4.CA.1 Multiply a whole number of up to four digits by a one-digit whole number and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Describe the strategy and explain the reasoning. (E)

Reporting Category: Computation and Algebraic Thinking

Subdomain: Multiplication

4.CA.1 Instructional Framework

Assessed On:

☑ Checkpoint 1   ☐ Checkpoint 2   ☐ Checkpoint 3   ☑ Summative

Content Limits:
● Products may be up to 89,991 (9,999 x 9).
● Multiply four digits by one digit, three digits by one digit, two digits by one digit, and two digits by two digits.
● Specific strategies should not be tested.
● Items should use an open box, not variables, to represent an unknown number.

Clarifications:
● Items that align to the "Above Proficiency" proficiency level descriptor may include real-world problem-solving to align with the expectations of computation and problem-solving standards in grade five. The Common Multiplication & Division Structures should be referenced to various types of word problems.
● The keypad in the ILEARN testing system does not allow students to enter a comma between each period in a multi-digit number. (Example: 13,323 would be entered as 13323.)

Calculator Availability: Not Allowed

Expected Academic Vocabulary: multiplication, multiply, product, factor, value, expression, equation

Examples of Context and Varying Difficulty Levels	
Context: Easy	Limit to multiplication expressions up to three-digit by one-digit with no regrouping
Context: Medium	Limit to multiplication expressions up to four-digit by one-digit with regrouping.
Context: Difficult	Include multiplication expressions of two-digit by two-digit with and without regrouping.

Proficiency Level Descriptors and Example Items	

Looking Back:
3.CA.3 ILEARN Item Specification
3.CA.6 ILEARN Item Specification

Looking Ahead:
5.CA.2 ILEARN Item Specification

Below Proficiency: Multiply a whole number of up to four digits by one digit without regrouping using any strategy based on place value or properties of operations.

Solve.	This is a DOK 1 item because students must fluently solve a multiplication expression.
$$\begin{array}{r} 220 \\ \times 4 \\ \hline \square \end{array}$$ **Answer: 880**	This is an easy item because it is a three-digit by one-digit multiplication expression with no regrouping required.

Approaching Proficiency: Multiply a whole number of up to two or three digits by one digit with regrouping using any strategy based on place value or properties of operations.

Solve.	This is a DOK 1 item because students must fluently solve a multiplication expression.
$49 \times 6 = \square$ **Answer: 294**	This is a medium difficulty item because it is a two-digit by one-digit multiplication expression with regrouping required.

At Proficiency: Multiply a whole number of up to four digits by one digit and two two-digit numbers with regrouping using any strategy based on place value or properties of operations. Justify the solution by describing the strategy or reasoning.

Solve.	This is a DOK 1 item because students must fluently solve a multiplication expression.
$$\begin{array}{r} 2830 \\ \times 3 \\ \hline \square \end{array}$$ **Answer: 8490**	This is a medium difficulty item because it is a four-digit by one-digit multiplication expression with regrouping required.

Solve.	This is a DOK 1 item because students must fluently solve a multiplication expression.
$$\begin{array}{r} 24 \\ \times\,16 \\ \hline \square \end{array}$$ **Answer: 384**	This is a difficult item because it is a two-digit by two-digit multiplication expression with regrouping.

Above Proficiency: Apply knowledge of the multiplication of four-digit by one-digit and two-digit by two-digit numbers to solve problems.

What unknown digit makes the equation true?	This is a DOK 1 item because students must identify an unknown value in a multiplication equation.
$$\begin{array}{r} 341 \\ \times\,6 \\ \hline 2,\square 46 \end{array}$$ **Answer: 0**	This is a medium difficulty item because it is a three-digit by one-digit multiplication expression with regrouping required.

For each equation in the table, select true if it is correct or false if it is incorrect.	This is a DOK 1 because students must evaluate given multiplication equations for accuracy.
	True	False	This is a difficult item because it includes multiplication expressions of two-digit by two-digit with regrouping.

	True	False
63 x 21 = 1,323	☐	☐
4,261 x 6 = 24,266	☐	☐
234 x 5 = 101,520	☐	☐
321 x 8 = 2,568	☐	☐

Answer: True, False, False, True

Aiden earns $25 for each lawn he mows. Last summer he mowed 36 lawns. What is the total amount of money Aiden earned last summer? **Answer: $900**	This is a DOK 2 item because students must solve problems using multiplication or division strategies or properties of operations. This item is difficult because it includes multiplying two-digits by two-digits with regrouping.