GEOL 1120
Learning Objective Activity #2 (Lesson 9–18)

Please read this entire assignment carefully. Post any questions you have in the Learning Objective Activities QUESTIONS discussion board thread on Canvas.

Assignment

Due date: Monday, March 2 at 11:59 pm

Your assignment is to write a 250–500 word (excluding captions and references) lesson on a Learning Objective. This lesson should not just be a summary of the class material. Instead, you are expected to explain the topic in your own words in a way that will help other students learn it. You may include content that was not discussed in class if it is relevant and aids in understanding. The use of outside sources is required. Remember to cite all your sources using both in-text citations and a reference list. Be sure to check the rubric on the last two pages of this document.

Depending on which Learning Objective you have been assigned, you may have to expand on the topic as appropriate. For example, if you had the Learning Objective "Describe the principle of uniformitarianism", instead of just describing the concept, you could do further research on how this principle is applied in geology. Remember that this outside research must still be related to the course content.

You have been assigned a Learning Objective to write about, you do not get to pick your own. Your assigned Learning Objective is listed on the next page of this document.

Still unsure of what's expected? Check out the example lessons posted on Canvas.

Submit your assignment in the "Learning Objective Activity #2 (Lesson 9–18)" discussion board thread. Reply to the original thread, not to the posts of your classmates. Copy and paste your assignment into the dialogue box and insert the figures using the “embed image” button. Your lesson should have a title and the Learning Objective you were assigned should be listed at the top of the post. The post cannot be edited after you submit it and additional submissions will not be graded.

These assignments are posted publicly so that at the end of this activity all students will have access to at least one lesson about each learning objective. Use these as a resource to help you study for the final exam!

Late policy: Late submissions are accepted but with a penalty of –10% per day (including weekend days). An extension will only be granted due to university approved absence and, if possible, must be pre-approved.

Assigned Learning Objectives

LO #	Learning Objective	Student
18C	Explain how layered mafic intrusions (LMIs) are formed including why sulfur plays such an important role in their formation.	Anghinetti, John
18B	Describe the physical properties of PGEs and their uses.	Arnett, Evan
18A	Summarize the significance of Platinum Group Elements (PGEs) through history.	Bates, Morgan
16D	Compare the pros and cons of developing a large-scale mining project.	Billingsley, Kate
16C	Explain how porphyry deposits are formed.	Bixler, Grace
16B	Describe the physical properties of copper and its uses.	Boyd, Brooke
16A	Summarize the significance of copper through history.	Bradley, Andrew
15D	Compare and contrast silver and gold.	Breakfield, Amanda
15D	Explain how Volcanogenic Massive Sulfide deposits are formed.	Brown, Kayla
15C	Explain how silver vein deposits are formed.	Callahan, Caroline
15B	Describe the physical properties of silver and its uses.	Campbell, Joshua
18C	Explain how layered mafic intrusions (LMIs) are formed including why sulfur plays such an important role in their formation.	Cash, Andrew
18B	Describe the physical properties of PGEs and their uses.	Cater, Andrew
18A	Summarize the significance of Platinum Group Elements (PGEs) through history.	Cherry, Aleah
17A	Describe the processes (specifically chemical weathering, erosion, and deposition) that act to make sedimentary rocks with specific reference to how sedimentary processes redistribute and concentrate mineral resources.	Chiaviello, Annalee
16D	Compare the pros and cons of developing a large-scale mining project.	Cromer, Cheyenne
16C	Explain how porphyry deposits are formed.	Dendy, Lucas
16B	Describe the physical properties of copper and its uses.	Dukes, Robert
16A	Summarize the significance of copper through history.	Duscha, Maxwell
15D	Compare and contrast silver and gold.	Ejlli, Isabella
15D	Explain how Volcanogenic Massive Sulfide deposits are formed.	Ellis, Riley
15C	Explain how silver vein deposits are formed.	Featherston, Bailie
15B	Describe the physical properties of silver and its uses.	Fender, Benjamin
15A	Summarize the significance of silver through history.	Freeman, Lawrence
14B	List examples of US gold rushes and describe the consequences of the California gold rush.	Fust, Nicholas
14A	Explain how placer gold deposits form.	Gill, Tristan
13D	Explain how lode gold deposits form.	Godfrey, Ben
13C	Determine the percentage of gold in a material based on its purity (karat).	Hairston, LeAndra

13B	Describe the physical properties of gold and explain how “gold” can have different colors.	Hartert, Todd
13A	Summarize the significance of gold through history.	Hazel, Spencer
12E	Provide examples and uses of mineral resources that are formed by sedimentary and surficial processes	Johnson, Windy
12D	Explain in general how sedimentary ore deposits form	Jones, Huston
12C	Relate sediment grain size to energy of the environment and use it to predict where you would find placer deposits	Kerby, Joseph
12B	Explain in general how surficial ore deposits form via chemical and mechanical weathering	Khatib, Hannah
12A	Explain in general how hydrothermal ore deposits form and describe the sources their fluids can originate from	Koon, Anna
11D	Compare and contrast gravity settling and fractional crystallization.	Le, Taylor
11C	Explain how magmatic ore deposits form by gravity settling and fractional crystallization processes	Macris, Nick
11B	Explain the process of fractional crystallization of a magma	Mai, Michael
11A	Describe at which types of plate boundaries you would expect to find magmatic and hydrothermal ore deposits	Manuel, Will
9E	Explain why a deposit would or would not be economic to mine	Mcallister, Drevon
9D	Distinguish between reserves and resources, and consider the factors that would cause a deposit to change from one to another	Mccoy, Connor
9C	Calculate the concentration factor of a metal	Mcdonald, Cole
9B	Define the term “ore” and explain the factors that determine whether or not something is an ore	Mcdowell, Johnathan
9A	Identify tectonic settings in which igneous, sedimentary, and metamorphic rocks are formed	Mcelvenny, Annie
18C	Explain how layered mafic intrusions (LMIs) are formed including why sulfur plays such an important role in their formation.	McRoy, Gavin
18B	Describe the physical properties of PGEs and their uses.	Mobbs, Harrison
18A	Summarize the significance of Platinum Group Elements (PGEs) through history.	Morrison, Alec
17A	Describe the processes (specifically chemical weathering, erosion, and deposition) that act to make sedimentary rocks with specific reference to how sedimentary processes redistribute and concentrate mineral resources.	Natenstedt, Ryan
16D	Compare the pros and cons of developing a large-scale mining project.	Obuszewski, Kyle
16C	Explain how porphyry deposits are formed.	Pagett, Sarah
16B	Describe the physical properties of copper and its uses.	Phillips, Valerie
16A	Summarize the significance of copper through history.	Pollard, Nolan
15D	Compare and contrast silver and gold.	Pond, Claire
15D	Explain how Volcanogenic Massive Sulfide deposits are formed.	Pugmire, Joseph

15C	Explain how silver vein deposits are formed.	Restrepo, Erick
15B	Describe the physical properties of silver and its uses.	Robertson, James
15A	Summarize the significance of silver through history.	Saad, Danny
14B	List examples of US gold rushes and describe the consequences of the California gold rush.	Saleeba, David
14A	Explain how placer gold deposits form.	Saunders, Rhett
13D	Explain how lode gold deposits form.	Seawell, Anastasia
13C	Determine the percentage of gold in a material based on its purity (karat).	Shin, Daniel
13B	Describe the physical properties of gold and explain how “gold” can have different colors.	Smith, Harris
13A	Summarize the significance of gold through history.	Steelman, Will
12E	Provide examples and uses of mineral resources that are formed by sedimentary and surficial processes	Stone, Hunter
12D	Explain in general how sedimentary ore deposits form	Susol, Jakob
12C	Relate sediment grain size to energy of the environment and use it to predict where you would find placer deposits	Swavely, Alan
12B	Explain in general how surficial ore deposits form via chemical and mechanical weathering	Taylor, Allen
12A	Explain in general how hydrothermal ore deposits form and describe the sources their fluids can originate from	Tebou, Cole
11D	Compare and contrast gravity settling and fractional crystallization.	Towery, Jordan
11C	Explain how magmatic ore deposits form by gravity settling and fractional crystallization processes	Tuorila, Amelia
11B	Explain the process of fractional crystallization of a magma	Vickio, Jacob
11A	Describe at which types of plate boundaries you would expect to find magmatic and hydrothermal ore deposits	Vocke, Cameron
9E	Explain why a deposit would or would not be economic to mine	Vu, Giang
9D	Distinguish between reserves and resources, and consider the factors that would cause a deposit to change from one to another	Weglarz, Elias
9C	Calculate the concentration factor of a metal	Wilson, Michael
9B	Define the term “ore” and explain the factors that determine whether or not something is an ore	Wojcik, Alexis
9A	Identify tectonic settings in which igneous, sedimentary, and metamorphic rocks are formed	Wright, Chloe

Grading Rubric

Criteria	Marking Scheme				Extra Notes
	Full Marks (100%)	**Partial Marks (66.7%)**	**Partial Marks (33.3%)**	**Zero Marks (0%)**	
Length (1 point)	LO meets the length criteria of 250 to 500 words.	Over/under the length criteria by 30 words or less.	Over/under the length criteria by 50 words or less.	Over/under the length criteria by more than 50 words.	*Length criteria excludes diagram/figure/table captions, and references
Communication (3 points)	Clearly explains the LOA in own words, in a simple way that other students can learn from it. Any jargon used is defined or simplified, and lay-language is used when necessary. All of the material in the lesson is accurate.	Much of the writing is simply paraphrased from the sources, but it is presented in a simple way that other students can learn from it; **AND/OR** some of the jargon used is not clearly defined or simplified, and some lay-language is missing; **AND/OR** some of the material in the lesson is not accurate.	Most of the writing is poorly paraphrased, **AND/OR** more than 10% of the material presented is quoted from the sources, **AND/OR** the material is not presented in a simple way that other students can learn from it; **AND/OR** some of the material presented in the lesson is not accurate.	All of the writing is a poorly paraphrased summary of the resources **AND/OR** the material is not presented in a simple way that other students can learn from it, **AND/OR** the majority of the material presented is not accurate.	
Clarity (2 points)	Written in complete and clear sentences with few grammatical errors. Format of the assignment is neat and organized.	Contains a few incomplete/confusing sentences. Grammatical errors make portions of the writing difficult to follow, but the main points are still understood. Format of the assignment is neat and organized.	Contains several incomplete/confusing sentences. Grammatical errors make a large portion of the material presented difficult to follow; **AND/OR** Poor formatting of the lesson takes away from ability to follow the material presented.	Written mostly/completely in incomplete or point-form sentences. Many grammatical errors make the writing very difficult to understand; **AND/OR** Poor formatting of the lesson takes away from ability to follow the material presented.	
Figures (1 point)	Includes at least one figure/graph/table sourced from outside the course content that helps the reader better understand the topic. Each figure caption fully explains the figure and its relevance to the lesson.	Includes at least one figure/graph/table sourced from outside the course content that may help the reader better understand the topic, but it does not have a caption that fully explains the figure and its relevance to the lesson.	Figure(s) is/are only from the course content **AND/OR** includes an irrelevant figure/graph/table from outside the source content that does not help the reader better understand the topic. Figure captions, if present, do not fully explain the figure(s) and	Does not include a figure/graph/table **AND/OR** includes only irrelevant figures.	*Don't forget to caption your figures and refer to them in-text.

			its/their relevance to the lesson.		
Resources (2 points)	Uses at least 3 different resources and all of them are reliable. (For example, the course content, the Gemological Institute of America (GIA), and Elements Magazine.)	Uses only 2 different reliable resources.	Uses only 1 reliable resource.	All resources are unreliable.	*Course content can be used as one of your reliable resources. *Search engines such as Google, Google Scholar, or the Clemson library are great tools to find resources! *Wikipedia is a good place to **start** looking for resources, but it itself is not a reliable source.
Citation style (1 point)	Cites all resources using both in-text citations and a reference list, and a proper and consistent citation style (APA, MLA, or Chicago).	Cites only some resources using both in-text citations and a reference list, **AND/OR** does not use a proper and consistent citation style (APA, MLA, or Chicago).	Does not use in-text citations **AND/OR** does not have a reference list, and does not use a proper and consistent citation style (APA, MLA, or Chicago).	Does not cite resources in-text or in a reference list.	*Remember to cite the portions of the course material you used! *You can cite resources using either APA, MLA, or Chicago, but you must be consistent. Great guides for these formats are available at: https://owl.purdue.edu/owl/research_and_citation/resources.html