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| 1. **OBJECTIVES** |  |
| 1. **Content Standards** | The learners demonstrate an understanding of the relationship between the visible constellations in sky and Earth's position along its orbit. |
| 1. **Performance Standards** | The learners shall be able to discuss whether or not popular beliefs and practices with regard to constellations and astrology have scientific basis. |
| 1. **Learning Competencies** | Show which constellations may be observed at different times of the year using models. (**S9ES-IIIj-35**)  **Learning Objectives:**  At the end of this lesson, the students should be able to:   * Explain why some constellations are not at certain months; * Examine the constellations that ancient people used in real-life situations; and * Construct a constellation model seen in the Philippine night sky. |
| 1. **GAD Integration/ Values Integration/Comprehensive Sexuality Education Integration** | * Cooperation * Analysis * Creativity * Inclusive |
| 1. **CONTENT** | Constellation – Different Star Patterns throughout the Year |
| 1. **LEARNING RESOURCES** 2. **References** |  |
| **1. Teachers Guide pages** | Science 9 – Unit 3, Module 3: Constellation, pp.162-163 |
| **2. Learner’s Material pages** | Science 9 – Unit 3, Module 3: Constellation, pp.220-224 |
| 1. **Materials** | * **For Teacher:** * PowerPoint Presentation/chalk board, Manila Paper, Marker, Adhesive Tape, Laptop, television, speaker * **For Learners:** * Pen/pencil, paper |
| 1. **Other Resources** | PowerPoint Presentation, Video Presentation, Pictures, Checklist, Internet Resources, Print-outs, Manila Papers, Permanent Markers |

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| 1. **PROCEDURES** |  | **Teacher's Activity** | **Student's Activity** |
| **Preliminaries** |  | **A. Greeting**  “Good morning, 9- (Gumamela, Rose, Sampaguita)!” “How are you today?”  “Class, today is Friday, or let's just say Happy Friday, because today is another amazing day to learn something new.”  **B. Opening Prayer**  “Before we start our lesson this morning, may I ask the student of the day (name of the learner) to lead us in prayer.”  “Before you take your seat, kindly check your chairs if there are some trashes and also kindly arrange your chairs.”  **C. Checking of Attendance**  “Again, good morning, class!”  “May I ask who are not around today? Row 1…2…3…4…5…6?”  **D. Classroom Rules**  “Before we proceed to our lesson, let us recall our five classroom rules.  Who can give me the first rule?  How about the second rule?  What is our third rule?  And, our fourth rule?  Lastly, our fifth rule?  Very good, class. Can I expect you to follow all these classroom rules? Sure?” | “Good morning, Sir Kitz!”  “Good, Sir”  “Happy Friday”  (Learner will lead the prayer)  (Learners will arrange their chairs and pick up some trashes)  “Good morning, Sir!”  “None, Sir”  Sit properly.  Listen attentively.  Speak politely.  Participate actively.  Respect everybody.  “Yes, Sir!” “Sure, na sure!” |
| 1. **Reviewing previous lesson or presenting the new lesson** | **ELICIT** | Last meeting, we've tackled about the different patterns in the sky. Now, let's move to another fun and interesting topic.   * In your previous lesson, you learned that thousands of stars are seen in the night sky. There are group of stars form patterns or figures. These patterns of stars which are seen in the sky are usually called constellations. Can you still recall the different constellations in the universe? | “Yes, Sir. The big dipper, the hunter, the maiden Virgo and others” |
| 1. **Establishing a purpose for the lesson** | **ENGAGE** | Let us have a simple activity to refresh your mind. Below are tables that will help you identify the different constellation. Fill in the missing *Latin* names and meanings of constellation to complete the information in the tables.  You can choose your answer from the box below.   |  |  |  | | --- | --- | --- | | No. | Latin Name | Meaning | | 1. | Aquila |  | | 2. |  | Swan | | 3. | Draco |  | | 4. |  | Winged Horse | | 5. | Delphinus |  |   Dragon Cygnus Pegasus Eagle Dolphin  “Excellent class, Thank you for sharing!” This is our topic for today and it all about the different star patterns throughout the year, are you ready to learn now class? | (Random answers given by the students)  “Ma’am, Cygnus”  “Sir, Dolphin”  “Sir, Eagle”  “Sir, Dragon”  “Sir, Pegasus”  “Yes, Sir” |
| 1. **Presenting examples/ instances of the new lesson** |
| 1. **Discussing new concepts and practicing new skills #1** | **EXPLORE** | Earth orbits around the sun from west to east making the star seems to rise in the east and set in the west. - The rotation of the Earth on its axis causes the observed movement of the stars in the night sky while the revolution allows the observer to see a certain part of the sky at different months of the year.    The constellations you can see at night depend on the time of year. Earth orbits around the Sun once each year. Our view into space through the night sky changes as we orbit. So, the night sky looks slightly different each night because Earth is in a different spot in its orbit.  The position of the constellations ***varies*** throughout the year because the Earth travels about 960 km in its elliptical orbit around the sun. This means that the sun changes its position in relation to the background stars by 1 degree each day.  “Do you understand now, why certain constellations disappear and doesn’t appear in a month? How”    “Do you have any idea class, how people before use the constellations?”  “Great observations class!” That’s a good observation, let’s more find out about it more”  **How Early People Used the Constellations**  While constellations were associated with religion, they also have practical uses. 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. The constellations made it easier for them to recognize and interpret patterns in the sky. For example, 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. The table below shows how the Matigsalug Manobo of Bukidnon used the stars and constellations in relation to their agriculture.  Table 1. Stars and Constellations Used by Matigsalug Manobo of Bukidnon   |  |  |  |  | | --- | --- | --- | --- | | **Local Name** | **Month of Appearance** | **Related Agricultural Activity** | **Western**  **Equivalent** | | Pandarawa | January | Start of planning what kind of crops to be planted and how wide is the area to be planted | Pleiades | | Balatik | February | Start of planting and setting of traps to protect the crops from animals | Orions’s Belt | | Malihe | March | Planting of rice, corn, or vegetables |  | | Gibbang | April and May | End of planting season; signifies rich harvest | Gemini | | Malara | May | Stop planting | Canis Minor | | Lepu | Late May | time to clean or clear the fields while waiting for harvest time | Aquila | | Buwaya | June | start of the rainy season |  | | Baha | December to  February | Clearing of forest | Taurus |   “Did you now, class, understand how the ancient people used constellations in practical uses?”  “Very good class!” | “Yes, Sir. It is because of earth’s rotation”  “Sir, just like the previous lesson. Ancient people use it as their guide”  “Yes, Sir” |
| 1. **Discussing new concepts and practicing new skills #2** | **EXPLORE** | Let us do some activities for you to understand the Constellations more!    Congratulations for answering the questions well. Keep up the good work! Let us proceed to the next activity. | (Students answers may vary) |
| 1. **Developing mastery** | **EXPLAIN** | **“Philippine Constellations”** Look at the picture of some constellations and asterisms commonly known in the Philippines and find their corresponding description in the boxes below.    Figure 1. Figure 2. Figure 3.  “**Supot ni Hudas**”, “Mapolon” in Tagalog, “San Apon” in Ibaloi, and “Kufukufu” in Teduray. In western, it is known as the star cluster Pleiades (The Seven Sisters) located in the constellation of Taurus. The Tagalogs consulted this star cluster to know the shifting of time and season. Start of the planting season.  “**Tres Marias”** (The Three Marias) in Tagalog, “Magbangal” in Bukidnon, and “Seretar” in Teduray, “Balatik” is composed of perfectly aligned and evenly spaced stars which act as the belt of the constellation of Orion. In Palawan and Ibaloi however, “Balatik” is seen as both the sword and belt of Orion. Start of planting and setting of traps to protect the crops from animals.  “**Lepu”**, by the “Matigsalug Manobo” of Bukidnon. In the western equivalent, it is known as the constellation of Aquila. It signifies the time to clean or clear the fields while waiting for the harvest time.  “Great work class! | “Sir, the figure 1 is the Supot ni hudas as their starting planting seasons”  “Sir the other fugure shows the tres marias, that was used for protecting the crops”  “Sir, the last figure shows the Lapu as their sign for harvest ti”e" |
| 1. **Finding practical application of concepts and skills in daily living** | **ELABORATE** | The Constellations serve as a map during the early years and it talks about countless stories about heroes and monsters, thru the years of humankind and cultures. Like in other countries, our Filipino ancestors did worship stars before as their gods, they have their own version of names, prayers, and stories depend on what region they from.  Our ancestors somehow practiced following the star movements as a sign of good harvest, fishing, hunting, and other activities in the tribe.    **Balatik in Tagalog (Orion’s Belt)** also shares the same constellation with Magbangal, wherein Balatik is named after a hunting trip. The constellation is used by Filipino ancestors to determine the beginning of their harvest and planting periods. |  |
| 1. **Making generalization and abstractions about the lesson** | *Let us* summarize what we have learned, answer the activity that follows.   * Why do constellations look different in different in certain months?   Congratulations for answering the questions well.  Keep up the good work! “Did you now, class, understand the lesson even more? | “Over the course of a year, the set of constellations that are visible from a particular point on the Earth's surface changes, because the Earth orbits the Sun once a year.  “Yes, sir” |
| 1. **Evaluating learning** | **EVALUATE** | *Let us* summarize what we have learned, answer the activity that follows. Write **True** if the statement is correct and write **False** if the statement is incorrect.  1. Early Filipinos visualized the same group of stars as Balatik, a trap used inhunting wild pigs.  2. Christian Filipinos named the three stars (Orion’s belt) Tatlong Maria or TresMarias.  3. The 78 constellations are divided into two groups relative to their positions.  4. The constellation Pegasus is visible in the southern hemisphere.  5. The apparent movement of the constellations within one night is caused byEarth’s rotation.  “Alright, who answered all the questions correctly?”  “Excellent class! give yourself a clap! | (The students raised their hands who got the perfect scores”  “Me! Sir” |
| 1. **Additional activities for application or remediation** | **EXTEND** | **Assignment**  Construct a constellation model seen in the Philippine night sky.  *Materials*: Pencil, Coloring materials, Markers, Activity Sheet  *Procedure:*  Given a plain map of stars, draw any pattern that can be seen in the Philippine night sky, name it, and tell a story about your figure. Write your bases for coming up with.  The Constellations Every Stargazer Should Know | OARS  Guide questions:  1. What is the pattern of the stars *you have* seen in the night sky?  2. Compare the position of the stars in the sky. What do you notice?  3. How do you locate these constellations?  “The submission of your assignment will be on Monday”  “Any questions or clarifications? If there’s nothing more, let’s call it a day. Thank you for listening and I do hope you learned something. Before you leave, kindly arrange the chairs and check if there are some trashes.  Again, thank you 9- Santan and never forget to always shine bright like a Scimazing. Class dismissed!” | “Thank you and good bye, Sir Kitz.” |
| 1. **REMARKS** |  | | |
| 1. **REFLECTION** |  | | |
| 1. **No. of learners who earned 80% in the evaluation** |  | | |
| 1. **No. of learners who require additional activities for remediation who scored below 80%** |  | | |
| 1. **Did the remedial lessons work? No.**   **of learners who have caught up with the lesson** |  | | |
| 1. **No. of learners who continue to require remediation** |  | | |
| 1. **Which of my teaching strategies worked well? Why did this work?** |  | | |
| 1. **What difficulties did I encounter which my principal or supervisor can help me solve?** |  | | |
| 1. **What innovation or localized materials did I use/discover which I wish to share with other teachers?** |  | | |

Prepared by: Approved by:

Kitz Cerwin S. Ramirez Madelin R. Martinez

Student Intern Head Teacher III

Checked by: Noted by:

Jimmy A. Beltran Nick A. Mendoza

Cooperating Teacher Principal IV