



5.CA.2 Solve real-world problems involving multiplication and division of whole numbers (e.g., by using equations to represent the problem). In division problems that involve a remainder, explain how the remainder affects the solution to the problem. (E)

Reporting Category: Computation and Algebraic Thinking

Subdomain: Multiplication and Division of Whole Numbers

5.CA.2 Instructional Framework

Assessed On:

☒ Checkpoint 1 ☐ Checkpoint 2 ☐ Checkpoint 3 ☒ Summative

Content Limits:

- Dividends should be two-, three, and four-digit whole numbers; divisors should be one- or two-digit whole numbers.
- Quotients must be whole numbers and may have remainders.
- Multiplication should include three-, four-, and five-digits by two-digits.
- Items should use an open box, not variables, to represent an unknown number.
- Real-world problems should not exceed three-steps.
- Problems involving remainders should require the student to interpret and use the remainder with respect to context.
- Remove the fraction key from the designated keypad for items that require the correct response to be entered as a whole number or decimal.

Clarifications:

- Students in grade five should be exposed to a variety of problem types related to multiplication and division using whole numbers. Refer to the [Common Multiplication & Division Structures table](#) for examples of each type of problem.
- 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: division, divide, dividend, divisor, quotient, value, expression, equation, remainder, solve, explain, minimum, maximum, greatest, least

Examples of Context and Varying Difficulty Levels

Context: Easy	Multiply up to four-digits by one-digit; divide up to four-digits by one-digit with or without remainders
Context: Medium	Multiply up to two-digits by two-digits; divide up to three-digits by two-digits with or without remainders
Context: Difficult	Multiply up to five-digits by two-digits; divide up to four-digits by two-digits with or without remainders



Proficiency Level Descriptors and Example Items	
Looking Back: 4.CA.5 ILEARN Item Specification	Looking Ahead: This concept is not specifically addressed in the Indiana Academic Standards in subsequent grade levels.
Below Proficiency: Calculate the product of multi-digit numbers. Identify an expression that represents a one-step multiplication or division real-world problem.	
Solve. 634×25 Answer: 15850	This is a DOK 1 because students must calculate the product of multi-digit numbers. This is a difficult item because it includes three-digit and two-digit numbers.
Jack buys 150 chicken wings. Mia buys 4 times as many chicken wings as Jack. Which expression represents how many chicken wings Mia buys? a. $150 - 4$ b. 4×150 c. $150 \div 4$ d. $4 + 150$	This is a DOK 2 item because students must reason through the problem, determine a plan to solve, and identify the expression that represents it correctly. This is an easy item because it includes a three-digit and a one-digit number.
Approaching Proficiency: Solve one-step multiplication or division real-world problems with and without remainders. Interpret how the remainder within a quotient affects the final solution.	
Sydney and her 2 friends competed as a team in a math competition. <ul style="list-style-type: none">Each person on the team scored the same number of points.The team scored a total of 777 points. How many points did each person score? Answer: 259 points	This is a DOK 2 item because students must reason through the one-step problem, determine a plan to solve, and compute the solution correctly. This is an easy item because it includes three-digits divided by



	one-digit without a remainder.
<p>Jackie picks 130 tomatoes from her garden.</p> <ul style="list-style-type: none">• She fills jars with 4 tomatoes each.• Jackie keeps the leftover tomatoes. <p>How many leftover tomatoes does Jackie keep?</p> <p>Explain your answer.</p> <p>Answer: Jackie keeps 2 tomatoes. $130 \div 4 = 32 \text{ R } 2$. Jackie can fill 32 jars with 4 tomatoes and has 2 tomatoes leftover to keep.</p>	<p>This is a DOK 3 item because students must reason through the problem, determine a plan to solve, compute the solution correctly, and interpret and explain that the remainder of the quotient is the final solution.</p> <p>This is an easy item because it includes three-digits divided by one-digit.</p>
<p>Max ships 25 large boxes of friendship bracelets. Each box holds 34,905 bracelets.</p> <p>How many total bracelets did Max ship?</p> <ul style="list-style-type: none">a. 1,472,875b. 872,625c. 244,335d. 762,625	<p>This is a DOK 2 because students must reason through the problem and determine a plan to solve, and compute the solution correctly.</p> <p>This is a difficult item because it includes five-digits multiplied by two-digits.</p>
At Proficiency: Solve two-step multiplication and/or division real-world problems involving unknown products or quotients. Interpret how the remainder within a quotient affects the final solution.	
<p>Two students bake 394 cookies for the choir bake sale. They put them into boxes that hold 12 cookies.</p> <p>Part A: What is the minimum number of boxes needed to put all the cookies in a box?</p> <p>Part B: How many cookies will be in the box that is not filled?</p> <p>Answers: Part A: 33 boxes Part B: 10 cookies</p>	<p>This is a DOK 2 item because students must reason through the problem, determine a plan to solve, compute the solution correctly, and interpret the remainder of the quotient as part of the final solution.</p> <p>This is a medium</p>



	difficulty item because it includes three-digits divided by two-digits with remainders.
<p>Teachers create groups for a field trip.⁺</p> <ul style="list-style-type: none">• 128 students attend the field trip.• Groups may have no less than 5 and no more than 7 students. <p>What is the greatest number of groups the teachers can create?</p> <p>a. 18 b. 19 c. 25 d. 26</p>	<p>This is a DOK 2 item because students must reason through the problem, determine a plan to solve, compute the solution correctly, and interpret the remainder of the quotient as part of the final solution.</p> <p>This is an easy item because it includes three-digits divided by one-digit.</p>
Above Proficiency: Solve a two- or three-step multiplication and/or division real-world problems involving unknowns other than the product or quotient.	
<p>Jack bought 2 umbrellas and 3 hats.</p> <ul style="list-style-type: none">• He spent between \$30 and \$50.• Each umbrella costs the same amount.• Each hat costs \$4.00. <p>Part A: What is the least amount Jack could have spent on an umbrella?</p> <p>Part B: What is the most Jack could have spent on an umbrella?</p> <p>Answers: Part A: \$9 for one umbrella Part B: \$19 for one umbrella</p>	<p>This is a DOK 3 item because students must determine two unknown quantities by reasoning through the problem, determining a plan to solve, and working through multiple steps to answer each part.</p> <p>This is an easy problem because it involves multiplying and dividing by one- and two-digits.</p>