(page 10 Changing Earth)

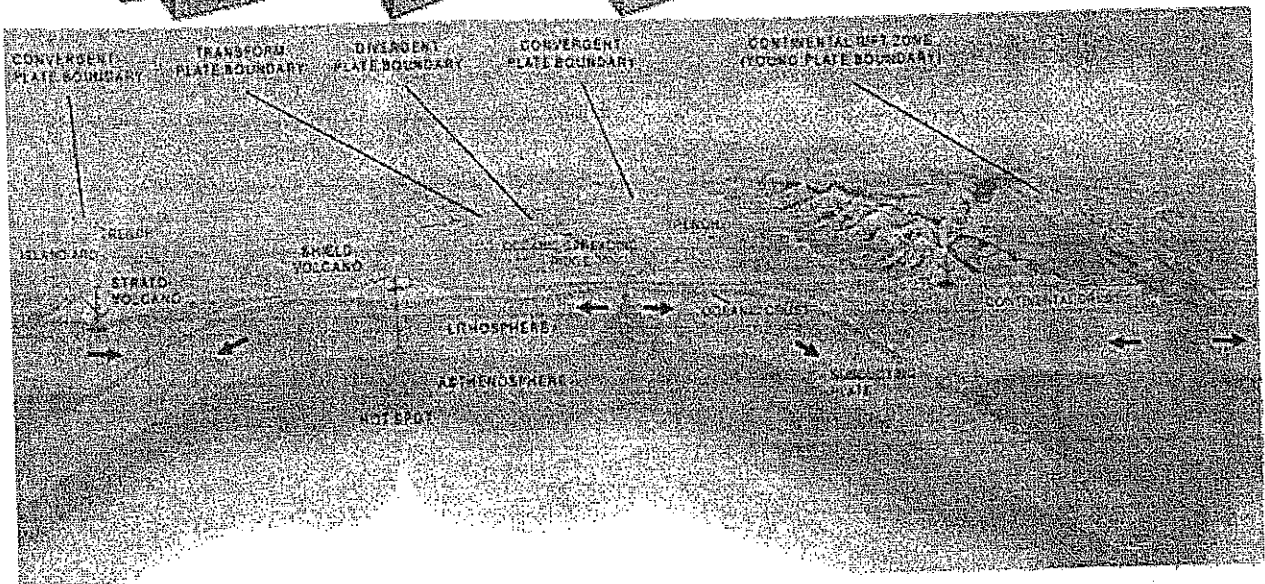
Density → denser layers sink

12. Describe the three forces that cause lithospheric plate movements. (page 18 Changing Earth)

Convection currents - hot rock rises b/c less dense and cooler rock sinks creating a current

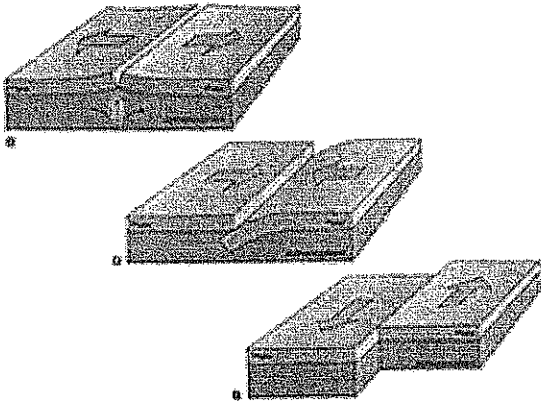
Slab Pull - gravity pulls the denser plate down into mantle (subduction)

Ridge Push - when the ~~new~~ rock cools at midocean ridge it becomes denser and slides down the ridge and pushes the plate with it.



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13. Label the pictures with the proper plate movement and explain what is happening.



Divergent - plate moving apart

Convergent - plates colliding

Transform - plates slide past

14. Fill in the chart below.

Type of Boundary	Plates	Movement	Landform	Example
convergent	Continental - Continental	collide	mt.	Himalayas
convergent	oceanic - Continental	collide	mt.	Andes
convergent	Ocean - ocean	collide	volcanoes/ islands/ trenches	Ring of Fire - Aleutian Islands Mariana's trench
divergent	Ocean - ocean	pull apart	Mid-ocean ridge	Mid-Atlantic Ridge
Divergent	Continental - Continental	pull apart	Rift Valley	Africa
Transform	Ocean - Continental	slide	Fault Line	San Andreas

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15. Why do volcanoes and earthquakes tend to happen by plate boundaries? (page 89 Changing Earth)

Subduction at plate boundaries cause plates to melt and magma tends to come to the surface making volcanoes. Earthquakes occur at places where plate shift causing a lot of stress and when stress is too much - seismic waves release ~~energy~~ energy causing E.Q.

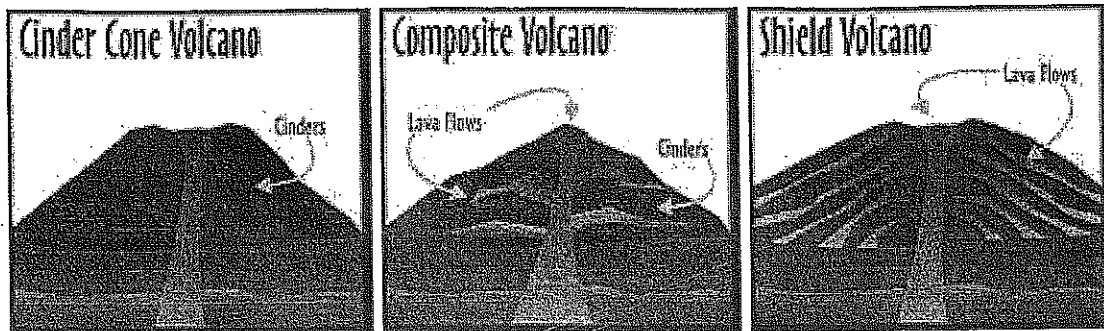
16. Explain how hot spot volcanoes happen? (page 27 Changing Earth)

Magma rises in places & melts the plate above it, creating a volcano. the plate above it continues to move creating a stretch of volcanic islands
ex. Hawaii

17. Chapter 5 Earth's Surface

Agent of Erosion	Landforms Made
1. Water	Delta, alluvial fan, canyon
2. Wind	Dune loess
3. Ice	glaciers → till Kettle lake, moraine

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18. Describe how the type of magma erupted by a volcano determines the shape of the volcano and the way it will erupt. Be sure to include specific properties of the magma e.g. chemical composition, gas content, etc. (page 90 *Changing Earth*)

Cinder Cone - Steep cone formed by eruption of cinders that pile up around the crater

Magma - gas rich

Shield - Flat-dome built by many ~~low~~ eruptions and lava layers - spreads out in layers

lava - low in silica

Composite - Cone shaped - built by layers of lava & rock fragments magma - high in silica so it's pasty volcanic eruptions - due to expanding gases & hardened lava plugs the opening & builds until violent eruption

19. Describe how triangulation can be used to locate the epicenter of an earthquake. ("Finding the Epicenter" activity)

Need 3 seismographic results - they each only give distances away from epicenter so where the 3 arcs intercept is where the epicenter is.