# SECOND TERM
# WEEKLY LESSON NOTES
# WEEK 7

| | | | |
|---|---|---|---|
| **Week Ending:** | **DAY:** | **Subject:** Mathematics | |
| **Duration:** 60MINS | | **Strand:** Algebra | |
| **Class:** B9 | **Class Size:** | **Sub Strand:** Variables and Equations | |
| **Content Standard:** B9.2.3.1 Demonstrate understanding of single variable linear inequalities with rational coefficients | **Indicator:** B9.2.3.1.1 Solve single variable linear inequalities with rational coefficients | | **Lesson:** 1 of 1 |
| **Performance Indicator:** Learners can identify key terms like inequality symbols (<, >, ≤, ≥), variables, and coefficients and apply algebraic operations to solve single-variable linear inequalities. | | **Core Competencies:** Communication and Collaboration (CC) Critical Thinking and Problem solving (CP) | |
| **References:** Mathematics Curriculum Pg. 182 | | | |
| **New words:** variables, single-variable, linear, inequalities, coefficients | | | |

| Phase/Duration | Learners Activities | Resources |
|---|---|---|
| PHASE 1: **STARTER** | Introduce inequalities as mathematical expressions representing "unequal" relationships, using balance scales as a visual analogy.<br><br>Demonstrate how weights on each side represent expressions and how the inequality symbol indicates which side is "heavier."<br><br>Compare inequality symbols to equality symbols to highlight the difference.<br><br>Share performance indicators and introduce the lesson. | |
| PHASE 2: **NEW LEARNING** | Review inequality symbols (<, >, ≤, ≥) and their meanings in words and on a number line.<br><br>Provide examples and practice with comparing numbers and identifying correct symbols.<br><br>Explain how algebraic operations (addition, subtraction, multiplication, division) affect inequalities, emphasizing the importance of "flip-flopping" the inequality symbol when multiplying or dividing by a negative number. | Number line models (printable or interactive) |

- Adding a constant to both sides of an inequality does not change the direction of the inequality. For example, if a<b, then a+c<b+c.

- Similarly, subtracting a constant from both sides of an inequality preserves the direction of the inequality. If a<b, then a−c<b−c.

- Multiplying both sides of an inequality by a positive constant preserves the direction of the inequality. If a<b and c>0, then ac < bc.

- This is where the "flip-flopping" occurs. If you multiply both sides of an inequality by a negative constant, the direction of the inequality flips. If a<b and c<0, then ac>bc.

- Similar to multiplication, dividing both sides of an inequality by a positive constant preserves the direction of the inequality. If
- a<b and c>0, then $\frac{a}{c} < \frac{c}{b}$
- Just like multiplication, dividing both sides of an inequality by a negative constant flips the direction of the inequality.
- If
- a<b and c<0, then $\frac{a}{c} > \frac{c}{b}$

When dealing with negative numbers, it's crucial to be mindful of the "flip-flopping" effect. This is because multiplying or dividing by a negative number essentially reverses the order of the numbers on the number line. As a result, the relationship between the two values also reverses, and the inequality symbol needs to be flipped.

*For example:*
*If x < 3, multiplying both sides by -2 gives −2x > −6.*
*If y > −4, dividing both sides by -2 gives y<2.*

Provide guided practice with examples:
Example 1: Solve 3x + 5 < 14

*Solution*
*3x + 5 < 14*
*To solve the inequality 3x+5<14, we first need to isolate the x term. To do this, we subtract 5 from both sides of the inequality.*

*This gives us: 3x < 9*

| | | |
|---|---|---|
| | *We then divide both sides of the inequality by 3.*<br><br>*This gives us: x < 3*<br><br>Example 2: Solve -2y ≥ 10<br><br>*Solution*<br>*-2y ≥ 10 = -2y / -2 ≥ 10 / -2 = y ≤ -5*<br><br>Example 3: Solve 4x - 7 > 3x + 2<br><br>*Solution*<br>*we first need to isolate the x term = 4x – 3x > 2 + 7*<br>*= x > 9*<br><br>Demonstrate how to represent solutions of linear inequalities on a number line, using shading or arrows to indicate the range of values. Provide practice with graphing solutions individually or in pairs.<br><br>Assessment<br>1. $2x + 7 > \frac{5}{2}$<br>2. $\frac{4}{5} - \frac{1}{5}x > \frac{2}{7}$<br>3. $\frac{3}{2}y - \frac{2}{5} < \frac{4}{5}$<br>4. $\frac{1}{2}(5x - 4) < x + \frac{11}{24}$<br>5. $\frac{1}{3} > x - \frac{4}{5}$<br>6. $\frac{1}{2}(x + 3) \leq x + 1$ | |
| PHASE 3:<br>**REFLECTION** | Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.<br><br>Take feedback from learners and summarize the lesson. | |

| | | | |
|---|---|---|---|
| **Week Ending:** | **DAY:** | **Subject:** Mathematics | |
| **Duration:** 60MINS | | **Strand:** Algebra | |
| **Class:** B9 | **Class Size:** | **Sub Strand:** Variables and Equations | |
| **Content Standard:**<br>B9.2.3.1 Demonstrate understanding of single variable linear inequalities with rational coefficients | **Indicator:**<br>B9.2.3.1.1 Solve single variable linear inequalities with rational coefficients | | **Lesson:**<br>1 of 1 |
| **Performance Indicator:**<br>Learners can represent solutions graphically on a number line | **Core Competencies:**<br>Communication and Collaboration (CC)<br>Critical Thinking and Problem solving (CP) | | |
| **References:** Mathematics Curriculum Pg. 182 | | | |
| **New words:** variables, single-variable, linear, inequalities, coefficients | | | |
| | | | |

| Phase/Duration | Learners Activities | Resources |
|---|---|---|
| PHASE 1:<br>**STARTER** | Revise with learners on the previous lesson by inviting volunteers to solve questions on the board.<br><br>Share performance indicators and introduce the lesson. | |
| PHASE 2: **NEW LEARNING** | Introduce inequalities as mathematical expressions representing "unequal" relationships, using the balance as a visual metaphor.<br><br>Explain how weights on each side represent expressions and how the inequality symbol shows which side "outweighs" the other.<br><br>Play a quick memory game or matching activity with inequality symbols (<, >, ≤, ≥) to solidify their recognition.<br><br>Discuss the difference between these symbols and the equal sign (=), emphasizing the "tipping point" aspect of inequalities.<br><br>Provide guided practice with examples:<br>● 3x + 5 > 14 (Solve for x and flip the sign when dividing by 3)<br>● -2y ≤ 10 (Isolate y and flip the sign when multiplying by -1)<br>● 4x - 7 < 3x + 2 (Combine like terms before comparing)<br><br>Introduce the number line as a court of justice for inequalities, where each point represents a potential solution. | Dice or spinners (optional, for generating practice problems |

| | | |
|---|---|---|
| | Demonstrate how to shade or mark the regions on the number line that satisfy the inequality based on the symbol.<br><br>Encourage learners to practice graphing solutions individually or in pairs, discussing their reasoning.<br><br><u>ASSESSMENT</u><br>1. $\frac{1}{2}(2x+3) \geq x + 1$<br>2. $-\frac{2}{3}x + 3 \geq 0$<br>3. $\frac{1}{2}(x + 3) \leq x + 1$ | |
| PHASE 3:<br>**REFLECTION** | Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.<br><br>Take feedback from learners and summarize the lesson. | |