



Name: \_\_\_\_\_

**Minnesota Academic Content Standards for this Unit:**

**9.3.1.1.4:** Explain how the rock record provides evidence for plate movement.

**9.3.1.3.1:** Use relative dating techniques to explain how the structures of the Earth and life on Earth have changed over short and long periods of time.

**Essential Question 1: How can we tell the relative age of events that have happened on Earth?**

\_\_\_ Participate with your group in the Minnesota Geologic Timeline activity. Share your reasoning for ordering the events as you did with your group.

\_\_\_ Complete detailed observations of the sidewalk units around the school. Include drawings of each section.

\_\_\_ Sequence the sidewalk sections from youngest to oldest. Use a white board or the document camera with your notebook, so that others in the class know which sections you are talking about.

\_\_\_ Report what **evidence** that you have for the sidewalk age that you propose!

**Essential Question 2: What are the common rocks we have in Minnesota and what do they show about past environments?**

\_\_\_ Take part in the Rock Cycle Roulette activity and accurately diagram the processes in your notebook.

\_\_\_ Be able to describe the processes of the rock cycle on a quiz.

\_\_\_ Record detailed observations to help you identify some common Minnesota igneous, sedimentary and metamorphic rocks. You will be able to use these observations as a resource on a later quiz. Make sure they are detailed enough to help you!

\_\_\_ Be able to identify the following rocks by name AND formation (igneous, sedimentary, metamorphic) on a quiz. : (1 point each = 10 points)

Basalt	Rhyolite	Sandstone	Quartzite
Gabbro	Shale	Iron Formation	
Granite	Limestone	Gneiss	

### **Field Investigation at Quarry Park**

#### **Essential Question 3: What geologic events formed Quarry Park as you see it today?**

Visit each one of the 7 sites, (A-G) at Quarry Park. Observe carefully and record the following clearly in your notebook:

\_\_\_ Record detailed **MACRO (large scale) general observations** (written and/or drawn) of each site. (2 points per site) Label observations with the site letter – like Site A, Site B, and so on.

\_\_\_ After visiting all of the sites, record a **MINIMUM of THREE QUESTIONS** that can help you answer Essential Question #3. Keep these in mind as you do your next set of observations.

\_\_\_ Return to each of the 7 sites. Record detailed **MICRO (close-up) OBSERVATIONS** s at each site. At least some of your observations should answer your three questions. Look for some of the features that we discussed in class, like the rock type, glacial evidence, fractures, differences in crystal size, intrusions, etc. Label observations with site letter.

\_\_\_ Create an electronic or manual storyboard, comic strip or collage to tell the sequence story of Quarry Park, using any 10 geologic events that occurred at the park

\_\_\_ Back up your sequence hypothesis with **EVIDENCE** from your observations.

#### **Work Habits: \_\_\_/12**

\_\_\_ On task in the classroom and in the field

\_\_\_ Safe behavior at field sites

\_\_\_ Work is completed and turned in on time