**LEARNING ACTIVITY SHEET IN SCIENCE 9**

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| Name of Learner; | Monte Siat, Aaron James D. | Score: | /130 |
| Grade and Section: | Grade 9 - TE | Week & Date: | **4/26/21** |

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| **Title of the Topic:** | **CONSTELLATIONS** | | |
| **Most Essential Learning Competency:** | | **Code:** | **S9ES-IIIf-31** |
| * Show which constellations may be observed at different times of the year using models   **Seasonal Constellations:**  Summer Constellations:    Fall/Autumn Constellations:    Winter Constellations:    Spring Constellations: | | | |
| **I. Learning Activities:** | | | |
| 1. **Learning Activity 1: (60 points)**   **1A: Direction:** Read the information below and answer the questions it follows:  **Constellations**  The word “constellation” comes from the Late Latin term ***constellation,*** which means **set of stars.** The brightest constellation is **Crux (**the southern cross). The constellation with the greatest number of visible stars in it is **Centaurus (The centaur-with 101 stars).** The largest constellation is **Hydra** (**The water snake)** which extends over 3.158% of the sky.  There are also **asterisms,** smaller apparent star patterns within a constellation, like the **big dipper (ursa major), little dipper (ursa minor), keystone (Hercules)** and the **Pleiades (Taurus)**  Observers in ancient times also imagined **group of stars that form pictures of animals, objects and people.** **These imaginary group of stars are called constellation.**  Many of these constellations have names that can be traced back to early Babylonians and Greek civilizations, but nearly all cultures have different names for the constellations. For example, the Greek called the large constellation **Orion, which means hunter** and is prominent in the night sky all over the world during winter. Early Filipinos visualized the same group of stars as **Balatik,** a trap used in hunting wild pigs. Christian Filipinos named the three stars (Orion’s belt) Tatlong Maria or Tres Maria.  By observing Sun’s movement and position in the sky, we can tell what time of the day it is. **When it seems to rise in the east, it is morning.** When it is **above us, it is noon**. When it seems to move **towards the west, it is afternoon.** At night, stars are used to tell the time. Just like the Sun, **stars also seem to move from East to West.**  **THE POLARIS**  Commonly known as **North Star**, is the brightest star in the constellation **Ursa minor (**little dipper). It is very close to the north celestial pole, making it the current northern pole star. Because it lies nearly in a direct line with the axis of the Earth’s rotation “above” the north pole, Polaris stands almost motionless in the sky, and all the stars of the Northern sky appear to rotate around it.  In Metro Manila, when you face North, Polaris, which is 11.3° from the horizon, is seen at around 15° due to atmospheric refraction. In some parts of the country, it would be very difficult to locate Polaris since starlight near the horizon are washed out by lights lit by men, and/or obstructed by man-made topographical structures and/or trees.  **Different Star Patterns through the Year**  While the rotation of the Earth on its axis causes the apparent nightly movement of the stars across the sky, the revolution is responsible for the fact that we can see different parts of the sky and different constellations at different parts/time of the year.  **How early people used the constellation?**  While constellations were associated with religion, they also have practical uses. Here are some of the uses:  1. Before the calendars, people had no way of determining when to sow or harvest except by looking at these patterns in the sky. Ancient people developed a way to remember the patterns by giving these patterns names and stories.  **For example,** in the northern hemisphere, the constellation Orion indicates the coming of cold season.  Gemini is seen in the Philippines during the months of April and May. Farmers interpreted the appearance of Gemini as the end of planting season and it signified rich harvest.  **Other Uses**  Constellation was also used as **navigation.** The Polaris is widely used in navigation because it does not change its position at any time of the night or year. Also, one can figure out his/her latitude just by looking at how high Polaris appears in the night sky. This allowed sailors to find their way as they sail across the seas.  **Instruction:** Read the information found above. (38 points)  1. What is the latin term of constellation? *constellation*  2. What is a constellation? An imaginary group of stars that form pictures of animals, objects, and people.  3. What is the brightest constellation? Crux  4. What constellation that has the greatest number of visible stars in it? Centaurus  5. What is the largest constellation? Hydra  6. Give the different constellations with smaller apparent star pattern within a constellation? big dipper (ursa major), little dipper (ursa minor), keystone (Hercules), and the Pleiades (Taurus)  7. Tracing back the history of constellation, some of the names of constellations can be traced back to early Babylonians and Greek civilizations.  8. It is a prominent constellation in the sky during winter, it is called Orion which means hunter.  9. Filipinos, use the term Balatik instead of Orion. And name the three stars (Orion’s belt) as Tatlong Maria or Tres Maria.  10. What is the direction of the sun’s movement in the sky? East to West  11. Explain the movement of the Sun as observed every day. The movement and position of the Sun in the sky can tell us what time of the day it is. If it seems to rise in the East, then it is morning. If it is above us, then it is noon. If it seems to move towards the West, then it is afternoon.  12. It is commonly known as the North Star. Polaris  13. Explain the movement of the Northern Star. The Polaris stands almost motionless in the sky because it lies nearly in a direct line with the axis of the Earth’s rotation “above” the north pole, and all the stars of the Northern sky appear to rotate around it.  14. Give the reasons why it is impossible to see the Polaris star in the Southern part of the Philippines. It would be very difficult to locate Polaris since starlight near the horizon are washed out by lights lit by men, and/or obstructed by man-made topographical structures and/or trees.  15. What is the reason why we can see different types of constellation in different parts of the year? The rotation of the Earth on its axis causes the apparent nightly movement of the stars across the sky.  16. Give the constellations that we can see during Summer, Winter, Spring, Fall/Autumn.  Summer: Aquila, Cygnus, Hercules, Lyra, Ophiuchus, Sagittarius, Scorpius  Winter: Canis Major, Cetus, Eridanus, Gemini, Orion, Perseus, Taurus  Spring: Bootes, Cancer, Crater, Hydra, Leo, Virgo  Fall/Autumn: Andromeda, Aquarius, Capricornus, Pegasus, Pisces  17.What does the presence of Orion means if it can be seen on the sky? Its presence indicates the coming of cold season.  18. What does the presence of Gemini means by the Filipinos? Farmers interpreted the appearance of Gemini as the end of planting season and it signified rich harvest.  19. Looking at the stars and constellations used by Maligsalug Manobo of Bukidnon, what constellation can we see during February? It is the Balatik or Orion’s belt  20. What is the Western equivalent of Pandarawa? Pleiades  **1B: Constellation “Think” Questions** : (22 points)  **Directions:** Analyze and answer the following questions:   1. Look at the picture on the left. In what constellation would you see the Sun?   The Gemini constellation  Left Picture:  Right Picture:   1. Look at the picture on the right. In what constellation would you see the Sun?   The Pisces constellation  3. Look carefully at the picture.  a. In what constellation would you see the sun if it were in Position D?  Pisces  b. In what constellation would you see the sun if it were in Position A?  Scorpius  c. In what constellation would you see the sun if it were in Position B?  Leo  d. In what constellation would you see the sun if it were in Position C?  Taurus  4. Look carefully at the picture.  a. What constellation would you see at night if the Earth were in position D?  Leo  b. What constellation would you see at night if the Earth were in position A?  Taurus  c. What constellation would you see at night if the Earth were in position B?  Pisces  d. What constellation would you see at night if the Earth were in position C?  Scorpius  In the picture above, when Earth is at position A, it is Winter. When Earth is at position B, it is Spring. When Earth is at position C, it is Summer. When Earth is at position D, it is Autumn.  List four constellations that can be seen during that season.  Winter: Canis Major, Orion, Taurus, Gemini  Spring: Ursa Major, Hydra, Cancer, Leo  Summer: Lyra, Scorpius, Hercules, Cygnus  Autumn: Aquarius, Pisces, Aries, Pegasus | | | |
| 1. Learning Activity 2:   **2A: Constellations (20 points)**  **Objective:** Identify the different constellations.  **Direction:** Read the following instruction  Each constellation on the Reference chart is included in the image below. Find them and trace them out using the same connecting lines. Here are some things to remember as you search…   1. Constellations are plotted the same size as on the reference chart, but… 2. Constellations may be **rotated** from how they appear on the reference chart. 3. There are over 100 additional stars plotted, beyond those in the constellations. 4. Other false stars may appear inside the constellations (like planets do in the real sky).   **Hint: Keying off the brightest stars in a constellation is the easiest way to spot it. Happy stargazing!**    Diagram  Description automatically generated | | | |
| 1. Learning Activity 3:   **3A: My Constellation: (40 points)**  **Instruction:**   * Write your name on the Personal Constellations worksheet. * Get some sticky stars and make a constellation using the position of the “stars” on your Personal Constellation worksheet. Write a name for your created constellation. * Create a myth that explains why the constellation is in the sky. Write it below your constellation. Remember, ***your myth has to apply to today. You can’t use Zeus or any other*** * ***Greek gods. It must be a story people would recognize today!***   **Directions:**  1. Write your name vertically down the Y axis. (Skipping a space between each letter of the name will spread the picture out better.)  2. Start with the first letter in the written name. Follow along that row parallel to the X axis until you come to the column with that letter of the alphabet and draw a star in that square (see example). Cont inue with the other  letters.  3. Look at the stars and find a pattern. The paper may be held in any orientation, and one or several constellations could be created.  4. “Connect-the-dots” and draw a picture of your constellation.  **Chart, table  Description automatically generated**  My Constellation name: Nora  My Myth: Nora is a specie of magical birds whose flight exceeds the speed of sound. For that reason, they are assigned to be the messenger of the gods. They are also capable of swimming in the ocean to catch prey or deliver a message to the temple of the water gods. Their speed comes from the power of their wings and tail. They are fluent with more than 30 languages and have been told that they are more intelligent than humans. | | | |
| **III. Reflection: (10 points)** | | | |
| The LAS of today focuses on the topic of Constellations. From their origin, history, uses, examples, and such. From what I had learned, constellations are a set or group of stars that form an image of animals, objects, and people. The history of constellations can be traced back from the early Babylonians and Greek civilizations. Due to this, early constellations have Babylonian or Greek names. The constellations have been used as a guide for ancient civilizations such as agriculture, seasons, time, religion, etc.  In my opinion, the greatest contribution of constellations for humanity is determining seasons, navigation, and possibility of unknown treasures in space. Determining seasons allowed civilization to survive with agriculture and such. Navigation via constellation have been used by sailors to find their way as they sail across the seas. The possibility of unknown treasures in space opened the ideas of black holes, supernovas, mathematical advancements, and exploration of the unknown.  The concept of constellations has been greatly intriguing considering that I lacked knowledge about the use and history of them. Making my own constellation is quite a fun activity for student engagement. I did my research on constellations and it gave me additional information about everything that has been discussed by the reporters. I am looking forward to topics like this that interests us students. | | | |

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