**Middle School STEM Science Lab/Activity Planner**

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| Name of Lab/Activity: Compare and Contrast Volcanoes  | Grade: 6 |
| California Science Standard(s): (please copy and paste standards taught during this lesson)ES.1.d. *Students know* that earthquakes are sudden motions along breaks in the crust called faults and that volcanoes and fissures are locations where magma reaches the surface. |
| Learning Objective/Goal:Students will be able to differentiate between the three types of volcanoes. |
| Language Objective/Goal: (based on California Common Core Standards)Students will integrate information presented in different media or formats as well as in words to develop a coherent understanding of a topic or issue.  |
| Materials & Resources: two or three different colors of clay (depending on model creating)  model of composite, shield, and cinder volcanoes (cross sections) |
| Procedure:1. Pre-teach vocabulary
2. Put students in groups of 4-5.
3. Assign each group one of the three types of volcanoes to create.
4. Have students think-pair share and talk about features of their volcano.
5. Have groups alternate between stations until all have created the three types of volcanoes.
6. See below for student directions.
 | Teaching Notes: (include timing)Each station should have a model of a composite, shield, or cinder volcanoes. Each model should also show the cross sections of the volcano to help students compare and contrast the volcanoes and they construct the three types of volcanoes. 35-45 minutes. |
| Math Connection:Find the percent of volcanoes that may be considered active, intermittent, dormant, and extinct in your state. List of volcanoes in the United States (Click on links of individual volcanoes for more details).[http://en.wikipedia.org/wiki/List\_of\_volcanoes\_in\_the\_United\_States](http://mail.fmsd.org/exchweb/bin/redir.asp?URL=http://en.wikipedia.org/wiki/List_of_volcanoes_in_the_United_States" \t "_blank) | Teaching Notes:Print the list of volcanoes from your state on the link provided. If teacher and/or student would like more details on individual volcanoes, click on the name of the volcano. 10-15 minutes. |
| Technology Extension of Learning: Video on Mt. Saint Helens <http://dsc.discovery.com/video-topics/other/other-topics-volcano-videos.htm> | Teaching Notes:It’s recommended to fast forward some sections of the video. (Video is lengthy)  |
| Formative Assessment: (please attach a copy)Students will write three paragraphs comparing and contrasting the three types of volcanoes. See below for rubric.  | Teaching Notes: |
| Strategies for EL and Special Needs Students:Give students labeled pictures of the three types of volcanoes to keep on their desk and one big one on the wall.  | Vocabulary:Cinder cone volcanoShield volcano - craterComposite volcano - summitLavaMagma |
| Alignment in science unit: (Brief description of lessons taught **prior to & after** this lab/activity)Interactive Slide Show: http://msnucleus.org/membership/slideshows/volcano.html |
| Brief description of lessons taught **after** this lab/activity:Video: http://msnucleus.org/membership/html/k-6/pt/volcanoes/4/ptv4\_1a.html |
| Lab/Activity adapted from: (website, textbook, etc.)<http://msnucleus.org/membership/html/k-6/pt/volcanoes/4/ptv4_1a.html> | Formative Assessment adapted from:Adapted by authors.  |
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| This lesson was developed by: |
| Teacher’s Name | Currently Teaching at: (School & District) |
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Student Directions

Using the clay provided, build the model volcano assigned by your teacher. Use the diagrams below to help you create a cross section of a volcano. Use different colors to represent ash, lava, and mud.



COMPOSITE VOLCANO

1. CRATER
2. NEWCINDER BEDS
3. LAVA FLOW
4. OLDER LAVA FLOW
5. ASH BEDS



CINDER CONE

1. CRATER
2. VENT
3. CINDER BEDS

SHIELD VOLCANO

1. SUMMIT
2. NEW LAVA FLOW
3. MAGMA
4. OLD LAVA FLOWS

Comparison/Contrast Rubric

4- The overall purpose of informing, persuading, evaluating, or entertaining is clear and consistent throughout; transition words and phrases that help to organize comparisons and contrasts have been used effectively throughout; the writing is supported with evidence, examples, and elaborations. Word choice is consistently careful and often particularly precise, powerful, or apt.

3- The overall purpose of informing, persuading, evaluating, or entertaining is fairly clear and consistent; transition words and phrases that help to organize comparisons and contrasts have been used in most places; there are some evidence, examples, and elaborations to support their writing. Word choice is generally precise.

2- The overall purpose of informing, persuading, evaluating, or entertaining is not clear or consistent, the writing has few transition words and phrases and organized comparison and contrasts; the writing is not supported with evidence, examples, and elaborations. Word choice is confusing, repetitive, or imprecise.

1- The purpose is not clear; the writing lacks any discussion of similarities and differences; the writing is not supported with evidence, examples, and elaborations. Word choice is consistently confusing or unclear.