Dynamic Earth Review Sheet Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Topic 1: Earth’s Layers**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Density | Composition | Thickness | Temperature |
| Crust | 1  (least dense) | Solid rock | 5-20 miles | 5 ºC – 870 º C |
| Mantle | 2 | Molten rock | 1800 miles | 870ºC – 2,200ºC |
| Outer core | 3 | Liquid metal | 800 miles | 2,200ºC – 5,000ºC |
| Inner core | 4  (most dense) | Solid metal | 1400 miles | 5,000ºC |

1. Compare and contrast continental crust and oceanic crust in terms of thickness, composition, and density.

|  |  |  |
| --- | --- | --- |
| Continental crust | Both | Oceanic crust |
| * Thicker * Less dense | * Made of rock | * Thinner * More dense |

1. Which element is the most abundant on Earth’s crust?

Oxygen

1. Which two elements are found in the inner and outer cores?

Iron and nickel

1. Why is the inner core solid metal, while the outer core is liquid metal?

Because the inner core is under greater pressure and there isn’t enough room for the atoms to become liquid

1. Pressure is the force pushing on the surface or an area. How would you explain the pressure as you get closer to the inner core?

The closer to the inner core, the greater the pressure

1. What trend do you notice about the temperature as you get closer to the inner core?

The closer to the inner core, the hotter the temperature

1. What trend do you notice about the density as you get closer to the inner core?

The closer to the inner core, the greater the density

1. Compare and contrast the lithosphere and asthenosphere in terms of location in the earth’s layers, density, presence of tectonic plates, and temperature.

|  |  |  |
| --- | --- | --- |
| Lithosphere | Both | Asthenosphere |
| * Lower crust * Less dense * Has tectonic plates * Cooler | * Layers of the earth * Involved in the theory of continental drift | * Upper mantle * More dense * Does not have tectonic plates * Hotter |

**Topic 2: Fossils**

1. Define Pangaea.

Hypothetical supercontinent in which all of the landmasses of the Earth were once connected

1. What evidence do we have to support the theory of continental drift?

* Fossil records- fossils of the same species found on different continents across oceans
  + If a fossil of an arctic animal is found near the equator, we can conclude that the land at the equator was once near the arctic
* Age of sea floor- the sea floor has different ages based on the location
  + If continental drift didn’t exist, the sea floor would be the same age … but it’s not
* Sea-floor spreading and ocean trenches- continental drift is supported by the fact that the ocean floor contains mid-ocean ridges and ocean trenches

1. Compare and contrast uniformitarianism and catastrophism.

|  |  |  |
| --- | --- | --- |
| Uniformitarianism | Both | Catastrophism |
| States land is created gradually | Neither one is 100% correct | States land is created suddenly |

1. Describe the Law of Superposition.

* Used to determine the relative ages of sedimentary rock layers
* It describes the typical aging of a geologic column
* Sometimes called “younger over older”
* States that the oldest rock is on the bottom and each higher layer is younger than the layer below it

1. Describe unconformity in rocks

A gap in the geologic record due to where some rock layers have been lost because of erosion

1. Describe absolute age and how it’s used to determine the age of fossils/rocks.

* Absolute age determines the precise age of a fossil or rock using radioactive dating (calculating age based on the element’s half-life of the sample)
* Half-life is the time it takes for half of the unstable atoms of a sample size to decay

1. Describe relative age and how it’s used to determine the age of fossils/rocks.

* Comparing rock layers with others in a sequence to determine an estimated age
* Not as accurate as radioactive dating (absolute age)

1. Describe an index fossil and how it’s used to determine the age of rock layers.

* An index fossil is the fossil of an organism that lived at a particular time in a large, widespread area
* This can be used to determine the relative ages of the rock layers where index fossils are found

1. What is the estimated age of the Earth?

4.6 billion years

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| --- | --- | --- | --- | --- |
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| Mantle |  |  |  |  |
| Outer core |  |  |  |  |
| Inner core |  |  |  |  |

1. Compare and contrast continental crust and oceanic crust in terms of thickness, composition, and density.
2. Which element is the most abundant on Earth’s crust?
3. Which two elements are found in the inner and outer cores?
4. Why is the inner core solid metal, while the outer core is liquid metal?
5. Pressure is the force pushing on the surface or an area. How would you explain the pressure as you get closer to the inner core?
6. What trend do you notice about the temperature as you get closer to the inner core?
7. What trend do you notice about the density as you get closer to the inner core?
8. Compare and contrast the lithosphere and asthenosphere in terms of location in the earth’s layers, density, presence of tectonic plates, and temperature.

**Topic 2: Fossils**

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2. What evidence do we have to support the theory of continental drift?

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2. Describe the Law of Superposition.
3. Describe unconformity in rocks
4. Describe absolute age and how it’s used to determine the age of fossils/rocks.
5. Describe relative age and how it’s used to determine the age of fossils/rocks.
6. Describe an index fossil and how it’s used to determine the age of fossils/rocks.
7. What is the estimated age of the Earth?