STANYS Conference

November 5-7, 2006

Intermediate Level SARs Present: Best Practices in Earth Science

By Deena Bollinger

Inside this packet you will find Teaching Resources related to Rocks and Minerals:

- Discovery labs
- Graphic organizers
- Intermediate Level Science standards
- Performance assessments
- Enrichment activities
- Literacy integration (writing in the content areas)

You will also find:

- A list of useful websites and recommended books for intermediate level earth science instruction
- A performance assessment related to severe weather and natural disasters

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Discovery Lab

Name _____ Date _____
D. Bollinger

Mineral Lab #1: How can we describe and identify minerals?

INTRODUCTION: (notes)
Something is probably a mineral if it does not seem to be igneous, sedimentary, or metamorphic. Minerals usually look the same throughout, or are single crystals. *All crystals in rocks are minerals.*

We will use 4 characteristics to describe minerals in this lab: **color, streak, luster, and hardness.**

1. _____ is determined by looking at the mineral.

2. Streak is determined by dragging the mineral across a _____ plate and seeing what color powder it leaves behind.

3. Luster describes the 'shininess' of a mineral.
A mineral can be _____ (shines like a metal or sparkles), or _____ (does not shine like a metal). If a mineral is nonmetallic, it can be further described as _____ (looks like glass), _____ (does not shine at all), or greasy.

4. Hardness is determined by comparing your mineral to other minerals, fingernails, pennies, nails, and glass.

You do this by first trying to scratch your mineral with a fingernail, then with a penny, and then with a nail.*

As soon as something scratches your mineral stop testing and consult Moh's hardness scale. Moh's scale gives you hardness on a scale of 1 to 10 depending on what scratches your mineral.

*If none of these scratches your mineral, carefully see if it scratches glass.

PROCEDURE:
Fill in the chart below. You may do this in any order.

NAME	COLOR	STREAK	HARD-NESS	LUSTER
Quartz				
Talc				
Calcite				
Pyrite				
Magnetite				
Hematite				
Feldspar (Potassium)				

Analyze and Conclude: Answer the following questions in complete sentences; use the space below.

1. Why is color alone not a reliable means of identifying a mineral? Give 3 reasons.

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2. Why is streak a more reliable property than color in mineral identification

3. How is the hardness range for a mineral determined?

Discovery Lab

Name _____ Date _____
D. Bollinger

Mineral Lab #2

Procedure: Observe 7 minerals and record their characteristics in the chart below. Use the chart on the *Earth Science Reference Tables* to determine exact hardness; use fingernail, penny, steel nail, and glass to determine hardness using Moh's Hardness Scale.

Recall:
Luster - _____
Metallic luster – shines like a _____
Nonmetallic luster – may shine like _____, or may be dull
Streak is found using a _____
Hardness - _____
Cleavage – tendency to break along _____ surfaces
Fracture – tendency to break leaving _____ surfaces

Mineral name	Color	Luster (metallic or nonmetallic)	Streak (indicate streak color)	Hardness (1 to 10)	Cleavage or Fracture	Crystal shape (sketch one crystal)
Olivine						
Flourite						
Galena						
Sulfur						
Mica						
Gypsum						
Corundum						

Once your lab is done, go back and view mineral samples from Lab #1 and #2, taking note of special features that will help you to identify them when you take your Performance Test on Minerals next lab class. You will be able to use Labs 1 and 2 as well as *your Earth Science Reference Tables (ESRT) during your Performance Test*. Practice identifying the minerals by sight, and then have your teacher or a partner quiz you.

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Discovery Lab

Name _____ Date _____
D. Bollinger

Investigation: Describing and Identifying Minerals

Introduction: Most rocks are made of minerals. The minerals found in rocks usually appear as **crystals**; however, sometimes you cannot see them without using a magnifying glass or microscope. Igneous rocks often contain large crystals clearly visible with the naked eye; **granite** is one such rock. Granite is mostly made up of the minerals quartz, potassium feldspar, plagioclase feldspar, biotite mica, and amphibole. In this activity you will be observing the characteristics of several minerals, and a piece of granite.

Questions: How can minerals be described and identified? How are rocks and minerals related?

Hypothesis: _____

Experiment: (Make observations, collect, and interpret data)

1. Observe each labeled mineral's color, luster, streak, cleavage/fracture, and hardness compared to glass. Record your data in a table similar to the one below. Compare your results with the data in the *Earth Science Reference Tables* (ESRT). Our glass has a hardness of 6.5.

Mineral Name	**Color**	**Luster (metallic, glassy, or dull)**	**Streak**	**Cleavage/Fracture**	**Hardness compared to glass**
Iceland Spar	Clear	Glassy	None	Cleavage	Softer than glass

2. Observe each numbered mineral's color, luster, cleavage/fracture, and hardness compared to glass. Record your results in a data table similar to the one below. Use the ESRT to name each of the 5 minerals – Select mineral names from: Amphibole, Plagioclase Feldspar, Quartz, Biotite, Potassium Feldspar.

Mineral Number	**Color**	**Luster**	**Cleavage/Fracture**	**Hardness compared to glass**	**Mineral Name**
1					

3. How many of the minerals observed in step two are you able to identify in your sample of granite. How did you determine this? What does this tell you about granite?

Conclusion Questions:

1. List four important mineral characteristics and explain how to determine each characteristic.
2. Explain why color alone cannot be used to identify minerals.
3. List two special characteristics that can be used to identify certain minerals, and state which minerals can be identified this way.

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Graphic Organizer : Rock and Mineral Basics

	How Formed	**Distinguishing features (to recognize this type)**	**How named (based on…)**
Minerals	From cooling magma/lava From water evaporating and leaving minerals behind From recrystallization (forming new crystals) without melting	Looks pure or is a crystal in a rock	Color, hardness, luster, cleavage, fracture, streak, or special properties (phosphorescence, magnetism, radioactivity, acid test,…)
Igneous Rocks: Intrusive (plutonic) or Extrusive (volcanic)	Intrusive – magma cooling inside the Earth Extrusive – lava cooling at or near Earth's surface	Intrusive – large crystals Extrusive – small crystals, or glassy (no crystals), or vesicular (has air holes)	Color and Texture (crystal size)
Sedimentary Rocks: Chemical (crystalline), Clastic (fragmental), or Organic (bioclastic)	Chemical – water evaporates leaving minerals behind Clastic – compaction and cementation of rock fragments (sediments) Organic – Compaction or organic materials	Chemical – small crystals or uniform grains Clastic – pieces of other rocks Organic – fossils or shells or coal	Chemical – based on composition Clastic – based on grain size Organic – based on composition
Metamorphic Rocks: Contact or Regional	Contact – magma or lava touches a rock; heat and chemical reactions change the rock Regional – heat and pressure change rocks over a large area	Contact – distortion, or appears as a 'crust' on another rock Regional – foliation (layering)	Grain size and composition

Also be sure to know why color is NOT sufficient for identifying minerals; Define mineral – solid, inorganic, naturally occurring substance with a definite chemical composition and crystal structure; Internal arrangement of atoms determines ALL the properties of a mineral; Rock-forming mineral – the most common minerals found in rocks; Know how to test and define properties of minerals – cleavage, fracture, hardness, streak, and luster

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Name _____ Date _____

MiniLab: Rock Characteristics

Directions: Observe the three samples at your lab table, discuss your observations with your partner, and then each partner must complete this sheet. Remember, the three rock types are igneous, sedimentary, and metamorphic.

I believe Sample A is _____ because it has _____
Rock type distinguishing features

I believe the name of Sample A is _____ because of the following
Rock Name
characteristics:

1. _____
2. _____

Sample A probably formed _____ by _____
Where How

I believe Sample B is _____ because it has _____
Rock type distinguishing features

I believe the name of Sample B is _____ because of the following
Rock Name
characteristics:

1. _____
2. _____

Sample B probably formed _____ by _____
Where How

I believe Sample C is _____ because it has _____
Rock type distinguishing features

I believe the name of Sample C is _____ because of the following
Rock Name
characteristics:

1. _____
2. _____

Sample C probably formed _____ by _____
Where How

< Note for teacher: Select igneous, sedimentary, and metamorphic rocks with clear distinguishing characteristics; for example, use granite with large visible crystals, sandstone with visible and palpable sand grains, and gneiss with visible foliation. >

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Discovery Lab

Name _____ Date _____
D. Bollinger

Investigation: Observing Rock Characteristics and Classifying Rocks

Introduction: Igneous rocks tend to have crystals, appear glassy, or are vesicular. Sedimentary rocks usually contain sediments or organic materials. Metamorphic rocks tend to be foliated, or contain distorted crystals that appear to have been exposed to extreme pressure.

Question: How can rocks be classified and identified? Why do rocks have particular characteristics?

Hypothesis: _____
_____
_____

Experiment: **(Make observations, collect, and interpret data)**

1. With the other members of your group, observe 7 different rocks. With your group, determine if each rock is igneous, sedimentary, or metamorphic and explain the basis for your classification. **Record your classification and reason on a slip of paper and place it with its respective rock.**
2. Check your work by observing the rock samples in boxes labeled Igneous (I), Sedimentary (S), and Metamorphic (M).
3. Ask your teacher for clarification on any samples you do not understand.

Conclusion Questions:

1. How can intrusive and extrusive igneous rocks be differentiated?
2. Why do intrusive and extrusive rocks look the way they do?
3. What is the observable difference between clastic, chemical, and organic sedimentary rocks?
4. Why do each of the sedimentary rock types look the way they do?
5. What is the observable difference between a contact metamorphic rock and a regional metamorphic rock?
6. Why do contact and regional metamorphic rocks look the way they do?
7. What characteristics are best used to determine if a rock is sedimentary, igneous, or metamorphic?

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Graphic Organizer for Rocks

Rocks have Characteristics

Igneous	**Sedimentary**	**Metamorphic**
Variety of crystals, Glassy (extrusive), Vesicular/air holes (extrusive), or Large crystals (intrusive)	sediments (clastic), organic material or fossils (organic), or may have uniform crystals (chemical)	Foliation/layers (regional), distorted crystals (regional), or a 'crust' (contact)

Because of how they formed

Formed by magma Or lava cooling	formed in water by compaction and cementation	formed by heat and pressure changing other rocks deep underground

Discovery Lab

Name _____ Date _____
D. Bollinger

Mini-Lab: Rocks are Made of Minerals

Introductory notes:

All rocks have _____ in them. The minerals usually look like _____, but sometimes you can't see them without a _____.

_____ rocks often have large crystals. _____ is a light colored igneous rock with _____ crystals. Granite is mostly made up of the minerals _____, _____, _____, and _____.

1. Describe each mineral's color, luster, and any other key features

1. Quartz- _____
2. Plagioclase Feldspar- _____
3. Potassium Feldspar- _____
4. Amphibole- _____
5. Biotite- _____

2. Make a large **labeled** drawing of your granite sample with pointers to crystals of each kind of mineral. **Color** your drawing.

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Discovery Lab – Be sure that the some crystals are grown in a warm area and others in a cold area, and watch out for anomalies.

Name _____ Date _____
D. Bollinger

Investigation: Crystal Growth

Question: What is the effect of cooling rate on crystal size?

Hypothesis:

_____

_____

Supplies:

50 ml Alum
2 - 250 ml beakers
1 - 600 ml beaker
hot plate
stirring rod
tongs or oven mitts
goggles

Experiment:

1. **Put on your goggles**

2. **Put** 300 ml of water in the large beaker

3. Set the beaker on top of the hot plate

4. **Pour** the Alum into the beaker of water

5. **Heat** the Alum and water until all the Alum dissolves. **STIR** FREQUENTLY as the solution is heating.

6. Once all the Alum is dissolved, **carefully pour** about 150 ml of the solution into 1 small beaker and the other 150 ml into the other small beaker.

7. **Cover** each beaker with a paper towel: Label the beakers with your name, and label one with 'ice' and the other with 'window'.

8. **Put** one beaker in the ice bath and the other beaker on the window sill.

Interpret Data - The next day:

9. **Observe** your beakers. **Compare** the crystals in the beaker cooled in ice to the crystals in the beaker cooled on the window sill. **Record your observations here:**

Beaker cooled in ice:

Beaker cooled on window sill:

10. **Clean** out the beakers using water and a spoon to remove the crystals. You may take some crystals home with you in a plastic bag, but don't get them wet or they will dissolve!

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11. **Answer** the questions below.

Conclusion - Analysis Questions

1. Which beaker had the larger crystals?

2. Putting a hot beaker on ice forces it to cool very quickly. Based on this fact and your observations, what is the relationship between cooling rate and crystal size?

3. Why did one beaker grow larger crystals than the other?

4. How does this lab investigation relate to igneous rock formation?

Literacy Integration – Reading and Writing in the Content Areas

Name _____
D. Bollinger

Rock Project

Directions: *All responses must be in complete sentences,* like the example provided below. All submissions must be typed or printed neatly.

> **Ex.:** Sample 1 is igneous because it contains crystals. The rock is granite because it has **large** crystals and is a **light** color. Granite is used for countertops and floor tiles, its mineral composition is feldspar, quartz, biotite, and amphibole, and granite can be found in Wausau, Wisconsin.

Notice the example includes rock type and specific reason, rock name and 2 specific reasons, mineral composition, uses, and location.

*Note that **two** characteristics must be given for naming the rock, and **two** uses are required.*

Acceptable reasons for classification are explained below:

- A rock can be called **metamorphic** if it has foliation or distortion. Then use characteristics such as grain size and color to name the rock with the ESRT.
- **Igneous** rocks must have crystals, be glassy, or contain air holes (vesicular). Then use the color and texture to name this rock with the ESRT.
- Rocks are considered **sedimentary** if they contain sediments (rock fragments or sand), organic material, or fossils. Then use characteristics such as grain size and color to name the rock with the ESRT.
- A sample can be called a **mineral** if the entire sample is pure, or it is found as a crystal in a rock. Then use characteristics such as hardness, color, luster, and fluorescence to name the mineral with the ESRT or another resource.

Presentation of the Project:

Make sure each sample is labeled with a letter or number, and your write up for each sample has the corresponding label. You may display your rocks in any way you choose. Your display can be as simple as presenting them in the box you received at the mineral mine. The most important thing is that the write-ups are

correct and the presentation is neat and well-organized. You must have 2 igneous rocks, 2 sedimentary rocks, 2 metamorphic rocks, and 2 minerals. It is OK if one sample is used as both a rock and a mineral.

Scaffolding for your Paragraphs

Directions: Use this sheet to help you write the paragraphs for your samples.

For each *rock* sample – 2 igneous, 2 sedimentary, 2 metamorphic

Sample __ is _____because it _____. The
(#) (ig, sed, or meta) (reason for classification)
rock is named _____because it has _____
(rock's name) (reason 1)
and _____. _____ is used for _____ and
(reason 2) (rock's name) (use 1)
_____, its mineral composition is _____
(use 2) (list minerals it contains)
_____, and _____ can be found in
(more minerals it contains) (rock's name)
_____.
(location)

For each mineral sample – 2 are required

Sample __ is a mineral because it _____. The
(#) (reason for classification)
mineral is named _____because it has _____
(mineral's name) (reason 1)
and _____. _____ is used for _____ and
(reason 2) (mineral's name) (use 1)
_____, its chemical composition is _____,
(use 2) (give chemical formula)

and _____ can be found in _____.
(mineral's name) (location)

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Literacy Integration – Reading and Writing in the Content Areas

Name _____ Date _____

Mineral Project – Learn About Your Birthstone

Internet Assignment – Due March 2 (2 days after vacation)

1. My birthday is _____
2. My birthstone is _____
3. Print, cut out, and attach a photo of your birthstone in the space below.

4. Some suggested websites include the following:
   Mineral.galleries.com/minerals/birthsto.htm
   Mineralminers.com
   www.minerals.net
   Earthsky.com – search for 'birthstone'

5. Find two additional sites with birthstone information and list them below
_____

---

6. Properties of your birthstone
   a. color _____
   b. hardness _____
   c. cleavage _____
   d. crystal system _____
   e. luster _____
   f. composition _____
   g. unique properties _____
   _____
   h. uses _____
   _____
   i. where found _____
   j. historical and/or mythical significance
   _____
   _____

7. **WRITE ½ TO 1 PAGE** ABOUT WHAT YOU FIND THE MOST INTERESTING ABOUT YOUR BIRTHSTONE! **WORD PROCESS** AND ATTACH. (Ideas: historical, mythical, or religious significance of your birthstone)

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Literacy Integration – Reading and Writing in the Content Areas

History Rocks

Thomas Rhindress - Croton-Harmon High School

ESSAY THOUGHT QUESTION - *What rock or mineral has had the greatest influence or impact on human society? Support your answer.* For example, oil and water are **not** minerals or rocks, but would be a fantastic answers if they were. If you need ideas for choices, p 6, 7, and the back cover of the E.S.R.T. have lists of rocks and mineral names. Do NOT limit yourself to just those choices...

1. Write-up your answer to this question as a 1 to 2 page essay.

2. Type your essay - 12 pt font, double spaced, 1 inch margins.

3. Include a brief description of the mineral or rock:
   - General physical and chemical traits, etc.
   - Where it is found and/or how it is formed
   - How it is obtained - mined or extracted
   - What is it used for?
   - How has its use been important to human society? How would society be different without it?

4. Cite any sources - Use *Google* to search for information on your choice. Then include the web address as your citation. Put these on the back of your essay, or on a separate stapled page. They do NOT count towards your length.

5. You may include ONE small picture, diagram, or illustration. Make sure it refers to something you are writing about. Cite its source, too. If you include more pictures, attach them on a separate sheet.

6. Essays will be graded on 1) scientific content and accuracy, 2) historical content, and 3) grammar, spelling, organization, and originality.

Performance Assessment

Name _____ Date _____

D. Bollinger

Rock Identification Test

Directions: Use your senses, knowledge of Earth Science, and the *Earth Science Reference Tables* to complete the chart below, and then do the questions and vocabulary for lab 2-6. You must select a **characteristic** (for column 3) from the word bank below:

Word Bank for Characteristics: (you can use each word more than once)

fossils crystals foliated air holes/vesicular glassy sand

sediments distortion organic material rock fragments

Sample number	Classification (igneous, sedimentary, or metamorphic)	One characteristic of the rock that supports your classification	Extra Credit! Rock Name (ex: basalt)
1			
2			
3			

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Enrichment for Higher Level Students

Name _____ Date _____
D. Bollinger

Chapter 5 Rocks: Extension Project

Directions: *Complete all 3 parts of the project as explained below.*

1. **Skills:** Follow the directions below to create a 10 question quiz
   a. This quiz must be based on the **skills** listed in your "Chapter 5 Review Packet".
   b. All questions should require using pages 6 and/or 7 in the *Earth Science Reference Tables.*
   c. Some of the questions must be fill-in, some short answer, and some multiple choice.
   d. On a separate sheet of paper, create an answer key for your quiz.
   e. This quiz must be typed or written VERY neatly.
   f. At least 1 other student in this class MUST take your quiz, & you must grade it.

2. **Visuals:** Choose one of the three options below
   Option One: Create a comic strip illustrating the life history of a rock. Your story must make sense based on the Rock Cycle. The comic strip must be at least 6 frames long.
   Option Two: Create a Power Point presentation explaining how intrusive, extrusive, clastic, chemical, organic, contact metamorphic, and regional metamorphic rock groups form. The Power Point presentation must be at least 8 slides long.
   Option Three: Create a booklet or pamphlet explaining *how to determine* if a rock is intrusive/extrusive, clastic/chemical/organic, foliated/nonfoliated. You must focus on the *visual* characteristics of the rocks. The booklet must be at least 6 pages/panels long.

3. **Writing:** Choose one of the two options below
   Option One: Write a short biography of a rock. Include major events in the life of the rock that will change it from one form to another. Your story must make sense based on the Rock Cycle, and must be at least ½ of a page.
   Option Two: Write a poem about a rock's 'life', focusing on its progression through the rock cycle over time.

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Corresponding NYS Intermediate Level Science Standards for this unit:

Intermediate Standards for Unit 2: Rocks and Minerals

Minerals

Physical Setting Skill 2: Using identification tests and a flow chart, identify mineral samples.

2.1e: Rocks are composed of minerals. Only a few rock-forming minerals make up most of the rocks on Earth. Minerals are identified on the basis of physical properties such as streak, hardness, and reaction to acid.

3.3c: Atoms may join together in well-defined molecules or may be arranged in regular geometric patterns. *(ex: crystal structure in minerals)*

4.4g: Without direct contact, a magnet attracts certain materials and either attracts or repels other magnets. The attractive force of a magnet is greatest at its poles. *(test minerals for magnetism)*

Rocks

2.1f: Fossils are usually found in sedimentary rocks. Fossils can be used to study past climates and environments.

2.2g: Rocks are classified according to their method of formation. The three classes of rocks are sedimentary, metamorphic, and igneous. Most rocks show characteristics that give clues to their formation conditions.

2.2h: The rock cycle model shows how types of rock or rock material may be transformed from one type of rock to another.

Physical Setting Skill 3: Use a diagram of the rock cycle to determine geological processes that led to the formation of a specific rock type.

Living Environment Standards:

3.2b: Extinction of a species occurs when the environment changes and the adaptive characteristics of a species are insufficient to permit its survival. Extinction of species is common. Fossils are evidence that a great variety of species existed in the past.

3.2c: Many thousands of layers of sedimentary rock provide evidence for the long history of Earth and for the long history of changing life-forms whose remains are found in the rocks. Recently deposited rock layers are more likely to contain fossils resembling existing species.

5.1d: The methods for obtaining nutrients vary among organisms. Producers, such as green plants use light energy to make their food. Consumers, such as animals take in energy-rich foods. *(when discussing coral and limestone)*

5.1e: Herbivores obtain energy from plants. Carnivores obtain energy from animals. Omnivores obtain energy from both plants and animals. Decomposers, such as bacteria and fungi, obtain energy by consuming wastes and or dead organisms.
(when discussing coral and limestone)

6.2c: Green plants are the producers of food, which is used directly or indirectly by consumers. *(when discussing coral and limestone)*

Some Helpful Websites

Past Intermediate Level Science exams (NYS 8th grade science assessment) are no longer required to be kept 'secure'! NYSED has now published the old exams with their scoring keys on their website at:
http://www.nysedregents.org/testing/sciei/sciences8.html

Download yourself a copy of the Intermediate Level Science Core Curriculum – 'The Standards' at: http://www.emsc.nysed.gov/ciai/mst/pub/intersci.pdf

Other Useful Websites

www.dlese.org
Search here FIRST for all your earth science needs!

www.earth2class.org
Search here for wonderful powerpoints, lesson plans, labs, and useful links for science teachers

www.ametsoc.org/dstreme
For all your weather needs

http://earthquake.usgs.gov/eqcenter/recenteqsww/Quakes/quakes_all.php
For a listing of recent earthquakes around the world, and other earthquake resources

http://www.volcano.si.edu/reports/usgs/
For a listing of recent volcanic eruptions around the world, and other volcano resources

http://www.iris.washington.edu/seismon/
For an up-to-the-minute interactive map showing earthquake epicenters for the last 5 years

www.spaceweather.com
Interesting updates and pictures of activities in space, including a current solar image that you can enlarge by clicking on it – shows sunspots really well, and other features, too.

Best of luck!
-Deena Bollinger
Science Teacher, grade 8
South Orangetown Middle School
Middle Level Subject Area Representative for Westchester STANYS

Please feel free to contact me with future questions at MSBOLLINGER@AOL.COM

Recommended Resources:

The Amazing Earth Model Book by Donald Silver and Patricia Wynne

UPCO's Intermediate Level Science Review by Peggy Lomaga and Amy Schneider

Explorations in Earth Science by Osmun, Vorwald, and Wegner from UPCO publishing

The Weather Book by Jack Williams, from USA today

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Performance Assessment – Severe Weather and Natural Disasters

Name _____ Date _____

D. Bollinger

Final 'Exam' for General Science: Disaster Project

Choose one type of natural disaster from the list below (circle your choice):

1. Earthquake
2. Flood
3. Heat wave
4. Hurricane (typhoon)
5. Landslide
6. Tornado
7. Tsunami
8. Volcano
9. Winter storm

Write the name/date/location of the historical natural disaster you will focus your project on:

_____

For your project you will create a PowerPoint presentation which includes the following:

1. Title page
2. Date of event
3. Scientific explanation of the cause of your natural disaster
4. Location of your natural disaster
5. Rating of your natural disaster, if applicable (Ex: Category 5 hurricane)
6. Number of lives/property lost
7. Special effects, such as flying in text, movable objects, animations, etc
8. An Emergency preparedness plan (Family Disaster Plan) for this type of disaster
9. Text written in your own words AND a bibliography

We will be in the computer lab on June 9, 10, 11, 13, 14, and 15 during class and/or lab. You will present your PowerPoint to the class during lecture or lab class.

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Rubric for Final 'Exam' (Disaster Project)

20 Points - Slides	15 Points	10 Points	5 Points	0 Points	Total
Completes all of the following aspects of the project: (1) Includes title page of disaster, (2) Date of occurrence, definition of your natural disaster, (3) Geographic location, disaster rating scale (if available), and (4) The number of lives and/or property loss.	Completes three out of the four requirements.	Completes two out of the four requirements	Completes one out of the four requirements	Only creates a title page.	
20 Points – Special Effects	**15 Points**	**10 Points**	**5 Points**	**0 Points**	
PowerPoint Presentation has colored text and pictures. Student incorporated technical ways of displaying information (1) Text is displayed using one visual effect (ie. Flying in text). (2) Moveable objects (ie. a fire truck driving across the bottom of the screen) (3) Moveable diagrams in presentation	Presentation is colorful and has colored pictures. The student included two of the three ways to display information.	Presentation is colorful and has colored pictures. The student included one of the three ways to display information.	Student just has text and pictures.	Just text no pictures.	
20 Points – Emergency Plan	**15 Points**	**10 Points**	**5 Points**	**0 Points**	
Has an appropriate emergency preparedness plan (family disaster plan) with pictures or diagrams.	Information on plan is lacking detail. Has pictures or diagram.	Information is very brief. Student has pictures or diagram.	Student has brief information and only text is displayed no pictures or diagrams.	No plan.	
20 Points - Presentation	**15 Points**	**10 Points**	**5 Points**	**0 Points**	
Student presents the power point presentation with clarity and understanding. The student makes eye contact and addresses the audience.	Student presents with clarity and understanding. Student makes an attempt to address the audience.	Student needs to read the information to the class. Makes an effort to address the audience.	Student reads the power point presentation. Very limited attempt is made to address the audience.	No attempt is made to address the audience. Cannot hear them. No eye contact is made with audience or teacher.	
20 Points - Mechanics	**15 Points**	**10 Points**	**5 Points**	**0 Points**	
(1)Project is complete and in on time. (2) Student puts information into his/her own words. (3) Student cites references for text, pictures or diagrams. (4) No spelling or grammatical errors.	Student meets at least three of the criteria.	Student meets at least two of the criteria.	Student meets at least one of the criteria.	Student fails to meet all four of the criteria.	

Provided at STANYS Conference 11/5/06 by Deena Bollinger, Middle Level SAR for Westchester section; for an electronic version of this handout please email dbollinger3@hotmail.com