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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:   * Describe what is constellation * Identify the different patterns in the sky; * Examine the position of a constellation changes in the course of a night. |
| 1. **GAD Integration/ Values Integration/Comprehensive Sexuality Education Integration** | * Cooperation * Analysis * Creativity * Inclusive |
| 1. **CONTENT** | Constellation |
| 1. **LEARNING RESOURCES** 2. **References** |  |
| **1. Teachers Guide pages** | Science 9 – Unit 3, Module 3: Constellation, pp.160-161 |
| **2. Learner’s Material pages** | Science 9 – Unit 3, Module 3: Constellation, pp.217-219 |
| 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 Thursday, or let's just say Happy Thursday, 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, Ma’am”  “Happy Thursday”  (Learner will lead the prayer)  (Learners will arrange their chairs and pick up some trashes)  “Good morning, Sir!”  “None, Ma’am”  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 Characteristics of the Stars. Now, let's move to another fun and interesting topic.   * Ask students: " In your Grade 8, you learned that stars are huge, massive spheres of incandescent gas much like our sun. Can you still recall the different properties of the stars?" | “Yes, Sir. Like the size, color and luminousity” |
| 1. **Establishing a purpose for the lesson** | **ENGAGE** | Let’s have a simple activity to refresh your mind. Below are tables that will help you identify the different properties of stars and its descriptions. Fill in the missing properties to complete the information in the tables.  *You can choose your answer below.*   |  |  |  | | --- | --- | --- | | **No.** | **Properties of Stars** | **Description** | | 1. | Stars vary in distance | Distance is measured in units called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. | | 2. | Stars vary in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Refers to the brightness of stars as they viewed from Earth. | | 3. | Stars vary in size | According to size, stars are classified as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. | | 4. | Stars vary in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Most stars are composed of the same materials. | | 5. | Stars vary in color and temperature | Some stars appeared in different colors like \_\_\_\_\_\_\_\_\_\_\_\_\_ |   Super Giant, Giant and dwarf Parallax Composition Magnitude Red, Yellow, Blue  “Excellent class!” This is our topic for today and it all about the Constellations, are you ready to learn now class? | “Magnitude”  “Parallax”  “Super Giant, Giant and dwarf”  “Composition”  “Red, Yellow, Blue”  “Yes, Sir” |
| 1. **Presenting examples/ instancesof the new lesson** |
| 1. **Discussing new concepts and practicing new skills #1** | **EXPLORE** | It is good that you can still remember these properties of stars. We are going to use of these stars, specifically the patterns of stars which are seen in the sky Constellations  It refers to a group of stars that forms a ***particular shape*** in the sky.  **Constellations** are located within the celestial sphere, an imaginary sphere of which the observer is the center and which all celestial objects appear to be projected and of which the apparent dome of the visible sky forms half.    “How many constellations are there in our universe, do you know about them?”  “Thank you for your ideas and let’s check how many constellations do we have. Try to look at this.”  According to the International Astronautical Union (IAU) divides the sky into **88 official constellations** with exact boundaries, 48 constellations were named based on Greek and Roman mythology. The star patterns that have been discovered but have not been officially identified as constellation are called asterism.  “How have you ever heard about the bid dipper in the constellation?”  “Class, it's alright. Beyond the fact that it is a well-known dipper, let's learn more about it because that was also a correct observation.”  ***Asterism***refers to the distinctive pattern formed by a group of stars which belongs  to one or more constellations. The most famous example of asterism is the Big Dipper, a constellation that quite common as it was featured on the Alaskan state flag. It is not considered a true constellation because it is a part of a larger constellation called *Ursa Major* (The Great bear.)    **Constellations cannot be seen all in one night**. Some of the constellations can be seen only during certain seasons. The part of the sky visible at night at a particular place gradually changes as the season changes. The observers at different latitudes see different constellations.  Example an observer at the equator can view all the constellations during a year, but the observer at North or South Pole can see only the stars in a single hemisphere of constellations.  Astronomers divided the constellations into three regions:  1. ***North* circumpolar *constellations***. They are seen by the observer at northern mid- latitudes.  2. ***South circumpolar constellations.***They are seen by the observer at the southern mid-latitudes.  3. ***Equatorial constellations***. They lie on either side of the celestial equator which is the projection of the ***earth’s*** equator to the sky.  “Did you now, class, understand the why we see different patterns in the sky?”  “Very good class!” | “I think, Sir, we have more than 10 constellations."  “"Yes, Sir, but we don't know much of it. All we know is that it's a famous pattern in the sky.”  “Yes, Sir” |
| 1. **Discussing new concepts and practicing new skills #2** | **EXPLORE** | Earth rotates on its axis; thus, the stars appear to move across the night sky from east to west, and the sun seems to rise in the east and set in the west. The stars that are close to celestial poles, appears to move a little in the night sky.    Polaris is the North star because it is located close to the north celestial pole. - Circumpolar constellations Stars that are around a celestial pole are called circumpolar stars forming recognizable patterns (Northern circumpolar constellations are Ursa Major, Ursa Minor, Cassiopeia, and Draco. Southern circumpolar constellations are Carina, Centaurus, and Crux)  “People living in the northern or southern hemisphere can observe constellation that are to the north or south of Earth while those in the equator can observe constellations depending on their distance to the equator.”  “Did you understand, how constellations changes in a course of a night?” | “Yes, Sir” |
| 1. **Developing mastery** | **EXPLAIN** | **Activity: Star Patterns**  *Procedure:*  1. Analyze the pictures below and draw/trace the pattern.  2. Identify the name of the constellations. Use the term in the box.  3. Write the name of the constellations.  4. Describe the position of the star patterns.  5. Answer the guide questions below.       1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ b. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_     c.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ d. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Pegasus (Horse) Taurus (Bull) Orion (Hunter) Virgo (The Maiden)  *Guide questions:*  1. What pattern do you see in the picture no. 1, 2, 3 and 4?  2. Why do we see different patterns in the sky?  3. What is the importance of constellation?  Congratulations! Keep up the good work!  The teacher will say after the student’s response, “Excellent class!” | “Sir, we see a figure of a man like holding sword and shield”  “Sir, we saw a form like a tail”  “Sir, we can see a figure of a woman”  “Sir, we can see a horn look like”  “Sir, because of the movement of our earth we see different patterns”  “It is important Sir, because we can identify patterns in the sky and be able to tell what constellations it is. |
| 1. **Finding practical application ofconcepts and skills in daily living** | **ELABORATE** | Before the invention of modern technology, humans utilized the stars to guide them around the globe. It was a vital talent for both commerce and explorers. Pilots and sailors still employ star navigation today as a backup plan in case of emergency. |  |
| 1. **Making generalization and abstractions about the lesson** | **ELABORATE** | The teacher will provide a generalization about the Objectives. It is for the students to deepen their understanding of the topic and apply their knowledge to broader contexts.  Questions:   1. What are constellations? 2. Constellations were used in ancient for what purposes? 3. Could you provide an example of a constellation? 4. Why does the rotation of the earth have to do with constellations?   “Did you now, class, understand the lesson even more? | “A constellation is a group of stars that make an imaginary shape in the night sky. They are usually named after mythological characters, people, animals and objects. In different parts of the world, people have made up different shapes out of the same groups of bright stars. It is like a game of connecting the dots.”  “Sir to create and track the calendar so they knew when to plant crops and harvest them. Constellations were also used for navigation and to help sailors travel across oceans.”  “The Winged horse, big dipper and Orion, and Draco are all examples of that are recognized by the International Astronomical Union.”  “Sir, As Earth rotates, the stars appear to change position during the night. As Earth revolves around the sun, Earth's night sky faces a different part of the universe. As a result, different constellations appear in the night sky as the seasons change.”  (The student will response according to the activity)  “Yes, Sir” |
| 1. **Evaluating learning** | **EVALUATE** | “Now that you’ve learned about the constellation, it’s time to assess your learning. Kindly bring out ¼ whole sheet of paper for your short test.  **Direction**: Read carefully and understand each ***sentence*** then choose the best answer.  Write the chosen letter on a separate sheet of paper.  1. How do stars appear to move in the night sky?  A. From East to West B. From West to East C. From North to South D. From South to North  2. Stars can be found in large groups throughout the universe. What are these groups called?  A. Asteroids B. Comet C. Constellations D. Solar system  3. The constellation Pisces changes position during the night, as shown in the diagram.  Which motion is mainly responsible for this change in position?  A. Rotation of Earth on its axis.  B. Rotation of Pisces on its axis.  C. Revolution of Earth around the Sun.  D. Revolution of Pisces around the Sun.  4. As the earth rotates on its axis, the constellations and stars in them appear to \_\_\_\_\_\_\_\_\_.  A. Rotate B. Move across the sky C. Stand still in the sky D. Move around each other  5. Early people used constellations for their agricultural activities before the calendar appeared. Which of the following months farmers start planting rice, corn or vegetables?  A. April B. February C. January D. March  “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**  Constellations in the Night Sky!  *Learning Competency:*  Describe the apparent movement of the stars in the sky.  *Materials*: Pencil, coloring materials, activity sheet  *Procedure:*  1. Look at the sky four times in one starry evening at 8:00pm, 9:00pm, 10:00pm and 11:00pm.  2. Can you see some groups of stars that form a certain pattern?  3. Sketch as many patterns of stars that you see each time you look at the sky.  4. Identify the constellations you have sketched refer to the chart below.  5. Locate the Big Dipper. What other constellations can you identify?  6. Observe the same part of the sky on the following night. Do you see the same constellations in approximately the same location as last night?  *Guide Questions*:  1. What constellations did you see in the night sky?  2. How do constellations apparently behave?  3. What are the different types of constellations?  4. How are the constellations classified?  5. Do you see the constellations in the same locations during the whole night?  “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?** |  | | |

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