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**Name: Dedumo, Kim F.**

**Course/Section: BSCE – 2A**

**Pre-test. Answer the questions below and make your answer brief and concise.**

- 1. What event began to occur about 190 million years ago?**

*Continental Drift – 190 million years ago. By 190 million years ago, the end of the triassic period and the beginning of Jurassic, a great rift had opened between northern and southern pangea and the Tethys Sea had separated two primary land masses.*

- 2. If mountain ranges can form where plates are colliding, what would your hypothesis might be when plates are separating? Apply your hypothesis to identify locations on a world map where plates might be separating (both oceanic and continental lithospheric plate divergence zones can be identified on the map and in the flip books). The flipbooks will help you identify previous plate separations.**

*Mountain ranges will be formed because continental plates have the same density so no plate will subduct and the 2 continental plates will be pushed upward, thus forming mountain ranges. Earthquakes will also occur because of the movement of plates.*

- 3. What are the two forces involved in water cycle?**

*Condensation and Evaporation are the forces involved in water cycle.*

- 4. How important the biogeochemical cycle for you as a student upon doing the activity?**

*It is really important since biogeochemical cycles; include a variety of biological, geological and chemical processes. Many elements cycle through ecosystems, organisms, air, water and soil. The biogeochemical cycle transport and store these important elements so that they can be used by living organisms.*

- 5. What is the relationship between the direction of motion of the balloon and the wind currents on Earth?**

*The force, called the “Coriolis Effect,” cause the direction of winds and oceans currents to be deflected. In the Northern Hemisphere, wind and currents are deflected toward the right, in the Southern Hemisphere they are deflected to the left.*

**SELF- EVALUATION: Fill-in the table below to self-assess the lesson. Make your answer brief but concise.**

- 1. In which frame did you locate the final breakup of Pangaea? Why did you choose that frame and not another?**

*It's in Frame 20 because in F19 there is still one island sticking around in the northern portion of antartica.*

- 2. Sometimes when two plates collide, the landmasses (continents) within the plates are pushed together and a mountain range can form. Using a world map, identify two locations where mountain ranges exist and where you hypothesis plate collisions between continents or parts of continents have occurred. Use your flipbooks to confirm your hypothesis. (Note that not all present-day mountain ranges were formed by continental collision events or by plate convergence that occurred during the last 190 million years.) You can refer to the this link <https://geology.com/nsta/>**

*The collisions and rifts caused by the tectonic drift left marks still visible today; among these are the Allegheny and Appalachian mountain ranges in eastern North America and the Variscan Mountains in northwestern Africa and Europe.*

- 3. During your coloring of the frames, in which frame did you locate the first appearance of the following landmasses:**

CONTINENT	FRAME	TIME (MYA)
North America	17	30
Australia	15	50
India	11	90
Europe	14	60
Antartica	10	100

- 4. How the container of the terrarium becomes important in giving illustration of a water cycle?**

*A terrarium is a closed and self-contained system. This is important in water cycle illustration because it definitely represent the cycle that the water have undergone in hydrologic cycle. The water in the soil that's being contained inside it, since it is close, will eventually evaporate up to the lid, due to the pressure inside, then condensation takes place, then the condensed water will precipitate down onto the plants and collect in the soil.*

5. **If you are given a chance to take out one of the least important in biogeochemical cycle what is it and why?**

*If I were given a chance to take away the least important in biogeochemical cycle, that would be the phosphorus cycle. It's so hard to pick on what to take out of these crucial processes. But if given a chance, amongst all of the major biogeochemical processes, I would probably remove the phosphorus cycle. Because unlike other major systems, it doesn't involve the atmosphere, thus, lesser interaction. At the same time, it is a nutrient for plants and animals. Phosphorus is a limiting nutrient for aquatic organisms. If all of the biogeochemical processes would be removed globally, the phosphorus cycle would likely be the cycle that we could live without for the most prolonged duration.*

6. **What happened to the line as you rotated the balloon?**

*The line went to the left.*

7. **What happens to the line as you got closer to the center of the balloon?**

*As the line goes down to the center, the line slowly changes its direction. The line was not straight but instead veered west or right of the intended path.*

8. **How does this activity demonstrate the Coriolis effect?**

*It demonstrates the clockwise and counterclockwise movements described in the Coriolis effect because the lines end up crossing each other by going to opposite directions.*

9. **Who had coined the term "coriolis effect"? You may search by clicking this link on the internet at <https://www.carolina.com/teacher-resources/Interactive/modeling-the-coriolis-effect/tr10643.tr>**

*The Coriolis effect is named after Gustave Gaspard Coriolis, a 19th-century French professor of mechanical engineering. He calculated much of the mathematics behind the effect. The theory explains the apparent deviation in the path of winds and water currents across the earth. Although Coriolis' interest was in the various forces acting upon rotating pieces of machinery, the Coriolis effect is a topic in earth, environmental, and marine science.*

**Post-test. Answer the questions below and make your answer brief and concise.**

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- 6. How coriolis’ Effect explains the direction of the different monsoons, example the northeast and the southeast monsoons?**

*The Coriolis effect describes the pattern of deflection taken by objects not firmly connected to the ground as they travel long distances around Earth. The Coriolis effect is responsible for many large-scale weather patterns. In the Northern Hemisphere, wind and currents are deflected toward the right, in the Southern Hemisphere they are deflected to the left.*

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