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| ***I. OBJECTIVES*** |  |
| **A. Content Standards** | The learners demonstrate an understanding of the relationship between the visible constellations in sky and Earth's position along its orbit. |
| **B. 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. |
| **C. Learning Competencies/ Learning Objectives** | Show which constellations may be observed at different times of the year using models. (**S9ES-IIIj-35**) |
| The students shall be able to:   * Define what is a star. * Differentiate the characteristics of stars in terms of size, color, and brightness. * Create a chart tackling a certain characteristic of star. * Reflect on how the stars and the sun influence our lives. |
| **D. GAD Integration/ Values Integration/ Comprehensive Sexuality Education Integration** | * Cooperation * Analysis * Creativity * Inclusive |
| ***II. CONTENT*** | Characteristics of Stars |
| ***III. LEARNING RESOURCES*** |  |
| **A. References** | * earn with smile. (2023, May 27). characteristics of stars #animated #science [Video]. YouTube. <https://www.youtube.com/watch?v=aN1yKgvfEmA> * Peekaboo Kidz. (2016, October 15). STARS | The Dr. Binocs Show | Best Educational Videos for Kids | Peekaboo Kids [Video]. YouTube. <https://www.youtube.com/watch?v=lSuAPFMXcYM> |
| **1. Teachers Guide pages** | Science 9- Unit 3, Module 3: Constellations, pp. 159-160 |
| **2. Learner’s Material pages** | Science 9- Unit 3, Module 3: Constellations, pp. 213-215 |
| 1. **Materials** | * **For Teacher:** * PowerPoint Presentation/chalk board, Manila Paper, Marker, Adhesive Tape, Laptop, television, speaker * **For Learners:** * Pen/pencil, paper |

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| ***IV. PROCEDURES*** |  | **Teacher's Activity** | **Student's Activity** |
| **Preliminaries** |  | 1. **Greeting**   “Good morning, 9-Gumamel, Rose, Sampaguita!” “How are you today?”  “Class, today is (Wednesday), or let's just say Wednesday, because today is another amazing day to learn something new.”   1. **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.”   1. **Checking of Attendance “**Again, good morning, class!”   “May I ask who are not around today? Group 1…2…3…4…5…6?”   1. **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 Wednesday”  (Learner will lead the prayer)  (Learners will arrange their chairs and pick up some trashes)  “Good morning, Sir!” “None, Ma’am”   1. Sit properly. 2. Listen attentively. 3. Speak politely. 4. Participate actively. 5. Respect everybody.   “Yes, Sir!” “Sure, na sure!” |

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| **A. Reviewing previous lesson or presenting the new lesson** | **ELICIT** | **“**Last meeting, we've tackled about the climatic phenomena occurring on a global level. Now, let's move to another fun and interesting topic. I have prepared an activity entitled "Sinetch Itey?". I'm going to show you short video clips of some of the famous artists and singers here in our country. You are tasked to name them and give their famous title or trademark in the industry. Is that clear? Sure?”  **Activity 1: Sinetch Itey?**  The teacher will present a short clip of the following artist.  The students are tasked with naming and giving them their famous titles or trademarks.  “Very good, class! You were able to name them and gave their title. But, among these five artists, what is their commonality?”  “Exactly, class. Our lesson for today is all about the Characteristics of Stars.” | “Yes, Sir  !” “Sure na sure!”   1. Nora Aunor-Superstar 2. Sarah Geronimo-Popstar 3. Sharon Cuneta-Megastar 4. Maricel Soriano-Diamond Star 5. Vilma Santos-Star for All Seasons   “They have all stars in their title.” |

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| **B. Establishing a purpose for the**  **lesson** |  | **Activity 2: Star Words**  (Building Taxonomy- Language Strategy) |  |
|  |  | (The teacher will write the word "STAR" on the board)  “Now, let's have "Star Words". I want you to think of the word star and write on the board all the words you think related. And, let's have a twist, while the others are writing on the board, some will sing the song "Twinkle, Twinkle Little Star".” | (The students will come in front and write some words on the board)  (The students will sing the song "Twinkle, Twinkle Little Star") |
|  |  | Twinkle, twinkle, little star, How I wonder what you are. Up above the world so high, Like a diamond in the sky. (Repeat) |  |
|  | **ENGAGE** | (The teacher will read the all words written on the board) |  |
| **C. Presenting examples/ instances of the new lesson** |  | **Activity 3: Observa-Story** |  |
|  |  | “Based on the picture, I want you to formulate your own story or any reason behind it. Anyone in the class?”   1. Have you tried observing the stars in the night sky? How does it feel?   (Motive Questions)   1. Are the stars same in size? | (Some student will give their personal meaning or perception of the picture.)  “Yes ma’am, it was amazing.”  “No” |

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|  |  | 1. Are the stars same in color? 2. Are the stars equally bright?   “We will see later on if your answers are correct as we go deeper in our lesson.”  (The teacher will state the objectives of the lesson) | “No”  “No” |
| **D. Discussing new concepts and practicing new skills #1** |  | Question: “Do all the bright objects we observed in the night sky are actually stars? Why?”  “Then, what is a star? How can we say that an object in the sky is a star? What are our standards in order to classify them as a star? | “No, Sir because some bright objects we observe in the night sky are planets, comets, and asteroids.” |
|  |  | (The teacher will introduce and explain the concept about star)  **Star** is a natural luminous body visible in the sky especially at night. |  |
|  | **EXPLORE** | When we look at the night sky, we see thousands of stars. In reality, there are approximately 400 billion stars in our galaxy, and there are about 170 billion galaxies. These stars differ in many ways. We see stars of different sizes, brightness, and color. |  |
|  |  | **Activity 4: Characteristics of Stars (Group Activity)**  (Differentiated Instruction-Content)   * The class will be divided into three groups. * The teacher will provide an activity kit containing all the materials needed for the activity. * The students are tasked with analyzing   the activity sheet and filling out the |  |

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|  |  | provided table/ chart with the needed information.  Watch the YouTube Link:  <https://youtu.be/aN1yKgvfEmA?si=nH_vT1jyrlwd82jF>  Group 1: Size  Name Size Other Are all the of the important stars same  Star information in size? Why or why not?  Group 2: Color  Name Color Other Are all the of the important stars same  Star information in color? Why or why not?  Group 3: Brightness | | | | | |  |
|  | Name of the Star | Bright- ness | Other important information | Are all the stars same in brightness? Why or why  not? |  |
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| **E. Discussing new concepts and practicing new skills #2** | **Presentation of Outputs**  The students are tasked with presenting their outputs. One representative from each group will come in front to share their group activity.  An analytic rubric will be used in rating (attached at the back)  “Now, let us have group 1… 3...and 2 present your outputs.”  “Very good, class!”  The teacher will present a short video presentation tackling the three characteristics of stars.  YouTube link <https://youtu.be/lSuAPFMXcYM?si=jQ3xMqgZV064f8Co> The teacher will discuss and present important concepts. | | | | | | (A representative from each group will present their group output) |
| **F. Developing mastery** | **EXPLAIN** | **Question and Answer**  The teacher will ask some students to answer the following questions: | | | | | |  |

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|  |  | Q1. What can we infer about the size of a star?   * As the size of a star increases, luminosity   increases. If you think about it, a larger star has more surface area. That increased surface area allows more light and energy to be given off.  Q2. How does color relate to the temperature of a star?   * A star’s color provides a direct   measurement of its surface temperature; the hottest stars shine blue-white, while the coolest are dull orange or red. In turn, the temperature indicates how much energy a given area of the star's surface radiates into space every second.  Q3. What is the relationship between the distance and brightness of a star?   * The intensity or brightness of light as a   function of the distance from the light source follows an inverse square relationship. The brightness decreases proportionally to the square of the distance as one moves away from the star.  Q4. What happens when the Sun gets brighter?   * Increased brightness means an increase   in the amount of heat our planet receives. As the planet heats up, the water on the surface of our planet will begin to evaporate. | “Sir, the bigger the star is, the more radiation/ light and energy it will give off or emit.”  “Sir, it's color determine its average surface temperature.”  “Sir, the closer the star is, the brighter it will appear to us. Oppositely, far stars will appear to be dimmer.”  “Sir, if our star, the sun gets brighter, it will emit more heat and energy making our planet hotter which will be difficult for us to survive.” |

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| **G. Finding practical application of concepts and skills in daily living** | **ELABORATE** | **Interdisciplinary Contextualization**  (The teacher will provide a mystery box.)  “This mystery box contains objects that are related to the real- life applications and uses of stars, including our sun.You are going to pick and share some ideas about it. Anybody who would like to pick?”  (In no particular order)   * Navigation * Farming * Solar Panels * Salt Production * Dried Fish/ Seafood   Integration of the lesson to other field/ discipline. (Physics & Biology- Energy & TLE-Food Preservation) | (In no particular order)  “The stars serve as guide in navigation especially during the ancient times when there is not yet advance technology.”  **“**The appearance of a particular star at a specific period of time marks the beginning of planting season.”  “The radiation coming from our sun can be converted as our source of energy through the solar panels.”  “Salt production requires heat or sunlight from the sun to evaporate the liquid component, leaving the crystallize salt.”  **“**In order for our seafood and fish to be dried, it must be sun dried for almost a day.” |
| **H. Making**  **generalization and abstractions about the lesson** | The teacher will ask some students to define star. The teacher will call on some students to enumerate the three characteristics of stars.  **Activity 5: Composing with Keywords**  (Language Strategy)  With the same group, the students are tasked  with selecting two words they wrote on “Star Words-building taxonomy activity”. They are | A star is a luminous ball of gas, mostly hydrogen and helium, held together by its own gravity.   1. Size 2. Color 3. Brightness |

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|  |  | tasked to explain the keywords and how they are related to the lesson.  “A while ago, I tasked you to write words related to the star. Now, with the same group, I want you to choose two words and explain how it is related to our lesson. Is that clear? | “Yes, Sir”  (Each group will choose two words and have a brainstorming session. Then, each group will explain their chosen words.) |
| **I. Evaluating learning** | **EVALUATE** | “Now that you’ve learned about the stars specifically their characteristics, it’s time to assess your learning. Kindly bring out ¼ sheet of paper for your short test. For this test, you’ll just fill the blanks to complete the statement. Understood? Sure?”  “You may write the answers only.”  **Short Test: Frame** (Language Strategy)  In this lesson, I learned that **stars** are huge celestial bodies made mostly of **hydrogen** and **helium** that produce light and heat from the churning **nuclear fusion** inside their cores. I learned that there are **three** characteristics of stars. As the **size** of a star increases, luminosity increases. Furthermore, the surface temperature of a star determines the **color** of light it emits. And, increased **brightness** means an increase in the amount of heat our planet receives. Continuously, **apparent magnitude** is a measure of the brightness of a star or other astronomical object observed from Earth, while the **absolute magnitude** of a star is defined as the magnitude it would have if it were viewed at a standard distance of 10 parsecs or 32.6 light-years. | **“**Yes, Sir!” “Sure na sure!”  “Copy and answer, Sir? |

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| **J. Additional activities for application or remediation** | **EXTEND** | **Assignment (Inquiry-Based Learning)**  “For your assignment, you are tasked with looking and observing the stars in the night sky. And, you need to answer the processing questions. Write your answers/ findings in a 1 whole sheet of paper.”  “The submission of your assignment will be on Monday”  Procedure:   1. On a clear night sky, look at the stars from 7 pm to 9 pm. 2. Focus on one constellation or star. 3. Look at the stars clearly every hour of the night, from 7 pm to 9 pm. 4. Answer the following processing questions.   Processing Questions:  Q1. Compare the position of the stars in the sky. What do you notice?  Q2. Are the stars visible at 7 pm still visible at 9 pm in their “original position”? Why is this so?  Q3. How do the stars move? Describe the movement of the stars in the night sky.  Q4. How is the motion of stars similar to the motion of the Sun?  “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-Sant.  and never forget to always shine bright like a Star. Class dismissed!” | “When is the submission, Sir?”  “Thank you and good bye, Sir kitz.” |

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| **V. REMARKS** |  |  |  |
| **VI. 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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