Earth Revealed #1: Down to Earth **Name** _____

Answer the following questions. Please take additional notes as you watch the program.

1. The Earth has two Heat Engines. What drives the Earth's internal heat engine?

2. The Earth has two Heat Engines. What drives the Earth's external heat engine?

3. What is reflection seismology and what is it used for?

4. What is a vibroseis truck?

5. What is remote sensing?

6. How is remote sensing useful?

7. What is being studied in Orange County?

8. What are windbreaks?

9. What are Ground Deformation Studies?

10. What are scientists studying at Parkfield, CA?

Earth Revealed #2: Earth Becoming Alive **Name**_____

Answer the following questions. Please take additional notes as you watch the program.

1. Define: Heliocentric

2. What makes the Earth special?

3. How are nebula formed?

4. How big is the crater in Canada?

5. The most distant planets (Jupiter, Saturn, etc.) are made of what materials?

6. Where do most of the meteors that now hit Earth come from?

7. How percentage of the Earth is the mantle?

8. Would it be easier or harder to breathe the Earth's early atmosphere? Why?

9. What did Cyanobacteria produce that is so important to life today?

10. Why is the Earth "alive"?

Bonus: What is the most important theory in geology?

Earth Revealed #3: The Earth's Interior **Name**_____

Answer the following questions. Please take additional notes as you watch the program.

1. The world's deepest drill hole, which is presently being drilled in Russia, has a planned depth of _____kilometers.

2. Define: Reflected Wave

3. Define: Refracted Wave

4. Name two methods that humans use to generate waves.

5. What are the two types of crust?

6. Compare and contrast the thickness of the two types of crust.

7. Define: Ophiolites

8. What are the two types of seismic waves? How fast are they?

9. Which waves pass only through solids?

10. What does a gravimeter measure?

11. The Earth's magnetic field has (increased, decreased) over the last 150 years?

Earth Revealed #4: The Sea Floor **Name**_____

Answer the following questions. Please take additional notes as you watch the program.

1. What size of ball would James Sadd turn into at the bottom of the ocean?

2. What is the flattest region on Earth?

3. What are pelagic sediments?

4. Describe a mid ocean ridge. How big is it?

5. Where does the majority of the volcanic activity occur in the ocean?

6. What are stromatolites?

7. Describe what happens to ocean crust during the subduction process.

8. What is GLORIA? Describe how it is used.

9. What is GPS? How is it used with GLORIA?

10. What two primary resources are being tapped from the seafloor?

Bonus: Describe the types of new resources and critters that were found recently at mid-ocean ridges.

Earth Revealed #5: Birth of a Theory Name_____

1. How early did people recognize that the coasts of Africa and South America may fit together?

2. Describe some of the evidence Wagener used in his formulation of the Theory of Continental Drift.

3. Was Wagener's theory believed by the scientific community? Why or why not?

4. What is centrifugal force? What does it have to do with Wagener's theory?

5. How was World War II good for geologic studies?

6. How did Hess gather information about the ocean floor?

7. Describe how seafloor spreading works.

8. Hess claimed that Mid-Ocean Ridges create material. Where did Hess say that material is destroyed to balance the creation?

9. What are magnetic stripes? What do they represent? Did this support Sea Floor Spreading?

10. Where are Transform Faults found?

Bonus: What did Mackenzie and Palmer do?

Earth Revealed (No. 6): Plate Dynamics Name_____

Define and explain the importance of the following terms:

1) What is a plate? What types of geologic events occur at plate boundaries?

2) Iceland is an example of a divergent boundary. Describe the characteristics of this type of boundary.

3) Plates grow due to seafloor spreading. Describe how this geologic process works.

4) Name the three types of convergent plate boundaries.

5) The most accepted theory on how the plates move has to do with convection. Describe how convection works. Remember drawings are very useful in explanations.

6) Where does the heat come from that drives the convection in the Earth. There are two sources.

7) What is the difference between the original ideas on how convection worked in the Earth compared with the more modern Boundary Layer Theory of convection.

8) Convection also is responsible for the EarthÕs magnetic field. Where does this special convection take place?

9) Mantle plumes or hot spots occur all over the world. Name one of these most popular ‘hot spots’ which presently very active.

10) What causes seamounts and guyots to have flat tops?

Bonus: If you had to live on a convergent or a divergent plate boundary, which one would you choose, and why.

Earth Revealed #7: Mountain Building Name_____

1. Define: Craton

2. How old is the craton?

3. What are Granulite and Greenstone Rocks? What do they do with Island Arcs? Why are they important?

4. What is orogeny?

5. What were Hutton’s observations?

6. Name two ways that mountains form?

7. What kind of clues do geologists use to understand rocks?

8. How thick are the Himalayas? How do we know?

9. What is Isostacy?

10. The existence of mountains can be attributed to what two major processes?

Bonus: What happens to mountains eventually?

EARTH REVEALED #8: EARTH'S STRUCTURES Name_____

1. What is a basic structure often seen in sedimentary and igneous rocks?

2. Steno came up with the Principle of Horizontality. Define.

3. What is an outcrop?

4. What are the three types of structures?

5. What are two types of folds?

6. Describe the types of Dip Slip and Strike Slip Faults.

7. What is an unconformity? How is it formed?

8. Discuss the three types of unconformities:
   a) Angular Unconformity

   b) Nonconformity

   c) Disconformity

9. What do folds have to do with petroleum?

10. Where is petroleum found? What is its composition and where does it come from?

BONUS: What different geologic structures can trap oil?

EARTH REVEALED #9: EARTHQUAKES Name_____

1. What does radioactive decay have to do with Tectonics and Earthquakes?

2. Define: Fault?

3. What are the characteristics of P Waves?

4. What are the characteristics of S Waves?

5. Why do you need three seismograph stations to determine the epicenter of an earthquake?

6. Define: Magnitude of Earthquake

7. Define: Wave Period

8. Why is Parkfield, CA a good place to study Earthquakes?

9. Define: Creep Meter

10. Define: Geodemeter

BONUS: Why is it not likely that an Earthquake of magnitude 10 will occur?