

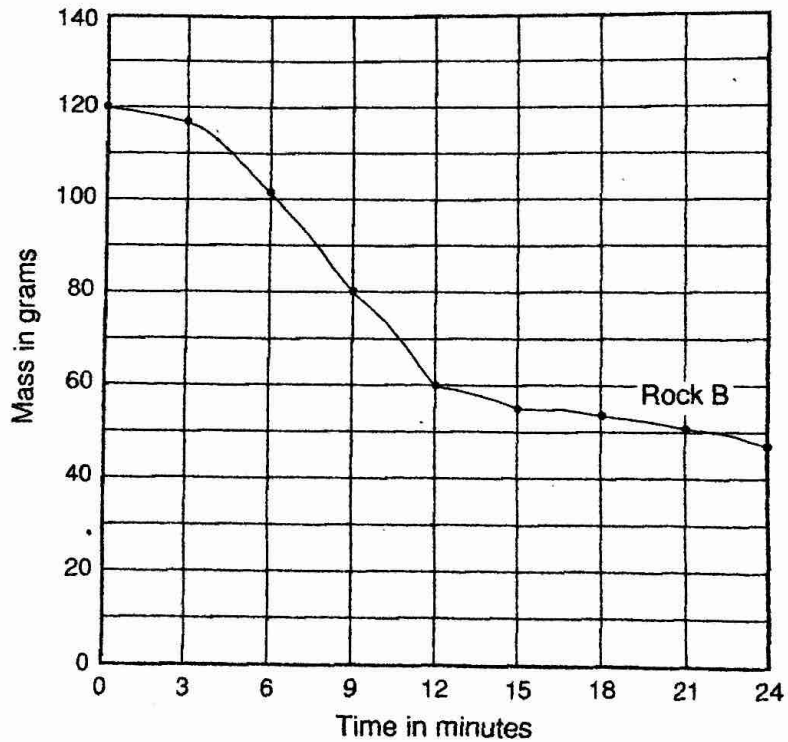
# Plotting and Interpreting Rate Graphs

## Worksheet

### \* ROCK ABRASION: LAB # \_\_\_\_\_

A group of students investigated the weathering rates of four different rocks. They placed 120 grams of each rock type into the same size container with the same amount of water. The students then shook the containers. Every three minutes the students measured the amount of rock that had not weathered away. The table below shows the results of this investigation. Plot this information on the graph provided. One of the rocks has been plotted for you. Then answer the questions:

Time in minutes	Amount of rock not weathered in grams			
	A	B	C	D
0	120	120	120	120
3	120	117	116	115
6	119	101	83	60
9	118	80	60	30
12	117	60	40	10
15	115	55	35	0
18	110	53	33	0
21	105	51	30	0
24	103	48	27	0



- Which rock is hardest to weather? \_\_\_\_\_
- At the end of 12 minutes, which of the rocks had weathered away half of its original mass? \_\_\_\_\_
- For all four rocks, very little weathering took place during which time interval: 0-3 minutes, 3-6 minutes, 6-9 minutes, or 9-12 minutes? \_\_\_\_\_  
Why? \_\_\_\_\_
- What caused the rates for rocks B and C to level off between 15 and 24 minutes? \_\_\_\_\_
- Which of the four rocks completely weathered away? \_\_\_\_\_
- How much of rock B had weathered away in 24 minutes? \_\_\_\_\_
- After 7 minutes, how much of rock D had weathered away? \_\_\_\_\_

## Weathering Rate Review Questions

1. Equal amounts of rock are weathered under the same conditions. Sample X is a large boulder while sample Y is a mound of pebbles. Which one weathers faster? Why?

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2. What type of climate does the greatest amount of chemical weathering of rock occur?

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3. In what type of climate does the greatest amount of physical weathering of rock occur?

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4. Think about items you may have that have rusted. What could you do to prevent or reduce rusting?

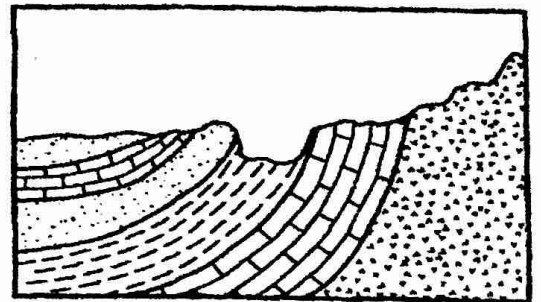
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5. Two different kinds of minerals, A and B were placed in the same container and shaken for 15 minutes. The diagrams below represent the size and shape of the various pieces of mineral before and after shaking. What caused the resulting differences in shapes and sizes of the minerals?



6. The diagram to the right represents a geologic cross section. Which rock appears to have weathered the most?

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Explain why this rock weathered more than the other rocks

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7. Why will a rock weather more rapidly if it is broken into smaller particles?

- a. The mineral structure of the rock has been changed.
- b. The smaller particles are less dense
- c. The total mass of the rock and the particles is reduced
- d. There is more surface area exposed.

8. Rock samples brought back from the Moon show absolutely no evidence of chemical weathering. This is most likely due to

- a. The lack of an atmosphere on the moon
- b. Extremely low surface temperatures on the moon
- c. Lack of biological activity on the Moon