

The following activities are designed to help you and your students make the most of your visit to the *Darwin* exhibition.

Discussion Activity: Read (or distribute) this quote from Darwin:

“About thirty years ago there was much talk that geologists ought only to observe and not theorize; and I well remember someone saying that at this rate a man might as well go into a gravel-pit and count the pebbles and describe the colours. How odd it is that anyone should not see that all observation must be for or against some view if it is to be of any service!”
—Charles Darwin, letter to Henry Fawcett, 1861

Follow up with questions such as:

- Why do you think that Darwin considered this odd?
- Is counting and describing a useful scientific endeavor? Why or why not? What can you learn from this? What are the limitations?
- What does this quote say about the state of science in Darwin’s time? How do you think it has changed?

The Nature of Science: Share this guide’s sidebar on “What is a Theory?” with your students. Provide discussion points such as:

- What is the difference between the way most people use the word “theory” and the way scientists use it?
- What makes an idea testable?
- What’s the difference between a theory and a belief?

Natural Selection: Share the sidebar in this guide on “How Does Natural Selection Work?” with your students. Discuss the fundamentals of natural selection: variation, inheritance, selection, time, and adaptation.

- What kinds of environmental changes might result in adaptation over time?
- How are some domestic breeds (such as dogs and cats) still changing over time?
- How do scientists determine that a new species has evolved?

References: Find activities related to the nature of science, adaptation, heredity, and diversity of organisms at:

- **University of California Museum of Paleontology:** Understanding Evolution for Teachers (<http://evolution.berkeley.edu/evolibrary/home.php>)
- **National Center for Science Education** (<http://www.ncseweb.org/>)
- **American Association for the Advancement of Science:** Evolution on the Front Line (http://www.aaas.org/news/press_room/evolution)
- “Teaching about Evolution and the Nature of Science,” published by the National Academies of Science, can be downloaded for free from <http://www.nap.edu/catalog/5787.html>
- A list of evolution resources is available from the National Science Teachers Association at <http://www.nsta.org/evresources>

Welcome to the DARWIN EXHIBITION

Complete the activities below as you walk through the exhibition. You will need a pen or pencil and a hard surface to write on.

A Trip Around the World: Pick a specimen that Darwin collected during his five-year voyage aboard the *Beagle*. Draw it on the back of this page and label the features that make it well-suited to live in its environment. Write a paragraph explaining how this piece of evidence contributed to Darwin's understanding of the mechanics of evolution. Make sure you refer to the features that you have labeled in your drawing.

Who Influenced Darwin's Thinking?: As you go through the exhibit, consider the important contributions of other scientists of the day. Pick three whose work was fundamental to Darwin's theory. How did their thinking influence his?

1.

2.

3.

4.

VISTA: VISTA is an acronym for the underlying mechanism of natural selection first conceived by Darwin. Pick an example from the exhibition that illustrates natural selection at work. Using this example, explain each step of the process: Variation, Inheritance, Selection, Time, and Adaptation.

What is the Evidence for Natural Selection?: The last room in the exhibition contains four types of evidence that support the theory of natural selection: Homologies, Embryology, Vestigial Organs, and the Tree of Life. Choose two and describe in your own words how each supports the theory of natural selection.

1.

2.
