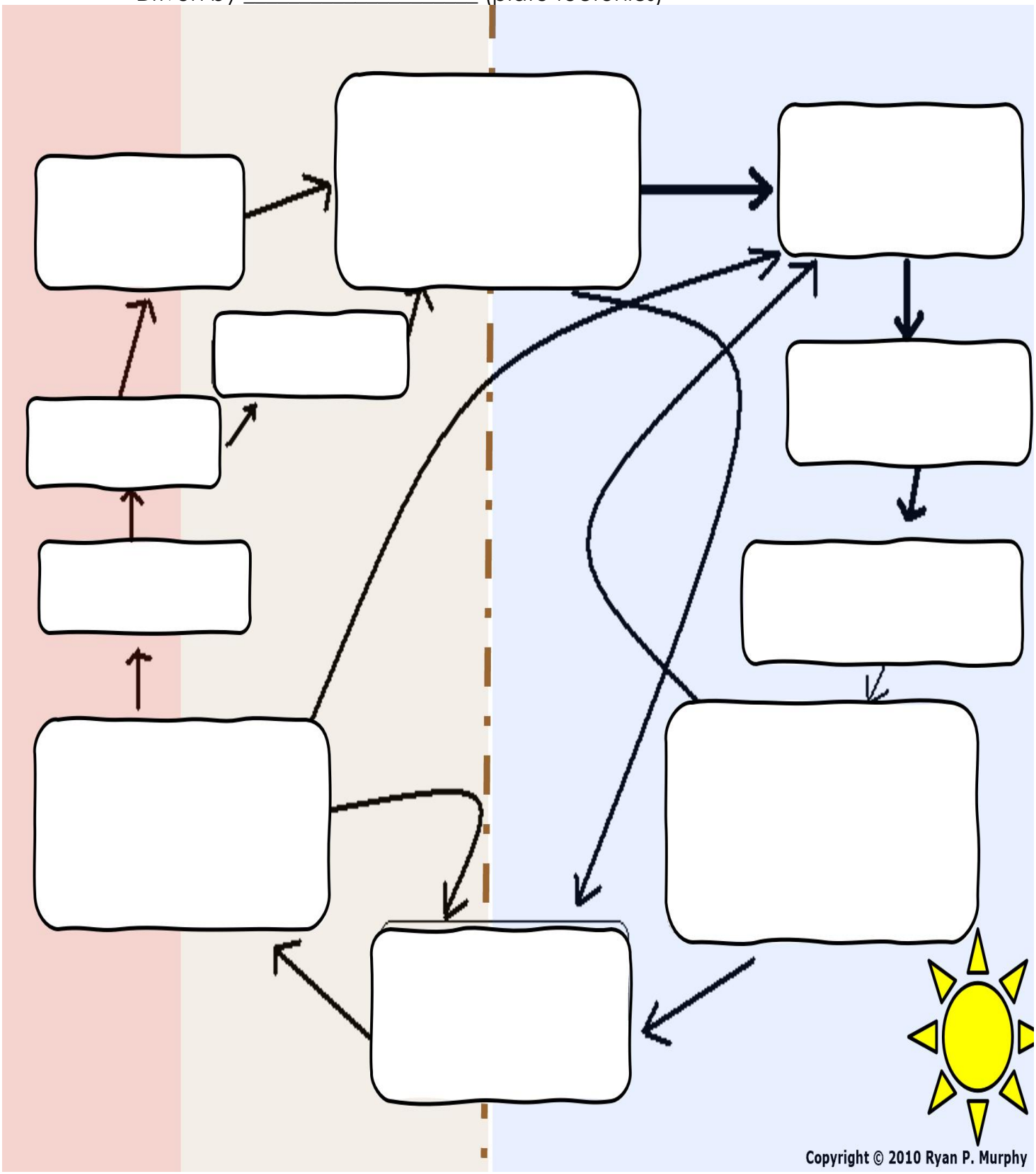
Part 5 Rocks

Name:

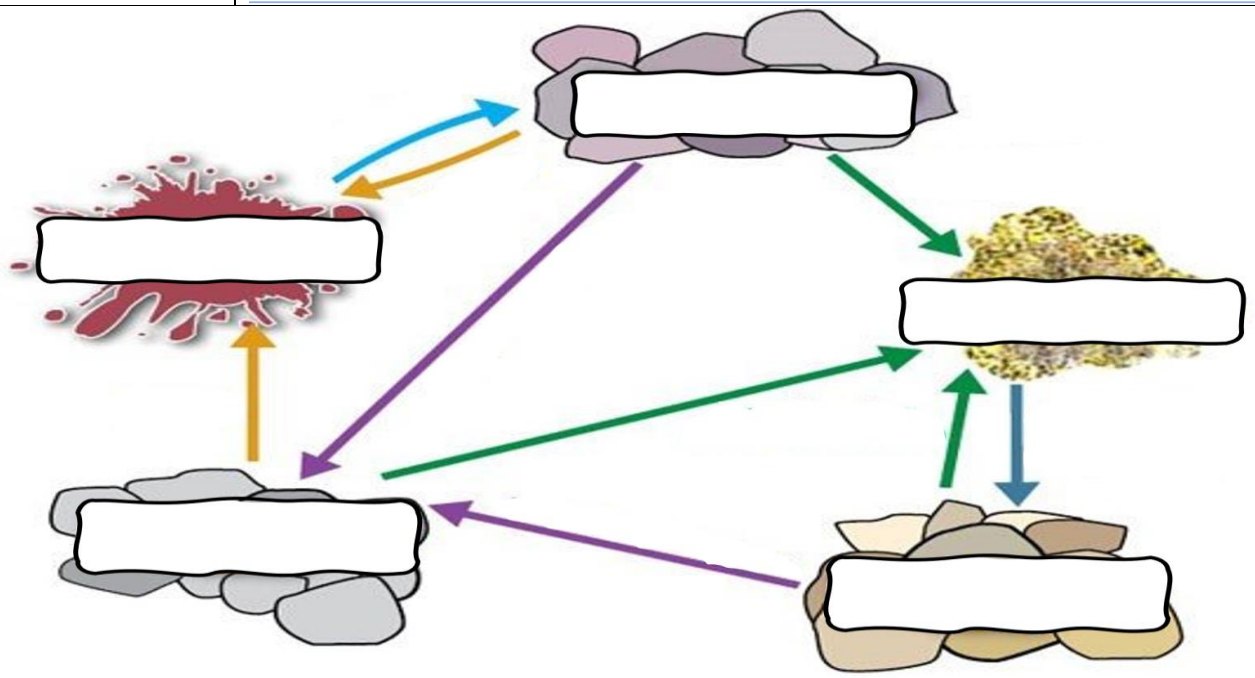
Part 5 Lesson 1 Rock Cycle

The rock cycle – How one rocks _____ into another.

Driven by _____ (plate tectonics)

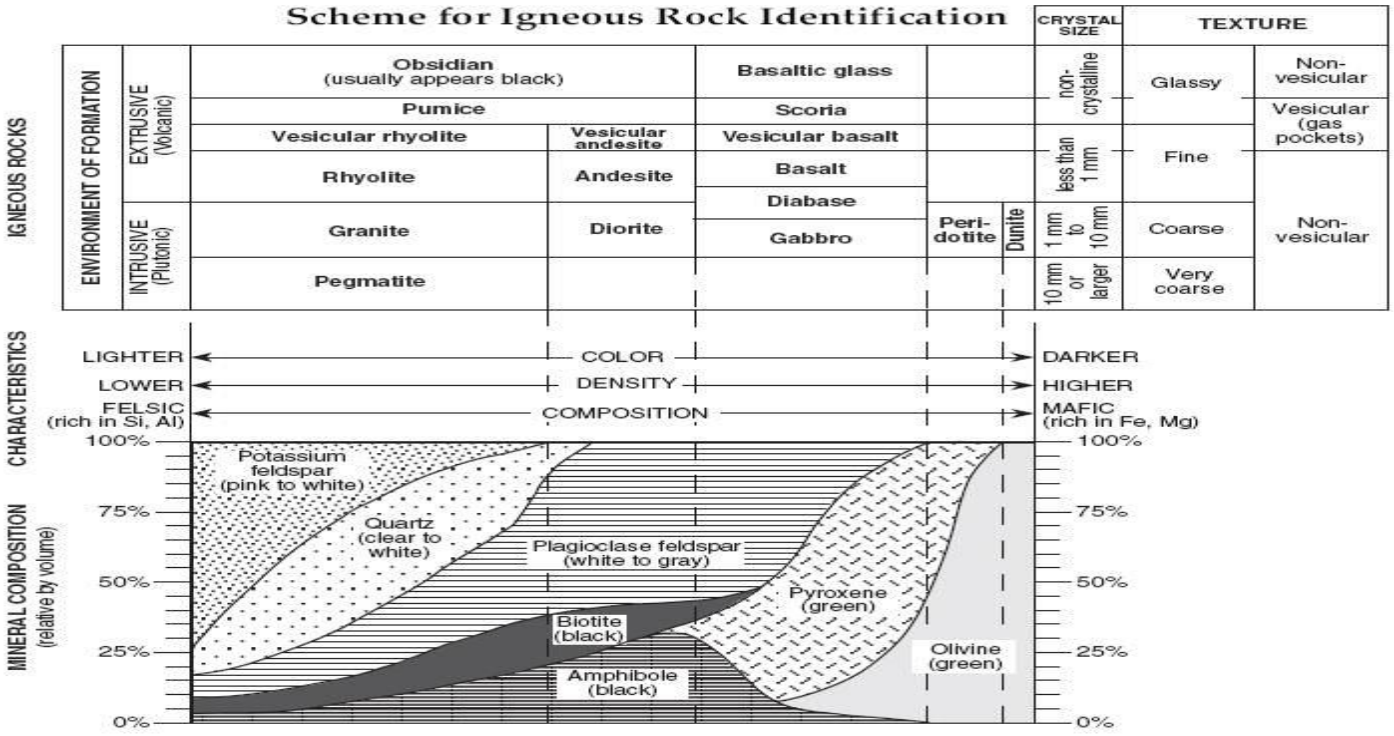


All rocks start off as this type of rock.	
Describe how a rock becomes sedimentary in a few steps?	
How does a rock become metamorphic?	
How could a metamorphic rock become sedimentary?	
Which side (Right or Left) occurs above the earth's surface and which side occurs deeper in the crust?	
Can a metamorphic rock become another metamorphic rock? How would this happen?	
Does the rock cycle ever stop?	



Word Bank: Magma, Igneous, Sediments, Sedimentary Rock, Metamorphic Rock, Heat and Pressure x 2, Melting x 2, Compaction and Cementation, Weathering and Lithification x 2, Cooling

Use the scheme for Igneous Rock Identification to describe **Granite** and a very dark piece of **Basalt** on the next two pages.



Part 5 Lesson 2 Igneous Rocks

Please use the scheme for Igneous Rock Identification to describe Granite and a very dark piece of Basalt.

FAB _____

_____ MAN

Igneous Rocks: Molten Earth _____.

Intrusive – Cooled _____ crust (slow)

_____ crystals

Extrusive – Cooled on Earth's surface (_____).

_____ grain crystals or no crystals.

Igneous rocks

-Mafic (_____ in color) is used for silicate minerals, magmas, and rocks which are relatively high in the _____ elements. (Magnesium and Iron)

-Felsic (_____in color) is used for silicate minerals, magmas, and rocks which have a _____percentage of the _____elements. Have more of the _____elements. (Silicon and oxygen, aluminum, and potassium) Feldspar

Classification of Igneous Rocks

_____ – Dark, heavy (dense), Iron

_____ – Light colored, less heavy, filled with oxygen

_____ – Between the two

Quiz 1-10, Is it Basaltic, Granitic or Name the Rock Band.

1)	2)	3)	4)
5)	6)	7)	8)
9)	10)	*11)	

Part 5 Lesson 3 Igneous Rocks Cont.

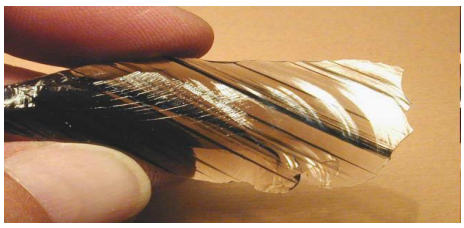
Name the Igneous Rocks Below

Name=
A vesicular rock cooled extrusive, non-crystalline, composed of mainly of scoria, low density. Can float

Name=
A non-vesicular rock cooled extrusive, fine-grained crystals less than 1 mm, dark color and high density

Name=
A non-vesicular rock cooled intrusive, coarse-grained crystals 1-10mm, more mafic, high density, and darker color (has peridotite). Find…

Name=
A non-vesicular rock cooled extrusive, fine-grained crystals less than 1 mm, intermediate color and density. Between felsic and mafic



Name=
Non-vesicular basaltic glassy rock, cooled extrusive, extremely felsic, non-crystalline. Volcanic glass.

Name=
A non-vesicular rock cooled intrusive, coarse-grained crystals 1-10mm, more felsic, lower density, and lighter color. Quartz and feldspar minerals, and hornblende-type amphiboles
biotite mica

Name=
Felsic, cooled intrusively (Plutonic), very coarse with large crystals larger than 10mm, non-vesicular

Describe Dunite

Describe Rhyolite

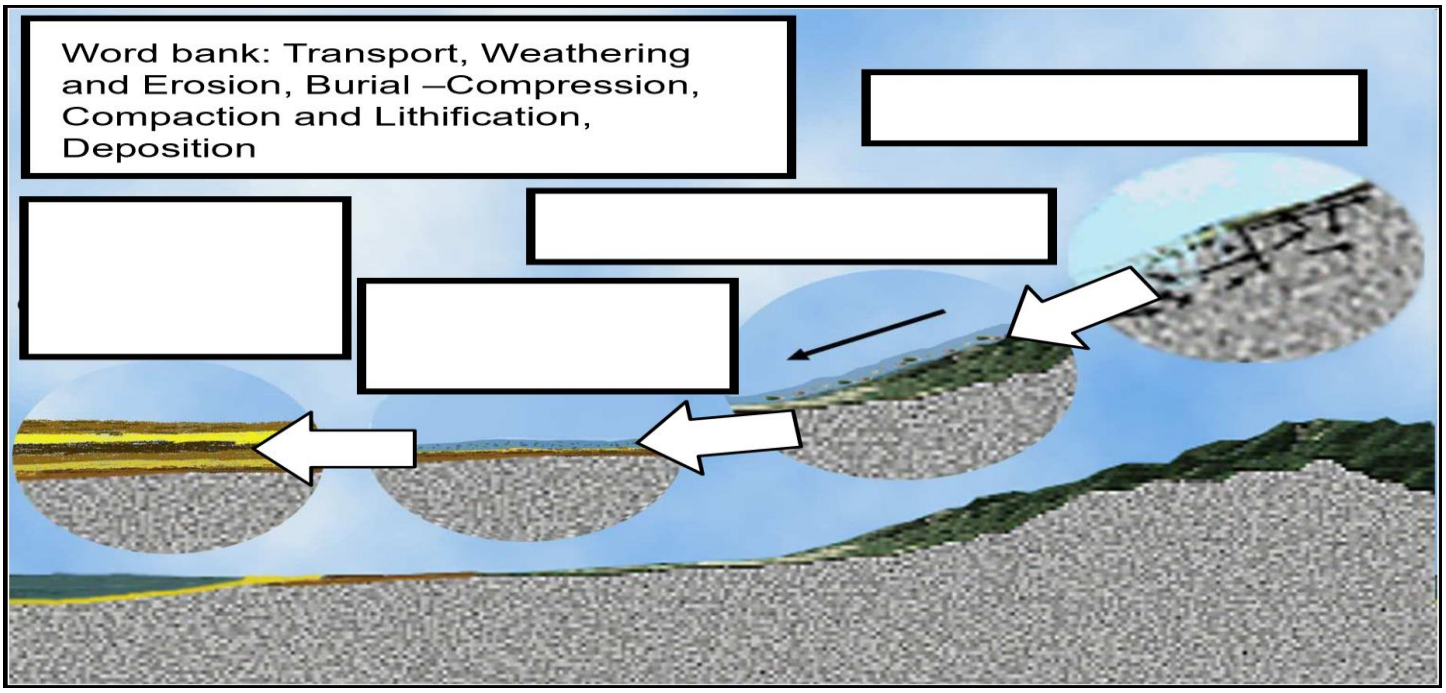
Part 5 Lesson 4 Igneous Rocks and Flow Chart – Flow Chart Next Page

Common Igneous Rocks – Record some notes if you need

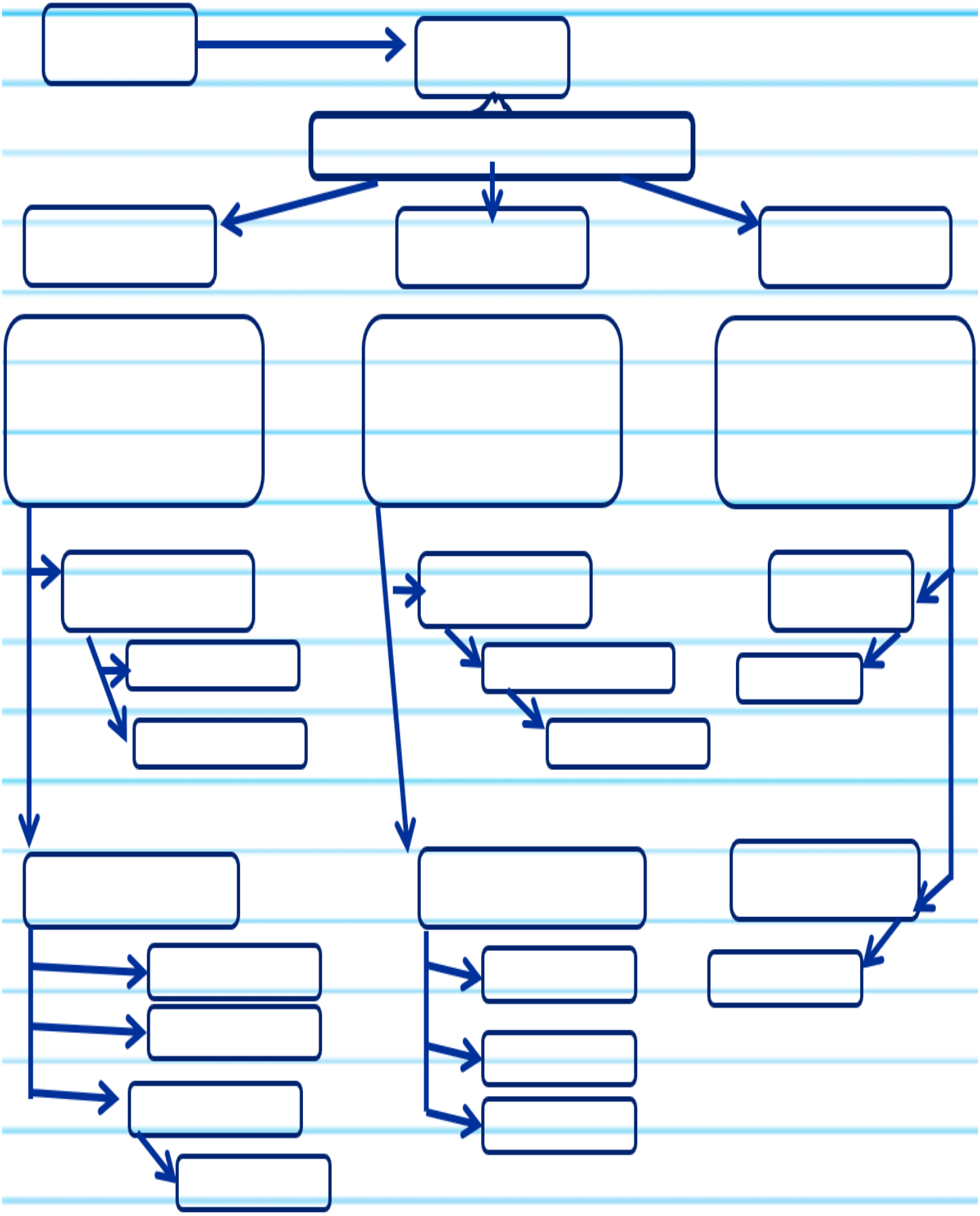
Sedimentary Rocks Part 5 Lesson 5 Sedimentary Rocks

Sedimentary rocks are a type of rock that is formed near _____ from the _____ of sediments and other processes.

Sedimentary Rocks are formed when _____ of rock are loosened by _____. The rock is then _____ to a basin or depression where the small sediment is trapped. The sediment eventually gets _____, gets _____ and _____ together. _____ sedimentary rocks have particles ranging in size from microscopic clay to large boulders.



Part 5 Lesson 4 Rocks Flow Chart



Part 5 Lesson 5 Sedimentary Rocks-Continued

Sedimentary rocks are usually_____ and are the only type of rocks that contain _____.

Road Cut sketch

Part 5 Lesson 6 Common Sedimentary Rocks

Which is a bogus statement about sedimentary rocks from the list below? A.) Sediments are gathered from cooling lava that forms crystals very quickly. B.) Caused by weathering, erosion, and deposition. C.) Usually layered D.) Layers can be fossils and old living materials.	Which is a bogus statement about sedimentary rocks from the list below? A.) Sediments are gathered from erosion, transport and deposition. B.) Caused by weathering, erosion, and deposition. C.) Usually layered. D.) Layers can be fossils and old living materials.

The size of the sediment classifies the type of sedimentary rock.

_____ are very large pieces of _____.

_____ are very small pieces of sediment.

Formed from _____ or precipitation of minerals in water.

_____ are from the compaction of organic matter.

Name some examples of…

Clastic Sedimentary Rocks	Crystalline (formed evaporation) Sedimentary Rocks	Bioclastic . Organic Sedimentary Rocks

INORGANIC LAND-DERIVED SEDIMENTARY ROCKS					
TEXTURE	**GRAIN SIZE**	**COMPOSITION**	**COMMENTS**	**ROCK NAME**	**MAP SYMBOL**
Clastic (fragmental)	Pebbles, cobbles, and/or boulders embedded in sand, silt, and/or clay	Mostly quartz, feldspar, and clay minerals; may contain fragments of other rocks and minerals	Rounded fragments	**Conglomerate**	
			Angular fragments	**Breccia**	
	Sand (0.006 to 0.2 cm)		Fine to coarse	**Sandstone**	
	Silt (0.0004 to 0.006 cm)		Very fine grain	**Siltstone**	
	Clay (less than 0.0004 cm)		Compact; may split easily	**Shale**	
CHEMICALLY AND/OR ORGANICALLY FORMED SEDIMENTARY ROCKS					
TEXTURE	**GRAIN SIZE**	**COMPOSITION**	**COMMENTS**	**ROCK NAME**	**MAP SYMBOL**
Crystalline	Fine to coarse crystals	Halite	Crystals from chemical precipitates and evaporites	**Rock salt**	
		Gypsum		**Rock gypsum**	
		Dolomite		**Dolostone**	
Crystalline or bioclastic	Microscopic to very coarse	Calcite	Precipitates of biologic origin or cemented shell fragments	**Limestone**	
Bioclastic		Carbon	Compacted plant remains	**Bituminous coal**	

Please use the sedimentary rock identification scheme to describe…

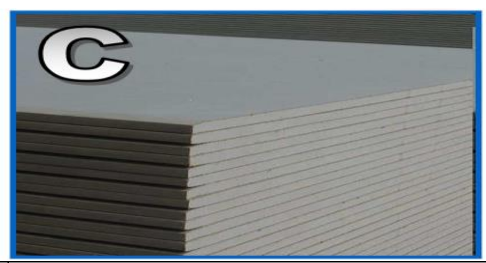
Dolostone

Name this Sedimentary Rock.
Bioclastic texture,
Composition is entirely carbon, compacted plant remains

Name this Sedimentary Rock.
Clastic Fragmental texture, composed of cobble, pebbles and boulder, embedded in clay or sand, Mostly Quartz and Feldspar, Angular Fragments

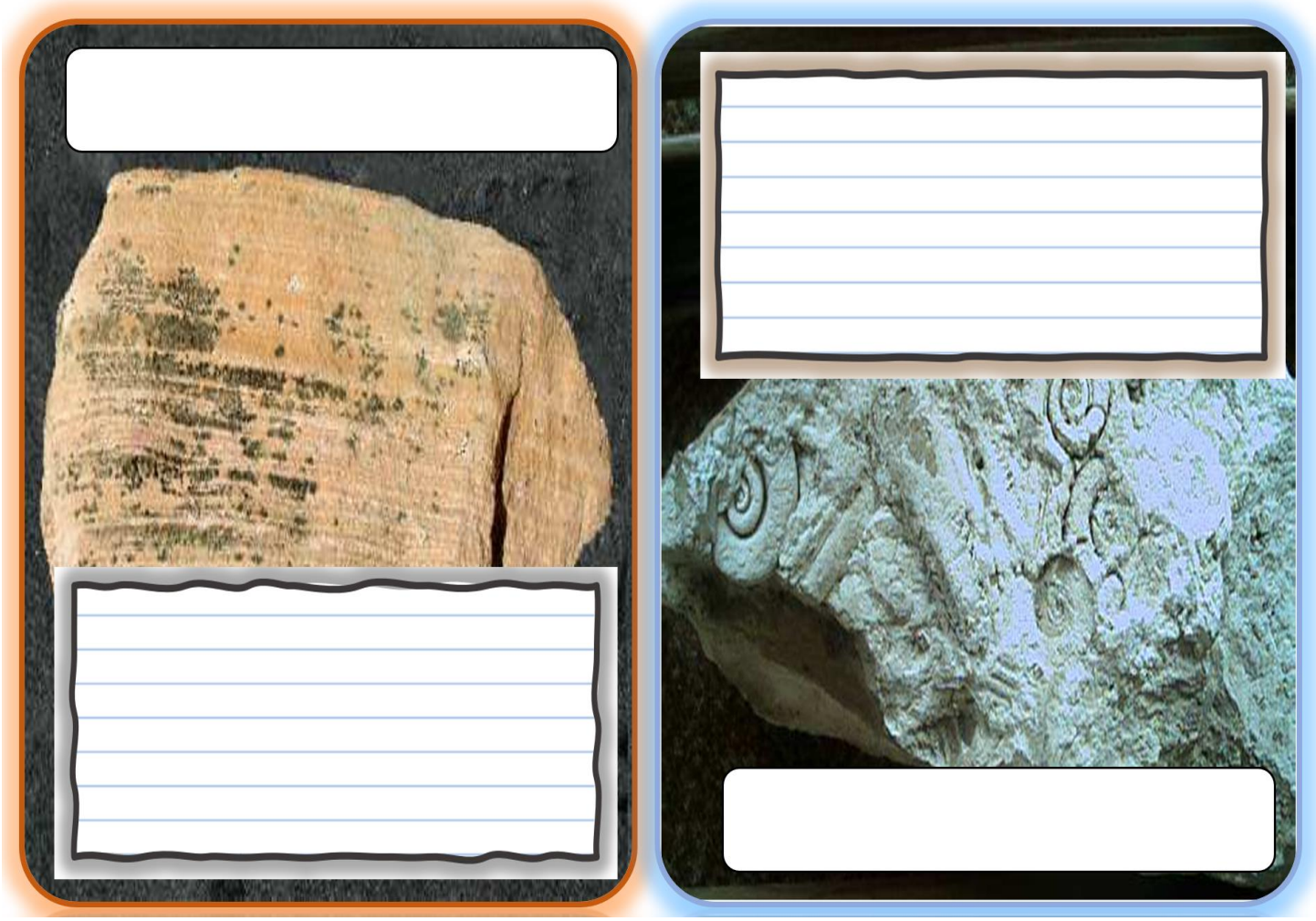
Which is clastic, crystalline, and bioclastic/organic? Also try and name the sedimentary rock?

Which is clastic, crystalline, and bioclastic/organic? Also try and name the sedimentary rock?



Which is clastic, crystalline, and bioclastic/organic? Also try and name the sedimentary rock?

Please name three things about these two sedimentary rocks and name them?

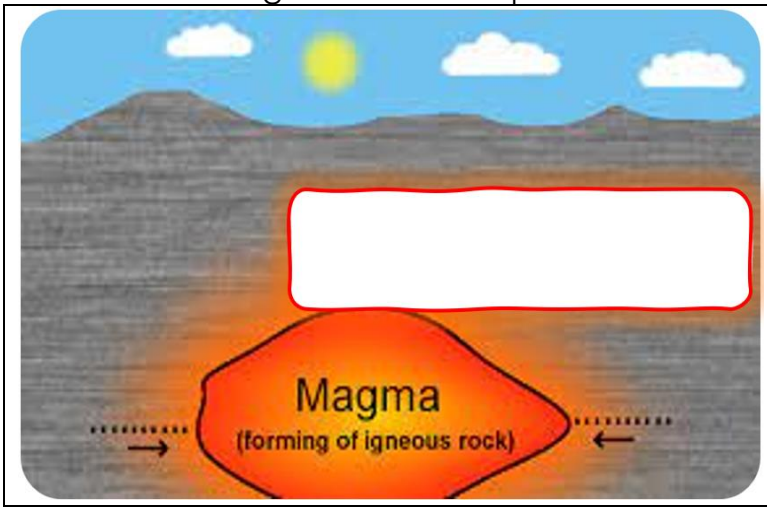


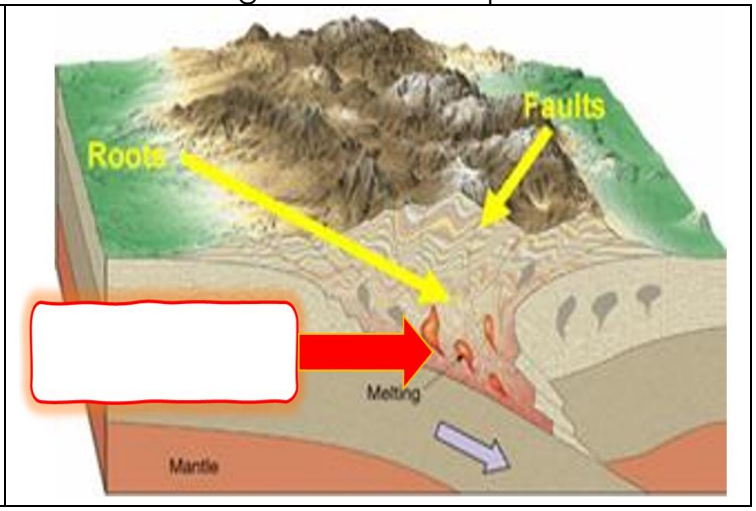
Common Sedimentary Rocks

Part 5 Lesson 7 Metamorphic Rocks

Metamorphic – Rock that changed forms due to extreme t_____ and pr_____

Which one is Regional Metamorphism? And which is Contact Regional Metamorphism?





Metamorphic rock can be divided into two categories.

Foliated: _____ layers

Non-foliated: _____ Banded

Foliated: (Metamorphic) formed within the Earth's interior under extremely high _____. These pressures are often unequal with greater pressure in one _____ than in the others. This causes the minerals in the rock to reorient themselves to the _____ pressure direction. This gives the foliated metamorphic rock a _____ look.

Name the metamorphic rock? Is it foliated on non-foliated?

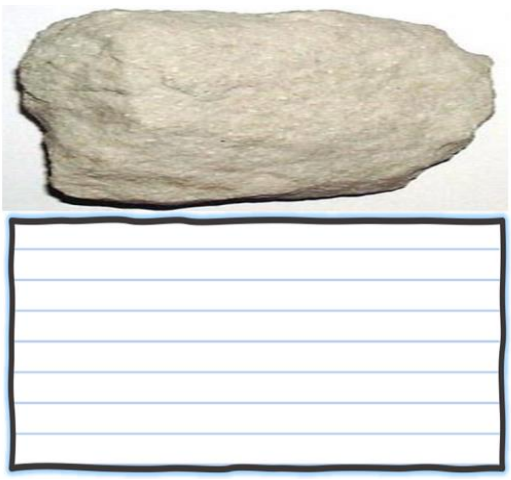
Part 5 Lesson 8 Common Metamorphic Rocks

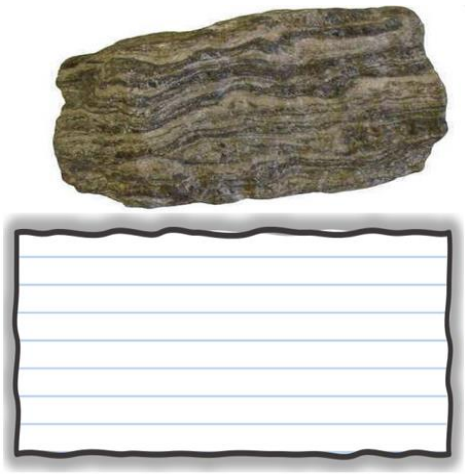
Common Metamorphic Rocks

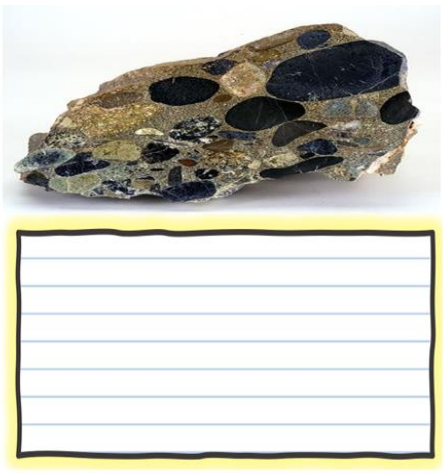
Scheme for Metamorphic Rock Identification

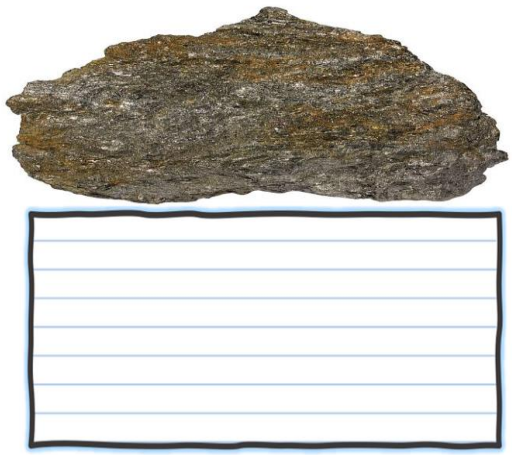
TEXTURE	GRAIN SIZE	COMPOSITION	TYPE OF METAMORPHISM	COMMENTS	ROCK NAME	MAP SYMBOL
FOLIATED – MINERAL ALIGNMENT	Fine	MICA, QUARTZ, FELDSPAR, AMPHIBOLE, GARNET, PYROXENE	Regional (Heat and pressure increases) ↓	Low-grade metamorphism of shale	**Slate**	
	Fine to medium			Foliation surfaces shiny from microscopic mica crystals	**Phyllite**	
				Platy mica crystals visible from metamorphism of clay or feldspars	**Schist**	
FOLIATED – BAND-ING	Medium to coarse			High-grade metamorphism; mineral types segregated into bands	**Gneiss**	
NONFOLIATED	Fine	Carbon	Regional	Metamorphism of bituminous coal	**Anthracite coal**	
	Fine	Various minerals	Contact (heat)	Various rocks changed by heat from nearby magma/lava	**Hornfels**	
	Fine to coarse	Quartz	Regional or contact	Metamorphism of quartz sandstone	**Quartzite**	
		Calcite and/or dolomite		Metamorphism of limestone or dolostone	**Marble**	
	Coarse	Various minerals		Pebbles may be distorted or stretched	**Metaconglomerate**	

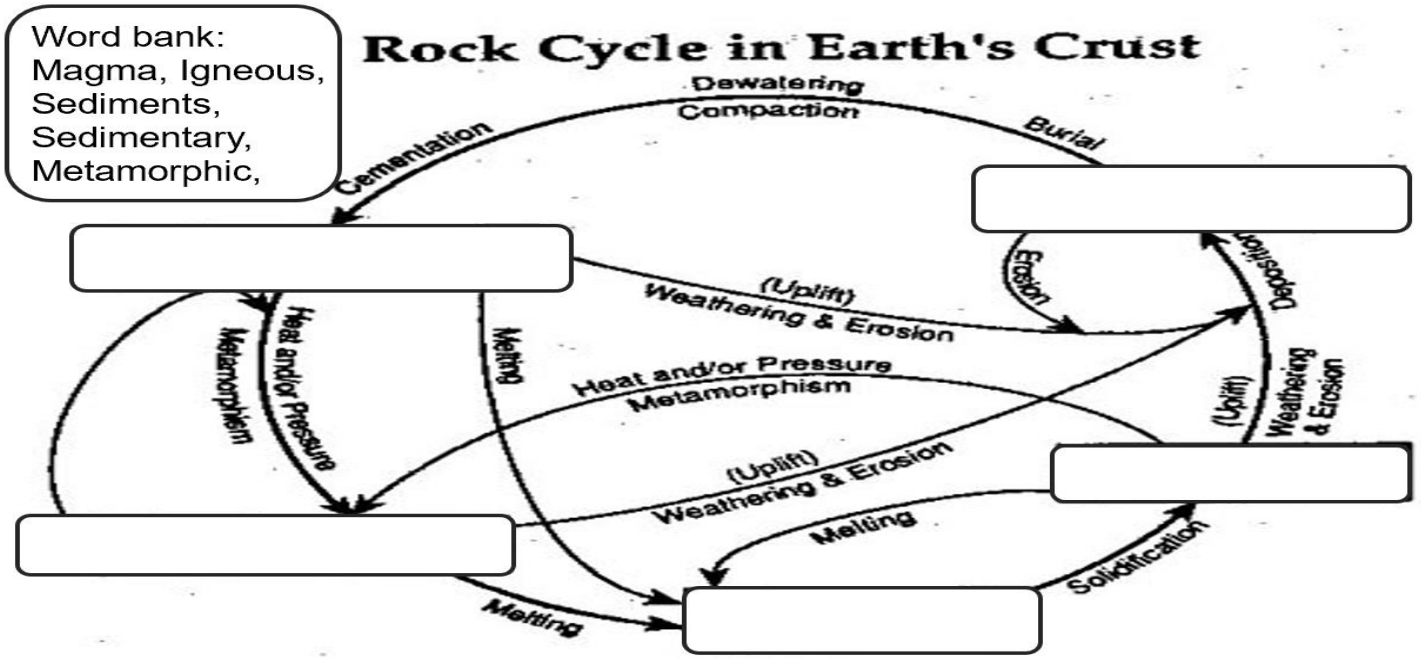
◊ Use the Metamorphic identification Scheme to describe the three metamorphic rocks below.









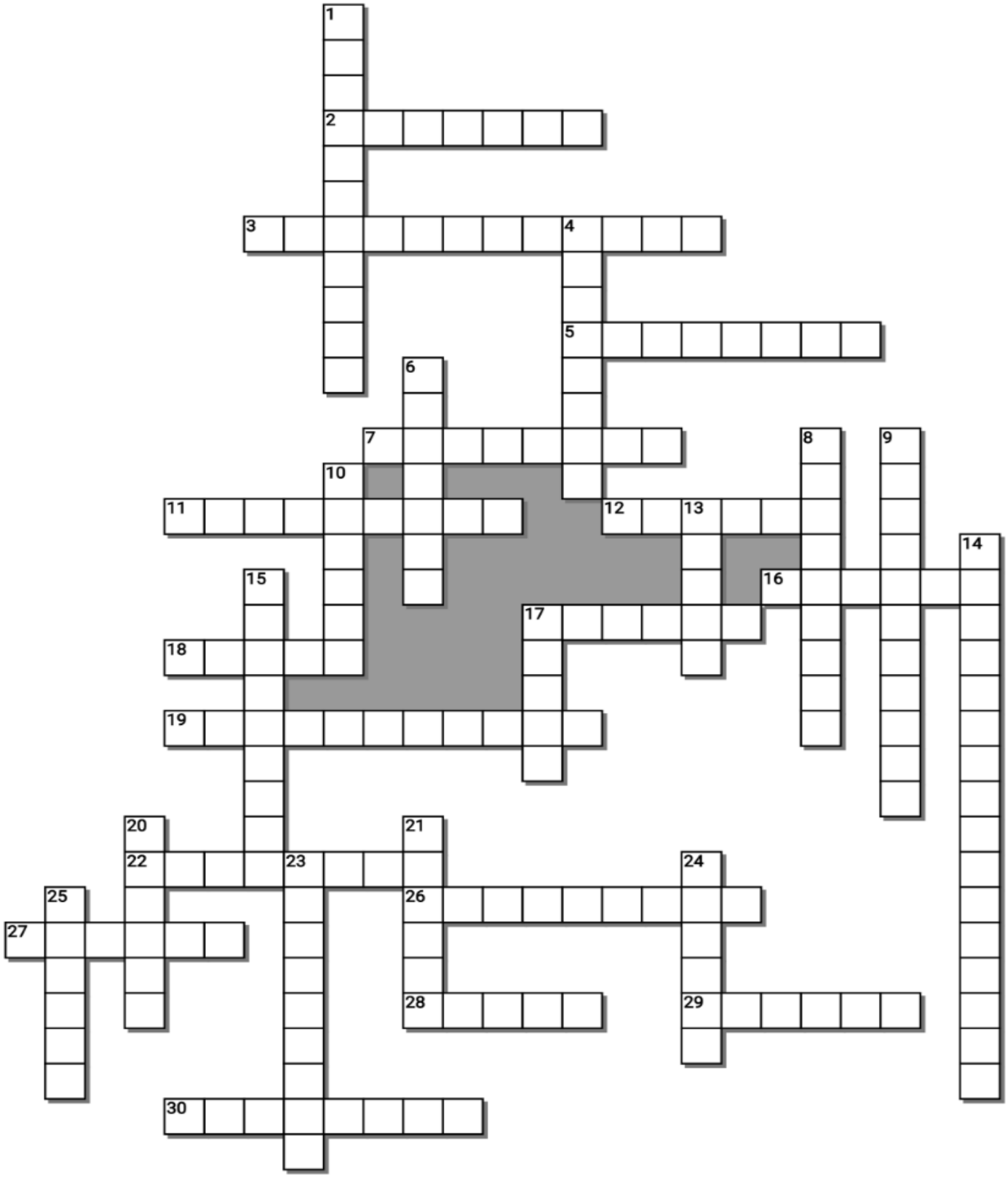


Quiz Wiz from the slideshow Part 5 Lesson 9 Quizzes and Wrap-up
Igneous, Sedimentary, or Metamorphic Quiz

1	2	3	4
5	6	7	8
9	10	*11-See Sample	*12

Quiz Wiz from the slideshow. Rock Identification / Flashcards Quiz

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20?
*21	*22	Grade=	



Possible Answers

ANDESITE, BASALT, BASALT, BASALTIC, CONGLOMERATE, CONTINENTAL, CYCLE, EXTRUSIVE, FELSIC, GABBRO, GABBRO, GNEISS, GRANITE, GRANITIC, IGNEOUS, INTRUSIVE, LIMESTONE, MAFIC, MARBLE, METACONGLOMERATE, METAMORPHIC, OBSIDIAN, PUMICE, PUMICE, QUARTZITE, RHYOLITE, SANDSTONE, SCHIST, SEDIMENTARY, SHALE, SLATE

Across

2. _____ Rocks: Molten Earth cooled
3. Sedimentary Rock: It's a fragmental clastic sedimentary rock. Pebbles, cobbles and embedded in silt, sand and clay where they are cemented together.
5. Non-vesicular basaltic glassy rock, cooled extrusive, extremely felsic, non-crystalline. Volcanic glass.
7. A classification of Igneous Rock: B_____ – Dark, heavy (dense), Iron
11. Igneous Rock: E_____ – Cooled on Earth's surface (Faster). Fine grain crystals or no crystals.
12. Igneous Rock: Igneous Rock – Dark Colored. Extrusive with fine grain crystals. Forms from cooled lava.
16. Igneous Rock –Can sometimes float! Extrusive, A light-colored rock. It forms through very rapid cooling.
17. Metamorphic Rock: It's nonfoliated. It has coarse to fine crystals and occurs from the metamorphism of limestone or dolostone.
18. Metamorphic – Foliated, is fine-grained. Formed from shale and used for roofing and flooring.
19. A Rock that changed forms due to extreme temperature and pressure
22. A non-vesicular rock cooled extrusive, fine grained crystals less than 1 mm, intermediate color and density. Between felsic and mafic
26. Sedimentary Rock: It is a crystalline or bioclastic rock made from the remains of shelled creatures that have been cemented together. The mineral that makes it is calcite
27. Igneous Rock – Intrusive, Coarse-grained, dark-colored. It is usually black or dark green in color. It is the most abundant rock in the deep oceanic crust.
28. The rock _____ – How one rocks changes into another.
29. Metamorphic – Foliated, It often contains significant amounts of mica
30. A classification of Igneous Rock: G_____ Light colored, less heavy, filled with oxygen

Down

1. Type of Rock where Sediments are compacted and cemented together
4. Igneous Rock – Extrusive, a light-colored, fine-grained rock that typically contains quartz and feldspar minerals.
6. A non-vesicular rock cooled intrusive, coarse grained crystals 1-10mm, more felsic, lower density, and lighter color. Quartz and feldspar minerals, and hornblende-type amphiboles biotite mica
8. Igneous Rock: I_____ – Cooled below crust (slow)
9. The Rock Cycle is Driven by _____ drift (plate tectonics)
10. A vesicular rock cooled extrusive, non-crystalline, composed of mainly of scoria, low density. Can float
13. Sedimentary, A fine-grained rock that forms from the compaction of silt and clay-size mineral particles □ "Mud"
14. A nonfoliated metamorphic rock with many stretched or distorted pebbles inside.
15. Metamorphic, Non-foliated rock that is produced by the metamorphism of sandstone. It is composed primarily of quartz.
17. M_____ Rock (Darker in color) is used for silicate minerals, magmas, and rocks which are relatively high in the heavier elements. (Magnesium and Iron)
20. A non-vesicular rock cooled intrusive, coarse grained crystals 1-10mm, more mafic, high density, and darker color (has peridotite). Find…
21. F_____ Rock (Lighter in color) is used for silicate minerals, magmas, and rocks which have a lower percentage of the heavier elements. Have more of the lighter elements. (Silicon and oxygen, aluminum, and potassium) Feldspar
23. Sedimentary, clastic rock made up mainly of sand. Found in environments where large amounts of sand can accumulate.
24. Metamorphic Rock: It's foliated and has medium to coarse crystals. Shale-> Slate-> Schist-> to
25. A non-vesicular rock cooled extrusive, fine grained crystals less than 1 mm, dark color and high density

Part 5 Rocks Review Game

Name:

Score ____ / 100

1-20 = 5 pts Part 5 Lesson 11

*20-*25 * = Bonus + 1 pt,

(Secretly write owl in correct space +1 pt)

Final Question = 5 pt wager

AROUND AND AROUND	MOLTEN HOT	SEDIMENTARY THOUGHT	CHANGING FORMS	FAMOUS ROCKS Bonus round 1 pt each
1)	6)	11)	16)	*21)
2)	7)	12)	17)	*22)
3)	8)	13)	18)	*23)
4)	9)	14)	19)	*24)
5)	10)	15)	20)	*25)

Final Question Wager ___/5 Answer

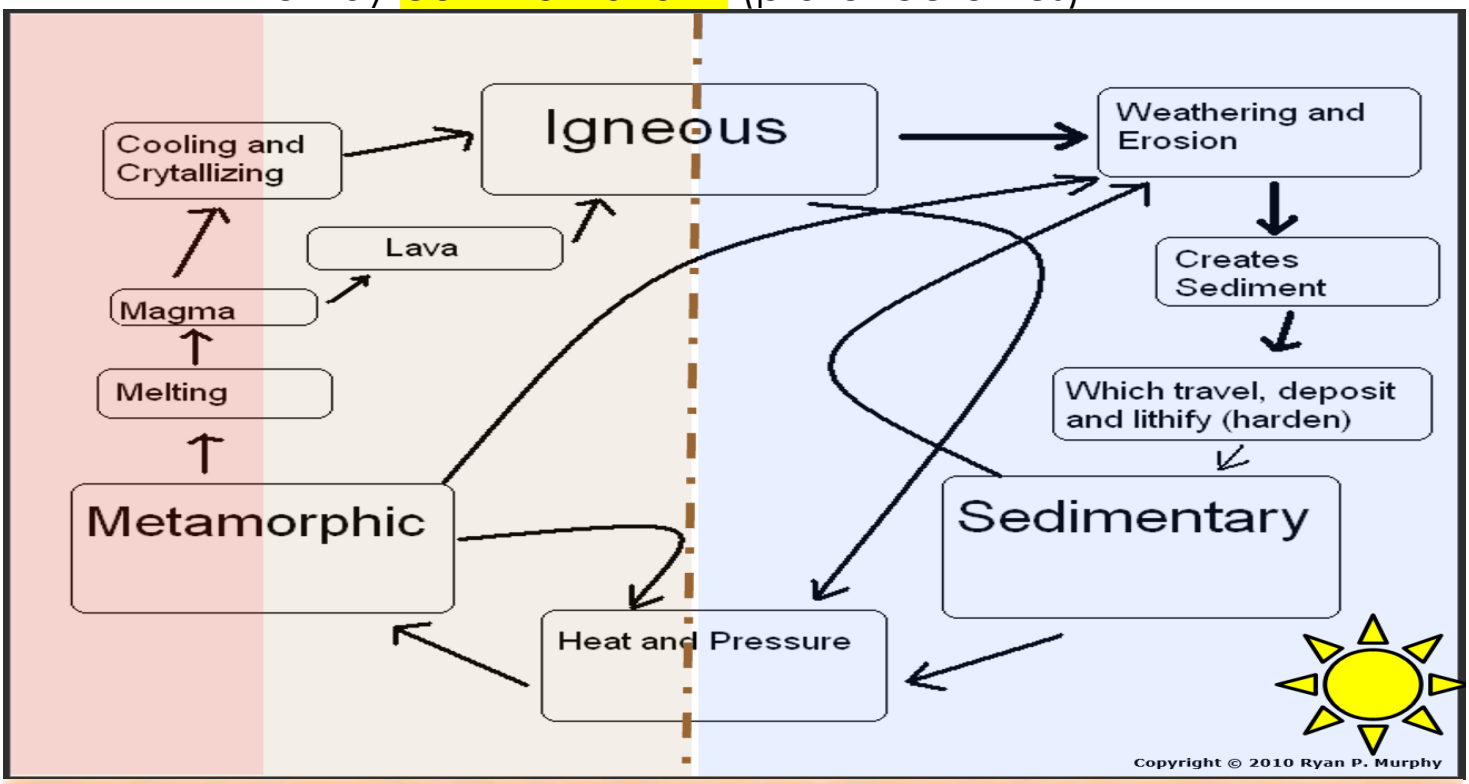
Part 5 Rocks

Name:

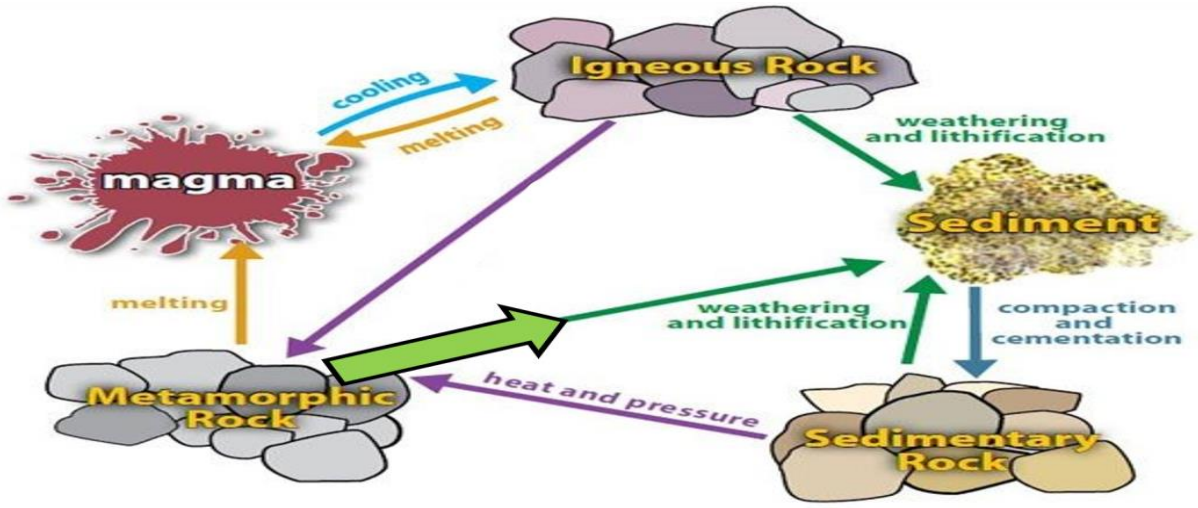
Part 5 Lesson 1 Rock Cycle

The rock cycle – How one rocks changes into another.

- Driven by continental drift (plate tectonics)



All rocks start off as this type of rock.	All rocks start off as Igneous Rocks. Igneous means formed from magma. The magma will cool and crystalize to form Igneous Rocks
Describe how a rock becomes sedimentary in a few steps?	A rock get weathered and eroded and turned into sediment. This sediment often travels and is deposited into a new location. The sediment hardens to become a sedimentary rock.
How does a rock become metamorphic?	A rock can become a metamorphic rock through heat and pressure, and hot mineral fluids from the earth.
How could a metamorphic rock become sedimentary?	The metamorphic rock at the surface will become weathered into sediments. These sediments will compact, harden, and lithify into a sedimentary rock.
Which side (Right or Left) occurs above the earth's surface and which side occurs deeper in the crust?	The right side shows that sedimentary rocks are created near the surface, cooling lava at the surface can also create igneous rocks. Metamorphic rocks are often formed deep underground.
Can a metamorphic rock become another metamorphic rock? How would this happen?	Yes, through heat pressure a metamorphic rock can become a different metamorphic rock.
Does the rock cycle ever stop?	No, the Rock Cycle never stops. It's a never-ending process where rocks are recycled and created.

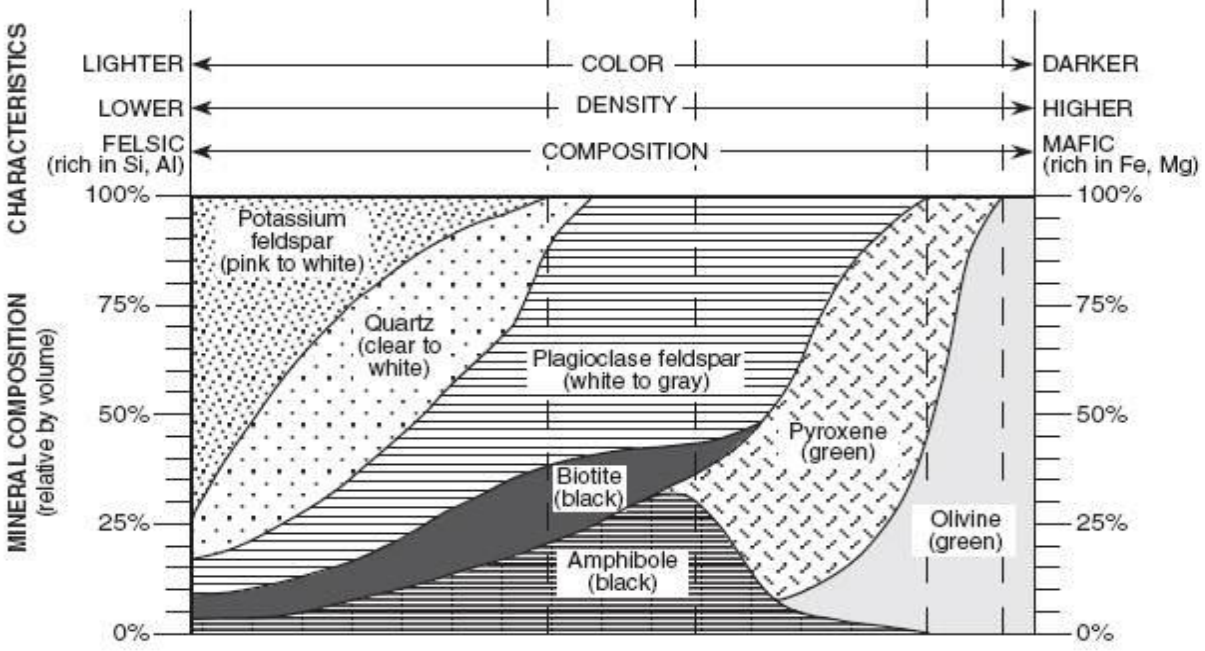


Word Bank: ~~Magma~~, ~~Igneous~~, ~~Sediments~~, ~~Sedimentary Rock~~, ~~Metamorphic Rock~~, ~~Heat and Pressure x 2~~, ~~Melting x 2~~, ~~Compaction and Cementation~~, ~~Weathering and Lithification x 2~~, ~~Cooling~~

Use the scheme for Igneous Rock Identification to describe **Granite** and a very dark piece of **Basalt** on the next two pages.

Scheme for Igneous Rock Identification

						CRYSTAL SIZE	TEXTURE	
IGNEOUS ROCKS — ENVIRONMENT OF FORMATION	EXTRUSIVE (Volcanic)	Obsidian (usually appears black)		Basaltic glass		non-crystalline	Glassy	Non-vesicular
		Pumice		Scoria				Vesicular (gas pockets)
		Vesicular rhyolite	Vesicular andesite	Vesicular basalt		less than 1 mm	Fine	
		Rhyolite	Andesite	Basalt				Non-vesicular
				Diabase				
	INTRUSIVE (Plutonic)	Granite	Diorite	Gabbro	Peridotite / Dunite	1 mm to 10 mm	Coarse	
		Pegmatite				10 mm or larger	Very coarse	



Part 5 Lesson 2 Igneous Rocks

Please use the scheme for Igneous Rock Identification to describe Granite and a very dark piece of Basalt.

This is granite. Granite is cooled intrusive deep inside the earth. It has coarse texture and large crystals. Granite is non-vesicular. It is felsic, containing lighter elements such as Silicon, Aluminum, and Oxygen. The minerals that make up Granite are Quartz, Feldspar, and Mica.

This is basalt. It is fine grained because it cooled extrusive at or near the earths surface. It has small crystals and mafic in nature. It contains heavier elements such as Magnesium and Iron. This contains the minerals feldspar, pyroxene, and Amphibole.

Igneous Rocks: Molten Earth cooled

- Intrusive – Cooled below crust (slow)
  - Large crystals
- Extrusive – Cooled on Earth's surface (Faster).
  - Fine grain crystals or no crystals.

- Igneous rocks
  - Mafic (Darker in color) is used for silicate minerals, magmas, and rocks which are relatively high in the heavier elements. (Magnesium and Iron)
  - Felsic (Lighter in color) is used for silicate minerals, magmas, and rocks which have a lower percentage of the heavier elements. Have more of the lighter elements. (Silicon and oxygen, aluminum, and potassium) Feldspar

Classification of Igneous Rocks

Basaltic – Dark, heavy (dense), Iron
Grantitic – Light colored, less heavy, filled with oxygen
Andesitic – Between the two

Part 5 Lesson 3 Igneous Rocks

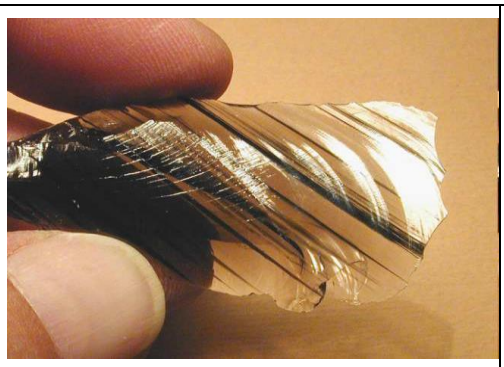
Name the Igneous Rocks Below

Name= Pumice
A vesicular rock cooled extrusive, non-crystalline, composed of mainly of scoria, low density. Can float

Name=BASALT
A non-vesicular rock cooled extrusive, fine grained crystals less than 1 mm, dark color and high density

Name=GABBRO
A non-vesicular rock cooled intrusive, coarse grained crystals 1-10mm, more mafic, high density, and darker color (has peridotite). Find…

Name= **ANDESITE**
A non-vesicular rock cooled extrusive, fine grained crystals less than 1 mm, intermediate color and density. Between felsic and mafic



Name= **OBSIDIAN**
Non-vesicular basaltic glassy rock, cooled extrusive, extremely felsic, non-crystalline. Volcanic glass.

Name= **GRANITE**
A non-vesicular rock cooled intrusive, coarse grained crystals 1-10mm, more felsic, lower density, and lighter color. Quartz and feldspar minerals, and hornblende-type amphiboles
biotite mica

Name=
Felsic, cooled intrusively (Plutonic), very coarse with large crystals larger than 10mm, non-vesicular

Diorite

Describe Dunite

Dunite is an intrusive Igneous rock that is coarse grained. It is mafic and rich in Iron and Magnesium, and mostly made of olivine. It is non-vesicular.

Describe Rhyolite

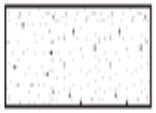
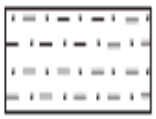
Rhyolite is an extrusive igneous rock which is non-vesicular and has fine grained crystals. It is felsic in nature with lighter colors and elements.

Part 5 Lesson 4 Igneous Rocks

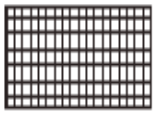
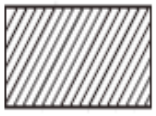
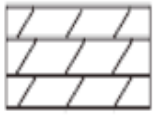
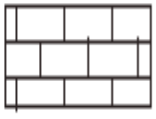
Common Igneous Rocks

- Granite is Igneous Rock types include Quartz and feldspar
- Basalt
- Obsidian – Glassy
- Gabbro
- Rhyolite

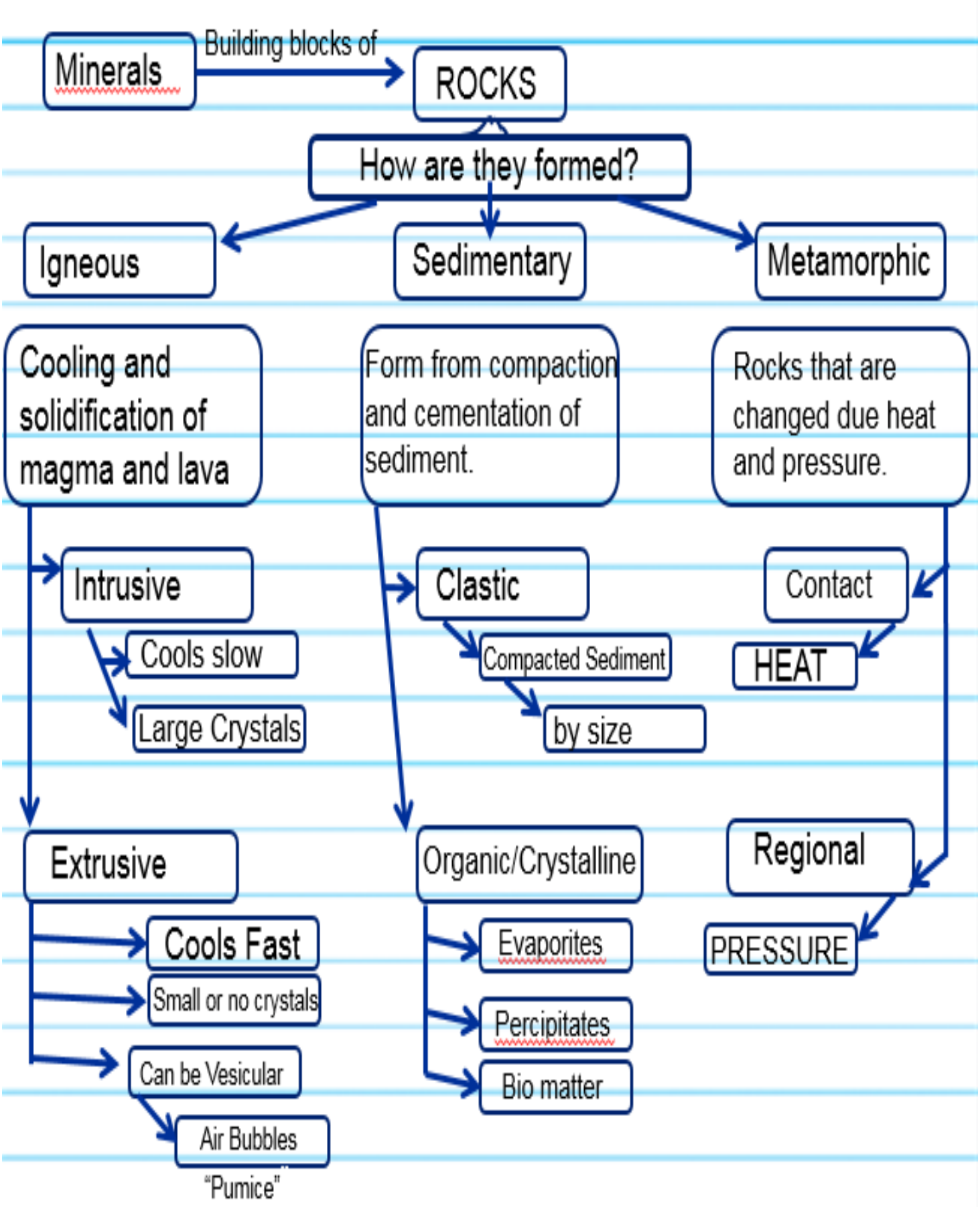
INORGANIC LAND-DERIVED SEDIMENTARY ROCKS

TEXTURE	GRAIN SIZE	COMPOSITION	COMMENTS	ROCK NAME	MAP SYMBOL
Clastic (fragmental)	Pebbles, cobbles, and/or boulders embedded in sand, silt, and/or clay	Mostly quartz, feldspar, and clay minerals; may contain fragments of other rocks and minerals	Rounded fragments	**Conglomerate**	
			Angular fragments	**Breccia**	
	Sand (0.006 to 0.2 cm)		Fine to coarse	**Sandstone**	
	Silt (0.0004 to 0.006 cm)		Very fine grain	**Siltstone**	
	Clay (less than 0.0004 cm)		Compact; may split easily	**Shale**	

CHEMICALLY AND/OR ORGANICALLY FORMED SEDIMENTARY ROCKS

TEXTURE	GRAIN SIZE	COMPOSITION	COMMENTS	ROCK NAME	MAP SYMBOL
Crystalline	Fine to coarse crystals	Halite	Crystals from chemical precipitates and evaporites	**Rock salt**	
		Gypsum		**Rock gypsum**	
		Dolomite		**Dolostone**	
Crystalline or bioclastic	Microscopic to very coarse	Calcite	Precipitates of biologic origin or cemented shell fragments	**Limestone**	
Bioclastic		Carbon	Compacted plant remains	**Bituminous coal**	

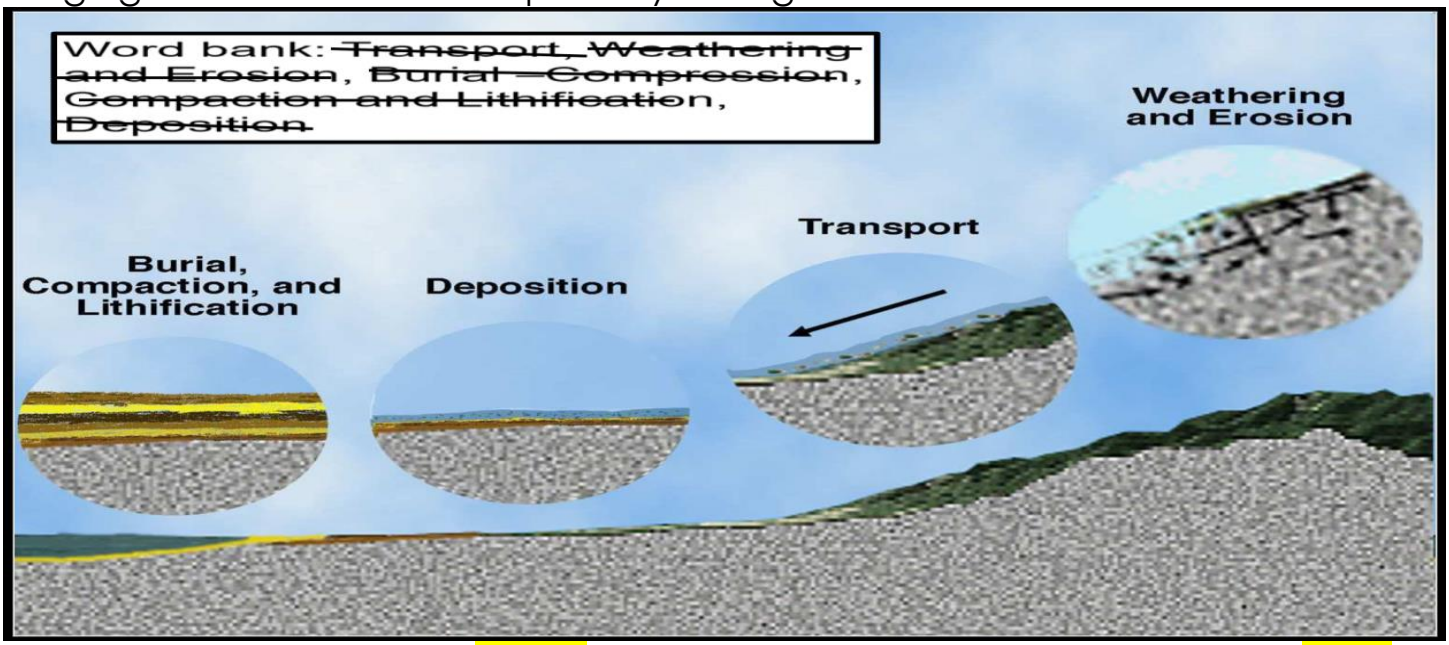
Part 5 Lesson 5 Rocks Flow Chart



Part 5 Lesson 5 Sedimentary Rocks

Sedimentary rocks are a type of rock that is formed near the earth's surface from the compression of sediments and other processes.

Sedimentary Rocks are formed when fragments of rock are loosened by weathering. The rock is then transported to a basin or depression where the small sediment is trapped. The sediment eventually gets buried, gets compacted and cemented together. Clastic sedimentary rocks have particles ranging in size from microscopic clay to large boulders.



Sedimentary rocks are usually layered and are the only type of rocks that can have fossils.

Road Cut sketch

Part 5 Lesson 6 Common Sedimentary Rocks

Which is a bogus statement about sedimentary rocks from the list below? A.) Sediments are gathered from cooling lava that forms crystals very quickly. -That is Igneous B.) Caused by weathering, erosion, and deposition. C.) Usually layered D.) Layers can be fossils and old living materials.	Which is a bogus statement about sedimentary rocks from the list below? A.) Sediments are gathered from erosion, transport and deposition. B.) Caused by weathering, erosion, and deposition. C.) Always horizontally layered. (Usually Layered) D.) Layers can be fossils and old living materials.

The size of the sediment classifies the type of sedimentary rock.

Clastic are very large pieces of sediment.

Crystalline are very small pieces of sediment.

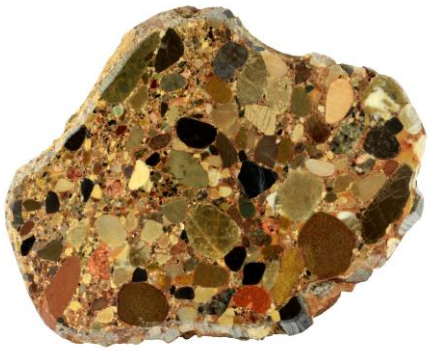
Formed from evaporation or precipitation of minerals in water.

Bioclastic are from the compaction of organic matter.

Name some examples of…

Clastic Sedimentary Rocks	Crystalline (formed evaporation) Sedimentary Rocks	Bioclastic . Organic Sedimentary Rocks
Conglomerate Sandstone Siltstone Shale	Rock Salt Dolostone Gypsum	Limestone Bituminous Coal

Please use the sedimentary rock identification scheme to describe…

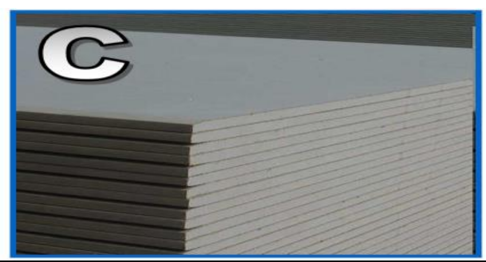
Dolostone  This is Dolostone. It's a chemical rock that formed from chemical percipitates and evaporation. Its composition is from the dolomite mineral and it has a crystalline structure. It has fine to coarse crystals.	 This is conglomerate. It's a fragmental clastic sedimentary rock. Pebbles, cobbles and embedded in silt, sand and clay where they are cemented together.	 This is limestone. It is a crystalline or bioclastic rock made from the remains of shelled creatures that have been cemented together. The mineral that makes it is calcite.

Name this Sedimentary Rock. Bioclastic texture, Composition is entirely carbon, compacted plant remains

Name this Sedimentary Rock. Clastic Fragmental texture, composed of cobble, pebbles and boulder, embedded in clay or sand, Mostly Quartz and Feldspar, Angular Fragments

Which is clastic, crystalline, and bioclastic/organic? Also try and name the sedimentary rock?

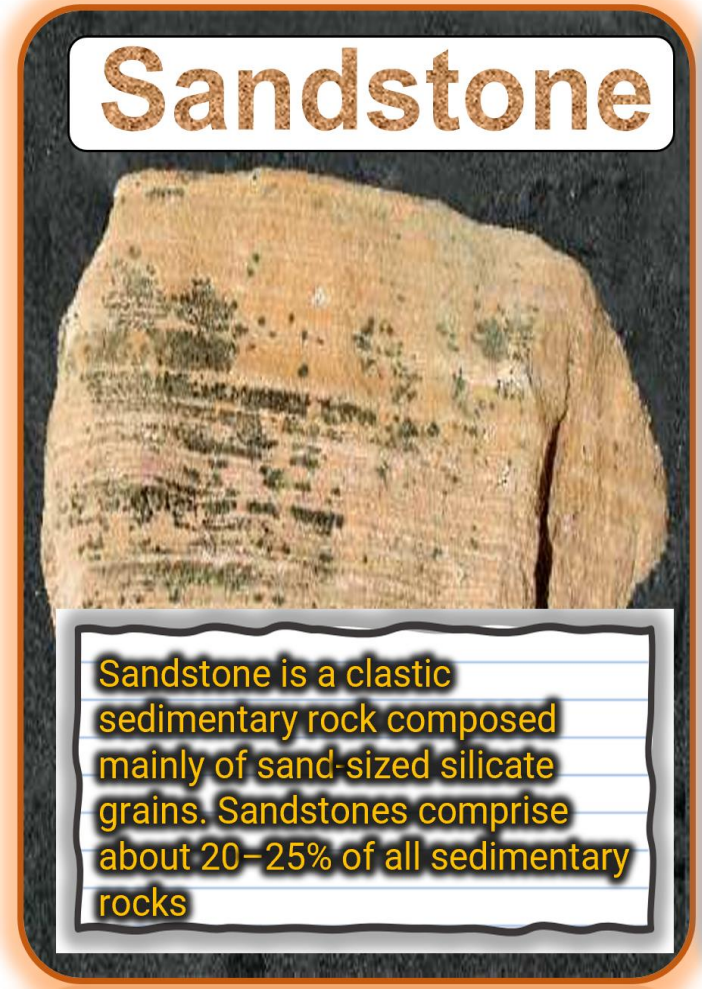
Which is clastic, crystalline, and bioclastic/organic? Also try and name the sedimentary rock?

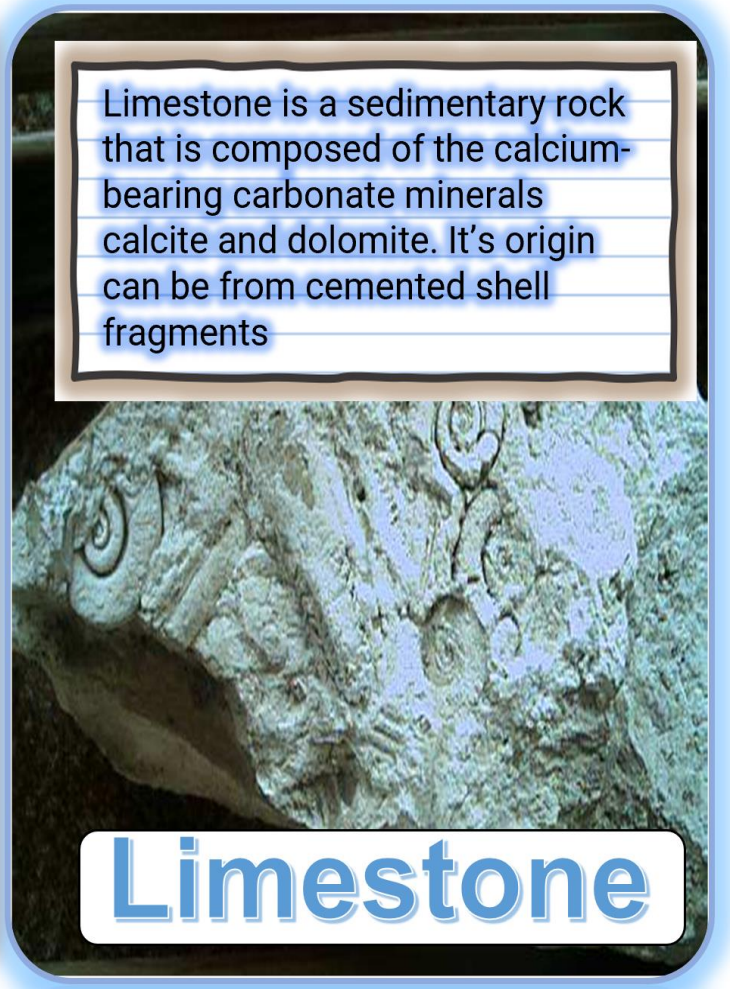


Which is clastic, crystalline, and bioclastic/organic? Also try and name the sedimentary rock?

Common Sedimentary Rocks

- Please mention three things about these rocks.





Part 5 Lesson 7 Metamorphic Rocks

Metamorphic – Rock that changed forms due to extreme temperature and pressure

Common Metamorphic Rocks

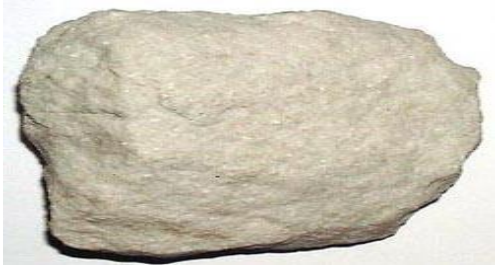
Slate
Gniess
Marble

Common Sedimentary Rocks
Limestone
Sandstone
Shale
Conglomerate

Scheme for Metamorphic Rock Identification

TEXTURE		GRAIN SIZE	COMPOSITION	TYPE OF METAMORPHISM	COMMENTS	ROCK NAME	MAP SYMBOL
FOLIATED	MINERAL ALIGNMENT	Fine	MICA, QUARTZ, FELDSPAR, AMPHIBOLE, GARNET, PYROXENE	Regional (Heat and pressure increases)	Low-grade metamorphism of shale	**Slate**	
		Fine to medium			Foliation surfaces shiny from microscopic mica crystals	**Phyllite**	
					Platy mica crystals visible from metamorphism of clay or feldspars	**Schist**	
	BAND-ING	Medium to coarse			High-grade metamorphism; mineral types segregated into bands	**Gneiss**	
NONFOLIATED		Fine	Carbon	Regional	Metamorphism of bituminous coal	**Anthracite coal**	
		Fine	Various minerals	Contact (heat)	Various rocks changed by heat from nearby magma/lava	**Hornfels**	
		Fine to coarse	Quartz	Regional or contact	Metamorphism of quartz sandstone	**Quartzite**	
			Calcite and/or dolomite		Metamorphism of limestone or dolostone	**Marble**	
		Coarse	Various minerals		Pebbles may be distorted or stretched	**Metaconglomerate**	

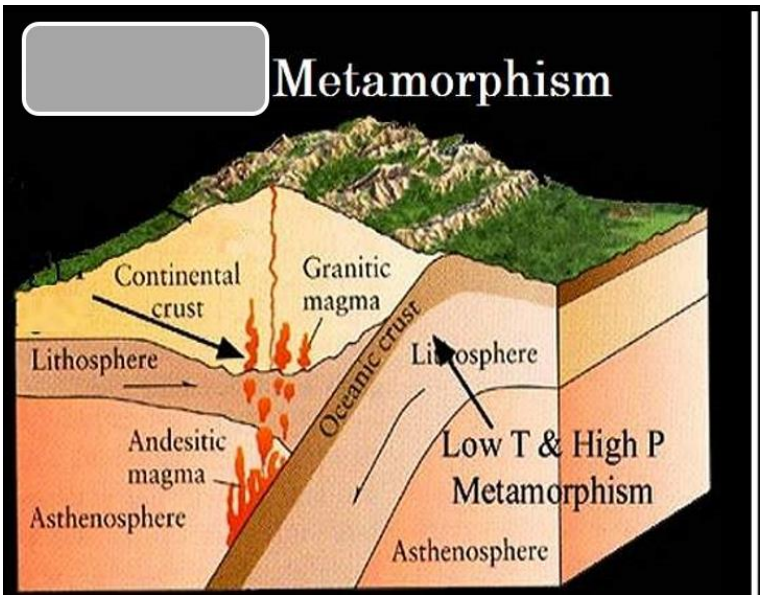
◊ Use the Metamorphic identification Scheme to describe the three metamorphic rocks below.

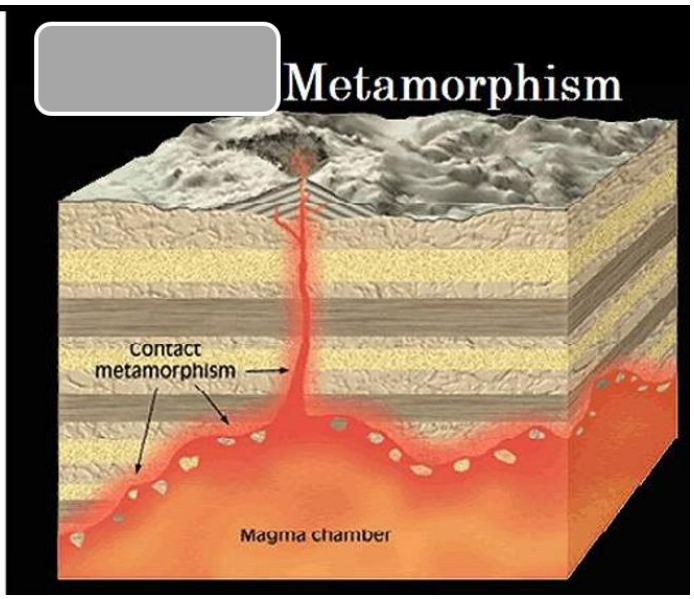
		
This is marble. It's nonfoliated. It has coarse to fine crystals and occurs from the metamorphism of limestone or dolostone.	This is gneiss. It's foliated and has medium to coarse crystals. Shale-> Slate-> Schist-> to Gneiss.	This is meatconglomerate. It's nonfoliated and has coarse crystals. The pebbles have been distorted and stretched.

Part 5 Lesson 8 Common Metamorphic Rocks

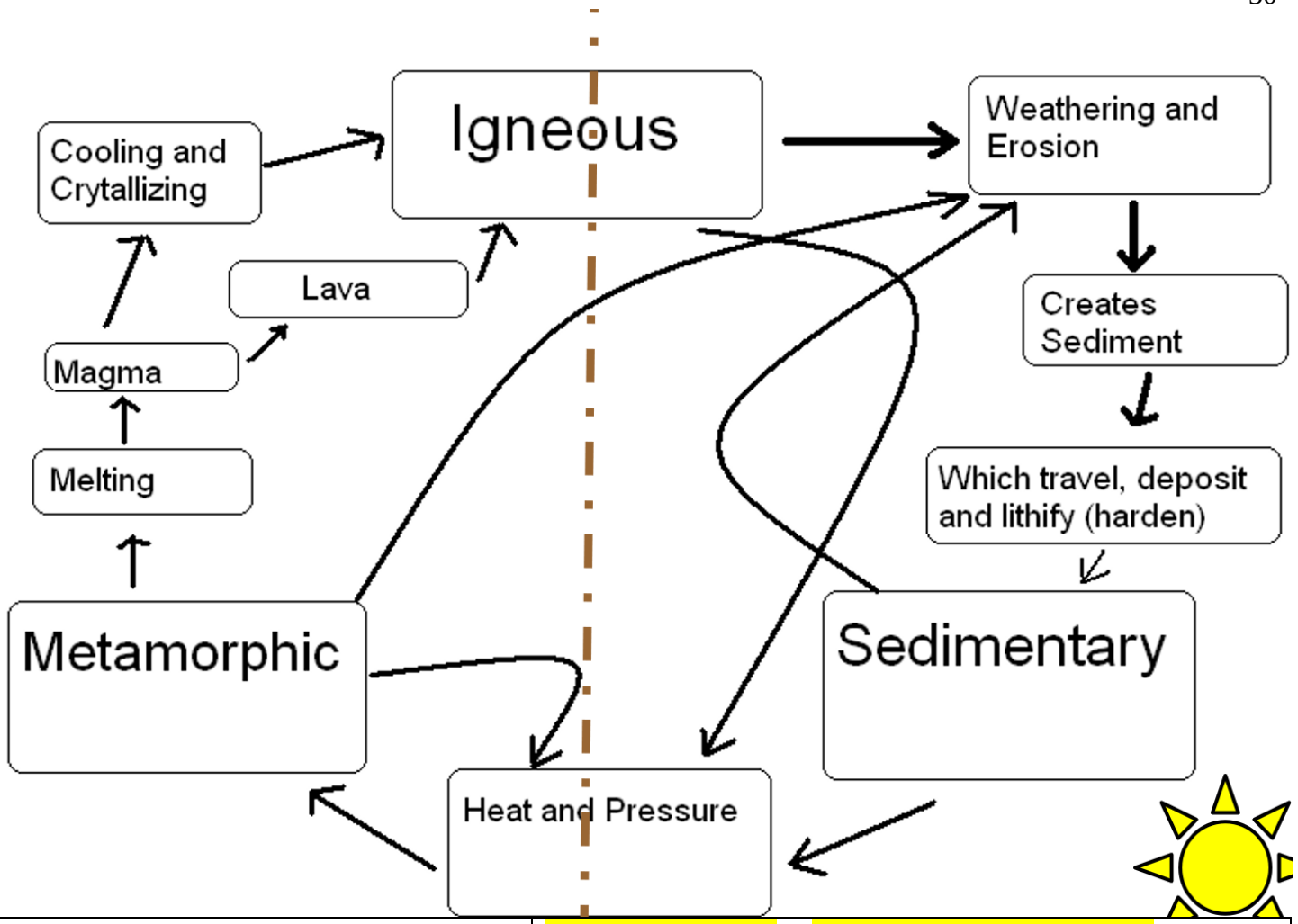
Which one is Regional Metamorphism? And which is Contact Regional Metamorphism?

Regional Metamorphism	Contact Metamorphism





Please use the chart below about the rock cycle to answer some questions below.



All rocks start off as this type of rock?	Igenous Rocks – Cooled molten earth
Describe how a rock becomes sedimentary in a few steps?	Rocks get weathered and eroded. Sediments travel, get deposited in new location, and harden / lithify.
How does a rock become metamorphic?	Through heat pressure – It turns into a new rock
How could a metamorphic rock become sedimentary?	A metamorphic rock gets weathered and eroded. Sediments travel, get deposited in new location, and harden / lithify.

Which side (Right or Left) occurs above the earth's surface and which side occurs deeper in the crust?	The Right side occurs above the earths surface. Weathering and Erosion, Deposition all occur from processes on the surface.

Quiz Wiz from the slideshow
Igneous, Sedimentary, or Metamorphic Quiz

Igneous, Sedimentary, or Metamorphic Quiz

1 - Sedimentary Limestone	2 –Sedimentary Sandstone	3-Igneous Pumice	4 Sedimentary Conglomerate
5 Metamorphic Metaconglomerate	6 Igneous Obsidian	7 Igneous Granite	8 Metamorphic Gneiss
9 Igneous Basalt	10 Igneous Rhyolite	*11 School of Rock	12 Teacher Choice

Rock Identification Quiz

1 – Rhyolite	2-Shale	3-Granite	4-Gabbro
5-Limestone	6-Sandstone	7-Schist	8-Basalt
9 - Pumice	10 –Marble	11-Conglomerate	12 Diorite
13 Andesite	14 Rock Salt	15 Quartzite	16 Gneiss
17 Metaconglomerate	18 Slate	19 Obsidian	20 (Choice)
*21 Kid Rock	*22 Rocky and Bullwinkle		

Part 5 Rocks Review Game 11

Name:
Score ____ / 100

1-20 = 5 pts
*20-*25 * = Bonus + 1 pt,
(Secretly write owl in correct space +1 pt)

Final Question = 5 pt wager

AROUND AND AROUND	MOLTEN HOT	SEDIMENTARY THOUGHT	CHANGING FORMS	FAMOUS ROCKS Bonus round 1 pt each
1) THE ROCK CYCLE	6) A=Intrusive B=Extrusive	11) C=Weathering B=Erosion A=Deposition	16) owl +1 Temperatures and Pressures	*21) Stonehenge
2) A=Sedimentary B=Metamorphic C=Igneous	7) Letter D "Cooled Extrusive"	12) Compression Sediments	17) A=non foliated B=foliated	*22) Easter Island
3) Plate Tectonics	8) Basalt Mafic	13) A=Clastic B=Chemical C=Organic	18) Marbles Quartzite	*23) Plymouth Rock
4) Letter B	9) Obsidian Felsic	14) Sandstone	19) A=Regional B = Contact metamorphism	*24) Alcatraz
5) Igneous	10) Granite Felsic	15) Shale	20) Slate	*25) Rock of Gibraltar

Final Question Wager ____/5 Answer A=Metamorphic, B=Igneous, C=Sedimentary