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| 1. **OBJECTIVES** |  |
| 1. **Content Standards** | The learners demonstrate understanding of the factors that affect climate, and the effects of changing climate and how to adapt accordingly. |
| 1. **Performance Standards** | The learners should be able to participate in activities that reduce risks and lessen effects of climate change. |
| 1. **Learning Competencies** | Describe certain climatic phenomenon that occur on a global level.(**S9ES-IIIe-31**)  **Learning Objectives:**  At the end of this lesson, the students should be able to:   * Differentiate El Niño from La Niña phenomena; * Explain the effects of El Niño from La Niña phenomena on global climate; and * Recognize the importance of environmental awareness and concern. |
| 1. **GAD Integration/ Values Integration/Comprehensive Sexuality Education Integration** | * Cooperation * Analysis * Creativity * Inclusive |
| 1. **CONTENT** | El Niño & La Niña |
| 1. **LEARNING RESOURCES** 2. **References** | * NICOLE BELTRAN. (2022, May 13). *Environmental awareness campaign* [Video]. YouTube. <https://www.youtube.com/watch?v=W5bh1JFo43U> |
| **1. Teachers Guide pages** | Science 9 – Unit 3, Module 2: Climate, pp.155-160 |
| **2. Learner’s Material pages** | Science 9 – Unit 3, Module 2: Climate, pp.205-209 |
| 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-Santan!” “How are you today?”  “Class, today is Tuesday, or let's just say Happy Tuesday, 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!”  “Good, Sir”  “Happy Tuesday”  (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 Greenhouse gases and Global warming.     * Ask students: "What causes the earth to change?" | “Answer may vary” |
| 1. **Establishing a purpose for the lesson** | **ENGAGE** | ***“Spot the difference"***    “Are you done class?”  “Excellent observation class!” This is our topic for today and it all about the El Niño and La Niña, a climatic phenomenon that occur on a global level, are you ready to learn now class? | “Yes, Sir” |
| 1. **Presenting examples/ instancesof the new lesson** |
| 1. **Discussing new concepts and practicing new skills #1** | **EXPLORE** | **El Niño** is a Spanish word which means little boy and connected with the celebration of the Christian holiday marking the birth of Jesus. It is an abnormal and lengthy warming in the eastern part of the Pacific Ocean. This natural phenomenon occurs at irregular intervals of two to seven years and lasts for nine months or two years at most. Usually, it starts at the end of the year or during the Christmas season (December to February).  **How does it work?** Normally, as trade winds move from east to west, they collect warm air. But when trade winds are weakened, they cause the piling up of warm surface water and making the part of the Pacific Ocean warmer leading to the El Niño phenomenon. This happens when the upwelling of colder water is blocked by the large quantities of warm surface water.  Since the Pacific Ocean is to the East of the Philippines, the El Niño phenomenon will affect the country. There will be an increase of the temperature in the Eastern part of the Pacific Ocean and it is expected that some areas in the Philippines will experience this climatic phenomenon. While some areas in the country will experience near to above average rainfall and some areas may experience drier than normal.  The El Niño phenomenon is characterized by extreme climatic conditions; extreme temperature rise with a little rainfall, and at the opposite extreme, there is unusually heavy rainfall. It also causes the diseases related to water scarcity or shortage such as diarrhea and skin diseases, paralytic shellfish poisoning, disorders associated with high temperatures: heat cramps, heat exhaustion, exertional heat injury and heat stroke.    While **La Niña** is a Spanish word which means little girl. It is the opposite climatic disturbance to El Niño. This natural phenomenon may, but does not always, follow El Niño events.  It starts September or October that may last for nine to twelve months but in some cases, it lasts for two years. This event is triggered by the cooling of the eastern part of the Pacific Ocean that is why it is sometimes called “cold Pacific”.  Trade winds that move from east to west are strengthened. Upwelling of colder water intensifies. Moving air brings along too much water vapor. When it reaches the landmass such as Philippines, precipitation is experienced. There would be an increase of rainfall in some areas in the Philippines. For instance, areas that experienced severe drought caused by El Niño may encounter above normal rainfall. But in some cases, areas that experience dry season will have drier than normal conditions.  La Niña is characterized by unusually cold ocean temperature in the Equatorial Pacific which causes increased numbers of tropical storms in the Pacific Ocean. When flooding occurs due to La Niña, water might get contaminated by either bacteria or viruses that could infect people and may causes diseases like acute gastroenteritis, typhoid fever, cholera and hepatitis A, leptospirosis, dengue and malaria.  *El Niño and La Niña events are natural occurrences in the global climate system resulting from variations in ocean temperatures in the Equatorial Pacific. In turn, changes in the atmosphere impact the ocean temperatures and currents. The system oscillates between warm (El Niño) to neutral or cold (La Niña) conditions.*  El Niño is caused by the warming of sea surface temperature in the Pacific and can affect air and sea currents. It creates stronger wind-shear and more-stable air over the Atlantic, which makes it harder for hurricanes to form while La Niña affects atmospheric pressure and temperature, rainfall and ocean temperature. It usually has a positive impact on the fishing industry of western South America  “Based on the discussion class, How El Niño and La Niña differ from each other?”  “Excellent class!”  **Guide Questions:**  **1.** What happens to water vapor as it rises over the mountain?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **2.** Which side of the mountain experiences low temperature?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **3.** Which side of the mountain experiences high temperature?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **4.** What happens when air becomes warmer and drier as it moves down the leeward side?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **5.** How does topography affect climate?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  “Did you now, class, understand the how El Niño and La Niña affects the global climate?”  “Very good class!” | “Sir, El Niño (the warm phase) and La Niña (the cold phase)”.  “Yes, sir” |
| 1. **Discussing new concepts and practicing new skills #2** | **EXPLORE** | The teacher will show video on environmental awareness campaign.  NICOLE BELTRAN. (2022, May 13). *Environmental awareness campaign* [Video]. YouTube. <https://www.youtube.com/watch?v=W5bh1JFo43U>    “Now, based on the video why is it important to be aware of our environment?  “It is. Excellent class!” | “Environmental awareness fosters a sense of responsibility and stewardship towards the planet. People are encouraged to engage in actions that protect and conserve natural resources, reduce pollution and mitigate the impacts of human activities on ecosystems.” |
| 1. **Developing mastery** | **EXPLAIN** | **Question and Answer**  The teacher will ask some students to answer the following questions:  ***“*Activity 1: Can you compare me? “**  Direction: Compare El Niño and La Niña by filling the table below.   |  |  |  | | --- | --- | --- | |  | EL NIÑO | LA NIÑA | | English term |  |  | | What is happening? |  |  | | When does it happen? |  |  | | Where does it happen? |  |  | | Why does it happen? |  |  | | How does it happen? |  |  |   The teacher will say after the student’s response, “Excellent class!” |  |
| 1. **Finding practical application ofconcepts and skills in daily living** | **ELABORATE** | The teacher will show some examples and ask the students what they observe.      The teacher will say “Thank you for sharing class!” | Answers may vary  (The student will response based on their learnings) |
| 1. **Making generalization and abstractions about the lesson** | **ELABORATE** | Using the ideas that the students came up with, make a visual concept map of El Niño and La Niña on a sizable white cartolina or manila paper as central nodes on the map, begin by defining important concepts or categories (such as Causes, Effects, and Solutions).  After that, use arrows or lines to join relevant aspects to create a hierarchical structure that shows how various elements relate to one another. After the concept map is completed, assist the students in examining and considering the relationships and patterns that are shown.  Talk about how these generalizations affect our ability to fully understand the complexities of climate change and develop practical solutions.  “Did you now, class, understand the lesson even more? | (The student will response according to the activity)  “Yes, Sir” |
| 1. **Evaluating learning** | **EVALUATE** | “Now that you’ve learned about the topography and ocean currents that affects climate, it’s time to assess your learning. Kindly bring out ¼ whole sheet of paper for your short test. Modified True or False: Write TRUE if the statement is correct and if it is false change the underlined word to make it correct.  1. El Niño is an abnormal and lengthy warming in the western part of the Pacific Ocean.  2. La Niña is triggered by the cooling of the eastern part of the Pacific Ocean that is why it is sometimes called “cold Pacific”.  3. Normally, trade winds move from east to west.  4. La Niña starts at the end of the year or during the Christmas season.  5. El Niño happens when the upwelling of colder water is blocked by the large quantities of cold surface water.  “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**  **“Create an infomercial of Environmental Awareness”**    “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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