



Maggie's Activity Pack

Name _____

Date _____

Women In Science: Dr. Grace Brush

From John Smith to 2006

You probably know what a paleontologist is. But do you know what a paleoecologist is? Take a look at the prefix, paleo. You know that a paleontologist studies ancient dinosaur bones. A paleoecologist studies the way ancient organisms interacted with their environment.

In the 17th century, an explorer named John Smith trekked through the forests around the Chesapeake Bay. He saw many oysters and blue crabs. Are these species disappearing? Is there a difference in the way people treat the land? Today people want to compare the Bay that John Smith explored to the Bay of today. They want to see if there is a difference in the habitat of the Chesapeake Bay. Dr. Grace Brush knows how to do this. She has been able to show how the Chesapeake Bay has changed over time.

“Playing” in the Mud!

Dr. Brush and her students from Johns Hopkins University take samples in and around the Bay. They push a long tube into the mud. When the tube comes up, it contains a sample. Dr. Brush looks at the sediment under a microscope. She may see a layer with a lot of plant pollen. She concludes that this layer is from a time when land was cleared. She knows this happened when Europeans came. They cut down the forests to grow crops. If there is no chestnut pollen, Dr. Brush knows that layer is from the 1920s. A disease killed chestnut trees at this time. Small skeletons tell her when species appeared and when they died.

All of this helps Dr. Brush track changes in the Chesapeake Bay. She has found that there were changes before the Europeans came to the Bay. But, these changes were small compared to the changes that took place after the forests were cut down and fertilizers were used. Her work shows that people have changed the Bay. There is less grass in the Bay. There are fewer oysters and blue crabs.

Caring About People and the Environment

Dr. Brush is still hard at work, on the edge of the Bay, in the classrooms of Johns Hopkins University, and as a member of many organizations. Her colleagues say she is a warm, friendly woman who always is ready to help. She cares deeply about people and the environment. Because she is a scientist who did her work while raising three sons, she understands that family life is important. This is one of the many reasons her current students respect their professor. She keeps in touch with them and even attends their weddings. One student named a daughter after her!

Her students also like the field trips she takes them on – to Blackwater Refuge on the shores of the Chesapeake. Field trips are important to Dr. Brush. It was a field trip she took as a student that she became interested in paleoecology. She remembers being amazed with the tree fern fossils she saw. Perhaps a field trip will be the start of a career for you! Keep Dr. Brush in mind when you go on your next venture away from school.

Thinking About Dr. Grace Brush and Her Work

1. How has the Chesapeake Bay changed since the time of John Smith?

2. How have humans contributed to these changes?

3. The work a paleoecologist does is like the work of a detective. Tell about three specific ways these two jobs are alike.

- A. _____

- B. _____

- C. _____

4. Imagine you are writing a 'Help Wanted' ad for a paeolecologist. What would you say? Write your ad below.

5. Dr. Brush credits a field trip for the beginning of her interest in paleoecology. Now, she takes her university students on field trips. If you could plan the perfect field trip, where would you go? What would you hope to learn on this field trip?
