

**Virginia Essentialized Standards of Learning
Instruction Resource
Mathematics Sample Activities**

Grade 3: Measurement and Geometry

VESOL Code	VESOL Reporting Category	VESOL Text	Complexity Continuum
M-3 14	Measurement and Geometry	Use attributes of circles, triangles, and squares to identify shapes.	Circles, triangles, and squares could be presented in simple pictures, diagrams, models, or representations.

Instructional Example

Objective:

Use attributes of triangles, squares, and circles to classify shapes.

Vocabulary:

alike, compare, circle, curved, round, shape, side, square, triangle, straight, corner

Materials: *Sample activities range across a continuum of complexity and may include materials such as:*

Large shape cards (circle, triangle, rectangle, square), Large shape cards with high contrast background, Large shape cards with textured shapes (circle, triangle, rectangle, square), shape tiles or tangrams, pictures of shapes and pictures of non-shapes (animals, people, etc.) of the same/similar size, pictures of triangles and other shapes of the same/similar size, pictures of squares and other shapes of various sizes

Procedures for Instruction:

These instructional activities can be used at various points on the complexity continuum, depending upon student ability. Many possibilities exist for lesson creation between the examples presented here. It is important to start instruction where the student is currently functioning and implement the appropriate instructional strategy with them. Once data indicate that the student is ready for the next level of instruction, proceed to it after reviewing the level the student has mastered. Let the data be your guide.

Sample Activity 1

1. In this activity students are building the concept of shape versus non-shape. To scaffold skill acquisition, keep examples as close to the same size as possible.
2. Provide students with 2-dimensional shapes that they can hold and feel, preferably the same color so the primary distinction between them is shape (i.e. puzzle pieces, foam shapes etc.). Explain that each one is a different shape. Place each shape in students hands, one at a time,

providing a verbal description. "This is a square. It has 4 sides, 1, 2, 3, 4 and 4 corners, 1,2, 3, 4." This is a triangle. It has 3 sides, 1, 2, 3. Consider modeling drawing and describing each shape, inviting students to imitate the drawing or trace shapes on a whiteboard, paper or screen, "All these shapes have lines. This square has four lines that connect at the corners, this triangle has 3 lines, and this circle has one line that goes around and stops where it started. .

3. Present shapes one at a time. Model and then guide students to trace their finger around the outside of the shape, or trace its outline. Repeat that shapes have lines we can trace.
4. Introduce non-shapes, such as a shoe, chair, lamp, stuffed animal, jacket, etc. Model and then guide students to trace their finger around the non-shapes. Explain that these objects are not squares, triangles or circles. Repeat that shapes have sides drawn as lines and the lines all connect. Shapes have angles or arcs. Point out that these items do not have sides drawn as lines, they do not have angles or arcs, and they are not geometric shapes. Show that it's not easy to trace the non-shapes with a pencil or a finger.
5. Repeat steps 3 and 4 above using picture cards. Provide a model for square, triangle and circle and ask students to sort shapes by matching-to-sample and putting non-shapes in a "no" pile (perhaps use a universal sign for no, a red circle with a slash through it).
6. Once students can sort geometric from non-geometric shapes, see if they can select a shape from a field of 3 choices. Display two non-shapes and one geometric shape and ask the student to select the shape. Affirm correct responses and correct errors, guiding the student to trace the outline to determine if it is a shape.
7. Generalize by asking students to answer yes or no when asked if various items in their learning environment are a shape.

Sample Activity 2

1. Display tangram, other 2D circles, or circle drawings. Ask students if they know the name of this shape. Students should be encouraged to use their means of communication to answer the question. Affirm or tell students that this is a shape called a circle. Help students to trace around the edges of tangrams/2D circles or drawings. As students trace the shape, use vocabulary to describe the circle (round, curved, big, little). Explain that "there are different shapes, but we want to identify the circles. How can we tell them apart? Circles are round and have no sides. Other shapes have sides we can count." Record student responses on a visual chart.
2. Display several circle shapes from the learning environment (ex. clock, frisbee, plate) describing why they are a circle (round, curved, has 0 sides).
3. Display a group of circles of varying sizes and ask students whether each shape is a circle. Use the characteristics that were generated on the chart to prove they are circles.
4. Provide each student with a shape card or tangram and ask them to decide if their shape is a CIRCLE or NOT A CIRCLE. Encourage students to use their means of communication to tell the attribute that helped them make their decision.
5. Introduce a non-circle shape item from the learning environment (i.e. book, pencil,) and ask if the item is a circle. Encourage students to use their means of communication to answer "yes"

- or “no.” Affirm “no” responses and provide error correction for “yes” responses, explaining “a book is not a circle because it has straight lines; circles have curves and are round.”
6. Provide practice opportunities to identify circles through various sorting activities.
 - a. Use evidence-based prompting strategies and scaffolded supports for students to sort shapes into CIRCLE/NOT A CIRCLE category on a shared pocket chart or table mat, prompting students to name “circle” when it is selected.
 - b. Start with distractor choices being non-shapes, such as a chair, desk, jacket etc. Affirm correct responses and provide error correction, reminding students what they know about circles (round, curved. has 0 sides).
 - c. Move to students sorting circles from other shapes, and eventually other shapes of similar size and color. Students sort the circles from the other shapes and using their means of communication name the shape as a circle.
 7. Provide students practice opportunities to discriminate a circle from non-circles in a field of three choices.
 - a. Once the student can identify circles from other shapes, provide practice opportunities to discriminate a circle from other shapes in a field of 3. Display two non-circles (square, triangle) and a circle of the same size and color, and later shapes of different sizes and colors. Ask students to use their means of communication to select and name the circle.
 - b. Affirm correct responses and provide error correction, reminding students what they know about circles (round, curved) and how they can determine which is the circle by counting the sides. pointing, touching or looking at their choice in a field of three shapes until the student achieves mastery in selecting and naming a circle from a field of 3 choices.

Sample Activity 3

1. Give students 2D, tangrams or pictures of triangles. Ask students to use their means of communication to name the shape. Acknowledge all guesses, then record the name “Triangle” under or beside a picture of the shape on a piece of chart paper. Explain that this shape is called a triangle. Guide students in tracing around the edges of the shape. As the students trace the shape, provide vocabulary to describe the triangle (pointy, straight lines, three sides, big, little) and record it on the chart paper.
2. Display several shapes from their environment (i.e. pizza slice, yield sign) describing why they are triangles using the characteristics listed on the chart paper..
3. Display a set of triangles of different sizes and colors. Ask students to use their means of communication to answer “yes” or “no” whether each shape is a triangle. Use the characteristics that were generated on the chart to prove they are triangles.
4. Provide each student with a shape card or tangram and ask them to decide if their shape is a TRIANGLE or NOT A TRIANGLE. Students might place their shape into the correct pocket on a pocket chart or place it on the table. Encourage students to use their means of communication to tell the attribute that helped them make their decision.

5. Present students with non-triangle shape tiles or non-triangle shape pictures of a similar size. Describe that there are different shapes, but we want to identify the triangles. "How can we tell them apart? Triangles have three sides, and other shapes have other numbers of sides. Provide practice opportunities for students to look through the tiles/pictures and identify the triangles. Each time a student identifies a triangle, say the shape name and describe the features that make it a triangle. Invite students to use their means of communication to name the shape and its features.
6. Provide practice opportunities for students to apply what they have learned about triangles. Display a field of three shapes, one triangle and two other non-triangle shapes, and ask the student to identify the triangle by pointing, touching or looking at their choice. Affirm correct choices and provide error correction, emphasizing a triangle has three sides, three pointed corners, and straight lines.
7. Once the students have been able to identify a triangle and name its attributes, ask them to sort circles from triangles by attributes (curved, round, pointed, three sides, three pointed corners, straight lines). Ask questions for students to use their means of communication to name, compare and describe attributes of the two shapes. Encourage students to count the sides and use the new math vocabulary words to describe each shape.

Sample Activity 4

1. Give students 2D, tangrams or pictures of squares. Ask students to use their means of communication to name the shape. Acknowledge all guesses, then record the name "Square" under or beside a picture of the shape on a piece of chart paper. Explain that this shape is called a square. Guide students in tracing around the edges of the shape. As the students trace the shape, provide vocabulary to describe the square (straight lines, four sides, four corners).
2. Display several shapes from their environment (ex. post-it note, book, picture frame). Use the characteristics that were generated on the chart to prove they are squares.
3. Display a set of squares of different sizes and colors. Ask students to use their means of communication to answer "yes" or "no" whether each shape is a square. Use the characteristics that were generated on the chart to prove they are squares.
4. Provide each student with a shape card or tangram and ask them to decide if their shape is a SQUARE or NOT A SQUARE. Students might place their shape into the correct pocket on a pocket chart or place it on the table. Encourage students to use their means of communication to tell the attribute that helped them make their decision.
5. Present students with non-square shape tiles or non-square shape pictures of a similar size. Describe that there are different shapes, but we want to identify the squares. "How can we tell them apart? Squares have 4 sides, and 4 corners." Provide practice opportunities for students to look through the tiles/pictures and identify the squares. Each time a student identifies a square, say the shape name and describe the features that make it a square. Invite students to use their means of communication to name the shape and its features.
6. Provide practice opportunities for students to apply what they have learned about squares. Display a field of three shapes, one square and two other non-square shapes. Ask the student to identify the triangle by pointing, touching or looking at their choice. Affirm correct choices

and provide error correction, emphasizing a square has four sides, 4 straight lines, and 4 corners.

7. Once the students have been able to identify a square and name its attributes, ask them to sort circles, from triangles, from squares by attributes (curved, round, pointed, three sides, three pointed corners, straight lines, four lines, four corners). Ask questions for students to use their means of communication to name, compare and describe attributes of the three shapes. Encourage students to count the sides and use the new math vocabulary words to describe each shape.
8. Provide practice opportunities of randomized trials for students to use shape attributes to select or name a requested shape (circle, triangle, or square) from a field of three, with at least one distractor choice being a different shape.

Additional Resources:

Evidence-Based Instructional Practices:

- Evidence-Based Practices for Students with Significant Cognitive Disabilities
 - [Discrete Trial Teaching AFIRM module](#)
 - [Discrete Trial Teaching Implementation Checklist](#)
 - [Least-to-Most Prompting](#)
 - [Task Analysis Step-by-Step Guide](#)

Communication:

- [36 Location Universal Core Board](#)
- Core Vocabulary and Math: Core words that can be modeled and targeted during lessons:
 - Not
 - Up/Down
 - Big/Little
 - It/That
 - Same/Different
 - Look
 - Make

Connecting math and literature:

- Printable shape books
 - [Here is the Shape](#)
 - [My Shape Book](#)
 - [Kiz Club Shapes book](#)
 - [Paths to Literacy My Shape and Color Book](#)
- Tactile books
 - Paths to Literacy, [What Shape am I?](#)

Printables:

[Practice matching shapes to shape names](#)

[Shape Playdough mats](#)

Virtual Manipulative Resources:

- [National Library of Virtual Manipulatives](#)
- [Toy Theater Virtual Manipulatives](#)
- [Math Playground Virtual Manipulatives](#)
- [Geogebra](#)

Virginia Department of Education Resources:

- [Mathematics Vocabulary Word Wall Cards](#) (K-8, Algebra I, Geometry, AFDA, and Algebra II) – provide a display of mathematics content words and associated visual cues to assist in vocabulary development.
- [Rich Mathematical Tasks](#) – (K-8, Algebra I, Geometry, Algebra II) These resources are provided to support teachers in implementing the 2016 *Mathematics Standards of Learning* in their classrooms. Teachers are encouraged to not only use these tasks with their students, but also to endeavor to implement them with fidelity by utilizing the detailed information provided in the task implementation templates.
 - [Rich Mathematical Task – Grade K.10 – Shape Riddles](#)
- [Mathematics Instructional Plans](#) – includes instructional plans aligned to the 2016 *Mathematics Standards of Learning* to assist teachers in aligning instruction to the essential knowledge and skills.
 - [What Time is It?](#)
- The [Evidence-Based Specially Designed Instruction in Mathematics Resource Guide](#) (PDF) provides an overview of evidence-based instructional strategies that educators can utilize to support students with mathematics disability or difficulty at any grade.
- The [Students with Disabilities in Mathematics: Frequently Asked Questions](#) (PDF) document provides an overview of the characteristics of mathematics disability as well as information about accommodations, modifications, and assistive technology that can support a student with a disability in mathematics.
- [Mathematics Vertical Articulation Tool](#) - This tool provides support in identifying concepts aligned to the 2016 *Mathematics Standards of Learning* (SOL) that articulate across mathematics grade levels or courses.
- [2016 Mathematics Vertical Articulation Grades K – Algebra II SOL by Strand Concepts](#)- These versions of the MVAT address all five strands across select grade levels and include only references to mathematics SOL by number.