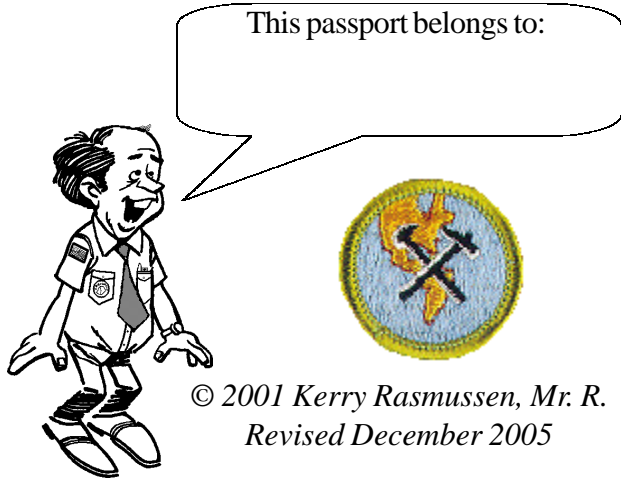
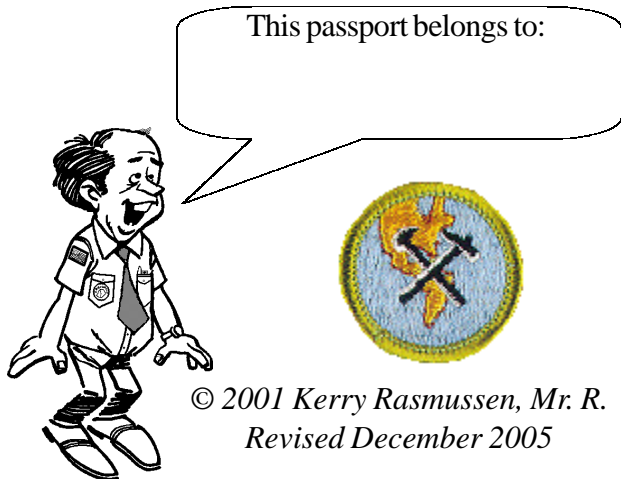


Visit the "Scouting with Mr. R." web site at www.relia.net/~thedane/scouting.html



"Geology is the window from the past we use to see the future."

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BASICS OF GEOLOGY (1)

Define geology: _____

How do geologists learn about rock formations?

In geology, why is the study of the present important to understanding the past? _____



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Lined writing area for the second page.

AREA MAP (3)

Review a geologic map of **YOUR** area.
Discuss the different rock types represented.

Estimated the ages of the rocks. _____

Determine whether the rocks are **horizontal**, **folded**, or **faulted**.

Explain how you arrived at your conclusion.

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Do **ONE** of the following activities (a,b, or c) and write a short report on the next page:

With your parent's and counselor's approval, visit an active mining site, quarry, or sand and gravel pit. Discuss what you learned about the resources extracted from this location. Explain how are these resources are used by society.



With your counselor, choose two examples of rocks and two examples of minerals. Discuss the mining of these materials and describe how each is used by society.

With your parent's and counselor's approval, visit the office of a civil engineer and learn how geology is used in construction. Discuss what you learned.



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List **THREE** of the most common road building materials used in your area.



Material 1: _____

How produced: _____

How used in road building: _____

Material 2: _____

How produced: _____

How used in road building: _____

Material 3: _____

How produced: _____

How used in road building: _____

List **THREE** of the most common road building materials used in your area.



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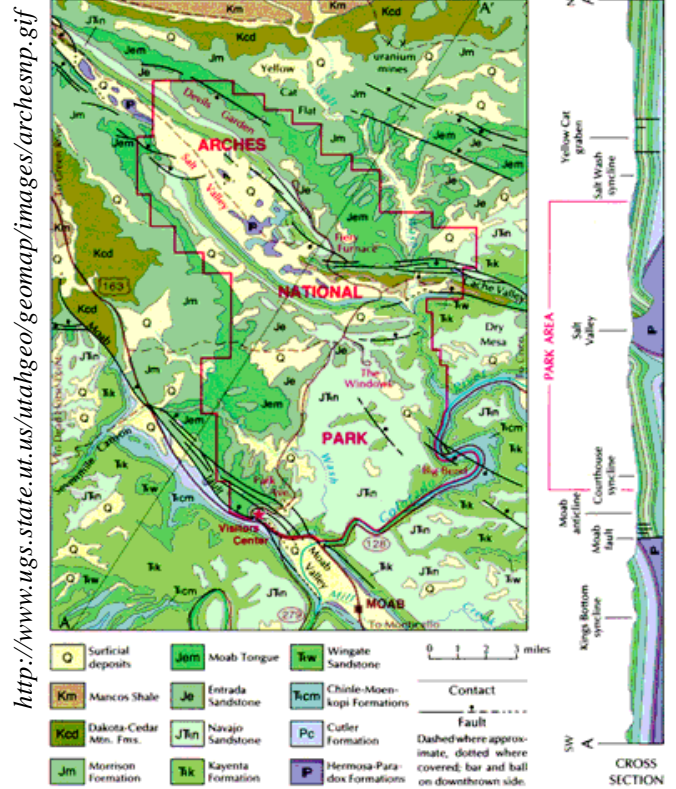
How used in road building: _____

Material 3: _____

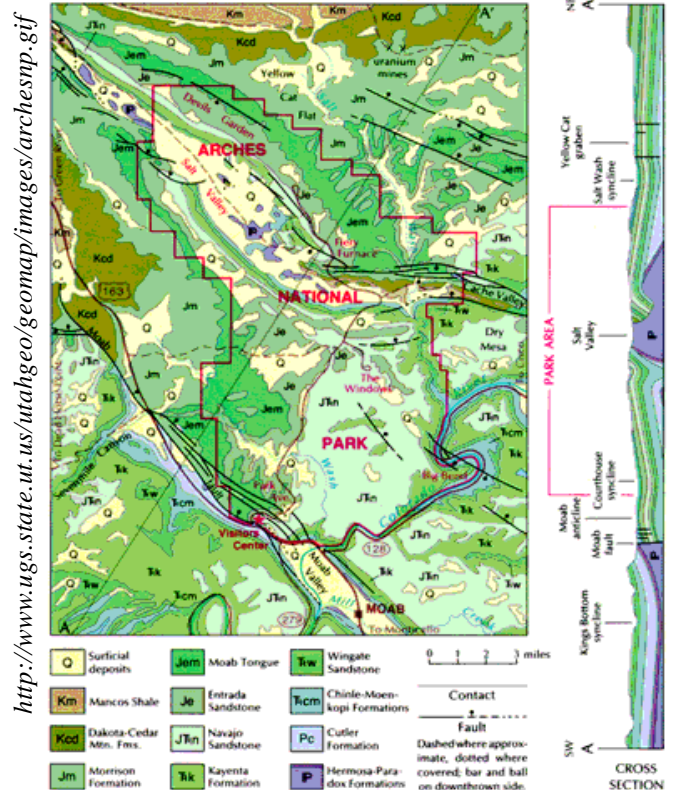
How produced: _____

How used in road building: _____

GEOLOGIC MAP OF THE ARCHES NATIONAL PARK AREA
GRAND COUNTY, UTAH



GEOLOGIC MAP OF THE ARCHES NATIONAL PARK AREA
GRAND COUNTY, UTAH



VISIT OR CAREERS (4)

Do ONE of the following (a or b):

a. Visit with a **geologist, land use planner, or civil engineer**. Discuss this professional's work. What tools are required in this line of work?

Learn about a project that this person is now working on (ask to see reports and maps created for this project). Discuss what you have learned.

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Name 11: _____ Rock Mineral
List class (if a rock) or identifying physical properties (if a mineral)

Name 12: _____ Rock Mineral
List class (if a rock) or identifying physical properties (if a mineral)

Name 13: _____ Rock Mineral
List class (if a rock) or identifying physical properties (if a mineral)

Name 14: _____ Rock Mineral
List class (if a rock) or identifying physical properties (if a mineral)

Name 15: _____ Rock Mineral
List class (if a rock) or identifying physical properties (if a mineral)

Name 11: _____ Rock Mineral
List class (if a rock) or identifying physical properties (if a mineral)

Name 12: _____ Rock Mineral
List class (if a rock) or identifying physical properties (if a mineral)

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Name 15: _____ Rock Mineral
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Name 6: _____ Rock Mineral

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Name 7: _____ Rock Mineral

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Name 8: _____ Rock Mineral

List class (if a rock) or identifying physical properties (if a mineral)

Name 9: _____ Rock Mineral

List class (if a rock) or identifying physical properties (if a mineral)

Name 10: _____ Rock Mineral

List class (if a rock) or identifying physical properties (if a mineral)

b. Learn about the career opportunities available in geology.

Pick one that interests you and explain how to prepare for such a career.

What courses might be useful for such a career?

Name 6: _____ Rock Mineral

List class (if a rock) or identifying physical properties (if a mineral)

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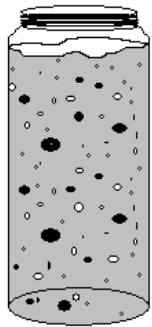
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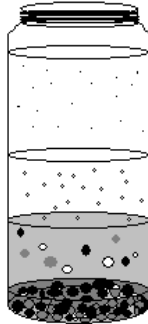
COMPLETE ONE (5A-B-C-D)

A) Surface & Sedimentary Processes Option

Conduct an experiment approved by your counselor that demonstrates how sediments settle from suspension in water. Explain to your counselor what the exercise shows and why it is important.



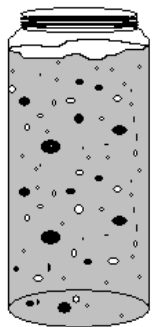
- Fill a quart jar or 2-liter pop bottle half way with water. Add a couple of cups of dirt and gravel.
- Shake the bottle until dirt is well mixed. Set bottle aside without disturbing it.
- List your results:



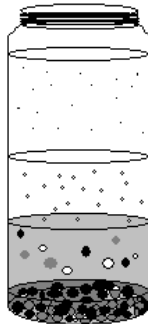
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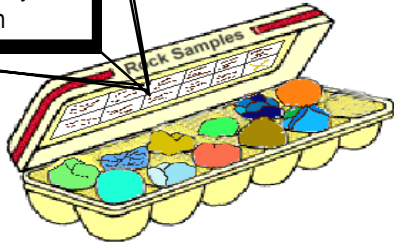
Name 5: _____ Rock Mineral
List class (if a rock) or identifying physical properties (if a mineral)

Do **ONE** of the following three projects:

3. Collect **10** different rocks or minerals. Record in a notebook where you obtained (found, bought, traded) each one. Label **each** specimen, identify its class and origin, determine its chemical composition, and list its physical properties. Share your collection with your counselor.

Type: Limestone
How obtained: Payson stream
Class: Sedimentary
Compositition: Calcite (marine organisms)
Properties: white to grey, very little grain, smooth

An egg carton works well since it already has dividers. Label each specimen (see example).



Adult Signature

Date

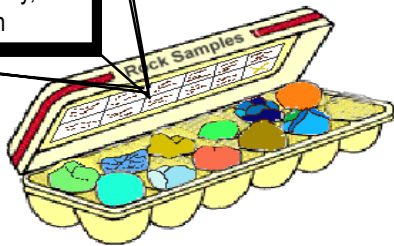
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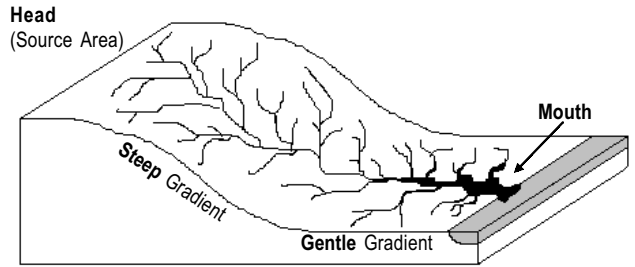


Adult Signature

Date

With the help of your counselor, identify **15** different rocks and minerals and fill in the following:

Using topographical maps provided by your counselor, plot the stream gradients (different elevations divided by distance) for four (4) different stream types (straight, meandering, dendritic, trellis). Explain which ones flow fastest and why, and which ones will carry larger grains of sediment and why.

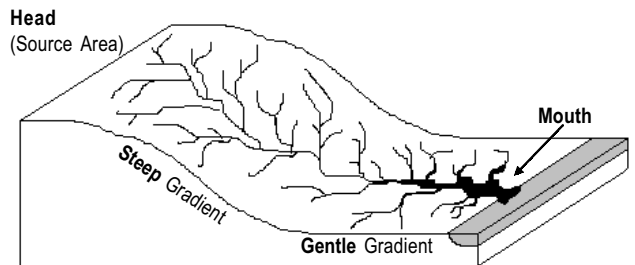


DENDRITIC (Tree Like)



STRAIGHT CHANNEL

[http://www.geosciences.fau.edu/Resources/CourseWebPages/Summer2004/GLY2010/\(L17\)Surface_Water_and_Flooding_E04.pdf](http://www.geosciences.fau.edu/Resources/CourseWebPages/Summer2004/GLY2010/(L17)Surface_Water_and_Flooding_E04.pdf)



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TRELLIS DRAINAGE

MEANDERING

On a stream diagram, show areas where you will find the following features (draw lines from the names to the features).

FEATURE	GRAIN SIZE
● CUT BANK	_____
● FILL BANK	_____
● POINT BAR	_____
● MEDIAL CHANNEL BAR	_____
● LAKE DELTA	_____

Describe the relative sediment grain size found in each feature.

http://www.beloit.edu/~SEPM/Earth_Works/How_fast_do_sed.html

hardness _____

specific gravity _____

color _____

streak _____

cleavage _____

luster _____

crystal form _____

Specific Gravity: Two minerals may be the same size, but their weight may be very different. The specific gravity of a mineral determines how heavy it is by its relative weight to water. The specific gravity value is expressed upon how much greater the weight of the mineral is to an equal amount of water.



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C) Mineral Resources Option

1. Define rock. _____

List the **THREE** classes of rocks and their characteristics:

I	
Origin IN _____	
Special characteristics	
Origin EX _____	
Special characteristics	

http://geology.about.com/library/bl/rockident_tables.htm

S	
Origin	
Special characteristics	



GRANITE OBSIDIAN SANDSTONE QUARTZITE

M	
Origin	
Special characteristics	

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GRANITE OBSIDIAN SANDSTONE QUARTZITE

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