Name: Date: Period:

**Don’t Take It for Granite: WebQuest Activity**

Introduction:

Your challenge is to imagine yourself as a very bored student stuck in an earth science classroom. You find yourself staring out the window and wondering, “who would ever care about any of this?” Do you think you can do that?

It’s easy for students, and sometimes teachers too, to forget that the concepts we learn in science class are actually the product of hundreds, even thousands, of years of human thought and innovation. It’s simple to understand why we forget this; just take a quick look through your science textbook. To most readers, it would seem as if all the knowledge presented there is fact and has always been fact. After all, it seems pretty obvious the Earth is round right?

*It seems preposterous to us today that people once thought that the Earth was flat. Who could have possibly thought of our planet as a giant disk with the stars and heavens above, and boulders, tree roots, and other things below? But this was the dominant view of Earth in much of the world before the 2nd century BCE, though the details differed from culture to culture. And it was not explorers who sailed around the world that finally laid the idea to rest, but an accumulation of evidence long before this.1*

Directions:

In this activity, you will briefly explore a topic related to earth science that people generally take for granted. Your job will be to work with your group and search the web for information and complete the graphic organizer on the next page. Once you have learned about your topic, your group will share what they have learned with the class.

 Your group will be assigned one of the following concepts to briefly research:

1. Heliocentrism
2. Age of the Earth

I am researching:

1. Plate Tectonics
2. Evolution by Natural Selection
3. Theory of Gravity
4. Atomic Theory of Matter
5. Any other science concept you can think of that might seem obvious now, but probably wasn’t obvious to people in the past (*needs teacher approval*)

**Keep it simple!**

Your graphic organizer and presentation should just be a general overview. Your main job is to think about how our understanding of these topics has changed over time.

You are welcome to explore the web and use any credible sources that you feel comfortable with, but you may find the following links helpful:

**Heliocentrism (pp 618-620)**

 History of Gravity

<https://www.physics.wisc.edu/museum/Exhibits-1/Mechanics/GravPit/index_HistGrav-2.html>

Heliocentric vs. Geocentric Model of the Solar System

<http://www.birdvilleschools.net/cms/lib2/TX01000797/Centricity/Domain/4490/Heliocentric%20Vs%20Geocentric.pdf>

Our Changing Understanding of the Universe

 <http://peter-mulroy.squarespace.com/geocentric-vs-heliocentric-systems/>

**Age of the Earth**

Absolute Dating

 <http://peter-mulroy.squarespace.com/absolute-dating/>

 Radiometric Dating

 <http://www.pbs.org/wgbh/evolution/library/03/3/l_033_01.html>

 How Old is the Earth?

 <http://www.universetoday.com/75805/how-old-is-the-earth/>

**Plate Tectonics (pp 334)**

Plates Are Moving Beneath You

<http://www.geography4kids.com/files/earth_tectonics.html>

Plate Tectonics - PBS

<http://www.pbs.org/wgbh/aso/tryit/tectonics/>

Continental Drift: Theory and Definition

<http://www.livescience.com/37529-continental-drift.html>

**Evolution by Natural Selection**

 Evolutionary Theory Timeline

<http://www.softschools.com/timelines/evolution_theory_timeline/98/>

How Do We Know?

 <http://darwin200.christs.cam.ac.uk/pages/index.php?page_id=j3>

Pre-Darwinian Theories

 <http://anthro.palomar.edu/evolve/evolve_1.htm>

**Theory of Gravity**

History of Gravity

<https://www.physics.wisc.edu/museum/Exhibits-1/Mechanics/GravPit/index_HistGrav-2.html>

The History of Gravity – Stanford

<http://web.stanford.edu/~buzzt/gravity.html>

Forces of Attraction

<http://www.physics4kids.com/files/motion_gravity.html>

**Atomic Theory of Matter**

Atomic Theory Timeline:

<http://www.softschools.com/timelines/atomic_theory_timeline/95/>

Atoms Are Building Blocks

 <http://www.chem4kids.com/files/atom_structure.html>

History of Atomic Theory

<https://docs.google.com/viewer?a=v&pid=sites&srcid=Y29ydmFsbGlzLmsxMi5vci51c3w3dGgtZ3JhZGUtc2NpZW5jZXxneDo0YjMzYTg3M2ZhMDhiNDQy>

1. Carpi, A.; Egger, A. The Nature of Scientific Knowledge. http://www.visionlearning.com/en/library/Process-of-Science/49/The-Nature-of-Scientific-Knowledge/185/reading (accessed September 23).

**What do you think prompted the development of this theory/concept? Why did we abandon previous ways of thinking?**