Questions for Plate Tectonics Pre-Workshop Videos

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To provide everyone with a uniform background as we begin our journey into Plate Tectonics, we ask that workshop participants view online videos and answer questions. The videos provide foundational content upon which we will build during your time at Penn State Brandywine. Although we are only requiring you to view **four** videos, you are encouraged to watch as many of the videos as you would like for your own interest or to gain additional knowledge. The videos are also available for viewing at any time before and after the workshop.

As you view each of the videos, please answer the questions listed below. We suggest that you type up your responses in a word document (or other word processing program) as you view the videos. Then, when you are prepared to submit your responses to the questions, please visit the following website to enter your answers (“copy and paste” from your document):

<http://www.essp.psu.edu/plate-tectonics-workshop-2013>

**Please have these questions completed ONE WEEK before the workshop (no later than Monday, July 22),** as your workshop leaders will be reviewing your responses to inform instruction during the week. Additional questions and discussions pertaining to these videos will be held during the workshop. Your responses will help us target key ideas and concepts during the workshop.

The videos will need to be viewed with a high-speed internet connection. If you have technical difficulty with the videos, please visit the FAQ page:

http://www.learner.org/faq/faq\_broadband.html

To access the videos, go to this web site: <http://www.learner.org/resources/series78.html>, which is the home of **Earth Revealed**, the series main page that has individual program descriptions.

The required videos are:

**Video Six – Plate Dynamics**

**Video Seven – Mountain Building**

**Video Eight – Earth’s Structures**

**Video Seventeen – Sedimentary Rocks**

Note that Video #20 (Running Water II) is *optional but highly encouraged* to best prepare you for our discussions and exercises focusing on the Grand Canyon.

**Video Six – Plate Dynamics**

6.1) Seafloor spreading constantly creates new oceanic crust. What prevents the Earth’s surface from expanding and getting larger?

6.2) When seafloor spreading occurs, mid-ocean ridges do not appear to change size or shape. How is that possible?

6.3) Not all plate boundaries are at the margins of the continents. Why do some plates include both continental and oceanic crust?

6.4) How do collisions between two continental bodies occur?

6.5) The video describes three types of subduction systems. Use a globe or a world map to give two examples of each type.

6.6) What is the most interesting aspect of this video to you? How will you share that piece with your students so that they will find it interesting as well?

6.7) What is the piece of information from this video that will stick in your head the longest? Why?

**Video Seven – Mountain Building**

7.1) Where are mountain building processes concentrated? Why?

7.2) What is the significance of the many provenances make up North America, and what do they tell us about the past and continental growth?

7.3) Does erosion always result in the degradation of a mountain? Why?

7.4) According to the video, what is the most common reason mountains form? What is a second reason? Describe those two mountain building processes.

7.5) When does mountain building end? What happens to mountains after building ends?

7.6) Describe istostacy and how it affects the balance of build-up and erosion in mountains.

7.7) What piece of information you learned from the video do you think is most important for your students to learn? Why?

**Video Eight – Earth’s Structures**

8.1) Why are rock deformation and geologic structures important to study?

8.2) What is the principle of original horizontality? Why is this principle important to the study of geologic structures?

8.3) What is a geologic map? How is it constructed, and what does it show?

8.4) There are three main classes of deformity/geologic structures in the Earth’s crust. Name the three structures and describe how each forms.

8.5) Define stress and strain. What role do stress and strain play in the formation of geologic structures?

8.6) What are the economic reasons we should want to understand and study geologic structures?

8.7) What is the most interesting fact you learned from this virtual lecture that you did not know prior to watching? Why?

**Video Seventeen – Sedimentary Rocks**

17.1) Please provide a general definition for sediment. How and where does it form?

17.2) Describe how loose sediment becomes sedimentary rock. How does this differ from the process that defines coal formation?

17.3) What is the principle of uniformity? How can we apply this principle to areas such as the Grand Canyon?

17.4) What is the law of original horizontality? How does cross bed formation not follow this law?

17.5) Ridge Basin, southern California – how do sediments and sedimentary structures allow geologists to interpret the formation of this region?

17.6) What are the economic reasons we should want to understand and study sedimentary rocks?

17.7) What is the most interesting fact you learned from this virtual lecture that you did not know prior to watching? Why?

**Video Twenty – Running Water 2: Landscape Evolution**

20.1) Explain the concept of baselevel. How might changes in baselevel occur?

20.2) Why do different rock layers in the Grand Canyon develop slopes at different angles?

20.3) What is a stream terrace, and why are they significant?

20.4) Why might the Atchafalaya “capture” the Mississippi River? How would this impact the social and economic vigor of New Orleans?

20.5) Why do deltas form? It turns out that many modern deltas, worldwide, began to form approximately 7000 years ago. Why might this have occurred?

20.6) What is the most interesting fact you learned from this virtual lecture that you did not know prior to watching? Why?

20.7) Now having completed watching this lecture, what is the piece of information that you think will stick in your head the longest? Why?