Name: …………………………………. Date: ……………...

Investigation Task: Lighting the Classroom Efficiently   Assessment Criterion: A and C

Criterion A: Knowing & Understanding

Question	Achievement Level Band	Task-Specific Descriptor	Sample Response / Evidence
Q1. Match each inequality with the correct number line	1–2	• Selects some appropriate mathematics when solving problems in **familiar situations**. • Shows limited understanding of inequality symbols and their representation on number lines. • Makes significant or repeated errors when matching open/closed circles or shading direction.	**Sample:** Student correctly matches one or two inequalities; confuses $x \geq 2$ with $x > 2$; shading may be on the wrong side. Shows partial awareness but inconsistent reasoning.
Q2. The inequality $5 − x \geq 2$ has the solution $x \leq 3$ (True/False)	1–2	• Attempts to apply basic mathematical steps to verify inequality statements but with limited success. • May fail to correctly handle the negative sign or reverse the inequality.	**Sample:** Writes $5 − x \geq 2 \rightarrow x \geq 3 \rightarrow$ "True" (incorrect reasoning). Shows attempt but lacks understanding of sign reversal rule.
Q3. Write an inequality to describe the region shown on a number line	3–4	• Selects appropriate mathematical symbols to describe graphical inequalities in **familiar situations**. • Applies inequality concepts with partial accuracy and interprets open/closed intervals correctly in most cases. • Solves and presents answers correctly for some contexts.	**Sample:** a) $x < −1$ (open circle) b) $−2 < x \leq 4$ (one open, one closed). Reasoning is clear with correct representation, minor formatting errors possible.
Q4. Solve $3x − 5 < 7$ and represent the solution on a number line	5–6	• Selects and applies appropriate mathematics to solve linear inequalities accurately. • Demonstrates correct manipulation and symbolic reasoning. • Represents the solution set correctly on a number line.	**Sample:** $3x − 5 < 7 \rightarrow 3x < 12 \rightarrow x < 4$. Number line: open circle at 4, shading to the left. Work is clear and mathematically sound.
Q5. Verify whether the student's claim $2(3x − 4) > 4x + 8 \Rightarrow x > 8$ is correct	7–8	• Consistently selects and applies appropriate mathematical methods in **familiar and unfamiliar situations**. • Demonstrates full understanding through accurate reasoning, verification, and justification.	**Sample:** $6x − 8 > 4x + 8 \rightarrow 2x > 16 \rightarrow x > 8$ ✓ "The student's claim is correct since both sides simplify to $x > 8$." Reasoning is complete, clear, and fully justified.

		• Uses algebraic manipulation and explanation to confirm or correct a claim logically.	

Criterion C: Communicating

Question	Achievement Level Band	Task-Specific Descriptor	Sample Response / Evidence
Q1. Match each inequality with the correct number line	1–2	• Uses limited or partially correct mathematical representation. • Work lacks organization and clear structure. • Mathematical symbols or notations are incomplete or inaccurate.	**Sample:** Matches a few inequalities correctly but omits shading arrows or misuses open/closed circles. Work shown without explanation or labels.
Q2. True/False – $5 − x \geq 2 \Rightarrow x \leq 3$	1–2	• Attempts to communicate mathematical reasoning but with limited clarity. • Steps may be missing, unordered, or contain notational errors. • Explanation lacks coherence.	**Sample:** Writes "$5 − x \geq 2$ so $x \geq 3$, True." Steps incomplete and no justification for reversing inequality. Partial notation, little reasoning.
Q3. Write an inequality to describe the region on a number line	3–4	• Communicates using some appropriate mathematical language and symbols. • Work is partly organized, showing a logical structure with minor omissions. • Representation mostly accurate but may lack labeling or clarity.	**Sample:** a) $x < −1$ (open circle)b) $−2 < x \leq 4$. Uses clear symbols; layout is understandable but lacks written explanation or reasoning sentences.
Q4. Solve $3x − 5 < 7$ and represent the solution	5–6	• Communicates using appropriate mathematical language, symbols, and representations consistently. • Presents reasoning clearly and logically with organized layout. • Minor notation or structural errors possible.	**Sample:** $3x − 5 < 7 \rightarrow 3x < 12 \rightarrow x < 4$.Draws open circle at 4, shades left; clearly written step-by-step solution and labeled number line.
Q5. Verify whether $2(3x − 4) > 4x + 8 \Rightarrow x > 8$	7–8	• Communicates mathematically with precision and fluency using appropriate symbols, terminology, and structure. • Reasoning is complete, coherent, and concise. • Explanations support conclusions clearly.	**Sample:** $6x − 8 > 4x + 8 \rightarrow 2x > 16 \rightarrow x > 8$."The student's claim is correct because simplifying both sides leads to $x > 8$."All notation accurate, justification precise and well-structured.