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| **GRADES 1 to 12 DAILY LESSON LOG** | **School** | Sauyo High School | **Grade Level** | Grade 10 |
| | **Teacher** | Mr. Jonathan R. Bacolod, LPT | **Learning Area** | Mathematics |
| | **Teaching Dates and Time** | Week 1, January 3 – 7, 2019 | **Quarter** | 1st |

| **I. OBJECTIVES** | **DAY 1** | **DAY 2** | **DAY 3** | **DAY 4** |
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| **Learning Competencies/ Objectives:** | 1. Evaluate the rules of given sequences; <br> 2. Calculate the next terms of a given sequences; and, <br> 3. Exhibit interest and perseverance in solving problems. | 1. Execute the steps in finding the rule of a given arithmetic sequence; <br> 2. Find the next terms of a given arithmetic sequence; and, <br> 3. Project interest and enjoyment in solving problems. | 1. State the steps in finding the arithmetic mean; <br> 2. Generate the arithmetic mean given two terms of a sequence; and, <br> 3. Display interest and willingness in solving problems. | 1. Derive the formula in computing arithmetic series; <br> 2. Compute the number of terms of a given arithmetic series; and, <br> 3. Display enjoyment and independence in solving problems. |
| **II. CONTENT** | **PATTERNS AND ALGEBRA** | | | |
| | **Sequences** | **Arithmetic Sequences** | **Arithmetic Means** | **Arithmetic Series** |
| **III. LEARNING RESOURCES** | | | | |
| **A. References** | | | | |
| **1. Teacher's Guide Pages** | pp. 1–10 | pp. 11–21 | pp. 22–30 | pp. 31–41 |
| **2. Learner's Materials Pages** | pp. 1–6 | pp. 7–13 | pp. 14–18 | pp. 19–25 |
| **3. Textbook Pages** | pp. 1–8 | pp. 9–18 | pp. 19–25 | pp. 26–35 |
| **4. Additional Materials from Learning Resources Portal** | | | | |
| **B. Other Learning Resources** | Flashcards | Flashcards | Flashcards | Flashcards |
| **IV. PROCEDURES** | | | | |

| A. Reviewing Previous Lesson or Presenting New Lesson | Sequences | Arithmetic Sequences | Arithmetic Means | Arithmetic Series |
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| | **Sequence:** a function whose domain is the finite set {1, 2, 3, …, n} or the infinite set {1, 2, 3, …}<br>**Finite Sequence:** a sequence of numbers that is a fixed length long<br>**Infinite Sequence:** an endless progression of numbers<br><br>**Rules for Sequences**<br><br>**Linear Sequence:** a sequence with constant first differences $(d_1)$<br><br>• $a_n = an + b$<br><br>• $a + b = a_1$<br><br>• $a = d_1$<br><br>**Quadratic Sequence:** a sequence with constant second differences $(d_2)$<br><br>• $a_n = an^2 + bn + c$<br><br>• $a + b + c = a_1$<br><br>• $3a + b = d_1$<br><br>• $2a = d_2$ | **Arithmetic Sequence:** a sequence where every term after the first is obtained by adding a constant called the common difference<br><br>**Common difference:** the constant difference $d$ between any two consecutive terms<br><br>To find any term in an arithmetic sequence, use<br><br>$$a_n = a_1 + (n-1)d$$ | **Arithmetic Extremes:** the first and last terms of a finite arithmetic sequence<br><br>**Arithmetic Means:** the terms between the arithmetic extremes<br><br>**Average:** the arithmetic mean between two numbers<br><br>To insert more than one arithmetic mean, use the difference formula $d$.<br><br>$$d = \frac{a_n - a_k}{n - k}$$ | **Arithmetic Series:** the indicated sum of the terms of an arithmetic sequence<br><br>If the first term and the $n^{th}$ term are given, then<br><br>$$S_n = \frac{n}{2}(a_1 + a_n)$$<br><br>If the $n^{th}$ term is not given, then<br><br>$$S_n = \frac{n}{2}[2a_1 + (n-1)d]$$ |
| B. Establishing a Purpose for the Lesson | The purpose of this lesson is to enable the students to solve real life problems involving sequences. | The purpose of this lesson is to enable the students to solve real life problems involving arithmetic sequences. | The purpose of this lesson is to enable the students to solve real life problems involving arithmetic means. | The purpose of this lesson is to enable the students to solve real life problems involving arithmetic series. |

| C. Discussing New Concepts and Practicing New Skills #1 | Practice Exercises | Practice Exercises | Practice Exercises | Practice Exercises |
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| | A. Find the first 5 terms of the sequence given the $n_{th}$ term. <br><br> 1. $a_n = n + 4$ <br><br> 2. $a_n = 2n - 1$ <br><br> 3. $a_n = 12 - 3n$ <br><br> 4. $a_n = 3^n$ <br><br> 5. $a_n = -2^n$ | A. Find the specified term of each arithmetic sequence. <br><br> 1. $2, 5, 8, \ldots a_8$ <br><br> 2. $-11, -7, -3, \ldots a_{23}$ <br><br> 3. $10, -2, -14, \ldots a_{17}$ <br><br> 4. $y, x, 2x - y, \ldots a_{10}$ <br><br> 5. $3, 3.25, 3.5, \ldots a_{16}$ | Insert the indicated number of arithmetic means between the given arithmetic extremes. <br><br> 1. 2 and 32 [1] <br><br> 2. -12 and 6 [3] <br><br> 3. 68 and 3 [4] <br><br> 4. 15x and 23x [1] <br><br> 5. $9\sqrt{3}$ and $11\sqrt{3}$ [1] <br><br> 6. $2\sqrt{5}$ and $14\sqrt{5}$ [2] <br><br> 7. $\dfrac{3}{7}$ and $\dfrac{11}{7}$ [1] | A. Find the sum of each arithmetic sequence. <br><br> 1. 2, 5, 8,... to 8 terms <br><br> 2. -11, -7, -3,... to 23 terms <br><br> 3. Sum of odd integers from 1 to 100 <br><br> 4. Sum of the integers between 50 and 200 which are divisible by 5 |
| D. Discussing New Concepts and Practicing New Skills #2 | B. Determine the rule that governs each sequence. <br><br> 1. 5, 9, 13, 17,... <br><br> 2. 2, 5, 8, 11,... <br><br> 3. -11, -7, -1, 7,... <br><br> 4. 1, 4, 10, 19,... <br><br> 5. 1, -3, 9, -27,... <br><br> 6. 1, 8, 27, 64,... <br><br> 7. $\dfrac{1}{2}, \dfrac{1}{4}, \dfrac{1}{6}, \dfrac{1}{8}, \ldots$ | B. Find the specified term. <br><br> 1. $18^{th}$ term of the arithmetic sequence if $a_1 = 25$ and $d = -2$. <br><br> 2. $11^{th}$ term of the arithmetic sequence if $a_1 = -15$ and $d = 6$. <br><br> 3. In the sequence 2, 6, 10,..., what term has a value of 106? <br><br> 4. In the sequence 7, 4, 1,..., what term has a value of -296? | | B. In each arithmetic series, find the specified unknown. <br><br> 1. $S_n = 90$, $a_1 = 10$, $a_n = 26$, $n = ?$ <br><br> 2. $S_n = 1,800$, $a_n = 185$, $n = 18$, $a_1 = ?$ <br><br> 3. $S_n = 119$, $a_1 = 5$, $d = 4$, $n = ?$ <br><br> 4. $a_{10} = 27.5$, $d = 3$, $a_1 = ?$, $S_n = ?$ <br><br> 5. Sum of odd integers from 1 to 100 |

| E. Developing Mastery | Problem Set | Problem Set | Problem Set | Problem Set |
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| | Find the first 5 terms of the sequence given the $n_{th}$ term. | A. Find the specified term of each arithmetic sequence. | Insert the indicated number of arithmetic means between the given arithmetic extremes. | A. Find the sum of each arithmetic sequence. |
| | 1.  $a_n = n + 3$ | 1.  $3, 5, 7, ... a_{21}$ | 1.  -5 and 1 [2] | 1.  3, 5, 7,... to 31 terms |
| | 2.  $a_n = 3n - 1$ | 2.  $1.4, 4.5, 7.6, ... a_{51}$ | 2.  24 and -12 [4] | 2.  10, -2, -14,... to 17 terms |
| | 3.  $a_n = 10 - 3n$ | 3.  $x - 2, 4x, 7x + 2, ... a_{12}$ | 3.  8 and 23 [4] | 3.  Sum of even integers from 10 to 90 |
| | 4.  $a_n = 2^n$ | 4.  $14, 6, -2, ... a_{28}$ | 4.  4x and -16x [5] | 4.  Sum of the integers between 2 and 100 which are divisible by 3 |
| | 5.  $a_n = -3^n$ | 5.  $5, -1, -7, ... a_{18}$ | 5.  $6\sqrt{5}$ and $12\sqrt{5}$ [1] | |
| | Determine the rule that governs each sequence. | B. Find the specified term. | 6.  $-3\sqrt{3}$ and $15\sqrt{3}$ [5] | B. In each arithmetic series, find the specified unknown. |
| | 1.  5, 10, 15, 20,... | 1.  $17^{th}$ term of the sequence if $a_8 = 5$ and $a_{21} = -60$. | 7.  $\frac{1}{2}$ and 2 [2] | 1.  $S_n = 50$, $a_1=4$, $a_n=16$, $n=$? |
| | 2.  -1, -7, -11, -13,... | 2.  $5^{th}$ term of the sequence if $a_{15} = 29$ and $a_{27} = 47$. | | 2.  $S_n = 195$, $a_n=33$, $d=3$, $a_1=$? |
| | 3.  -2, 4, -8, 16,... | 3.  If $a_{24} = 85$ and $a_{28} = 100$, $a_1=$? | | 3.  $S_n = -15$, $a_1=12$, $d=-3$, $n=$? |
| | 4.  4, 1, -2, -5,... | 4.  If $a_1 = -4$ and $a_{25} = -100$, $a_{101}=$? | | 4.  Sum of odd integers from 1 to 100 |
| | 5.  1, 8, 27, 64,... | | | |
| | 6.  $\frac{1}{3}, \frac{1}{7}, \frac{1}{11}, \frac{1}{15}, ...$ | | | |
| F. Finding Practical Application of Concepts and Skills in Daily Living | Let the students answer the following questions:<br><br>1. In what real life situations or problems can we observe some examples of sequences?<br><br>2. How can you apply your knowledge of sequences in solving these real life problems? | Let the students answer the following questions:<br><br>1. In what real life situations or problems can we observe some examples of arithmetic sequences?<br><br>2. How can you apply your knowledge of arithmetic sequences in solving these real life problems? | Let the students answer the following questions:<br><br>1. In what real life situations or problems can we observe some examples of arithmetic means?<br><br>2. How can you apply your knowledge of arithmetic means in solving these real life problems? | Let the students answer the following questions:<br><br>1. In what real life situations or problems can we observe some examples of arithmetic series?<br><br>2. How can you apply your knowledge of arithmetic series in solving these real life problems? |

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| **G. Making Generalization and Abstractions about the Lesson** | Let the students answer the following questions:<br><br>1. In your own words, what are sequences?<br><br>2. How do we solve problems involving sequences? | Let the students answer the following questions:<br><br>1. In your own words, what are arithmetic sequences?<br><br>2. How do we solve problems involving arithmetic sequences? | Let the students answer the following questions:<br><br>1. In your own words, what are arithmetic means?<br><br>2. How do we solve problems involving arithmetic means? | Let the students answer the following questions:<br><br>1. In your own words, what are arithmetic series?<br><br>2. How do we solve problems involving arithmetic series? |
| **H. Evaluating Learning** | | **Quiz #1**<br><br>Find the specified term.<br><br>1. The $101^{th}$ term of the arithmetic sequence if $a_1$=-5 and $d$=-4.<br><br>2. The $39^{th}$ term of the arithmetic sequence if $a_1 = 40$ and $d = \frac{1}{2}$.<br><br>3. In the sequence 6, 10, 14,..., what term has a value of 286?<br><br>4. In the sequence 3, $\frac{7}{3}$, $\frac{5}{3}$,..., what term has a value of -27?<br><br>5. The $1^{st}$ term of the sequence if $a_5 = 26$ and $a_{12} = 47$.<br><br>6. The $61^{th}$ term of the sequence if $a_4 = 8$ and $a_{21} = 26$.<br><br>7. If $a_3$=8 and $a_{16}$=47, $a_{71}$=?<br><br>8. If $a_{21}$=64 and $a_{100}$=301, $a_{11}$=? | | |
| **I. Additional Activities for Application or Remediation** | | | | |

| VI. REMARKS | Objectives have been attained: ____ Objectives were not attained due to: _____ | Objectives have been attained: ____ Objectives were not attained due to: _____ | Objectives have been attained: ____ Objectives were not attained due to: _____ | Objectives have been attained: ____ Objectives were not attained due to: _____ |
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| **VII. REFLECTION** | | | | |
| **A. No. of learners who earned 80% in the evaluation** | 10–Bohr: ____ out of ____ <br> 10–Avogadro: ____ out of ____ | 10–Bohr: ____ out of ____ <br> 10–Avogadro: ____ out of ____ | 10–Bohr: ____ out of ____ <br> 10–Avogadro: ____ out of ____ | 10–Bohr: ____ out of ____ <br> 10–Avogadro: ____ out of ____ |
| **B. No. of learners who require additional activities for remediation who scored below 80%** | 10–Bohr: ____ out of ____ <br> 10–Avogadro: ____ out of ____ | 10–Bohr: ____ out of ____ <br> 10–Avogadro: ____ out of ____ | 10–Bohr: ____ out of ____ <br> 10–Avogadro: ____ out of ____ | 10–Bohr: ____ out of ____ <br> 10–Avogadro: ____ out of ____ |
| **C. Did the remedial lessons work? No. of learners who have caught up with the lesson** | 10–Bohr: ____ <br> 10–Avogadro: ____ | 10–Bohr: ____ <br> 10–Avogadro: ____ | 10–Bohr: ____ <br> 10–Avogadro: ____ | 10–Bohr: ____ <br> 10–Avogadro: ____ |
| **D. No. of learners who continue to require remediation** | 10–Bohr: ____ <br> 10–Avogadro: ____ | 10–Bohr: ____ <br> 10–Avogadro: ____ | 10–Bohr: ____ <br> 10–Avogadro: ____ | 10–Bohr: ____ <br> 10–Avogadro: ____ |
| **E. Which of my teaching strategies worked well? Why did these work?** | | | | |
| **F. What difficulties did I encounter which my principal or supervisor can help me solve?** | | | | |
| **G. What innovation or localized materials did I use/discover which I wish to share with other teachers?** | | | | |

Checked by:

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