Name: Period:

Unit 2 – Rocks and Minerals Notes Packet

1.	Mineral
2.	Element
3.	Crystal
4.	Compound
5.	Streak
6.	Luster
7.	Cleavage
8.	Fracture
9.	Hardness
10.	Igneous
11.	Metamorphic
12.	Sedimentary
13.	Compaction
14.	Cementation
15.	Solidification
16.	Melting
17.	Density
18.	Rock
19.	Rock Cycle
20.	Weathering
21.	Erosion
22.	Deformation
23.	Uplift

Rocks and Minerals

Assessment	Date	Title	Grade
Quiz 1			
Quiz 2			
Quiz 3			
Quiz 4			
Quiz 5			
Quiz 6			
Unit 2 Test			

Homework assignments

Date assigned	Assignment	Date due	Done??
	Unit 2 Vocabulary		
	Text – Minerals read 66-69 q. 1-4,7		
	Text – Id. Minerals read 70-73 q. 1-4		
	Text – Igneous Rocks read 98-101 q. 1-7		
	Text – Sedimentary read 102-105 q. 1-4		
	Text – Metamorphic read 106-111 q. 1-4		
	Text – Rock Cycle read 90-97 q. 1-7		
	Text – Chapter review q. 1-16 and 22-24		

Notes:

Unit 2 – Rocks and Minerals

Part 1: Minerals

Minerals:

1. Occur _____ in the Earth.
2. _____ - NOT formed by living things.
3. _____
4. Have a _____ _____ -atoms or molecules are arranged in a repeating pattern.
5. Can be an _____ or a _____.

Examples : Elements: _____, _____, _____

Compounds: _____, _____

The 2 most common elements found in the Earth's crust are

_____ and _____

Two Major Groups of Minerals :

1. _____ - contain a combination of Silicon (Si) and Oxygen (O).
2. _____ - Do NOT contain BOTH Silicon and Oxygen.

Identification of Minerals:

Minerals can be identified by:

1. _____ (not reliable) Ex: _____

2. _____ - how a mineral reflects light.

Can be: a. Metallic – shiny and LOOKS like a metal

b. Non-metallic – waxy, glassy, dull, pearly

3. _____ - the color of the mineral in powdered form.

Found by rubbing the mineral on a _____ _____

(unglazed porcelain). Shows the TRUE color of the mineral

4. _____ and _____ describe how a mineral breaks.

_____ - breaks along smooth, flat surfaces.

_____ - breaks unevenly with curved, irregular surfaces.

5. _____ - A mineral's resistance to being scratched.

This is measured by the _____ _____ _____

which ranges from 1 (softest)_____ to 10 (hardest)

_____.

Special Properties of Minerals may include: _____,

_____, _____, _____,

_____.

Some common uses of minerals are:

_____: Mineral deposits large enough to be mined for profit.

_____: Rare and beautiful minerals that are hard enough to be cut and polished.

Part 2: Rocks

Rocks can be:

_____ - made of only one mineral.

_____ - made of two or more minerals.

There are three _____ of rocks: _____,

_____, and _____.

1. _____Rocks are made of pieces of other rocks

Two processes that form Sedimentary Rocks are

_____ - clasts held together by minerals (cement)

_____ - the weight of overlying sediments forces particles together.

Sedimentary rocks are formed in _____environments.

<u>Identifying features of Sedimentary Rocks</u>:

A. _____ - clear layering of sediments.

B. Pieces of other _____.

C. _____ - the remains of once living organisms.

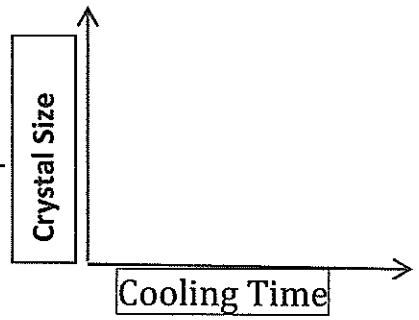
---

2. _____ Rocks –formed by the _____ and _____ of magma.

Name two places where Igneous Rocks form?

_____ and _____

What determines the crystal size of Igneous Rocks? _____



Large crystals indicate _____ cooling time.

Small crystals indicate _____cooling time.

What is the difference between extrusive and intrusive igneous rocks?

_____ - form at or near the surface (small crystals)

_____ - form below the surface (large crystals)

<u>Identifying features of Igneous Rocks</u>:

A. _____

B. _____

---

3. _____Rocks are formed by _____

_____.

What is the difference between Regional and Contact Metamorphism?

_____ - Large geographic area (Ex: where mountains form)

_____ - Small geographic area (Ex: when rocks come in contact with magma).

Identifying features of Metamorphic Rocks:

A. _____ - banding of minerals (usually black and white).

B. _____ - folded layers.

C. Key Identifier Minerals: _____, _____

Rock Cycle – TASA Fill in NOTES SHEET

The _____ shows how the three basic rock types form

_____, _____, _____, and illustrates

how geologic processes _____ one rock type into another.

_____ originate when molten material called

_____, cools and _____.

This process, called _____ may occur either _____the Earth's

Surface or _____ the Earth's _____.

When igneous rocks are_____, they will undergo

_____, a process which slowly _____ rock.

The rock fragments are picked up and transported by agents of erosion such

as _____, _____, _____, _____

Define Erosion: _____

Eventually, these particles and dissolved substances, called_____,

are _____. Next, the sediments undergo a process called lithification,

meaning "_____ to rock" either by compaction or by cementation as percolating water coats the sediment with _____matter and gradually _____ the particles _____.

The result is Sedimentary Rock such as _____, _____ and _____. If sedimentary rock is buried deep within Earth or involved in the dynamics of mountain building, it will be subjected to great pressures and heat. Rocks subjected to great _____ and high _____ change into metamorphic rocks.

When rocks in a high temperature metamorphic environment are subjected to directional forces, they are easily _____.

When metamorphic rock is subjected to still greater _____ and/or _____ changes, it may melt to create _____!

As we have seen, rocks are _____from one type of rock to another in an unending cycle we call the _____ _____.

Earth's materials do no always follow the paths shown in the rock cycle diagram. It is just as likely that other paths will be followed.

Skip notes on 4 slides with red arrows

Although rocks may seem to be _____ masses, the rock cycle shows that they are NOT.

The changes, however, take time –_____.

What is a Mineral? - DO NOW!

Read the information below and complete the Fill-in and True or False activities.

Defining a mineral

- Minerals are naturally occurring
  They are not made by humans
- Minerals are inorganic
  They have never been alive and are not made up from plants or animals
- Minerals are solids
  They are not liquids (like water), or gases (like the air around you)
- Minerals have a definite chemical composition
  Each one is made of a particular mix of chemical elements
- Minerals have an ordered atomic arrangement
  The chemical elements that make up each mineral are arranged in a particular way - this is why minerals 'grow' as crystals

Fill-In: Complete this activity by filling in the correct answers based on the reading above.

A _____ is a naturally occurring _____ solid, with a _____ chemical composition, and an _____ atomic arrangement. Minerals occur naturally and are not made by_____.

True or False: Write T or F on the line to identify whether the statement is true or false.

1. Minerals have been alive and are made up of plants or animals._____
2. Minerals are solids._____
3. Minerals are made up of many elements._____
4. Minerals "grow" as crystals._____
5. Minerals are created by humans._____

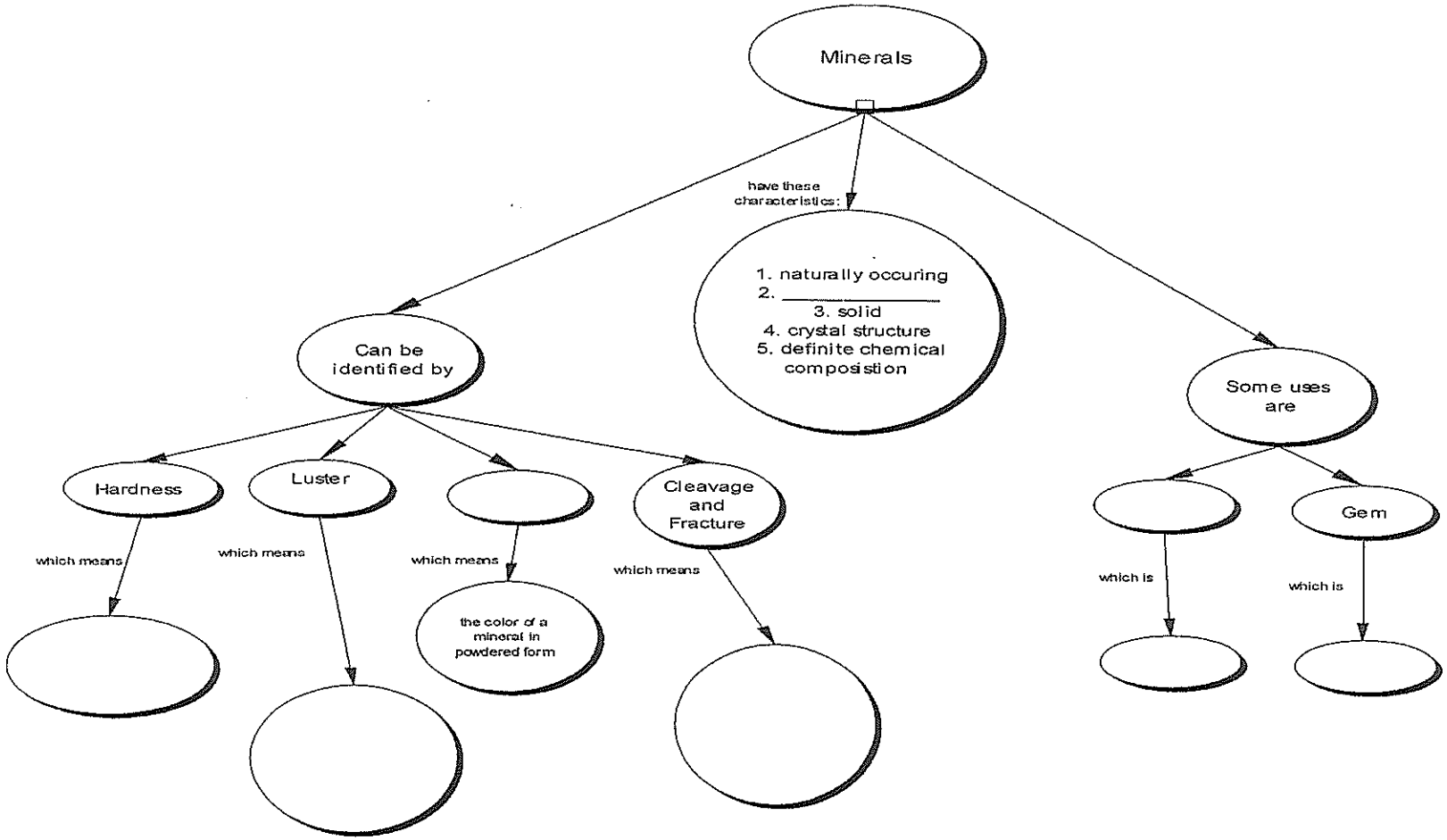
Mineral	Color	Luster	Streak	Hardness	Reactivity with Acid

Luster - Metallic or Non-metallic

Hardness - Scratches Glass - greater than 5.5

Won't scratch glass - less than 5.5

Reactivity with Acid - Fizzes or bubbles → Calcite



Fill in the concept map about minerals. Use the following words and phrases: the way a mineral breaks, the way a mineral reflects light, ore, inorganic, a rare and beautiful mineral, how easily a mineral is scratched, a useful substance mined for profit, streak

Name _____ Date _____

Identifying Minerals

Many different tests are used to identify a mineral. Match the name of each mineral test with its description.

1. _____ Hardness
2. _____ Color
3. _____ Streak
4. _____ Luster
5. _____ Density
6. _____ Crystal system
7. _____ Cleavage
8. _____ Fracture
9. _____ Magnetism
10. _____ Fluorescence

a. how a mineral reflects light; metals are shiny, non-metals are dull

b. having the ability to glow under ultraviolet light

c. in some minerals this is very unique; for example, azurite is deep blue.

d. the ability of a mineral to resist scratching

e. the color produced by a mineral when it is rubbed against a piece of an unglazed tile.

f. the general shape a mineral has, such as a cube.

g. the way a mineral splits along a flat surface.

h. the ratio of the mass of a substance to its volume.

i. how a mineral looks when it breaks apart in an irregular way.

j. when a compass reacts to the presence of a mineral.

Apply what you know about identifying minerals to answer each of the questions below:

11. Topaz is an 8 in the mineral hardness scale. Gypsum is a 2. Will topaz scratch gypsum? _____

12. Tetragonal system describes a mineral's _____ structure.

13. The words *waxy, pearly,* and *dull* describe a mineral's _____.

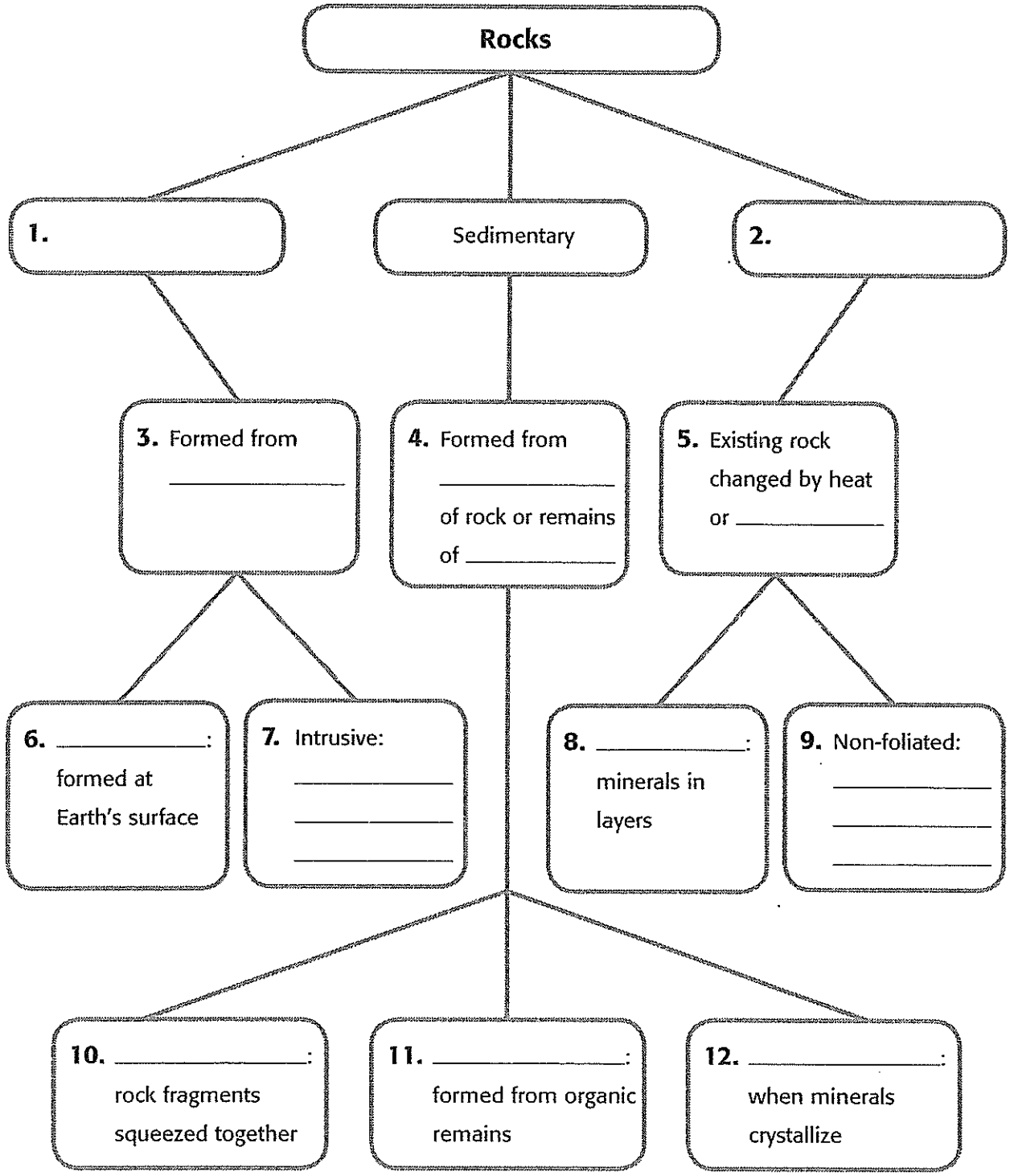
14. Gold rubbed against an unglazed porcelain plate produces a yellow powder. This is an example of gold's _____.

15. Mica breaks along a smooth flat plane. This is an example of a mineral's _____.

Name _____ Date _____

Comparing Types of Rocks

Compare the different types of rocks by completing the concept map below.



Name _____ Date _____ Period _____

There are 3 types of rocks. Use the books to find out the following information and fill in the chart below.

	Igneous	Metamorphic	Sedimentary
How is it formed?			
Where is it found?			
Characteristics			
Examples			

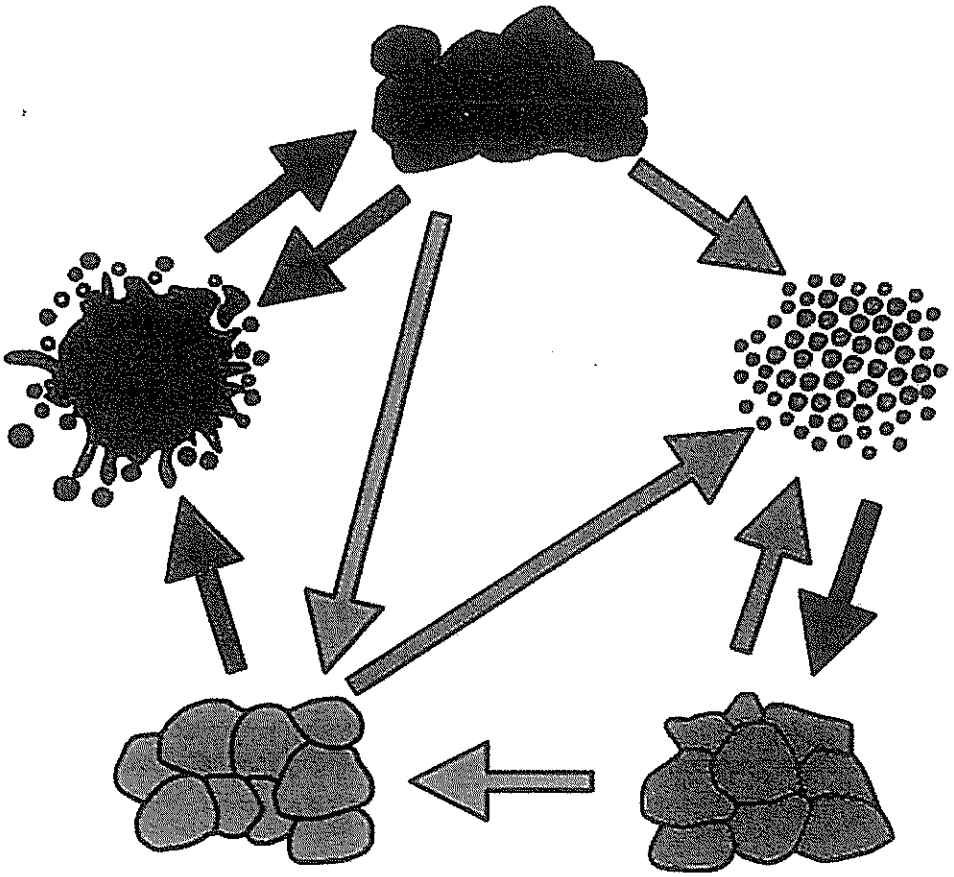
Name: _____

Class: _____ Date: _____

BrainPOP ACTIVITY: ROCK CYCLE

- **Use the words below to label the different parts of the rock cycle. Each rock grouping and arrow should have a label. Words can be used more than once.**

igneous rock • compaction • magma • melting • sediments
sedimentary rocks • weathering & erosion • heat & pressure
metamorphic rocks • cooling



- **Think about it...**

Can magma turn directly into sedimentary rock?

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Name: _____

Class: _____ Date: _____

BrainPOP ACTIVITY: ROCK CYCLE

- Read the following descriptions and determine if each describes an igneous rock, metamorphic rock, or sedimentary rock.

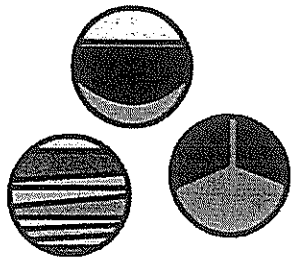
	Forms on the earth's surface usually from erosion. Wind and rain breaks the rock apart and particles collect at the bottom of bodies of water, forming layers over time. These layers bond over time.
	Molten rock, also called magma, cools either at the surface (lava) or deep underground.
	Heat and pressure form this type of rock. Heat and pressure occurs with plate movement and plate collisions.

- Classify the following rocks as either igneous (I), sedimentary (S), or metamorphic (M).

_____ granite	_____ sandstone	_____ schist
_____ limestone	_____ basalt	_____ shale
_____ obsidian	_____ marble	_____ slate
_____ quartzite	_____ clay	_____ pumice

- Fill in the blank with the type of rock each can turn into:

1. Igneous and metamorphic rocks can erode into _____.
2. Sedimentary and igneous rocks exposed to heat and pressure become _____.
3. Metamorphic and sedimentary rocks can be heated and cooled back into _____.



- Think about it...

Name a U.S. state with a high percentage of rocks that can be classified as igneous.

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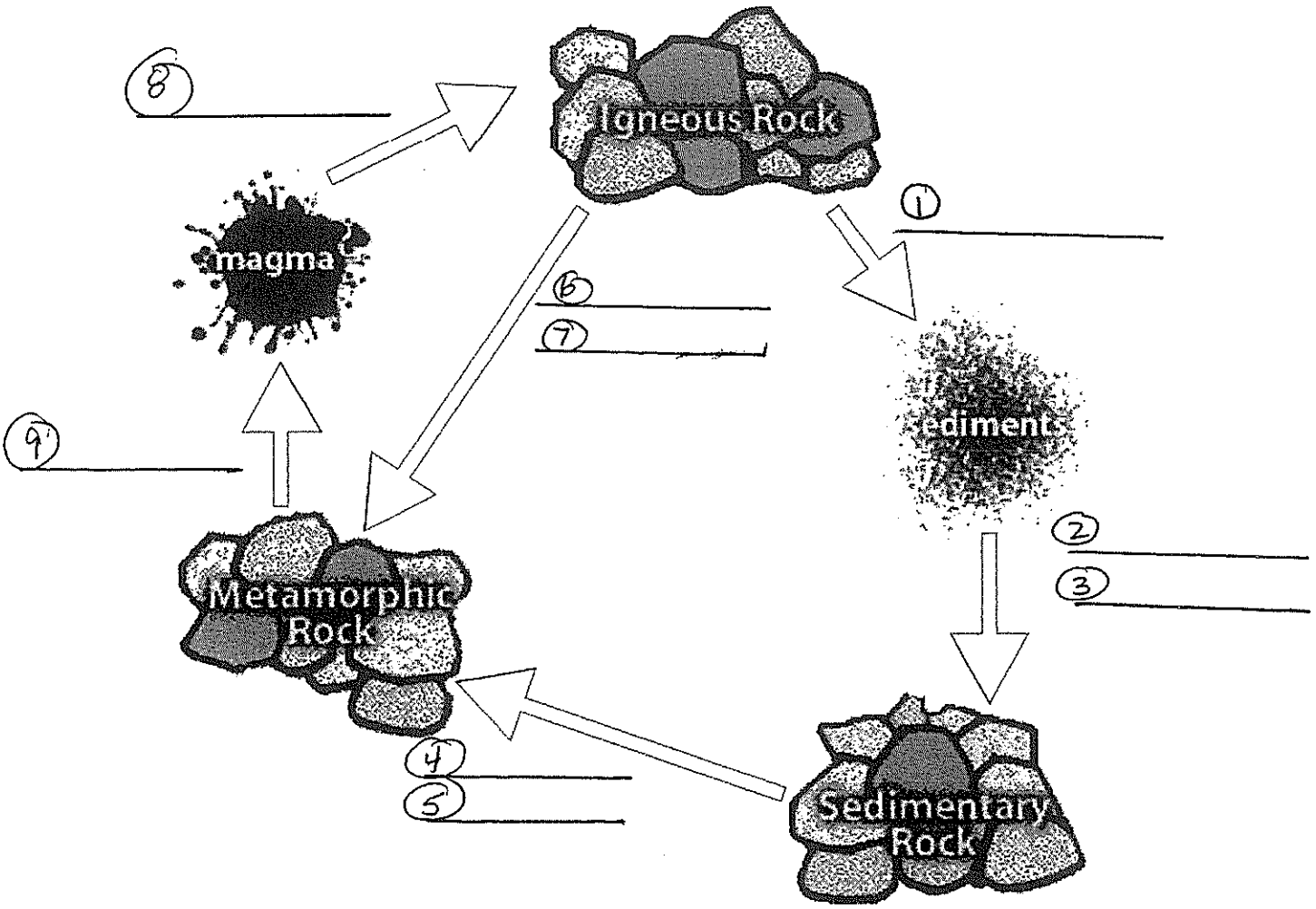
Standard Activity Page

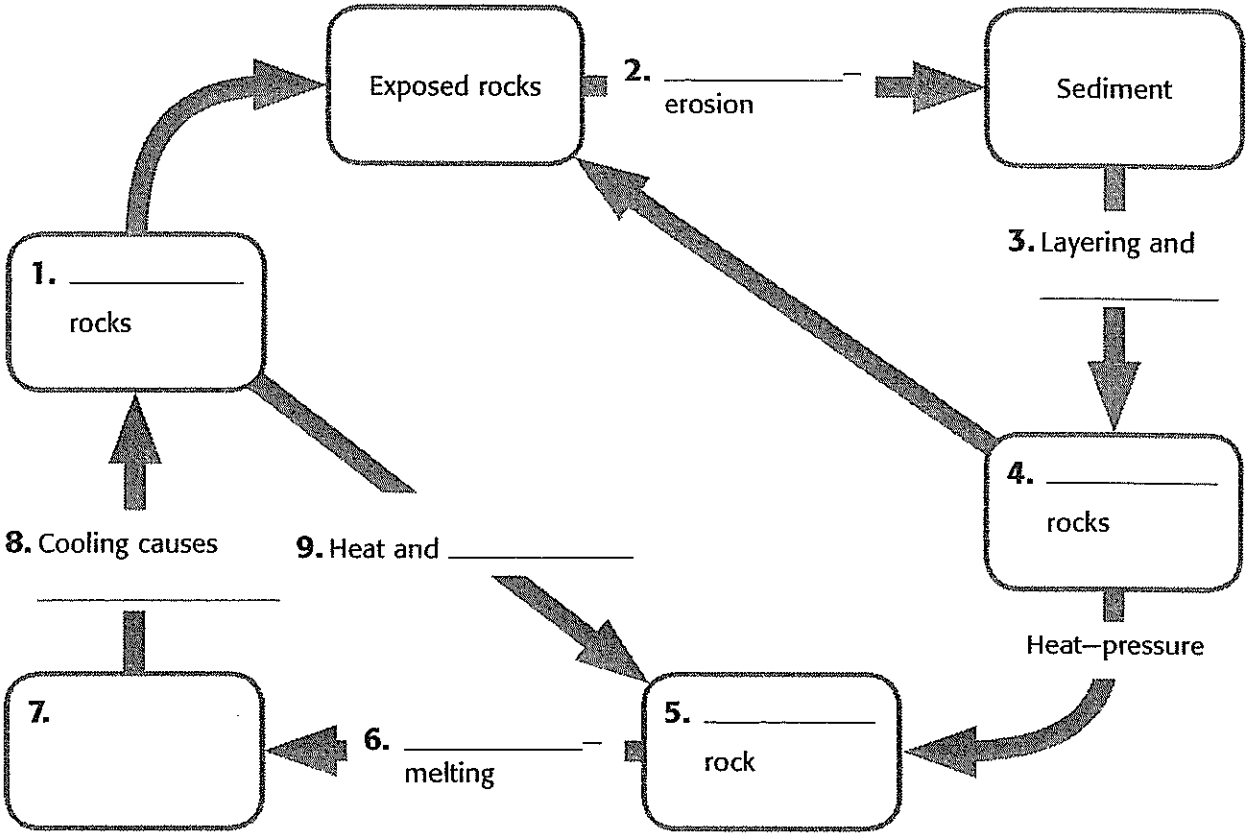
Student Worksheet 2
Student:
Date:



Name _____ Date _____

The Rock Cycle

Explore the rock cycle by completing the flow chart below.



Mark each statement as True or False by writing *T* if the statement is true or *F* if it is false. If the statement is false, replace the underlined term with a term that makes the statement true.

10. _____ Metamorphic rock is formed from igneous rock and sedimentary rock. _____

11. _____ You are walking near an outcropping and find a rock with light and dark bands that look like layers. You have found an igneous rock. _____

12. _____ Mount St. Helens in Washington State is an active volcano. If you were to find a rock in the area it is probably a metamorphic rock. _____

13. _____ Igneous rocks subjected to weathering result in the formation of metamorphic rock. _____

14. _____ Magma may form through the melting of igneous, sedimentary or metamorphic rock. _____

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A Rock Find

Find each of the following words in the puzzle below.

igneous	**sedimentary**	**metamorphic**
magma	**cement**	**pressure**
liquid	**oceans**	**earthquakes**
solidify	**layers**	**changes**
rises	**erodes**	**heat**

A	I	G	N	E	O	U	S	B	C	L	D	E	E	F	G	I	L
I	Q	W	P	X	C	P	E	U	M	I	L	R	S	O	S	E	O
S	T	R	E	E	E	A	D	E	A	Q	U	U	A	B	I	Y	U
V	Z	W	H	E	A	T	I	B	G	U	T	S	A	M	D	U	E
T	I	O	C	O	N	T	M	H	M	I	E	S	I	A	O	O	Y
I	E	U	T	N	S	H	E	T	A	D	L	E	R	O	D	E	S
L	T	G	C	E	M	E	N	T	U	N	Y	R	I	S	E	S	P
G	B	L	F	A	M	E	T	A	M	O	R	P	H	I	C	L	E
L	E	I	U	C	H	I	A	S	O	L	I	D	I	F	Y	A	S
W	L	A	N	H	O	S	R	C	H	A	N	G	E	S	E	E	B
X	O	R	C	R	L	A	Y	E	R	S	D	O	T	N	Y	F	R
U	Y	K	E	A	R	T	H	Q	U	A	K	E	S	I	E	N	D

Write sentences describing how each type of rock (igneous, sedimentary, and metamorphic) is formed. Include some of the words from the puzzle above.

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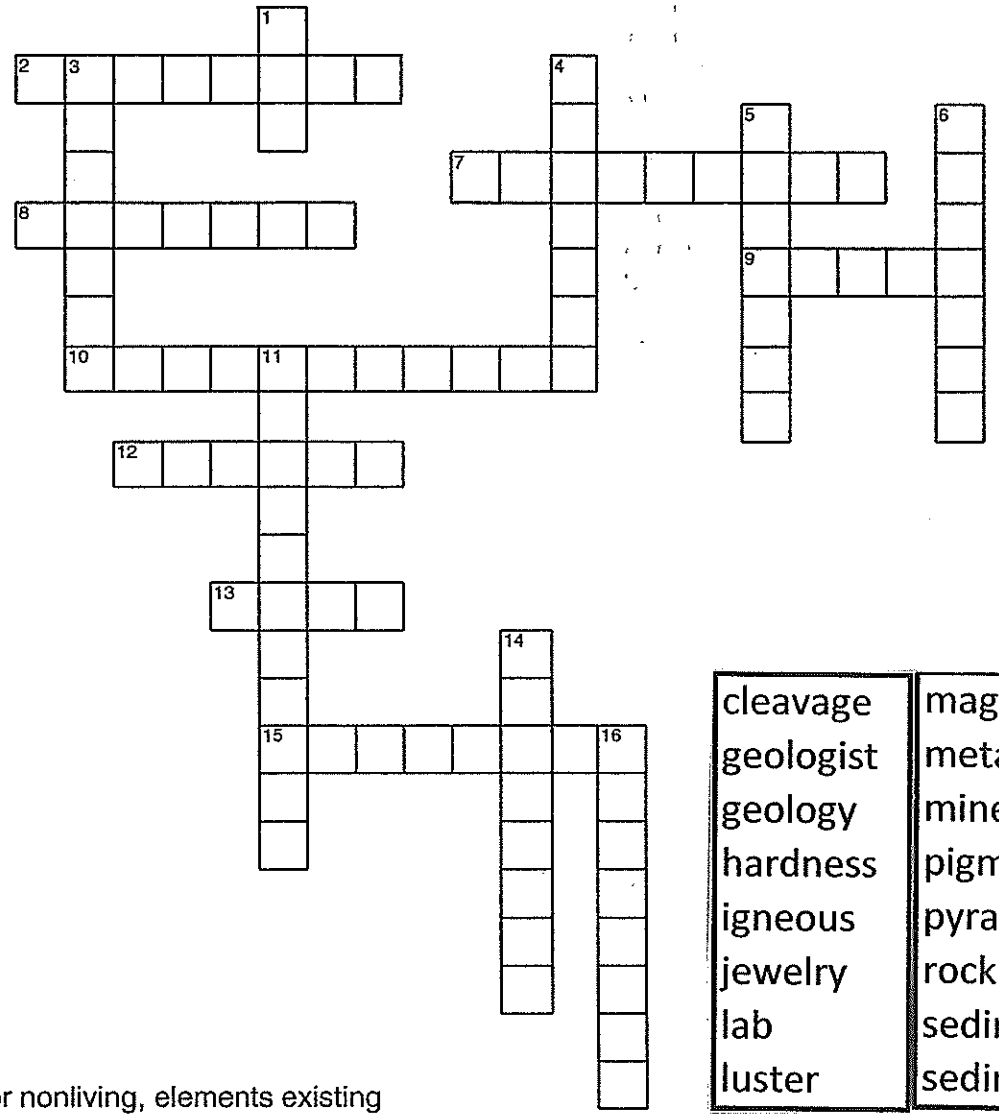
Puzzling Geology

Geologists study rocks and minerals. Discover how much you know about geology by completing the crossword puzzle below.



cleavage	magma
geologist	metamorphic
geology	minerals
hardness	pigment
igneous	pyramid
jewelry	rock
lab	sediment
luster	sedimentary

Across

2. inorganic, or nonliving, elements existing naturally on earth and present in all rocks
7. a scientist who studies rocks to learn about the history of the earth
8. a decorative use for rocks and minerals
9. liquid rock
10. type of rock made from layers of rock and other materials that are cemented together
12. a rock's shine
13. a mass of blended minerals
15. a classification of a rock determined by making a scratch on it

Down

1. a place where a geologist might work
3. a type of rock made from hardened molten rock
4. the study of rocks and the earth
5. a powder made from crushed rocks and used for coloring
6. an ancient Egyptian building made from large blocks of rock
11. a type of rock formed by pressure on large masses of rock
14. the way a rock breaks
16. bits of rock and other matter

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Rock Cycle in Earth's Crust