

name \_\_\_\_\_ hr \_\_\_\_

# **REVIEW METRIC SYSTEM & MEASUREMENT UNIT**

**WRITE THE NAME OR SYMBOL THAT GOES WITH EACH**

Megameter		decimeter		Hectoliter	
Teraliter		microgram		Gigameter	
nanogram		meter		Dekagram	
centiliter		gram		Kiloliter	
Km		cg		dL	
mg		Gm		Mg	
pm		μm		HL	
Tg		Dkm		ng	

**FILL IN THE CHART:**

			$10^3$	$10^2$	$10^1$	$10^0$	$10^{-1}$	$10^{-2}$	$10^{-3}$			
			Kilo	Hecto	Deka	BASE	deci	centi	milli			

**CONVERT:**

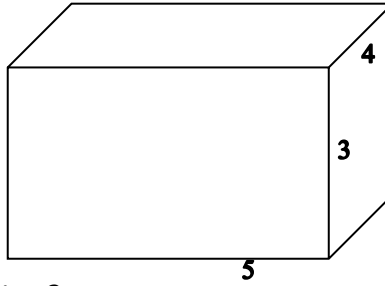
- A.            18                    Mbytes = \_\_\_\_\_ Kbytes
- B.            4.865                    m = \_\_\_\_\_ μm
- C.            .000052                    sec = \_\_\_\_\_ psec
- D.            38.1                    nL= \_\_\_\_\_ μL
- E.            .0034                    Tg= \_\_\_\_\_ Mg

**FILL IN THE CHART:**

	DEFINITION	UNIT LABEL(S)
LINEAR		
AREA		
VOLUME		
MASS		
DENSITY		

Pretend this rectangular prism is measured in cm. Don't forget labels!

- Area of front \_\_\_\_\_
- Area of back \_\_\_\_\_
- Area of side 1 \_\_\_\_\_
- Area of side 2 \_\_\_\_\_
- Area of top \_\_\_\_\_
- Area of bottom \_\_\_\_\_
- Total area → \_\_\_\_\_



mass= 120 g

What is the volume of this rectangular prism?

What is the density of this rectangular prism?

**DEFINE:**

Scientific question-- \_\_\_\_\_

Hypothesis -- \_\_\_\_\_

Data--- \_\_\_\_\_

Claim --- \_\_\_\_\_

Evidence --- \_\_\_\_\_

Argument / Conclusion --- \_\_\_\_\_

Scientific error --- \_\_\_\_\_

Experimental group— \_\_\_\_\_

Control group— \_\_\_\_\_

Sample size-- \_\_\_\_\_

Independent variable-- \_\_\_\_\_

Dependent variable-- \_\_\_\_\_

Controlled variables-- \_\_\_\_\_

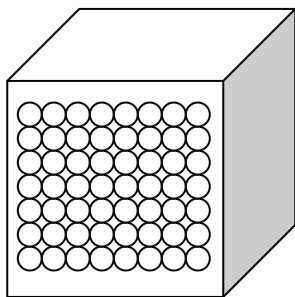
1. List the five characteristics of a mineral
  - 1 NATURALLY OCCURRING
  - 2 INORGANIC
  - 3 SOLID
  - 4 CRYSTAL STRUCTURE
  - 5 SAME CHEMICAL COMPOSITION THROUGHOUT
  
2. What are the 12 identification tests of minerals, and describe how they are performed.
  - 1 COLOR
  - 2 LUSTER
  - 3 STREAK
  - 4 CLEAVAGE/ FRACTURE
  - 5 HARDNESS/ SCRATCH
  - 6 DENSITY
  - 7 TASTE
  - 8 SMELL
  - 9 MAGNETIC
  - 10 FIZZ/ EFFERVESCENCE TEST
  - 11 FLUORESCENCE
  - 12 RADIOACTIVITY

3. List and sketch at least 4 different crystal shapes


Crystal name

ORTHORHOMIC, CUBIC, HEXAGONAL, DODECAHEDRAL, RHOMBUS

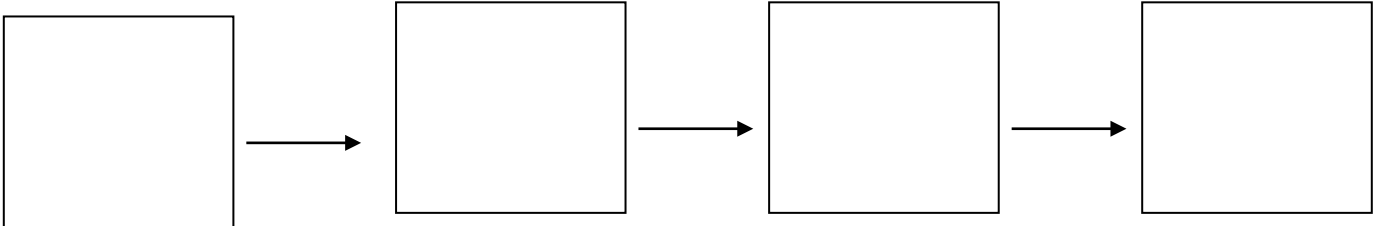
4. Draw what the atoms might look like inside this cubic crystal of pyrite.



5. Explain why cooling slowly allows larger crystals to grow.  
THE ATOMS HAVE MORE TIME TO LINE UP

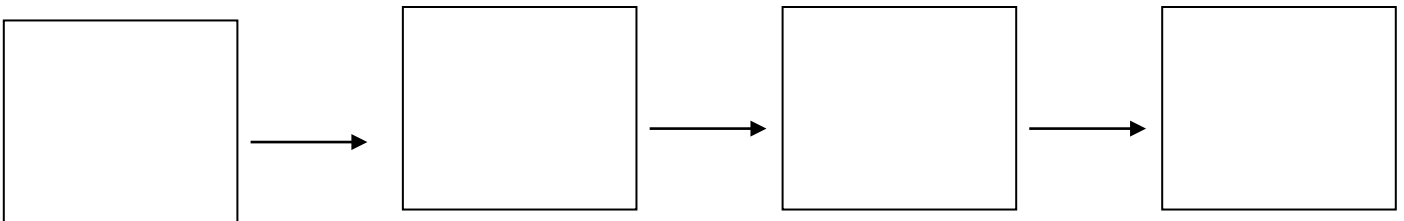
6. How are geodes and agates similar? (at least 3) How are they different? (at least 3)
- |                            |                               |
|----------------------------|-------------------------------|
| 1 START AS HOLLOW ROCK     | 1 ONE IS HOLLOW               |
| 2 MINERAL WATER FILLS THEM | 2 ONE HAS INDIVIDUAL CRYSTALS |
| 3 CRYSTALS INSIDE          | 3 ONE IS YOUNGER              |
|                            | ONE IS MORE VALUABLE          |

7. How are geodes and agates formed? Draw a flow map. Make more boxes if necessary.



HOLLOW ROCK → MINERAL WATER SEEPS IN → WATER EVAPORATES → MINERAL CRYSTALS

8. How are stalactites formed? Draw a flow map. Make more boxes if necessary.



CAVE → MINERAL WATER SEEPS IN → WATER EVAPORATES → STALACTITES/ STALAGMITES FORM

9. How do you make minerals with magma? Describe the 5 steps.

- 1 EARTH MELTS MINERALS/ ROCKS
- 2 MAGMA MOVES UP TOWARD SURFACE
- 3 MAGMA/ LAVA COOLS
- 4 ATOMS LINE UP
- 5 MINERALS/ CRYSTALS ARE MADE

10. Pick any 5 minerals you are familiar with, then describe them physically, and name at least one use of it.

mineral	describe	use
SULFUR	YELLOW, STINKS	MATCHES, TIRES
HALITE	CLEAR, CUBIC, SALTY	FOOD, PRESERVATIVE, ROADS
TALC	SOFT, WHITE	POWDER
DIAMOND	GLASSY LUSTER, HARD	SAW BLADES, RINGS
PYRITE	GOLDEN, HARD, METALLIC LUSTER	SOURCE OF IRON

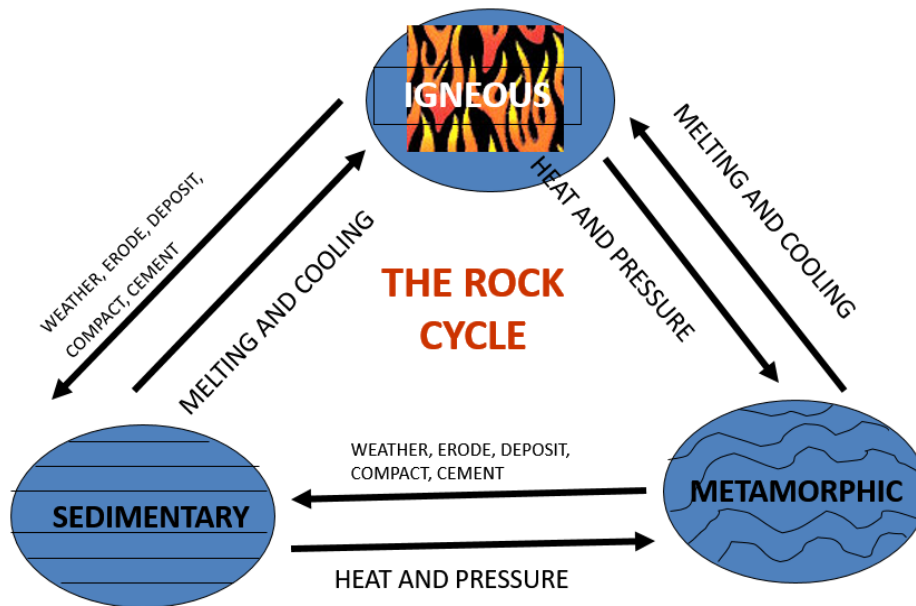
# Review for Rock Test

name \_\_\_\_\_ hr \_\_\_\_\_

1) What are the three major types of rocks and how do they form?

ROCK TYPE	HOW IT FORMS
<b>IGNEOUS</b>	<b>MINERALS MELT THEN COOL AND HARDEN</b>
<b>SEDIMENTARY</b>	<b>SEDIMENTS BREAK OFF, GET TRANSPORTED TO A NEW LOCATION , GET DROPPED OFF, GET PRESSED TOGETHER, AND GLUED TOGETHER</b>
<b>METAMORPHIC</b>	<b>EXISTING ROCK GETS HEATED OR PRESSURIZED AND BECOMES A DIFFERENT ROCK</b>

2) Draw the rock cycle and label the arrows with the 5 sedimentary, 2 igneous, and 2 metamorphic processes.



3) From what two types of molten rock can igneous rock form?

1 **MAGMA**

2 **LAVA**

4) Define intrusive and extrusive igneous rocks, tell what size crystals they have, and explain why the crystals are different sizes.

	<b>INTRUSIVE</b>	<b>EXTRUSIVE</b>
DEFINITION	<b>COOLS INSIDE EARTH</b>	<b>COOLS OUTSIDE OF EARTH</b>
CRYSTAL SIZE	<b>LARGE</b>	<b>SMALL</b>
WHY DIFFERENT SIZES?	<b>ATOMS HAVE TIME TO LINE UP</b>	<b>ATOMS DON'T HAVE TIME TO LINE UP</b>

5) What are the 5 igneous rock textures, define them, and give an example of each one.

IGNEOUS ROCK TEXTURE	DEFINITION	EXAMPLE
<b>Course grained</b>	Intrusive igneous rocks normally have large crystals because they cool very slowly within the Earth	Granite
<b>Fine grained</b>	Extrusive igneous rocks normally have small mineral grains too small to see	Basalt, Rhyolite
<b>Porphyritic</b>	both large and small crystals.	Rhyolite Porphyry, Diorite
<b>Glassy</b>	magma cools quickly & no crystals are able to grow	Obsidian
<b>Vesicular (Porous)</b>	magma cools rapidly with dissolved gases inside making a rock full of holes, or vesicles.	Scoria, Pumice

6) Describe/define the 5 processes involved in sedimentary rock formation.

PROCESS	DEFINITION
<b>WEATHERING</b>	<b>BREAK OFF A PIECE OF ROCK</b>
<b>EROSION</b>	<b>MOVE THE SEDIMENT</b>
<b>DEPOSITION</b>	<b>DROP OFF THE SEDIMENT</b>
<b>COMPACTION</b>	<b>PRESS SEDIMENTS TOGETHER</b>
<b>CEMENTATION</b>	<b>GLUE SEDIMENTS TOGETHER</b>

7) Define chemical sedimentary rock AND give two examples.

- 1 **FORMS WHEN WATER EVAPORATES AND LEAVES MINERALS BEHIND**
- 2 **rock salt, gypsum, travertine, dolomitic limestone, stalactites, and stalagmites**

8) Define biochemical (organic) sedimentary rock AND give two examples.

- 1 **FORMS FROM THE REMAINS OF LIVING THINGS**
- 2 **COAL, FOSSILIFEROUS LIMESTONE, COQUINA**

9) Define clastic sedimentary rock AND fill in the chart

- 1 **BROKEN FRAGMENTS OF ROCK RECONNECTED TOGETHER TO MAKE A NEW ROCK**

CSR ROCK TYPES	WHAT WAS PRESSED TOGETHER?	GRAIN SIZE
<b>CONGLOMERATES</b>	<b>PEBBLES AND GRAVEL</b>	<b>LARGE</b>
<b>SANDSTONES</b>	<b>SAND</b>	<b>MEDIUM</b>
<b>SHALES</b>	<b>CLAY</b>	<b>VERY FINE</b>

10) Describe the two processes that form metamorphic rock.

PROCESS	DESCRIPTION
HEAT	INCREASING THE TEMPERATURE OF ROCK
PRESSURE	INCREASING THE FORCES PUSHING ON ROCK

11) Define foliated metamorphic rock AND give three examples.

1 \_\_\_ rocks have parallel bands because mineral grains have been squeezed flat

2 BIOTITE GNEISS 3 \_\_\_ SLATE 4 \_\_\_ MICA SCHIST \_\_\_\_\_

12) Define nonfoliated metamorphic rock AND give two examples.

1 \_\_\_ Rocks that do not have bands because they formed due to heat or EVEN Pressure

2 \_\_\_ MARBLE, QUARTZITE, GRANATOID GNEISS 3 \_\_\_\_\_

# REVIEW- GLACIERS

NAME \_\_\_\_\_ HR \_\_\_\_\_

1. How many ice ages have there been in Earth's history?  
**5**
2. How many degrees does the temperature need to drop to start an ice age?  
**6-9**
3. True or false -- Everywhere on the planet is much colder during an ice age.  
**FALSE**
4. What are five reasons why the temperature could drop to make an ice age?
  - a. **Change in sun's energy output [thermostat turned down in sun]**
  - b. **Change in tilt of earth's axis (maybe not 23.5, maybe only 21 degrees)**
  - c. **Continental plate movement**
  - d. **Volcanic ash blocking out sunlight**
  - e. **Nearby star explodes disrupting flow of energy from the sun**
  
5. Where does water come from to make a glacier?  
**OCEAN**
6. When Glaciers are very large, how far do ocean levels drop?  
**HUNDREDS OF FEET**
7. Why was there a land bridge between Siberia and Alaska?  
**THE OCEAN LOWERED, SO PEOPLE WERE ABLE TO WALK ACROSS SHALLOW OCEAN FLOOR**
8. Where are glaciers found?  
**NEAR POLES / ON MOUNTAINS**
9. How thick can glaciers get?  
**2-3 MILES**
10. What types of plants and animals live near glaciers?  
**LICHEN, MOSS, FAST FLOWERING PLANTS**
11. Where did humans live in the Ice Age?  
**TEMPORARY HOUSES THAT CAN TRAVEL (BONES, BRANCHES, FUR)**
12. What is the definition for a glacier?  
**LARGE MASS OF RECRYSTALLIZED SNOW, ON LAND, AND MOVING**
13. What is Firn?  
**GRANULAR ICE (RECRYSTALLIZED SNOW)**
14. The amount of snow added annually to a glacier is called?  
**ACCUMULATION**
15. The amount of ice lost annually is called?  
**ABLATION**
16. What are the four things that can cause ablation?
  - a. **Melting**
  - b. **iceberg calving**- pieces of ice break off and form icebergs when a glacier reaches a shoreline
  - c. **sublimation**- ice turns directly into gas
  - d. **wind erosion**- strong winds can cause melting and sublimation



17. What are the two ways glaciers move? Describe each. (4 Points)

INTERNAL PLASTIC DEFORMATION	ICE LAYERS SLIDE PAST EACH OTHER DUE TO GRAVITY AND THE PRESSURE OF THE ICE. TOP MOVES FASTER
BASAL SLIDING	GRAVITY PULLS DOWN ICE AND MELTS BOTTOM, REDUCING FRICTION

18. How do dry glaciers typically move? (what method do they use?)

INTERNAL PLASTIC DEFORMATION

19. How do wet glaciers typically move? (what method do they use?)

BASAL SLIDING

20. Glaciers always move in what direction?

FORWARD (NEVER BACK)

21. If a glacier moves forward at the same rate as the front of the glacier melts it is called?

STATIONARY

22. If a glacier moves forward faster than it melts it is called?

ADVANCING

23. If a glacier melts faster than it moves forward it is called?

RETREATING




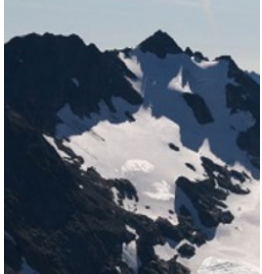
24. About how far do glaciers move every year?

300FT (100 m)

25. In what season do glaciers typically move the most?

SUMMER

26. What are the four types of Glaciers? Define, give examples, and draw a sketch (16PTS)

Type of glacier	Definition	Example of where it's found	Draw it
<b>CONTINENTAL (ICE SHEETS)</b>	<b>COVERS ALL SURFACE FEATURES</b>	<b>GREENLAND ANTARCTICA</b>	
<b>ALPINE (MOUNTAIN) (VALLEY)</b>	<b>FOUND BETWEEN MOUNTAINS</b>	<b>ROCKIES, ALPS, HIMALAYAS</b>	
<b>PIEDMONT</b>	<b>FAN SHAPE THAT OCCURS WHEN A VALLEY GLACIER SPILLS OUT ONTO FLAT LAND</b>	<b>MALASPINA IN ALASKA</b>	
<b>CIRQUE</b>	<b>ON SIDE OF MOUNTAIN</b>	<b>ROCKIES, ALPS, HIMALAYAS</b>	

27. What is a glaciation?

**PERIOD OF TIME IN AN ICE AGE WHERE THE ICE GROWS OUT BIG**

28. What are the four glaciations of the last ice age and when did they happen? (8PTS)

<b>NEBRASKAN</b>	<b>2,000,000 YA</b>
<b>KANSAN</b>	<b>1,250,000 YA</b>
<b>ILLINOISAN</b>	<b>500,000 YA</b>
<b>WISCONSIN</b>	<b>40,000 YA</b>

29. How are glaciations named?

**BY THE STATE THEY REACHED**

### 30. Matching

<b>H</b>	Glacial flour	A	form when sand is blown by wind when Lake water level is low
<b>J</b>	Till	B	gently Rolling Hills that form when till is dropped in place as a glacier melts
<b>A</b>	Dunes	C	Egg-shaped small hill
<b>F</b>	Glacial erratic	D	Ridges of till along sides of a glacier
<b>I</b>	Terminal Moraine	E	Snake like ridges that form when meltwater carry small sediments and deposits them and a narrow path under the glacier
<b>B</b>	Ground Moraine	F	Large Boulders that were moved long distances by glaciers and are dropped off in a new location
<b>D</b>	Lateral Moraine	G	Meltwater and deposited in a fan like pattern
<b>E</b>	Esker	H	Sliding rocks and Ice grind up soft rock into powder
<b>C</b>	Drumlin	I	An accumulation of till at the end of a glacier
<b>G</b>	Outwash plain	J	unsorted Rock and sediments that are placed by a glacier (sand, gravel, stones)

31. What's is it called when a rock freezes to the glacier and then is used as a grinding tool?

**PLUCKING**

32. When rocks rub together this is called?

**ABRASION**

33. If abrasion occurs on soft rock it will create what?

**GLACIAL FLOUR**

34. If abrasion occurs on hard rock it will create what?

**STRIATIONS**

35. Describe how Frost wedging works.

**WATER GOES IN ROCK CRACK, FREEZES, SPLITS IT APART**

36. MATCHING:

<b>F</b>	Lake Plains	A	Carved out Bowl shapes on mountains
<b>E</b>	Kettles	B	U-shaped valley carved by Cirque glaciers that often have a steep drop off thus making great waterfalls
<b>G</b>	Rock outcrop	C	Sharp ridges formed by back-to-back Cirque glaciers
<b>A</b>	Cirques	D	Shape created by Valley Glacier carving and eroding the space between mountains
<b>C</b>	Aretes	E	Formed when large blocks of ice break off, create a dent due to their weight, then melt and fill in the dent
<b>B</b>	Hanging valleys	F	Flat fertile land caused by sediments being laid down by wave action
<b>H</b>	Horns	G	A section of rock that stands out higher than the surrounding land. They formed due to erosion from the flow of water
<b>D</b>	U valleys	H	Sharp mountain peaks formed by Cirque glaciers on the sides of mountains

37. Put the following steps in order to describe how the Great Lakes formed: (5PTS)

<b>2</b>	After oceans left, water erosion (due to rainfall) and wind erosion carved ancient river basins for 280 my (these became the "trail" the glaciers would follow as they grew into Michigan)
<b>5</b>	Many times lake levels rose and fell eroding and depositing material on shores and allowing wind to blow sand, forming dunes.
<b>4</b>	Glaciers began to melt/recede 15,000 years ago leaving meltwater behind which filled the basins.
<b>1</b>	We were under oceans for 300 million years laying down soft sedimentary rock
<b>3</b>	2 million years ago an ice age began and 1 million years ago glaciers fell off the Canadian Shield and into the soft sedimentary rock, crushing the land 300 - 800 feet and following the ancient river basins. This carved the deep basins of the great lakes.