

NAME \_\_\_\_\_

DATE \_\_\_\_\_

**THE STORY OF WHIPPLE HILL**

**Note: \*= MCAS Words**

**STOP 1: BASE OF WHIPPLE HILL**

**1 a. ROCK WALL: Observe\*** the rocks in the wall. Tell whether you agree or disagree.

Agree Disagree (circle one)

- A     D     all rocks in the wall are exactly the same type
- A     D     some crystals are visible in the rocks
- A     D     rocks in the wall are mostly medium to light in color
- A     D     rocks in the wall are mostly rounded rather than sharp edged
- A     D     sharp edged rocks are mostly light in color in the wall



Find the rock in the wall with a crack and large missing chunk. The surface of the crack is a rusty color. Water and air has caused the rock to change to powdery rust. Geologists call this process where a rock breaks down into smaller pieces:

**W \_ \_ T H \_ R \_ N G\***

**1.b. SOIL\***: Measure the depth of the soil in the woods in several locations. Note your measurements below. If the stick goes in all the way, say “deeper than .....

Depth of soil: \_\_\_\_\_ inches

What soil particles do you recognize? Where do you think they come from?

**TREES**: Look at the TOP of the trees near the rock wall. Are these trees tall or short compared to you? Draw a picture of you next to the tree. Collect a leaf from one of these trees.



**1 c. CONSERVATION:** Leaving litter is illegal here. Plastic and aluminum trash is a special problem because these materials do not **D \_ C O M \_ O S \_** \* very quickly.

**STOP 2. GOING UP THE TRAIL.**

2. What is it called when loose material, like soil and small rocks are moved by water or wind?

**E \_ O S \_ O N\***

**STOP 3: TOP OF WHIPPLE HILL**

**3a. ROCKS AT THE TOP:**

Observe the solid rock at the top of the hill. Then look at the broken sample of Whipple Hill bedrock in the egg carton. The **COLOR** of the bedrock (solid crust of the earth) here is:

- mostly dark
- medium (approximately half dark crystals and half light)
- mostly light

The **SIZE** of the crystals is:

- big enough to see (visible)
- not big enough to see (not visible)



Compare Whipple Hill rock to the egg carton samples. Which rock name is the closest match?

Rock name: \_\_\_\_\_

**Minerals** visible in Whipple Hill bedrock (look at the **VEINS IN THE BEDROCK**):

Whipple Hill rock formed when hot liquid rock crystallized. What rock group is it in?

- 1. igneous\* 2. Sedimentary\* 3. Metamorphic\*** (circle one)

(Optional Challenge) Was this rock formed (crystallized) right at the surface or deep underground?

How can you tell?

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How could rock that was crystallized deep underground millions of years ago be found at the surface of Whipple Hill today? Give your idea and how you think it might have happened.

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**3b. GROOVES IN THE ROCK:**

How do scientists explain the grooves in the bedrock near the top of Whipple Hill?

Use the word **G \_ A C I \_ R\*** in your explanation. What is your evidence for this explanation?

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**3c. ALIEN ROCK:** How do you know this rock is an “alien”? How do you think it got here?

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**3c. SOIL AND TREES ON TOP:** How deep is the soil on top of Whipple Hill?

\_\_\_\_\_ inches depth top of the hill

\_\_\_\_\_ inches depth foot of hill (see 1b)

Why do you think the soil depth is different?

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Look at the size of trees at the top. Find a leaf from one of these trees. How are the type of trees that grow at the top different than the type of trees that grow at the foot of the hill?

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These differences are called **A D \_ P T \_ T \_ \_ N S.\***

Explain what conditions might make the difference in which types of trees can grow at the top.

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**3d. WHAT CAN YOU SEE?**

When you are standing on the top of Whipple Hill how high are you above sea level?

\_\_\_\_\_ feet above sea level

Can you find all these landmarks? Use a compass. Check the ones you see:

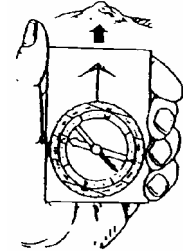
\_\_\_\_\_ Mt Wachusett (WEST)

\_\_\_\_\_ Flagpole, Town Green, Steeple (WEST)

\_\_\_\_\_ Buildings in Boston (not always visible) (SOUTHEAST)

\_\_\_\_\_ Radio towers near the Mall (NORTH)

\_\_\_\_\_ Mountains, NH (NORTHWEST)



**STOP 4: MYSTERY BOULDER**

Look at the size and shape of the large boulder by the stone wall. Suppose it is mostly large pink and white crystals inside (like the rock near the gap in the stone wall where the trail crosses it). Is it likely to be a chunk of Whipple Hill rock? Write down your ideas and the evidence you have for those ideas.

How do you think this boulder got here?

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**STOP 5: OVERLOOK AND VALLEY**

**STOP 6: CLIFF ABOVE THE POND ON THE TRAIL BACK**

Look at the rock outcropping beyond the pond. Are these glacial boulders, or did they come from here? Evidence? What is happening to them?

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**WRAP UP:**

**(for your Science Notebook, but may be discussed on the walk back to the bus)**

1. Write down all the ways you can think of that rocks CHANGE. Use clues that you have gathered on your Whipple Hill trip.

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2. Write down 3 things that you learned about GEOLOGY on your trip of Whipple Hill.

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3. An **ADAPTATION\*** is a structure or behavior that helps a plant or animal survive in its habitat. Give some examples of adaptations that make it possible for PLANTS to live in different **HABITATS\*** at Whipple Hill.

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4. Other discoveries I made / Questions I still have.

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5. Write the story of the rocks in the rock wall near the parking lot, the first rocks you “met” at Whipple Hill. Describe all of the ways you think they may have changed and what might have caused the changes. Give your evidence for what you say.

Use science facts in your story. **WRITE IN YOUR SCIENCE NOTEBOOK.**