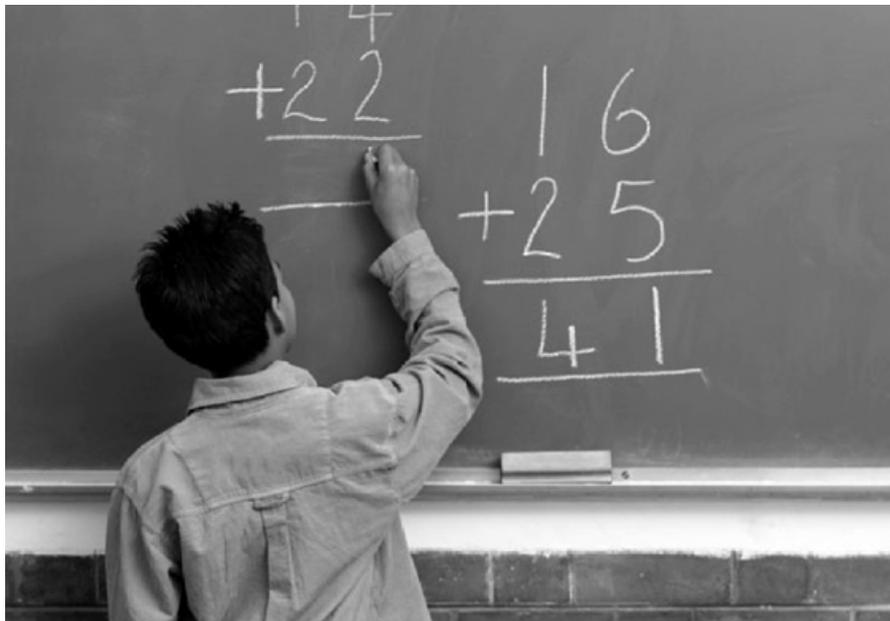


OKLAHOMA SCHOOL TESTING PROGRAM
OKLAHOMA MODIFIED ALTERNATE
ASSESSMENT PROGRAM

Test and Item Specifications

Mathematics
Grade 3



2012–2013 Edition

Oklahoma State Department of Education
Oklahoma City, Oklahoma

Revised
March 2013

OKLAHOMA MODIFIED ALTERNATE ASSESSMENT PROGRAM

TEST AND ITEM SPECIFICATIONS

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Purpose

The purpose of this test is to measure Oklahoma third-grade students' level of proficiency in mathematics. On the Grade 3 Mathematics Test, students are required to respond to a variety of items linked to the third-grade mathematics content standards identified in the *Oklahoma College, Career, and Citizen Ready (C³) Standards*. All Mathematics Test forms will assess the identified standards and objectives listed below. The following standards and objectives are intended to summarize the knowledge as identified in the *Oklahoma C³ Standards*.

<i>Oklahoma C³ Content Standards and Objectives</i>
Algebraic Reasoning: Patterns and Relationships <ul style="list-style-type: none">• Algebra Patterns (1.1)• Equations (1.2)• Number Properties (1.3)
Number Sense and Operation <ul style="list-style-type: none">• Number Sense (2.1)• Number Operations (2.2)
Geometry <ul style="list-style-type: none">• Properties of Shapes (3.1)• Spatial Reasoning (3.2)• Coordinate Geometry (3.3)
Measurement <ul style="list-style-type: none">• Measurement (4.1)• Time and Temperature (4.2)• Money (4.3)
Data Analysis <ul style="list-style-type: none">• Data Analysis (5.1)• Probability (5.2)

General Considerations

It is necessary to create test items that are reliable, fair, and targeted to the *Oklahoma C³* Standards listed on the following pages. There are some general considerations and procedures for effective item development. These considerations include, but are not limited to, the following:

1. Each test form contains items assessing all content standards listed in the Test Blueprint for third-grade mathematics.
2. Test items that assess each standard are not limited to one particular type of response format.
3. Test questions attempt to focus on content that is authentic and that third-grade students can relate to and understand.
4. Test items are worded precisely and clearly.
5. All items are reviewed to eliminate language that shows bias or is otherwise likely to disadvantage a particular group of students. That is, items do not display unfair representations of gender, race, disability, culture, or religion, nor do items contain elements that are offensive to any such group.
6. All answer choices in multiple-choice items (the key and all distractors) are similar in length and syntax. Students should not be able to rule out a wrong answer or identify a correct response solely because it looks or sounds different from the other answer choices. Distractors are created so that students reason their way to the correct answer rather than simply identify incorrect responses because of a distractor's obviously inappropriate nature. Distractors should always be plausible (but incorrect) in the context of the item stem. Correct responses are approximately equally distributed among As, Bs, and Cs.

Universal Test Design Considerations

Universal design, as applied to assessments, is a concept that allows the widest possible range of students to participate in assessments and may even reduce the need for accommodations and alternative assessments by expanding access to the tests themselves. In the Oklahoma Modified Alternate Assessment Program, modifications have been made to some items that simplify and clarify instructions and provide maximum readability, comprehensibility, and legibility.

Universal Modifications

- Minimize the number of questions on the page (limit to 2 or 3).
- Use a larger font size.
- Provide only three answer options instead of four.
- Highlight the main points in the question or passage by underlining and using boldface.
- Allow for the same accommodations as in the standard assessment.
- Avoid questions that require students to select the better/best answer.
- Eliminate answer choices that give students the option of making no changes to the item.
- Be consistent in wording of directions across grades and subjects.
- Minimize the use of pronouns and prepositional phrases.
- Avoid the use of multiple-meaning words and words that can function as more than part of speech.
- Enlarge art when possible.
- Simplify art when possible, (i.e. removing unnecessary labels, use less gray scale, use thicker lines when outlining, etc.).
- Box informational text in an item.
- Bullet information when possible (e.g. bullet detailed information or processes).
- Reduce reading load of stem, stimuli, and answer options when possible.
- Use Verdana font.
- Revise answer options to address parallelism and minimize outliers.

Mathematics Items

- Allow for read-aloud and calculators format.
- For lower grades, display numbers on all sides of figures for questions about perimeter.
- Unless required by standard, avoid items with negative and positive answer choices that use the same number.
- Place any items with coordinate grids on one page.
- For lower grades, use grids for questions.
- Be consistent with qualifiers in the stem and answer choices.
- Avoid questions that use best or closest.
- Avoid complicated art.
- List coordinate grids in answer options vertically with plenty of space between the answer options to make the grid more accessible to the visually impaired (however, avoid spanning item over two pages).
- Simplify reading load, including vocabulary, when possible.
- Eliminate stimuli sets.
- Delete one part of a compound answer choice when possible.
- Delete griddable items, negative items, and items that cannot be modified based on guidelines.

Mathematics Items - continued

- Delete extraneous information including irrelevant material and unnecessary words in items or graphics.
- Simplify complex sentence structure and vocabulary in item and answer choices without eliminating math vocabulary.
- Change passive voice to active voice when appropriate.
- Add precise language to provide additional context for clarification.
- Use consistent language within an item in order to focus student attention on what is being asked.
- Revise text as necessary to maintain the authenticity and logic of the item due to modifications.
- Use bullets to clearly organize complex items into smaller, meaningful parts.
- Direct student attention to graphics.
- Simplify visual complexity of graphics.
- Provide new text and/or reorganize existing text within the question to explain or clarify the graphic.
- Provide additional graphics to support text, emphasize ideas, and facilitate comprehension.
- Reduce the number of variables and simplify digits in item when appropriate.
- Limit the number of steps and/or operations in multi-step problems.
- Provide appropriate formula and/or conversion near the item.
- Provide explicit directions to explain a process such as measuring (as long as it does not impact reading load).

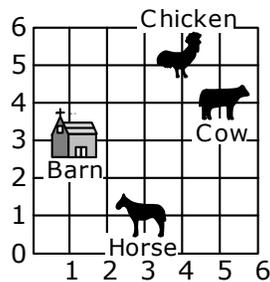
Below is an example of an OCCT item followed by a modified version of the item. The modified version of the item was created using the modification list on pages 3 and 4.

OCCT Oklahoma C³ 3.3 Sample Item:

Depth of Knowledge: 1

Correct Answer: C

The grid shows the location of the barn and 3 animals on Joey's farm.



Which ordered pair shows the location of the chicken?

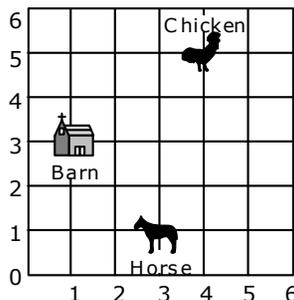
- A (1, 3)
- B (3, 1)
- C (4, 5)
- D (5, 4)

Modified OMAAP Oklahoma C³ 3.3 Sample Item:

Depth of Knowledge: 1

Correct Answer: B

The grid shows the location of the barn and 2 animals on Joey's farm.



Which ordered pair shows the location of the chicken?

- A (1, 3)
- B (4, 5)
- C (5, 6)

Multiple-Choice Item Rules

- All items clearly indicate what is expected in a response and help students focus on their response.
- Each multiple-choice item has a stem (question, statement, or incomplete statement, and/or graphic component) and three answer (or completion) options, only one of which is correct.
- Multiple-choice item stems present a complete problem so that students know what to do before looking at the answer choices; students should not need to read all answer choices before knowing what is expected.

In summary, mathematics-test items assess whether students understand mathematical concepts and procedures, communicate their understandings effectively in mathematical terms, approach problems, and develop viable solutions.

All items developed using these specifications are reviewed by Oklahoma educators and approved by the Oklahoma State Department of Education. The distribution of newly developed or modified items is based on content and process alignment, difficulty, cognitive ability, percentage of art/graphics, and grade level appropriateness as determined by an annual Item Development Plan approved by the Oklahoma State Department of Education.

Test Structure, Format, and Scoring

The test will consist of 40-43 operational multiple-choice items, which will be written at a reading level one grade level below a third-grade audience and will include three responses from which to choose: the correct answer and two distractors.

Each multiple-choice item is scored as correct or incorrect. The student's raw score is converted to a scaled score using the number correct scoring method.

Test Alignment with Oklahoma C³ Standards

Criteria for Aligning the Test with the <i>Oklahoma C³</i> Standards and Objectives	
1. Categorical Concurrence	The test is constructed so that there are at least six items measuring each <i>Oklahoma C³</i> standard, with the content category consistent with the related standard. The number of items, six, is based on estimating the number of items that could produce a reasonably reliable estimate of a student's mastery of the content measured.
2. Depth of Knowledge Consistency	The test is constructed using items from a variety of Depth of Knowledge levels that are consistent with the processes students need in order to demonstrate proficiency for each <i>Oklahoma C³</i> objective.
3. Range of Knowledge Correspondence	The test is constructed so that at least 50% of the objectives for an <i>Oklahoma C³</i> standard have at least one corresponding assessment item.
4. Balance of Representation	The test is constructed according to the Test Blueprint, which reflects the degree of representation given on the test to each <i>Oklahoma C³</i> standard and objective in terms of the percentage of total test items measuring each standard and the number of test items measuring each objective.
5. Source of Challenge	Each test item is constructed in such a way that the major cognitive demand comes directly from the targeted <i>Oklahoma C³</i> objective or concept being assessed, not from specialized knowledge or cultural background that the test-taker may bring to the testing situation.

Oklahoma School Testing Program
Oklahoma Modified Alternative Assessment Program
Grade 3 Mathematics
Test Blueprint
2012-2013 School Year

The Test Blueprint reflects the degree to which each *Oklahoma C³* standard and objective is represented on the test. The overall distribution of operational items in a test form is intended to look as follows:

<i>Oklahoma C³</i> Standards & Objectives	Ideal Number of Items for Alignment to <i>Oklahoma C³*</i>	Ideal ¹ Percentage of Items
Algebraic Reasoning: Patterns and Relationships	6–7	14%–16%
Algebra Patterns (1.1)	1–3	
Equations (1.2)	1–3	
Number Properties (1.3)	1–3	
Number Sense and Operation	15–16	35%–37%
Number Sense (2.1)	7–8	
Number Operations (2.2)	7–8	
Geometry	6–7	14%–16%
Properties of shapes (3.1)	1–3	
Spatial Reasoning (3.2)	1–3	
Coordinate Geometry (3.3)	1–3	
Measurement	7–8	16%–19%
Measurement (4.1)	2–4	
Time and Temperature (4.2)	1–3	
Money (4.3)	1–3	
Data Analysis	6–7	14%–16%
Data Analysis (5.1)	2–4	
Probability (5.2)	2–4	
Total Test	40–43²	100%

¹ Percentages are approximations and may result in a sum other than 100 due to rounding.

² The actual number of items scored for a student may be slightly lower pending a review of item statistics.

* Student performance on the multiple-choice test will be reported at the standard level. A minimum of 6 items is required to report a standard. While the actual numbers of items on the test may not match the blueprint exactly, each future test will move toward closer alignment with the ideal blueprint.

Overview of Item Specifications

For each *Oklahoma C³* standard, item specifications are organized under the following headings:

- *Oklahoma C³* Standard and *Oklahoma C³* Objective
- Item Specifications
 - a. Emphasis
 - b. Stimulus Attributes
 - c. Format
 - d. Content Limits
 - e. Distractor Domain
 - f. Sample Test Items

The headings “*Oklahoma C³* Standard” and “*Oklahoma C³* Objective” state the standard and objective being measured as found in the third-grade mathematics section of the *Oklahoma C³Standards* document.

The heading “Item Specifications” highlights important points about the items’ emphasis, stimulus attributes, format, content limits, and distractor domain. Although it is sometimes possible to score single items for more than one concept, all items in these tests are written to address a single content standard as the primary concept.

All items will assess objectives using only depth-of-knowledge levels 1, 2, or 3. Descriptions of the depth-of-knowledge levels for Mathematics are as follows:

Level 1 requires the student to recall facts, terms, definitions, or simple procedures; perform simple algorithms; or apply formulas. One-step, well-defined, or straight algorithmic procedures should be included at this level.

Level 2 requires the student to make some decisions as to how to approach the problem or activity. Level 2 activities include making observations and collecting data; classifying, comparing, and organizing data; and organizing and displaying data in tables, charts, and graphs.

Level 3 requires complex reasoning, planning, developing, using evidence, and a higher level of thinking. Level 3 activities include making conjectures, drawing conclusions from observations, citing evidence, developing a logical argument for concepts, explaining phenomena in terms of concepts, and using concepts to solve non-routine problems.

Depth of Knowledge Assessed by Test Items

The test will approximately reflect the following depth of knowledge distribution of items:

Depth of Knowledge	Percentage of Items
Level 1—Recall	20-25%
Level 2—Basic Reasoning	60-65%
Level 3—Complex and Extended Reasoning	10-15%

This is the ideal depth of knowledge distribution of items. There may be slight differences in the actual distribution of the upcoming testing session.

Note about the Item Specifications and Sample Items:

With the exception of content limits, the item specifications give suggestions of what might be included and do not give an exhaustive list of what can be included.

These sample test items are not intended to be definitive in nature or construction, as the stimuli and test items may differ from one test form to another, as may their presentation.

MATHEMATICS PROCESS STANDARDS

Grades 1–5

The National Council of Teachers of Mathematics (NCTM) has identified five process standards: Problem Solving, Communication, Reasoning and Proof, Connections, and Representation. Using these processes students are actively involved in deepening mathematical understandings which lead to increasingly sophisticated abilities required to meet mathematical challenges. Following is an outline of the five process standards and associated objectives.

NOTE: When examples are given there is a progression in levels of difficulty from basic to more complex skills.

Process Standard 1: Problem Solving

1. Use problem-solving approaches (e.g., act out situations, represent problems with drawings and lists, use concrete, pictorial, graphical, oral, written, and/or algebraic models, understand a problem, devise a plan, carry out the plan, look back).
2. Formulate problems from every day and mathematical situations (e.g., how many forks are needed?, how many students are absent?, how can we share/divide these cookies?, how many different ways can we find to compare these fractions?).
3. Develop, test, and apply strategies to solve a variety of routine and non-routine problems (e.g., look for patterns, make a table, make a problem simpler, process of elimination, trial and error).
4. Verify and interpret results with respect to the original problem (e.g., students explain verbally why an answer makes sense, explain in a written format why an answer makes sense, verify the validity of each step taken to obtain a final result).
5. Distinguish between necessary and irrelevant information in solving problems (e.g., play games and discuss “best” clues, write riddles with sufficient information, identify unnecessary information in written story problems).

Process Standard 2: Communication

1. Express mathematical ideas coherently and clearly to peers, teachers, and others (e.g., with verbal ideas, models or manipulatives, pictures, or symbols).
2. Extend mathematical knowledge by considering the thinking and strategies of others (e.g., agree or disagree, rephrase another student’s explanation, analyze another student’s explanation).
3. Relate manipulatives, pictures, diagrams, and symbols to mathematical ideas.
4. Represent, discuss, write, and read mathematical ideas and concepts. Start by relating everyday language to mathematical language and symbols and progress toward the use of appropriate terminology (e.g., “add more” becomes “plus”, “repeated addition” becomes “multiplication”, “fair share” becomes “divide”, “balance the equation” becomes “solve

the equation”).

Process Standard 3: Reasoning

1. Explain mathematical situations using patterns and relationships (e.g., identify patterns in situations, represent patterns in a variety of ways, extend patterns to connect with more general cases).
2. Demonstrate thinking processes using a variety of age-appropriate materials and reasoning processes (e.g., manipulatives, models, known facts, properties and relationships, inductive [specific to general], deductive [general to specific], spatial, proportional, logical reasoning [“and” “or” “not”] and recursive reasoning).
3. Make predictions and draw conclusions about mathematical ideas and concepts. Predictions become conjectures and conclusions become more logical as students mature mathematically.

Process Standard 4: Connections

1. Relate various concrete and pictorial models of concepts and procedures to one another (e.g., use two colors of cubes to represent addition facts for the number 5, relate patterns on a hundreds chart to multiples, use base-10 blocks to represent decimals).
2. Link concepts to procedures and eventually to symbolic notation (e.g., represent actions like snap, clap, clap with symbols A B B, demonstrate $3 \cdot 4$ with a geometric array, divide a candy bar into 3 equal pieces that represent one piece as $\frac{1}{3}$).
3. Recognize relationships among different topics within mathematics (e.g., the length of an object can be represented by a number, multiplication facts can be modeled with geometric arrays, can be written as .5 and 50%).
4. Use mathematical strategies to solve problems that relate to other curriculum areas and the real world (e.g., use a timeline to sequence events, use symmetry in art work, explore fractions in quilt designs and to describe pizza slices).

Process Standard 5: Representation

1. Create and use a variety of representations appropriately and with flexibility to organize, record, and communicate mathematical ideas (e.g., dramatizations, manipulatives, drawings, diagrams, tables, graphs, symbolic representations).
2. Use representations to model and interpret physical, social, and mathematical situations (e.g., counters, pictures, tally marks, number sentences, geometric models; translate between diagrams, tables, charts, graphs).

OKLAHOMA C³ STANDARDS**MATHEMATICS CONTENT STANDARDS****Grade 3**

Asterisks (*) have been used to identify standards and objectives that are not assessed by the Oklahoma School Testing Program (OSTP) in the original *Oklahoma C³* curriculum.

The student applies a wide range of strategies to describe, interpret, evaluate, and analyze a variety of math problems and contexts.

Standard 1: Algebraic Reasoning: Patterns and Relationships—The student will use a variety of problem-solving approaches to extend and create patterns.

1. Describe (orally or in written form), create, extend, and predict patterns in a variety of situations (e.g., 3, 6, 9, 12..., use a function machine to generate input and output values for a table, show multiplication patterns on a hundreds chart, determine a rule and generate additional pairs with the same relationship).
2. Find unknowns in simple arithmetic problems by solving open sentences (equations) and other problems involving addition, subtraction, and multiplication.
3. Recognize and apply the commutative and identity properties of multiplication using models and manipulative to develop computational skills (e.g., $3 \cdot 5 = 5 \cdot 3$; $7 \cdot 1 = 7$).

Standard 2: Number Sense and Operation—The student will use numbers and number relationships to acquire basic facts. The student will estimate and compute with whole numbers.

1. Number Sense
 - a. Place Value
 - i. Model the concept of place value through 4 digits (e.g., base-10 blocks, bundles of 10s, place value mats).
 - ii. Read, model, and write whole numbers up to 4 digits (e.g., expanded form, standard form).
 - b. Whole Numbers and Fractions
 - i. Compare and Order whole numbers up to 4 digits.
 - ii. Create and compare physical and pictorial models of equivalent and nonequivalent fractions including halves, thirds, fourths, eighths, tenths, twelfths, and common percents (25%, 50%, 75%, 100%) (e.g., fraction circles, pictures, egg cartons, fractions strips, number lines).

2. Number Operations

- a. Estimate and find the sum or difference (with and without regrouping) of three- and four-digit numbers using a variety of strategies to solve application problems.
- b. Multiplication Concepts and Fact Families
 - i. Use physical models and a variety of multiplication algorithms to find the product of multiplication problems with one-digit multipliers.
 - ii. Demonstrate fluency (memorize and apply) with basic multiplication facts up to 10×10 and the associated facts (e.g., $5 \times 6 = 30$ and $30 \div 6 = 5$).
 - iii. Estimate the product of two-digit by two-digit numbers by rounding to the nearest multiple of 10 to solve application problems.

Standard 3: Geometry—The student will use geometric properties and relationships to recognize and describe shapes.

1. Identify and compare attributes of two- and three-dimensional shapes and develop vocabulary to describe the attributes (e.g., count the edges and faces of a cube; the radius is half of a diameter, lines of symmetry).
2. Analyze the effects of combining and subdividing two- and three-dimensional figures (e.g., folding paper, tiling, nets, and rearranging pieces of solids).
3. Make and use coordinate systems to specify locations and shapes on a grid with ordered pairs and to describe paths from one point to another point on a grid.

Standard 4: Measurement—The student will use appropriate units of measure to solve problems.

1. Measurement
 - a. Choose an appropriate measurement instrument and measure the length of objects to the nearest inch or half-inch and the weight of objects to the nearest pound or ounce.
 - b. *Chose an appropriate measurement instrument and measure the length of objects to the nearest meter or centimeter and the weight of objects to the nearest gram or kilogram.
 - c. Develop and use the concept of perimeter of different shapes to solve problems.
 - d. *Develop and use strategies to choose an appropriate unit and measurement instrument to estimate measurements (e.g., use parts of the body as benchmarks for measuring length).
2. Time and Temperature
 - a. Solve simple addition problems with time (e.g., 15 minutes added to 1:10 P.M.).
 - b. Tell time on a digital and analog clock to the nearest 5 minute.

- c. Read a thermometer and solve for temperature change.
3. Money: Determine the correct amount of change when a purchase is made with a five dollar bill.

Standard 5: Data Analysis—The student will demonstrate an understanding of collection, display, and interpretation of data and probability.

1. Data Analysis
 - a. *Pose questions, collect, record, and interpret data to help answer questions (e.g., Which was the most popular booth at our carnival?).
 - b. Read graphs and charts; identify the main idea, draw conclusions, make predictions based on the data (e.g., predict how many children will bring their lunch based on a menu).
 - c. Construct bar graphs, frequency tables, line graphs (plots), and pictographs with labels and a title from a set of data.
2. Probability: Describe the probability (more, less, or equally likely) of chance events.

Oklahoma C³ Standard:

Standard 1: Algebraic Reasoning: Patterns and Relationships—The student will use a variety of problem-solving approaches to extend and create patterns.

Oklahoma C³ Objective:

1. Describe (orally or in written form), create, extend, and predict patterns in a variety of situations (e.g., 3, 6, 9, 12..., use a function machine to generate input and output values for a table, show multiplication patterns on a hundreds chart, determine a rule and generate additional pairs with the same relationship).

Item Specifications:**Emphasis:**

- Describe (orally) and extend patterns using numbers (by 2s, 5s, 10s, and single operation patterns).
- Determine and use rules to extend patterns.

Stimulus Attributes:

- Test items may include illustrations of the following: function machines, tables, pictures, and hundreds charts.

Format:

- Use rules to complete patterns.
- Use rules to extend patterns.
- Determine a rule from a table, chart, or list.

Content Limits:

- Limit rules to one operation.
- Limit operations to addition, subtraction, or multiplication.
- Limit multiplication to multiplication by 2, 5, or 10.
- Limit extending patterns to the next element.
- Limit to whole numbers.

Distractor Domain:

- Inappropriate operation selected
- Predictable misrepresentation of pattern

Modified Oklahoma C³ 1.1 Sample Item:

Depth of Knowledge: 2

Correct Answer: A

Which shows the rule “subtract 5”?

- Ⓐ 25, 20, 15, 10
- Ⓑ 18, 14, 11, 8
- Ⓒ 19, 13, 7, 3

Depth of Knowledge: 2

Correct Answer: B

The seats in a theater follow a pattern.

- There are 8 seats in the first row.
- Each row after the first row increases by 6 seats.

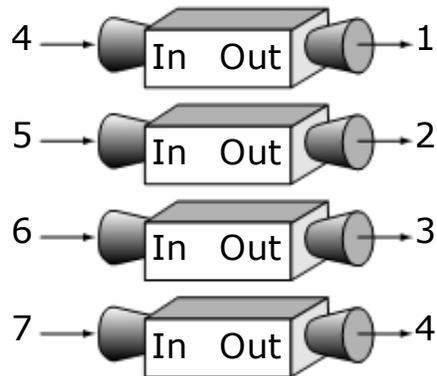
Which set shows the number of seats in the first four rows?

- Ⓐ 6, 12, 18, 24
- Ⓑ 8, 14, 20, 26
- Ⓒ 8, 16, 24, 32

Depth of Knowledge: 2

Correct Answer: A

The picture shows how a rule changes a number going into a number machine.



What is the rule for this number?

- (A) subtract 3
- (B) subtract 1
- (C) add 3

Oklahoma C³ Standard:

Standard 1. Algebraic Reasoning: Patterns and Relationships—The student will use a variety of problem-solving approaches to extend and create patterns.

Oklahoma C³ Objective:

2. Find unknowns in simple arithmetic problems by solving open sentences (equations) and other problems involving addition, subtraction, and multiplication.

Item Specifications:Emphasis:

- Solve simple open sentences (equations) involving addition, subtraction, and multiplication with whole numbers.
- Determine the value of an unknown to make a math sentence true.

Stimulus Attributes:

- Test items may include illustrations of the following: pictures, tables, and counters.

Format:

- Solve a math sentence involving a single operation for an unknown quantity.

Content Limits:

- Limit numbers to two-digit whole numbers.
- Limit sentences to one operation.
- Limit operations to addition, subtraction or multiplication.
- Limit to open sentences with the variable placed first.

Distractor Domain:

- Perform incorrect operation
- Computational error

Modified Oklahoma C³ 1.2 Sample Item:

Depth of Knowledge: 2

Correct Answer: C

$$x - 11 = 34$$

Which value of x makes this equation true? (A) 23 (B) 25 (C) 45

Depth of Knowledge: 2

Correct Answer: A

A teacher gave 5 students stickers.

- The equation shows the number of stickers, n , the teacher gave each student.

$$n \times 5 = 20$$

What value of n makes this equation true? (A) 4 (B) 15 (C) 80

Depth of Knowledge: 2

Correct Answer: A

The equation shows Ben's age, b .

$$b + 8 = 17$$

What value of b makes this equation true?

- Ⓐ 9
- Ⓑ 10
- Ⓒ 25

Oklahoma C³ Standard:

Standard 1: Algebraic Reasoning: Patterns and Relationships—The student will use a variety of problem-solving approaches to extend and create patterns.

Oklahoma C³ Objective:

3. Recognize and apply the commutative and identity properties of multiplication using models and manipulatives to develop computational skills (e.g., $3 \cdot 5 = 5 \cdot 3$, $7 \cdot 1 = 7$).

Item Specifications:Emphasis:

- Apply the basic properties of arithmetic (commutative and identity) to solve problems.

Stimulus Attributes:

- Test items may include illustrations of the following: number lines, counting manipulatives, balances, two- and three-dimensional geometric figures, base-10 blocks, cubes, data sets, charts, tables, and other diagrams.

Format:

- Identify simple examples and basic uses of the commutative and identity properties.
- Use the commutative and identity properties of numbers to develop computational skills.
- Use a square for an unknown.

Content Limits:

- Limit properties to commutative and identity.
- Limit to single-digit factors.

Distractor Domain:

- Common errors
- Computational errors
- Incorrect procedures
- Incorrect use of rules or properties

Modified Oklahoma C³ 1.3 Sample Item:

Depth of Knowledge: 1

Correct Answer: C

Which expression is equal to 6×7 ?

(A) $7 + 6$

(B) $7 - 6$

(C) 7×6

Depth of Knowledge: 2

Correct Answer: B

Which equation shows the commutative property of multiplication?

(A) $(8 \times 1) \times 2 = 1 + (8 + 2)$

(B) $(8 \times 1) \times 2 = 2 \times (8 \times 1)$

(C) $(8 \times 1) \times 2 = 8 \times (1 \times 2)$

Depth of Knowledge: 2

Correct Answer: A

Which equation shows the identity property of multiplication?

(A) $7 \times 1 = 7$

(B) $7 + 1 = 1 + 7$

(C) $7 \times 5 = 5 \times 7$

Oklahoma C³ Standard:

Standard 2: Number Sense and Operation—The student will use numbers and number relationships to acquire basic facts. The student will estimate and compute with whole numbers.

Oklahoma C³ Objective:

1. Number Sense
 - a. Place Value
 - i. Model the concept of place value through four digits (e.g., base-10 blocks, bundles of 10s, place value mats).

Item Specifications:Emphasis:

- Model the concept of place value through four digits.
- Model whole numbers through representation.

Stimulus Attributes:

- Test items may include illustrations of the following: base-10 blocks, bundles of 10, and place value mats.

Format:

- Select a whole number through four digits from a model.
- Select a model of a whole number through four digits.

Content Limits:

- Limit whole numbers to the thousands place.

Distractor Domain:

- Misrepresentation of place value
- Computational error

Modified Oklahoma C³2.1.a.i Sample Item:

Depth of Knowledge: 1

Correct Answer: C

Bobby used his place-value mat to show a number.

Hundreds	Tens	Ones
○○○	○○○○○	○○○○

Which is another way to show Bobby's number?

- Ⓐ 304
- Ⓑ 350
- Ⓒ 354

Oklahoma C³ Standard:

Standard 2: Number Sense and Operation—The student will use numbers and number relationships to acquire basic facts. The student will estimate and compute with whole numbers.

Oklahoma C³ Objective:

1. Number Sense
 - a. Place Value
 - ii. Read, model, and write whole numbers up to four digits (e.g., expanded form, standard form).

Item Specifications:Emphasis:

- Read, model, and write whole numbers up to four digits.
- Translate between representations of numbers.

Stimulus Attributes:

- Test items may include illustrations of the following: base-10 blocks and place value mats.

Format:

- Identify equivalent representations of a whole number.

Content Limits:

- Limit numbers to whole numbers.
- Limit numbers to four digits.
- Limit representations to standard form, expanded form, written form, or models.

Distractor Domain:

- Predictable misrepresentation of digits
- Incorrect value for a digit
- Failure to establish correspondence between the appropriate model and its numerical or symbolic representation

Modified Oklahoma C³2.1.a.ii Sample Item:

Depth of Knowledge: 1

Correct Answer: B

Which is equal to 571 in expanded form?

Ⓐ $500 + 700 + 100$

Ⓑ $500 + 70 + 1$

Ⓒ $50 + 71$

Oklahoma C³ Standard:

Standard 2: Number Sense and Operation—The student will use numbers and number relationships to acquire basic facts. The student will estimate and compute with whole numbers.

Oklahoma C³ Objective:

1. Number Sense
 - b. Whole Numbers and Fractions
 - i. Compare and order whole numbers up to four digits.

Item Specifications:**Emphasis:**

- Compare and order whole numbers up to four digits.

Stimulus Attributes:

- Test items may include illustrations of the following: base 10-blocks, place value mats, and number lines.

Format:

- Identify relationship between two or three whole numbers as greater than, less than, or equal to (=). Students are not responsible for knowing the signs $>$ or $<$.
- Order whole numbers in ascending or descending order.

Content Limits:

- Limit to whole numbers.
- Limit to four digits.
- Limit to three numbers.

Distractor Domain:

- Misrepresentation of place value

Modified Oklahoma C³2.1.b.i Sample Item:

Depth of Knowledge: 1

Correct Answer: B

Which list shows the numbers in order from least to greatest?

Ⓐ 739, 985, 808

Ⓑ 739, 808, 985

Ⓒ 808, 985, 739

Oklahoma C³ Standard:

Standard 2: Number Sense and Operation—The student will use numbers and number relationships to acquire basic facts. The student will estimate and compute with whole numbers.

Oklahoma C³ Objective:

1. Number Sense
 - b. Whole Numbers and Fractions
 - ii. Create and compare physical and pictorial models of equivalent and nonequivalent fractions including halves, thirds, fourths, eighths, tenths, twelfths, and common percents (25%, 50%, 75%, 100%) (e.g., fraction circles, pictures, egg cartons, fraction strips, number lines).

Item Specifications:**Emphasis:**

- Compare and order fractions with the same denominator, including halves, thirds, and fourths, using a model.

Stimulus Attributes:

- Test items will include illustrations of the following: fraction circles, fraction strips, pictures, egg cartons, rectangles, and counters.

Format:

- Use models to compare fractions.
- Use models to identify fractions and percents.
- Identify relationship among fractions as greater than, less than, or equal to ($=$).
- Identify fraction with the greatest value or the least value.
- Order three fractions from least to greatest or greatest to least.

Content Limits:

- Limit fractions to halves, thirds, fourths, eighths, tenths, and twelfths.
- Limit percents to 25%, 50%, 75%, and 100%.

Distractor Domain:

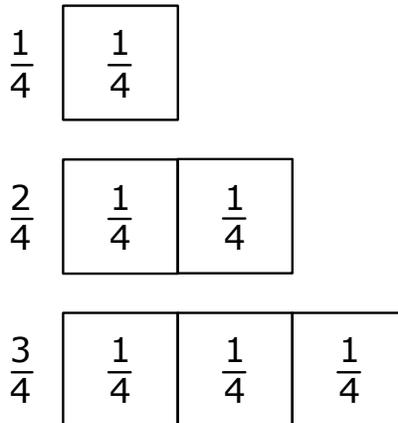
- Computational errors
- Misrepresentation of numerator and denominator
- Misrepresentations of equivalence between 25%, 50%, 75%, 100% and their corresponding fractions

Modified Oklahoma C³ 2.1.b.ii Sample Item:

Depth of Knowledge: 1

Correct Answer: C

The diagram shows how fraction strips were used to model three fractions.



Which fraction has the greatest value?

- Ⓐ $\frac{1}{4}$
- Ⓑ $\frac{2}{4}$
- Ⓒ $\frac{3}{4}$

Oklahoma C³ Standard:

Standard 2: Number Sense and Operation—The student will use numbers and number relationships to acquire basic facts. The student will estimate and compute with whole numbers.

Oklahoma C³ Objective:

2. Number Operations
 - a. Estimate and find the sum or difference (with and without regrouping) of three- and four-digit numbers using a variety of strategies to solve application problems.

Item Specifications:**Emphasis:**

- Estimate and find the sum and difference, without regrouping, of three- and four-digit numbers to solve application problems.
- Solve problems based on real-world situations requiring estimation or calculation of sums and differences.

Stimulus Attributes:

- Test items may include illustrations of the following: pictures and drawings.

Format:

- Solve application problems by adding and subtracting whole numbers.
- Solve application problems by rounding and then adding or subtracting.

Content Limits:

- Limit to whole numbers.
- Limit to three- and four-digit numbers.

Distractor Domain:

- Computational errors
- Regrouping errors
- Rounding errors

Modified Oklahoma C³2.2.a Sample Item:

Depth of Knowledge: 2

Correct Answer: B

Today, Clara's Bakery made 281 cookies and sold 147 cookies.

To the nearest ten, about how many cookies are left?

- (A)** 40 cookies
- (B)** 130 cookies
- (C)** 150 cookies

Oklahoma C³ Standard:

Standard 2: Number Sense and Operation—The student will use numbers and number relationships to acquire basic facts. The student will estimate and compute with whole numbers.

Oklahoma C³ Objective:

2. Number Operations
 - b. Multiplication Concepts and Fact Families
 - i. Use physical models and a variety of multiplication algorithms to find the product of multiplication problems with one-digit multipliers.

Item Specifications:Emphasis:

- Demonstrate fluency with multiplication facts and fact families through the use of models and algorithms.

Stimulus Attributes:

- Test items may include illustrations of the following: tables, pictures, counters, and other manipulatives.

Format:

- Identify the fact family related to a multiplication fact.
- Calculate the product of two whole numbers.
- Identify the missing fact from a fact family.

Content Limits:

- Limit to one-digit multipliers.
- Limit to whole numbers.

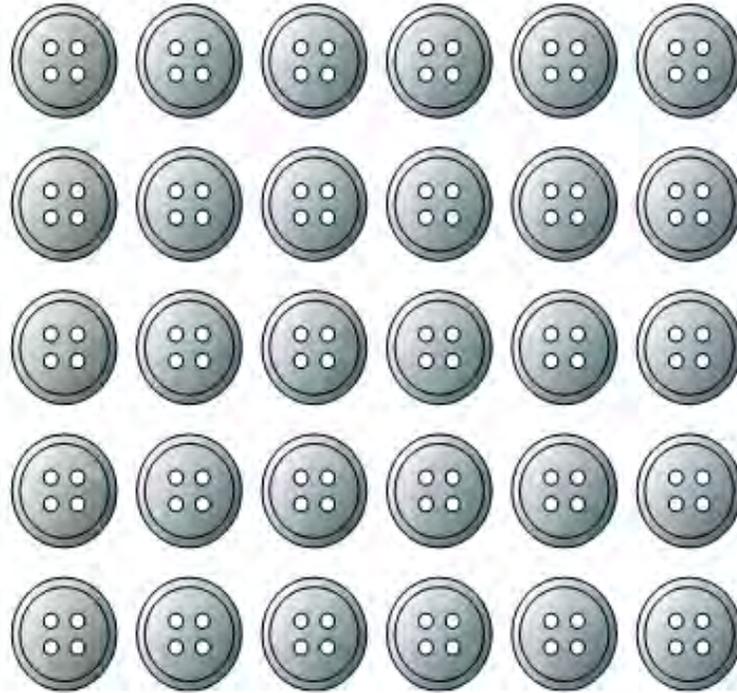
Distractor Domain:

- Computational errors
- Misidentification of related facts

Modified Oklahoma C³2.2.b.i Sample Item:

Depth of Knowledge: 2

Correct Answer: A



Which fact shows the total number of buttons in the picture?

- (A) $5 \times 6 = 30$
- (B) $5 + 6 = 11$
- (C) $5 + 5 = 10$

Oklahoma C³ Standard:

Standard 2: Number Sense and Operation—The student will use numbers and number relationships to acquire basic facts. The student will estimate and compute with whole numbers.

Oklahoma C³ Objective:

2. Number Operations
 - b. Multiplication Concepts and Fact Families
 - ii. Demonstrate fluency (memorize and apply) with basic multiplication facts up to 10×10 and the associated division facts (e.g., $5 \times 6 = 30$ and $30 \div 6 = 5$).

Item Specifications:Emphasis:

- Solve problems requiring knowledge of basic multiplication and division facts.

Stimulus Attributes:

- Test items may include illustrations of the following: charts, tables, pictures, counters, and other manipulatives.

Format:

- Identify and extend multiplication patterns.
- Solve multiplication problems.
- Identify the missing fact in a fact family.

Content Limits:

- Limit multiplication facts and associated division facts to up to 10×10 .

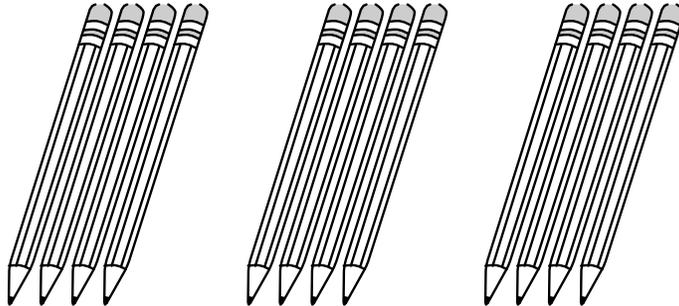
Distractor Domain:

- Computational errors
- Misidentification of multiplication pattern

Modified Oklahoma C³ 2.2.b.ii Sample Item:

Depth of Knowledge: 1

Correct Answer: C



The pencils represent the following fact family.

$$3 \times 4 = 12$$

$$12 \div 3 = 4$$

$$12 \div 4 = 3$$

Which equation also belongs to this fact family?

Ⓐ $4 - 3 = 1$

Ⓑ $4 + 3 = 7$

Ⓒ $4 \times 3 = 12$

Oklahoma C³ Standard:

Standard 2: Number Sense and Operation—The student will use numbers and number relationships to acquire basic facts. The student will estimate and compute with whole numbers.

Oklahoma C³ Objective:

2. Number Operations
 - b. Multiplication Concepts and Fact Families
 - iii. Estimate the product of two-digit by two-digit numbers by rounding to the nearest multiple of 10 to solve application problems.

Item Specifications:**Emphasis:**

- Apply estimation skills to solve multiplication problems.

Stimulus Attributes:

- Test items may include illustrations of the following: charts, tables, pictures, counters, and other manipulatives.

Format:

- Estimate the result of multiplication on whole numbers.
- Use estimation to determine solutions to real-world situations involving multiplication of whole numbers.

Content Limits:

- Limit to product of two-digit number by two-digit number.

Distractor Domain:

- Computational errors
- Rounding errors

Modified Oklahoma C³2.2.b.iii Sample Item:

Depth of Knowledge: 2

Correct Answer: A

A school library has 11 shelves of picture books.

- **There are 33 picture books on each shelf.**

Which estimate is closest to the total number of picture books in this library?

- Ⓐ 300 picture books
- Ⓑ 600 picture books
- Ⓒ 800 picture books

Oklahoma C³ Standard:

Standard 3: Geometry—The student will use geometric properties and relationships to recognize and describe shapes.

Oklahoma C³ Objective:

1. Identify and compare attributes of two- and three-dimensional shapes and develop vocabulary to describe the attributes (e.g., count the edges and faces of a cube; the radius is half of a diameter, lines of symmetry).

Item Specifications:Emphasis:

- Describe and compare two-dimensional shapes.
- Classify and differentiate by characteristic plane figures and solid figures.

Stimulus Attributes:

- Test items may include illustrations of the following: pictures and diagrams.

Format:

- Name a figure with given characteristics.
- Identify characteristics of a figure (e.g. edges, faces, vertices).
- Identify congruent figures.
- Identify basic shapes in composite figures.

Content Limits:

- Limit to plane figures with a maximum of five sides—regular or irregular.
- Limit solid figures to spheres, cylinders, rectangular or triangular prisms, and rectangular or triangular pyramids.

Distractor Domain:

- Misidentification of figures
- Error in correlation of characteristics with figures

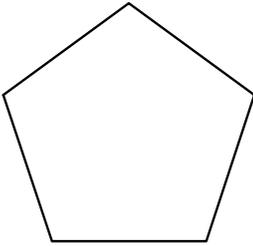
Modified Oklahoma C³ 3.1 Sample Item:

Depth of Knowledge: 1

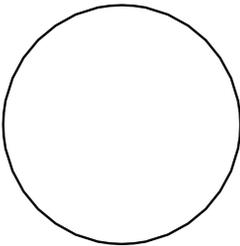
Correct Answer: C

Which figure has exactly 4 sides and 4 vertices?

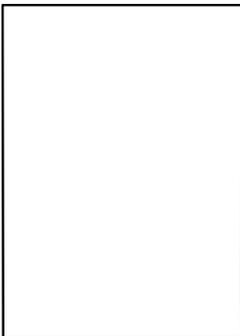
Ⓐ



Ⓑ

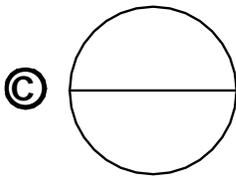
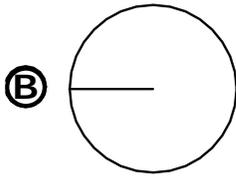
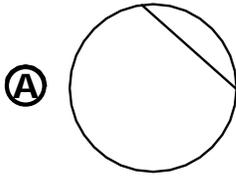


Ⓒ



Depth of Knowledge: 1
Correct Answer: B

Which figure shows a radius of a circle?



Depth of Knowledge: 2
Correct Answer: C

What is the total number of vertices for this figure?



- Ⓐ 3
- Ⓑ 4
- Ⓒ 5

Oklahoma C³ Standard:

Standard 3: Geometry—The student will use geometric properties and relationships to recognize and describe shapes.

Oklahoma C³ Objective:

2. Analyze the effects of combining and subdividing two- and three-dimensional figures (e.g., folding paper, tiling, nets, and rearranging pieces of solids).

Item Specifications:Emphasis:

- Determine basic geometric figures used to form composite figures.

Stimulus Attributes:

- Test items may include illustrations of the following: diagrams, grids, gridded figures, pattern blocks, and pictures.

Format:

- Identify basic shapes in composite figures.
- Identify composite figure formed by combining basic figures.

Content Limits:

- Limit to plane figures used in composite figures to a maximum of five sides—regular or irregular.
- Limit to three basic figures in a composite figure.

Distractor Domain:

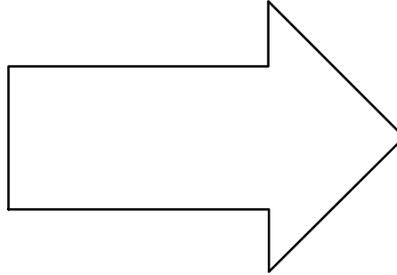
- Misidentification of figures
- Misidentification of composite figure formed

Modified Oklahoma C³ 3.2 Sample Item:

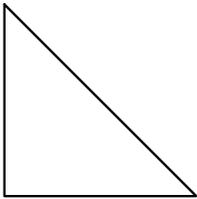
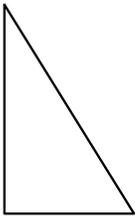
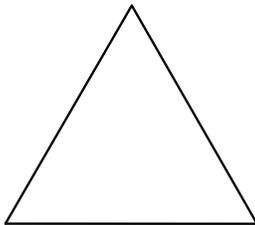
Depth of Knowledge: 2

Correct Answer: A

A rectangle and a triangle were used to make this figure.



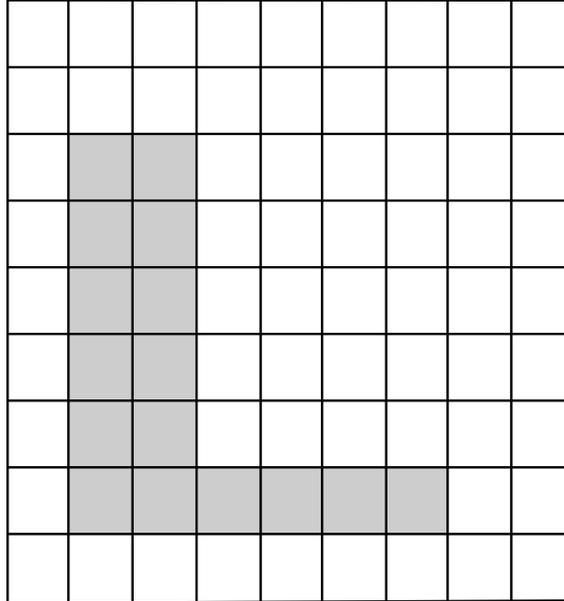
Which triangle could be used to make this figure?

(A)**(B)****(C)**

Depth of Knowledge: 2

Correct Answer: B

The shaded area forms a figure.



Which pair of shapes could be used to make this figure?

- Ⓐ two squares
- Ⓑ two rectangles
- Ⓒ a square and a triangle

Depth of Knowledge: 2

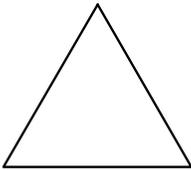
Correct Answer: A

A teacher uses the two shapes below to make a figure.



Which figure could be the figure the teacher makes?

Ⓐ



Ⓑ



Ⓒ



Oklahoma C³ Standard:

Standard 3: Geometry—The student will use geometric properties and relationships to recognize and describe shapes.

Oklahoma C³ Objective:

3. Make and use coordinate systems to specify locations and shapes on a grid with ordered pairs and to describe paths from one point to another point on a grid.

Item Specifications:Emphasis:

- Identify locations on a grid with ordered pairs.
- Identify and use grid coordinates to solve problems.

Stimulus Attributes:

- Test items may include illustrations of the following: tables, grids, and pictures.

Format:

- Identify the location of ordered pairs on a grid.
- Use ordered pairs to solve problems.
- Describe paths between points.

Content Limits:

- Limit to 6×6 grids.
- Limit to objects placed at the intersection of the grid lines.
- Limit location of ordered pairs to positive whole numbers in the first quadrant of the Cartesian plane.

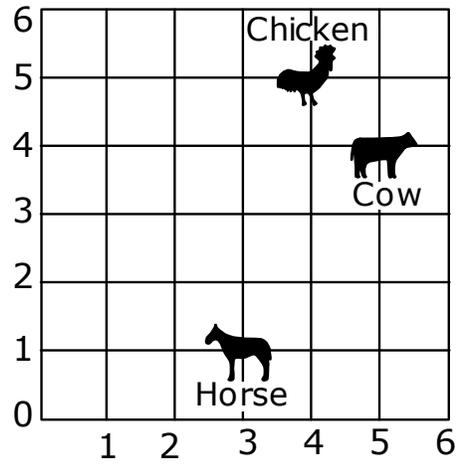
Distractor Domain:

- Misinterpretation of coordinate meanings
- Incorrect directions when moving between points

Modified Oklahoma C³ 3.3 Sample Item:

Depth of Knowledge: 1

Correct Answer: B

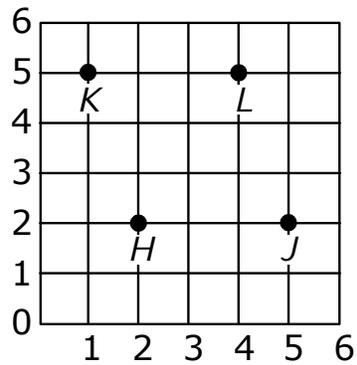


Which ordered pair shows the location of the chicken?

- Ⓐ (3, 1)
- Ⓑ (4, 5)
- Ⓒ (5, 5)

Depth of Knowledge: 1

Correct Answer: B

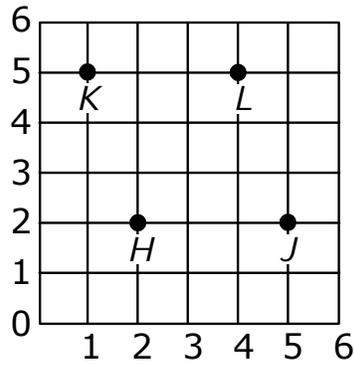


What letter is located at (5, 2) on this grid?

- Ⓐ *H*
- Ⓑ *J*
- Ⓒ *K*

Depth of Knowledge: 2

Correct Answer: C

Look at letter H.**What letter is 2 spaces to the right and 3 spaces up from letter H?**

- Ⓐ J
- Ⓑ K
- Ⓒ L

Oklahoma C³ Standard:

Standard 4: Measurement—The student will use appropriate units of measure to solve problems.

Oklahoma C³ Objective:

1. Measurement
 - a. Choose an appropriate measurement instrument and measure the length of objects to the nearest inch or half-inch and the weight of objects to the nearest pound or ounce.

Item Specifications:**Emphasis:**

- Solve problems with customary units involving length using inch and half-inch and weight using pound and ounce.
- Apply knowledge of customary units to estimate and measure length and weight to solve problems.

Stimulus Attributes:

- Test items may include illustrations of the following: diagrams and pictures.

Format:

- Read a balance to solve weight problems.
- Use a ruler to measure length to the nearest inch or half-inch.
- Choose correct measurement instrument.

Content Limits:

- Limit length to nearest inch or half-inch.
- Limit weight to pounds and ounces.

Distractor Domain:

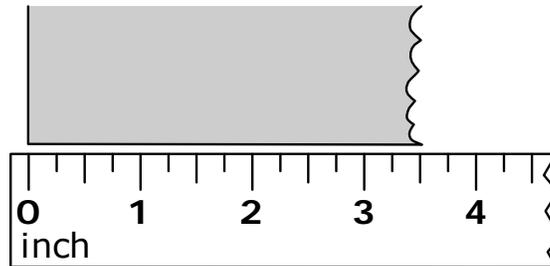
- Inaccurate reading of instruments of measurement
- Incorrect choice of measurement instrument

Modified Oklahoma C³ 4.1.a Sample Item:

Depth of Knowledge: 2

Correct Answer: B

Gail ate part of a candy bar. The picture shows how much is left.



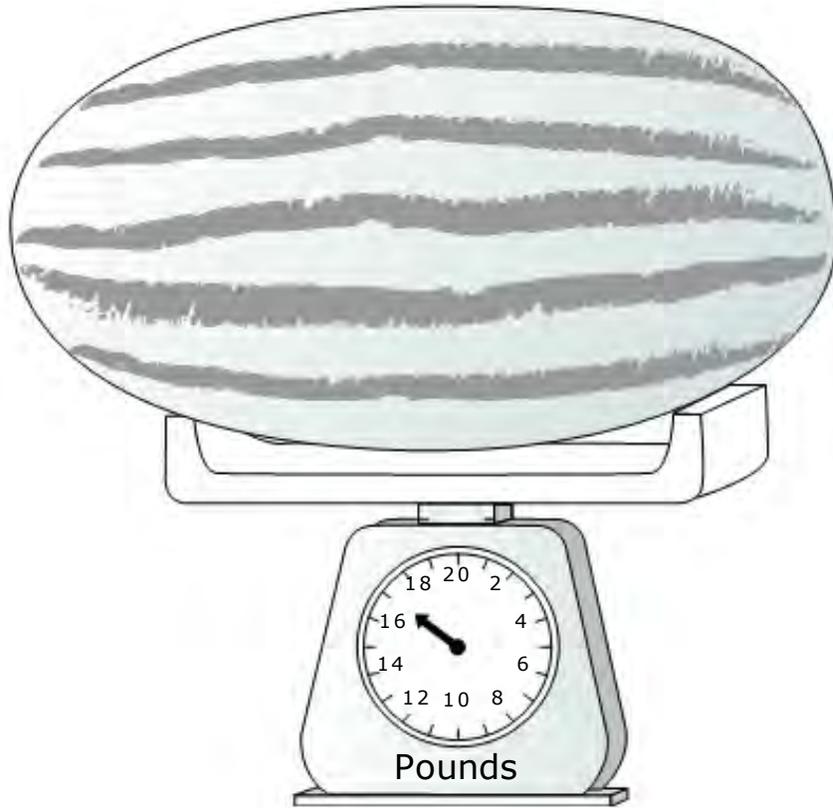
Which is closest to the length of the candy bar that is left?

- Ⓐ 3 inches
- Ⓑ $3\frac{1}{2}$ inches
- Ⓒ 4 inches

Depth of Knowledge: 2

Correct Answer: B

The scale shows the weight of a watermelon.



What is the weight, in pounds, of the watermelon?

- Ⓐ 16 pounds
- Ⓑ 17 pounds
- Ⓒ 18 pounds

Oklahoma C³ Standard:

Standard 4: Measurement—The student will use appropriate units of measure to solve problems.

Oklahoma C³ Objective:

1. Measurement
 - c. Develop and use the concept of perimeter of different shapes to solve problems.

Item Specifications:**Emphasis:**

- Use manipulatives to develop the concept of perimeter.
- Determine perimeter of plane figures.

Stimulus Attributes:

- Test items may include illustrations of the following: graphs, grids, gridded figures, and charts.

Format:

- Calculate perimeter by counting units on a grid.
- Illustrations for perimeter will have measurements on all sides.

Content Limits:

- Limit perimeter to counting whole units.
- Limit shapes to squares and rectangles or figures that can be composed of squares and rectangles.

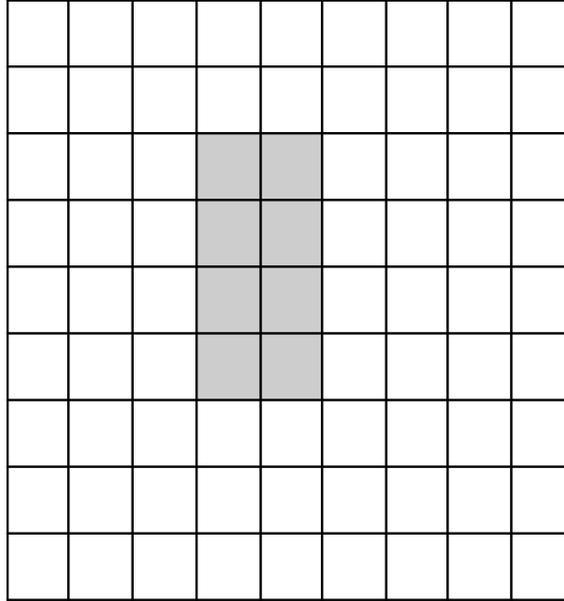
Distractor Domain:

- Computational errors
- Use incorrect formula

Modified Oklahoma C³4.1.c Sample Item:

Depth of Knowledge: 2

Correct Answer: C

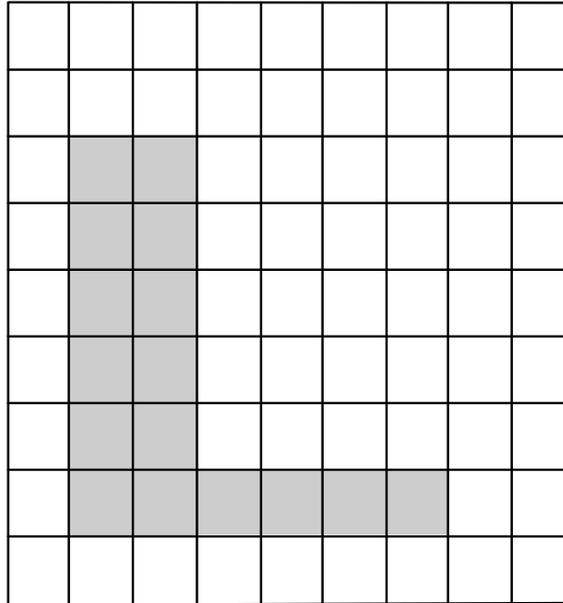
**Key:** $\text{—|—} = 1 \text{ Unit}$ **What is the perimeter of the shaded figure on the grid?**

- (A)** 6 units
- (B)** 8 units
- (C)** 12 units

Depth of Knowledge: 2

Correct Answer: A

Each small square on the grid has sides that measure 1 unit long.



What is the perimeter, in units, of the shaded figure on the grid?

- Ⓐ 24 units
- Ⓑ 21 units
- Ⓒ 16 units

Oklahoma C³ Standard:

Standard 4: Measurement—The student will use appropriate units of measure to solve problems.

Oklahoma C³ Objective:

2. Time and Temperature
 - a. Solve simple addition problems with time (e.g., 15 minutes added to 1:10 P.M.).

Item Specifications:Emphasis:

- Tell time on digital or analog clocks to the nearest five-minutes and use information to solve problems involving time.
- Apply skill of reading clocks to solve problems.

Stimulus Attributes:

- Test items may include illustrations of the following: digital and analog clocks.

Format:

- Add a given number of minutes to given time.
- Tell time on a digital or analog clock.

Content Limits:

- Limit time to five-minute intervals.

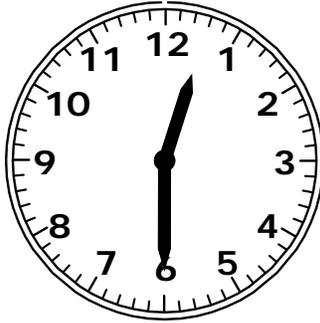
Distractor Domain:

- Computational errors
- Conversion errors (minutes to hours)
- Inaccurate reading of measurement instruments

Modified Oklahoma C³4.2.a Sample Item:

Depth of Knowledge: 2

Correct Answer: B

Oliver begins eating his lunch at 12:30 P.M.

- Oliver eats his lunch in 30 minutes.

What time does Oliver finish lunch?

- Ⓐ 12:00 P.M.
- Ⓑ 1:00 P.M.
- Ⓒ 1:30 P.M.

Oklahoma C³ Standard:

Standard 4: Measurement—The student will use appropriate units of measure to solve problems.

Oklahoma C³ Objective:

2. Time and Temperature
 - b. Tell time on a digital and analog clock to the nearest five-minute.

Item Specifications:Emphasis:

- Tell time on digital or analog clocks to the nearest five-minutes and use information to solve problems involving time.
- Apply skill of reading clocks to solve problems.

Stimulus Attributes:

- Test items may include illustrations of the following: digital and analog clocks.

Format:

- Tell time on a digital or analog clock.

Content Limits:

- Limit time to five-minute intervals.

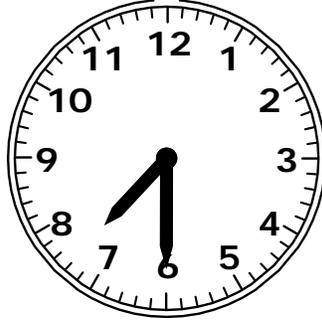
Distractor Domain:

- Incorrect reading of clocks

Modified Oklahoma C³ 4.2.b Sample Item:

Depth of Knowledge: 1

Correct Answer: A

**What time does the clock show?**

- (A) 7:30
- (B) 8:00
- (C) 8:30

Oklahoma C³ Standard:

Standard 4: Measurement—The student will use appropriate units of measure to solve problems.

Oklahoma C³ Objective:

2. Time and Temperature
 - c. Read a thermometer and solve for temperature change.

Item Specifications:Emphasis:

- Use information to solve problems involving temperature.
- Apply skill of reading thermometers to solve problems.

Stimulus Attributes:

- Test items may include illustrations of the following: Fahrenheit and Celsius thermometers.

Format:

- Read temperature on a Fahrenheit or Celsius thermometer.
- Add or subtract degrees from temperature on thermometer.

Content Limits:

- Limit temperature readings to whole degrees.

Distractor Domain:

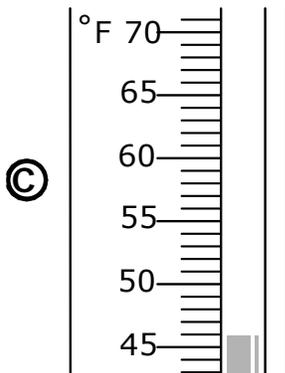
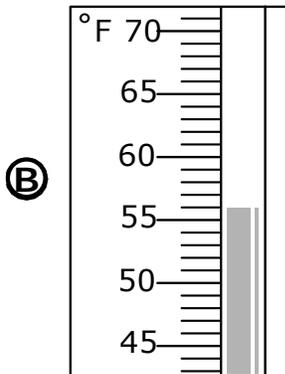
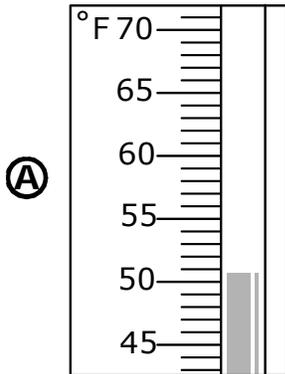
- Inaccurate reading of thermometers
- Computational errors

Modified Oklahoma C³4.2.c Sample Item:

Depth of Knowledge: 1

Correct Answer: B

Which thermometer shows 56 °F?



Oklahoma C³ Standard:

Standard 4: Measurement—The student will use appropriate units of measure to solve problems.

Oklahoma C³ Objective:

3. Money: Determine the correct amount of change when a purchase is made with a five dollar bill.

Item Specifications:Emphasis:

- Apply subtraction to solve problems involving money.

Stimulus Attributes:

- Test items may include illustrations of the following: pictures and counting manipulatives.

Format:

- Subtract small amounts of money up to \$5.00 to solve real-world problems.

Content Limits:

- Limit numbers to two decimal places.
- Limit to one operation.
- Limit number of purchased items to two.
- Limit to finding change up to \$5.00.
- Limit representations of currency to no higher than \$5 bills.
- Limit numeric money amounts to a maximum of \$4.99.

Distractor Domain:

- Computational errors
- Decimal placement errors
- Regrouping errors

Modified Oklahoma C³ 4.3 Sample Item:

Depth of Knowledge: 2

Correct Answer: C

Dakota bought a pen for \$1.80, including tax.

- **She gave the clerk a \$5 bill.**

How much change did Dakota receive?

- Ⓐ \$4.80
- Ⓑ \$4.20
- Ⓒ \$3.20

Depth of Knowledge: 2

Correct Answer: A

The total cost of a pencil is shown.



- **Alice paid for the pencil with a \$5 bill.**

How much change did Alice receive?

- Ⓐ \$4.35
- Ⓑ \$4.25
- Ⓒ \$3.35

Depth of Knowledge: 3

Correct Answer: A

Alex bought a book.

- **He gave the clerk \$5.00.**
- **The clerk gave Alex back \$1.15.**

What was the total cost of the book?

- Ⓐ **\$3.85**
- Ⓑ **\$4.85**
- Ⓒ **\$6.15**

Oklahoma C³ Standard:

Standard 5 Data Analysis—The student will demonstrate an understanding of collection, display, and interpretation of data and probability.

Oklahoma C³ Objective:

1 Data Analysis

- b. Read graphs and charts; identify the main idea, draw conclusions, make predictions based on the data (e.g., predict how many children will bring their lunch based on a menu).

Item Specifications:Emphasis:

- Read graphs and charts.
- Interpretation of graphical representation of data to include main idea, drawing conclusions, and making predictions.

Stimulus Attributes:

- Test items may include illustrations of the following: tables, graphs, and charts.

Format:

- Interpret and compare information in a chart or graph.
- Supply missing information in a chart or graph.

Content Limits:

- Limit graphs to pictographs, bar graphs, and circle graphs with no more than three categories.
- Limit charts and tables to five categories.
- Limit scale increments to 1, 2, 5, or 10.

Distractor Domain:

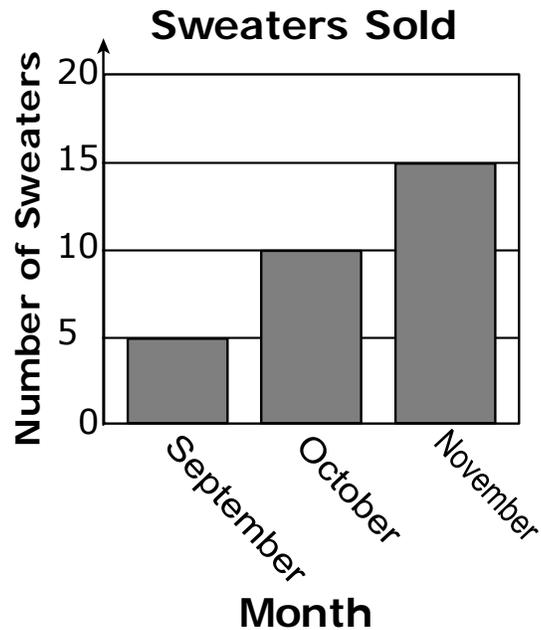
- Misinterpretation of data
- Unsupportable conclusions and predictions
- Inappropriate main idea

Modified Oklahoma C³ 5.1.b Sample Item:

Depth of Knowledge: 1

Correct Answer: B

The graph shows the number of sweaters Lisa sold.



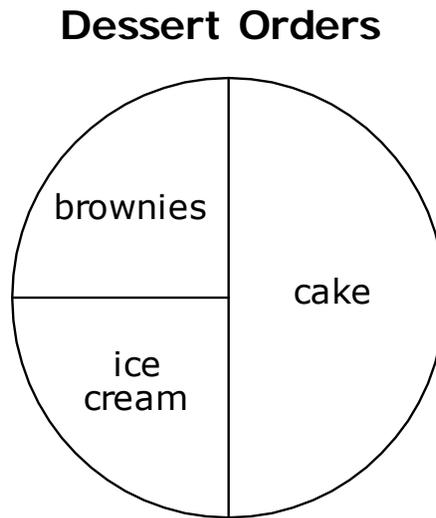
In which month did Lisa sell 10 sweaters?

- (A) September
- (B) October
- (C) November

Depth of Knowledge: 3

Correct Answer: B

The graph shows the desserts 4 friends ordered at a restaurant.



How many of the friends ordered cake?

- (A) 1 friend
- (B) 2 friends
- (C) 3 friends

Oklahoma C³ Standard:

Standard 5: Data Analysis—The student will demonstrate an understanding of collection, display, and interpretation of data and probability.

Oklahoma C³ Objective:

1. Data Analysis
 - c. Construct bar graphs, frequency tables, line graphs (plots), and pictographs with labels and a title from a set of data.

Item Specifications:Emphasis:

- Construct graphical displays of a set of data.

Stimulus Attributes:

- Test items may include illustrations of the following: bar graphs, frequency tables, line graphs (plots), pictographs, pictures, and counting manipulatives.

Format:

- Data set displayed correctly as a graph.
- Graph representing a unique data set.

Content Limits:

- Limit to three categories.
- Limit to bar graph frequency table, line graph (plot), or pictograph.
- Limit scale on bar graphs, line graphs, and frequency tables to increments of 1.

Distractor Domain:

- Misreading labels or key
- Misinterpretation of information in data set or graph

Modified Oklahoma C³ 5.1.c Sample Item:

Depth of Knowledge: 2

Correct Answer: B

The pictograph shows the number of red, yellow, and blue balloons that Sadie has.

Colors of Balloons

Color	Number of Balloons
Red	
Yellow	
Blue	

Key:  = 2 balloons

Which table shows the same information as in the pictograph?

(A)

Color	Number of Balloons
Red	15
Yellow	6
Blue	12

(B)

Color	Number of Balloons
Red	10
Yellow	4
Blue	8

(C)

Color	Number of Balloons
Red	12
Yellow	4
Blue	10

Depth of Knowledge: 2
 Correct Answer: C

Look at this table.

Garden

Flower	Number of Flowers
roses	4
tulips	3
daisies	6

Which pictograph shows the same information as the table?

Ⓐ

Garden

Flower	Number of Flowers
roses	
tulips	
daisies	

Key:  = 1 Flower

Ⓑ

Garden

Flower	Number of Flowers
roses	
tulips	
daisies	

Key:  = 1 Flower

Ⓒ

Garden

Flower	Number of Flowers
roses	
tulips	
daisies	

Key:  = 1 Flower

Oklahoma C³ Standard:

Standard 5: Data Analysis—The student will demonstrate an understanding of collection, display, and interpretation of data and probability.

Oklahoma C³ Objective:

2. Probability: Describe the probability (more, less, or equally likely) of chance events.

Item Specifications:**Emphasis:**

- Apply the knowledge of simple probability to describe the outcome of chance events.

Stimulus Attributes:

- Test items may include illustrations of the following: spinners, tables, pictures, and charts.

Format:

- Describe the probability of the outcome of a single event as most likely, least likely, or equally likely.
- Emphasize pictorial representation of everyday objects.

Content Limits:

- Limit to a single event.
- Limit to descriptors of most likely, least likely, or equally likely.

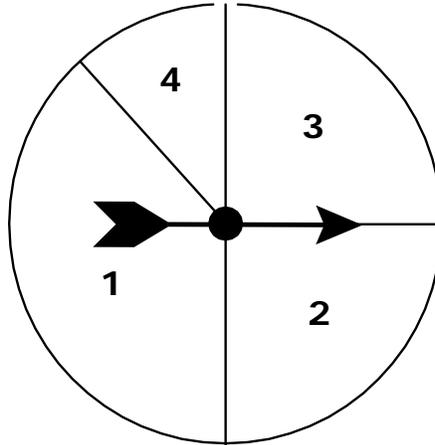
Distractor Domain:

- Confuse meaning of least likely, most likely, and equally likely
- Misinterpretation of stimulus

Modified Oklahoma C³ 5.2 Sample Item:

Depth of Knowledge: 2

Correct Answer: C



If Kim spins the arrow once, on which numbered space is it **least likely** to land?

- Ⓐ 1
- Ⓑ 2
- Ⓒ 4

Depth of Knowledge: 3

Correct Answer: B

A gumball machine contains only these gumballs:

- 4 red
- 8 green
- 5 blue
- 2 yellow

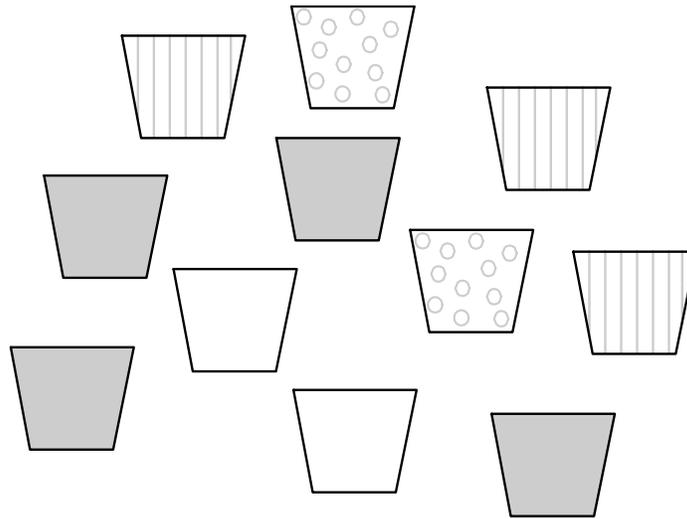
Which color of gumball is most likely to come out of the machine next?

- Ⓐ red
- Ⓑ green
- Ⓒ yellow

Depth of Knowledge: 2

Correct Answer: C

The picture shows the flower pots that Mrs. Thomas has in a box.



- Mrs. Thomas pulls one flower pot from the box without looking.

Which type of flower pot will she most likely pull out?

