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| <p>Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.</p> | |
| <p>Content Domain: Geometry</p> | |
| <p>Target L [a]: Draw and identify lines and angles, and classify shapes by properties of their lines and angles. (DOK 1, 2)</p> <p>Tasks for this target will ask students to draw or identify points, lines, line segments, rays, and parallel and perpendicular lines; to classify angles as right, acute, or obtuse (often paired with 4.MD Target K); to classify two-dimensional figures based on angles and parallel or perpendicular lines; and to draw or identify lines of symmetry in two-dimensional figures. More difficult items for this target may use symmetry as the basis for classification of two-dimensional figures (e.g., What lines of symmetry does a rectangle have to have for it to be considered a square?).</p> | |
| <p>Standards: 4.G.A, 4.G.A.1, 4.G.A.2, 4.G.A.3</p> | <p>4.G.A Draw and identify lines and angles, and classify shapes by properties of their lines and angles.</p> <p>4.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.</p> <p>4.G.A.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.</p> <p>4.G.A.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.</p> |
| <p>Related Below-Grade and Above-Grade Standards for Purposes of Planning for Vertical Scaling: 3.G.A, 3.G.A.1 5.G.B, 5.G.B.3, 5.G.B.4</p> | <p>Related Grade 3 Standards</p> <p>3.G.A Reason with shapes and their attributes.</p> <p>3.G.A.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.</p> <p>Related Grade 5 Standards</p> <p>5.G.B Classify two-dimensional figures into categories based on their properties.</p> <p>5.G.B.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. <i>For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.</i></p> <p>5.G.B.4 Classify two-dimensional figures in a hierarchy based on properties.</p> |
| <p>DOK Levels:</p> | <p>1, 2</p> |

| Achievement Level Descriptors: | |
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| RANGE Achievement Level Descriptor (Range ALD) Target L: Draw and identify lines and angles, and classify shapes by properties of their lines and angles. | Level 1 Students should be able to draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines; recognize a line of symmetry for a familiar two-dimensional figure; and identify right triangles. |
| | Level 2 Students should be able to identify points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines in two-dimensional figures and recognize all lines of symmetry in unfamiliar two-dimensional figures. |
| | Level 3 Students should be able to draw lines of symmetry for two-dimensional figures, classify two-dimensional figures based on parallel or perpendicular lines or angles of specified lines, and recognize right triangles as a category. |
| | Level 4 No Descriptor |
| Evidence Required: | <ol style="list-style-type: none"> 1. The student draws points, lines, line segments, rays, and angles and identifies these in two-dimensional figures. 2. The student classifies two-dimensional figures based on the presence or absence of parallel/perpendicular line segments and angles of a specified size, including identifying right triangles. 3. The student identifies and draws lines of symmetry in line-symmetric figures, and distinguishes line-symmetric figures from line-asymmetric figures. |
| Allowable Response Types: | Matching Tables; Graphing; Hot Spot |
| Allowable Stimulus Materials: | drawings of two-dimensional figures, points, lines, line segments, rays, angles |
| Construct-Relevant Vocabulary: | point, ray, angle, line, line segment, parallel, perpendicular, right, obtuse, acute, sides, polygon, triangle, quadrilateral, pentagon, hexagon, octagon, right triangle, line of symmetry, greater than, less than, equal to |
| Allowable Tools: | None |
| Target-Specific Attributes: | None |
| Non-Targeted Constructs: | None |
| Accessibility Guidance: | Item writers should consider the following Language and Visual Element/Design guidelines ¹ when developing items. Language Key Considerations: <ul style="list-style-type: none"> • Use simple, clear, and easy-to-understand language needed to assess the construct or aid in the understanding of the context • Avoid sentences with multiple clauses • Use vocabulary that is at or below grade level • Avoid ambiguous or obscure words, idioms, jargon, unusual names and references |

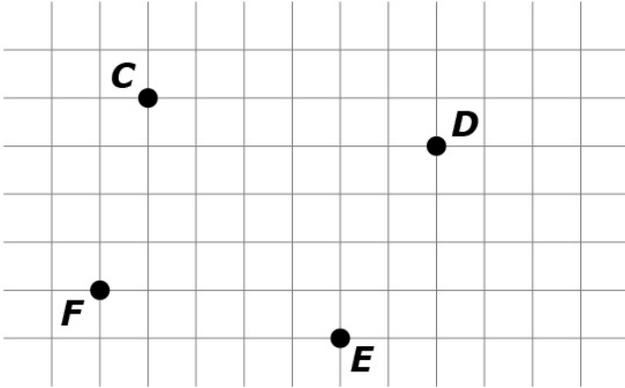
¹ For more information, refer to the General Accessibility Guidelines at:

<http://www.smarterbalanced.org/wordpress/wp-content/uploads/2012/05/TaskItemSpecifications/Guidelines/AccessibilityandAccommodations/GeneralAccessibilityGuidelines.pdf>

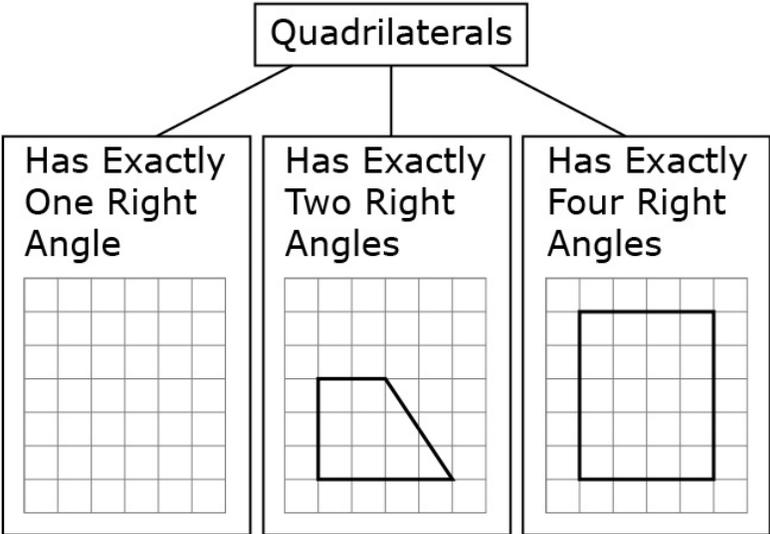
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| | <p>Visual Elements/Design Key Considerations:</p> <ul style="list-style-type: none"> • Include visual elements only if the graphic is needed to assess the construct or it aids in the understanding of the context • Use the simplest graphic possible with the greatest degree of contrast, and include clear, concise labels where necessary • Avoid crowding of details and graphics <p>Items are selected for a student's test according to the blueprint, which selects items based on Claims and targets, not task models.</p> <p>As such, careful consideration is given to making sure fully accessible items are available to cover the content of every Claim and target, even if some item formats are not fully accessible using current technology.²</p> |
| Development Notes: | <p>More difficult items for this target may use symmetry as the basis for classification of two-dimensional figures (e.g., What lines of symmetry does a rectangle have to have for it to be considered a square?).</p> |

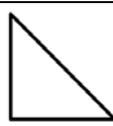
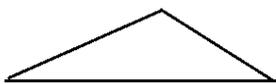
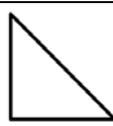
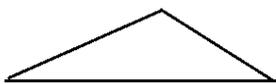
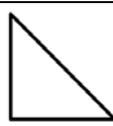
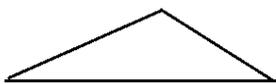
² For more information about student accessibility resources and policies, refer to http://www.smarterbalanced.org/wordpress/wp-content/uploads/2014/08/SmarterBalanced_Guidelines.pdf

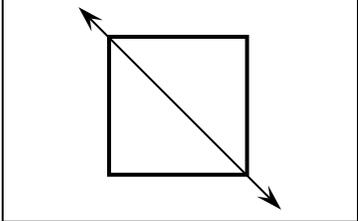
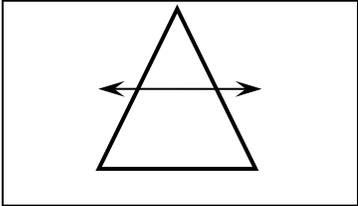
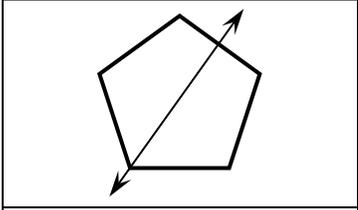
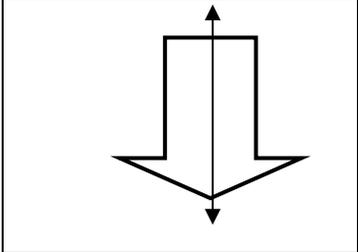
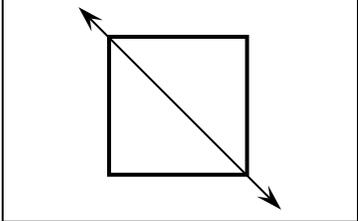
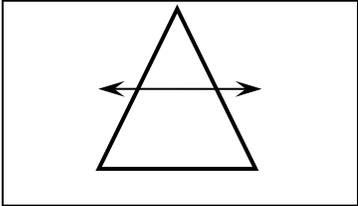
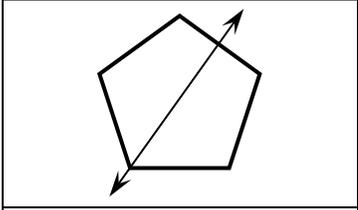
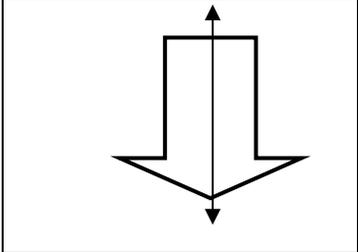
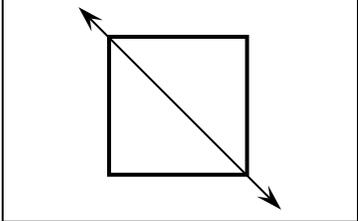
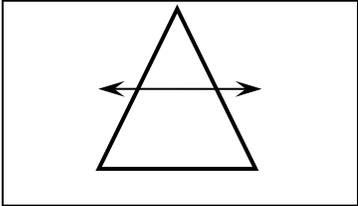
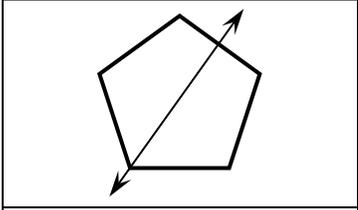
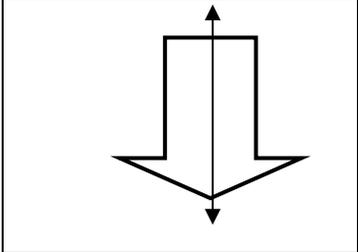
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| <p>Task Model 1a</p> <p>Response Type: Hot Spot</p> <p>DOK Level 1</p> <p>4.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.</p> <p>Evidence Required: 1. The student draws points, lines, line segments, rays, and angles and identifies these in two-dimensional figures.</p> <p>Tools: None</p> <p>Accessibility Note: Hot spot items are not currently able to be Brailled. Minimize the number of items developed to this TM.</p> | <p>Prompt Features: The student is prompted to identify a point, line, line segment, or ray.</p> <p>Stimulus Guidelines:</p> <ul style="list-style-type: none"> • Item difficulty can be adjusted via these example methods: <ul style="list-style-type: none"> ○ The complexity of the geometric figure ○ The indicated element <p>TM1a Stimulus: The student is presented with a two-dimensional geometric figure.</p> <p>Example Stem: Click on line segment ML.</p> <div style="text-align: center;">  </div> <p>Rubric: (1 point) The student selects the correct element (e.g., line segment ML).</p> <p>Response Type: Hot Spot</p> |
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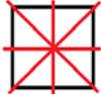
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| <p>Task Model 1b</p> <p>Response Type: Graphing</p> <p>DOK Level 1</p> <p>4.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.</p> <p>Evidence Required: 1. The student draws points, lines, line segments, rays, and angles and identifies these in two-dimensional figures.</p> <p>Tools: None</p> <p>Accessibility Note: Graphing items are not currently able to be Brailled. Minimize the number of items developed to this TM.</p> | <p>Prompt Features: The student is prompted to draw a point, line, line segment, ray, or angle.</p> <p>Stimulus Guidelines:</p> <ul style="list-style-type: none"> • Points are labeled with letter names. • Item difficulty can be adjusted via this example method: <ul style="list-style-type: none"> ◦ The complexity of the indicated element • Scoring is based on whether student draws a specific point, line, line segment, ray, or angle, as identified in the stem, as opposed to drawing <i>any</i> point, line, line segment, ray, or angle. <p>TM1b Stimulus: The student is presented with three to five points on a grid.</p> <p>Example Stem: Use the Connect Line tool to draw line segment <i>CD</i>.</p>  <p>Rubric: (1 point) The student draws the correct line segment (e.g., line segment <i>CD</i>).</p> <p>Response Type: Graphing</p> |
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| <p>Task Model 2a</p> <p>Response Type: Matching Tables</p> <p>DOK Level 2</p> <p>4.G.A.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.</p> <p>Evidence Required: 2. The student classifies two-dimensional figures based on the presence or absence of parallel/perpendicular line segments and angles of a specified size, including identifying right triangles.</p> <p>Tools: None</p> | <p>Prompt Features: The student is prompted to match figures to a description based on the presence or absence of angles of a specified size (right, acute, or obtuse) and/or the presence or absence of parallel or perpendicular sides.</p> <p>Stimulus Guidelines:</p> <ul style="list-style-type: none"> • Item difficulty can be adjusted via these example methods: <ul style="list-style-type: none"> ○ Convex vs. concave shapes ○ Shapes in a standard orientation vs. a non-standard orientation ○ Whether the name of the shape is given ○ Whether the shape is drawn on a grid <p>TM2a Stimulus: The student is presented with drawings of two-dimensional geometric figures and three categories based on the presence or absence of angles of a specified size (right, acute, or obtuse) and/or the presence or absence of parallel or perpendicular sides.</p> <p>Example Stem: Click in the box that matches each figure with its description. Each figure may be matched to more than one description.</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 25%;"></th> <th style="width: 25%;">Has one or more right angles</th> <th style="width: 25%;">Has one or more pairs of perpendicular sides</th> <th style="width: 25%;">Has one or more pairs of parallel sides</th> </tr> </thead> <tbody> <tr> <td style="text-align: left; padding: 5px;">  Rectangle </td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: left; padding: 5px;">  Rhombus </td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: left; padding: 5px;">  Parallelogram </td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Rubric: (1 point) The student correctly classifies the given figures (e.g., Rectangle: Right, Perpendicular, Parallel; Rhombus: Parallel; Parallelogram: Parallel).</p> <p>Response Type: Matching Tables</p> | | Has one or more right angles | Has one or more pairs of perpendicular sides | Has one or more pairs of parallel sides |  Rectangle | | | |  Rhombus | | | |  Parallelogram | | | |
|---|--|--|---|--|---|--|--|--|--|--|--|--|--|--|--|--|--|
| | Has one or more right angles | Has one or more pairs of perpendicular sides | Has one or more pairs of parallel sides | | | | | | | | | | | | | | |
|  Rectangle | | | | | | | | | | | | | | | | | |
|  Rhombus | | | | | | | | | | | | | | | | | |
|  Parallelogram | | | | | | | | | | | | | | | | | |

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| <p>Task Model 2b</p> <p>Response Type: Graphing</p> <p>DOK Level 2</p> <p>4.G.A.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.</p> <p>Evidence Required: 2. The student classifies two-dimensional figures based on the presence or absence of parallel/perpendicular line segments and angles of a specified size, including identifying right triangles.</p> <p>Tools: None</p> <p>Accessibility Note: Graphing items are not currently able to be Brailled. Minimize the number of items developed to this TM.</p> | <p>Prompt Features: The student is prompted to generate a two-dimensional figure that meets the requirements of a particular classification schema involving the presence or absence of angles of a specified size (right, acute, or obtuse) and/or perpendicular or parallel sides.</p> <p>Stimulus Guidelines:</p> <ul style="list-style-type: none"> Item difficulty will be adjusted via these example methods: <ul style="list-style-type: none"> Whether the shapes drawn have horizontal or non-horizontal bases How many “normal” ways there are to draw a shape that matches the empty box description <p>TM2b Stimulus: The student is presented with a classification schema involving the presence or absence of angles of a specified size (right, acute, or obtuse) and/or perpendicular or parallel sides.</p> <p>Example Stem: This chart shows one way to classify quadrilaterals. Use the Connect Line tool to draw a quadrilateral that belongs in the box labeled “Has Exactly One Right Angle.”</p> <div data-bbox="613 982 1383 1516" data-label="Diagram">  </div> <p>Rubric: (1 point) The student constructs a shape that meets the requirements of a classification schema (e.g., a quadrilateral with exactly one right angle).</p> <p>Response Type: Graphing</p> |
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| <p>Task Model 2c</p> <p>Response Type: Matching Tables</p> <p>DOK Level 1</p> <p>4.G.A.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.</p> <p>Evidence Required: 2. The student classifies two-dimensional figures based on the presence or absence of parallel/perpendicular line segments and angles of a specified size, including identifying right triangles.</p> <p>Tools: None</p> | <p>Prompt Features: The student is prompted to identify right triangles.</p> <p>Stimulus Guidelines:</p> <ul style="list-style-type: none"> • Triangles that are considered “not right” cannot use angles within 80-100 degrees. • The correct answer(s) will show isosceles or scalene right triangles at any rotation. • Item difficulty can be adjusted via this example method: <ul style="list-style-type: none"> ◦ The orientation of the triangles’ legs/hypotenuse <p>TM2c Stimulus: The student is presented with three triangles.</p> <p>Example Stem: Decide whether the shape appears to be a right triangle. Select Yes or No for each triangle.</p> <table border="1" data-bbox="722 777 1266 1228"> <thead> <tr> <th></th> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Rubric: (1 point) The student correctly identifies three triangles as right triangles or not right triangles (e.g., Y, N, N).</p> <p>Response Type: Matching Tables</p> | | Yes | No |  | | |  | | |  | | |
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| | Yes | No | | | | | | | | | | | |
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| <p>Task Model 3a</p> <p>Response Type: Matching Tables</p> <p>DOK Level 1</p> <p>4.G.A.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.</p> <p>Evidence Required: 3. The student identifies and draws lines of symmetry in line-symmetric figures, and distinguishes line-symmetric figures from line-asymmetric figures.</p> <p>Tools: None</p> | <p>Prompt Features: The student is prompted to identify lines of symmetry in line-symmetric figures.</p> <p>Stimulus Guidelines:</p> <ul style="list-style-type: none"> Item difficulty can be adjusted via these example methods: <ul style="list-style-type: none"> “Basic” vs. “non-basic” shapes Convex vs. concave shapes Shapes in a standard orientation vs. a non-standard orientation <p>TM3a Stimulus: The student is presented with three shapes, each with a line drawn through it.</p> <p>Example Stem: Decide whether the line appears to be a line of symmetry for the shape. Select Yes or No for each shape.</p> <table border="1" data-bbox="678 814 1317 1766"> <thead> <tr> <th></th> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Rubric: (1 point) The student correctly identifies three lines as being lines of symmetry or not (e.g., Y, N, Y, Y).</p> <p>Response Type: Matching Tables</p> | | Yes | No |  | | |  | | |  | | |  | | |
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| <p>Task Model 3b</p> <p>Response Types: Graphing and Hot Spot</p> <p>DOK Level 2</p> <p>4.G.A.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.</p> <p>Evidence Required: 3. The student identifies and draws lines of symmetry in line-symmetric figures, and distinguishes line-symmetric figures from line-asymmetric figures.</p> <p>Tools: None</p> <p>Accessibility Note: Graphing and hot spot items are not currently able to be Brailled. Minimize the number of items developed to this TM.</p> | <p>Prompt Features: The student is prompted to generate lines of symmetry in line-symmetric figures.</p> <p>Stimulus Guidelines:</p> <ul style="list-style-type: none"> Item difficulty can be adjusted via these example methods: <ul style="list-style-type: none"> “Basic” vs. “non-basic” shapes Convex vs. concave shapes Shapes in a standard orientation vs. a non-standard orientation The number of lines of symmetry the shape has (limited to no more than 4 lines of symmetry) <p>TM3b</p> <p>Stimulus: The student is presented with a set of three line-symmetric, two-dimensional figures.</p> <p>Example Stem 1: Use the Add Arrow tool to draw all the lines of symmetry for the shape. If there are no lines of symmetry, click None.</p> <div style="text-align: center;">  </div> <p>Example Stem 2: Use the Add Arrow tool to draw all the lines of symmetry for the shape. If there are no lines of symmetry, click None.</p> <div style="text-align: center;">  </div> <p>Example Stem 3: Use the Add Arrow tool to draw all the lines of symmetry for the shape. If there are no lines of symmetry, click None.</p> <div style="text-align: center;">  </div> <p>Rubric: (1 point) The student correctly draws all lines of symmetry with no incorrect lines, or correctly selects None (e.g., as shown below).</p> <div style="display: flex; align-items: center; justify-content: center;">  ;  (None is selected);  </div> <p>Response Type: Graphing and Hot Spot</p> |
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| <p>Task Model 3c</p> <p>Response Type: Matching Tables</p> <p>DOK Level 2</p> <p>4.G.A.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.</p> <p>Evidence Required: 3. The student identifies and draws lines of symmetry in line-symmetric figures, and distinguishes line-symmetric figures from line-asymmetric figures.</p> <p>Tools: None</p> | <p>Prompt Features: The student is prompted to identify figures that have line-symmetry and figures that do not have line symmetry.</p> <p>Stimulus Guidelines:</p> <ul style="list-style-type: none"> • Item difficulty can be adjusted via these example methods: <ul style="list-style-type: none"> ○ Convex vs. concave shapes ○ Shapes in a standard orientation vs. a non-standard orientation ○ Regular and irregular shapes <p>TM3c Stimulus: The student is presented with three two-dimensional geometric figures.</p> <p>Example Stem: Determine the number of lines of symmetry for each shape. Click in the box that matches the shape to the correct number of lines of symmetry.</p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th></th> <th>None</th> <th>Exactly 1</th> <th>Exactly 2</th> <th>Exactly 3</th> <th>More than 3</th> </tr> </thead> <tbody> <tr> <td> Rectangle</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Triangle</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Circle</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Rubric: (1 point) The student correctly identifies the number of lines of symmetry in each shape (e.g., Exactly 2, None, More than 3).</p> <p>Response Type: Matching Tables</p> | | None | Exactly 1 | Exactly 2 | Exactly 3 | More than 3 |  Rectangle | | | | | |  Triangle | | | | | |  Circle | | | | | |
|--|--|-----------|-----------|-----------|-------------|-----------|-------------|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|
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|  Triangle | | | | | | | | | | | | | | | | | | | | | | | | | |
|  Circle | | | | | | | | | | | | | | | | | | | | | | | | | |