UNIT PLANNING TOOL

Planning Focus: Geometry **Module(s)/Unit(s)** Unit 5: Geometry & Measurement

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.
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.
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.
4.MD.C.5: Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:
4.MD.C.5.A: An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles.
4.MD.C.5.B: An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.
4.MD.C.6: Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
4.MD.C.7: Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

Mathematical Practices being emphasized: MP 2: Reason abstractly and quantitatively; MP 5: Use appropriate tools strategically; MP 7: Look for and make use of structure

Essential Questions

How are geometric objects different from one another?
How do we distinguish between parallel and perpendicular lines?
How can shapes be classified by their angles and lines?
How can shapes be classified by the measure of their angles?
How do you determine lines of symmetry? What do they tell us?

Key Concepts

Draw/Label points, lines, rays, & angles
Identify and measure angles
Add and subtract with angles
Classify two-dimensional figures by sides and angles
Lines of symmetry

Visual Models/ Algorithms/ Diagrams for Compendium

See attached Compendium

Pre and Post Assessments

Connections (Real World Applications)

Architects
Civil Engineers
Pilots
Navigators
Construction Workers
Interior designers

Language Functions/Structures

Functions: Explain, Describe, Justify, Compare

A _____ is a figure that has _____.
An angle is made up of _____.
The properties of an obtuse angle are _____.
I classified _____ into the category of _____ because_____.
Parallel lines are different than perpendicular lines because_____.
Angle ABC is an _____ angle because it measures _____ degrees.
An equilateral triangle's properties are _____.

Vocabulary

Point	angle	protractor	trapezoid
Line	obtuse angle	attribute	polygon
Line segment	acute angle	equilateral triangle	parallelogram
Ray	right angle	isosceles triangle	rhombus
Parallel line	vertex	scalene triangle	hexagon
Perpendicular line	degrees	line of symmetry	

Focus and Motivation

Brain Pop video - *Points, Lines, Segments, Rays*

Literature – *Sir Cumference and the Great Knight of Angleland* by Cindy Neuschwander
What's your Angle, Pythagoras? By Julie Ellis

Hands – on activity- shape sort

Songs –
NUMBEROCK: Lines & Angles, Songs for kids. https://www.youtube.com/watch?v=NVuMULQjb3o
NUMBEROCK:*Parallel, Perpendicular & Intersecting Lines Song*
https://www.youtube.com/watch?v=P3AOoLbA3us

Geometry

Points, Lines, and Rays

point

A

line segment

A B

$\overline{AB}$

$\overline{BA}$

ray

C D

$\overrightarrow{CD}$

line

A C

$\overleftrightarrow{AC}$

$\overleftrightarrow{CA}$

parallel lines

always the same distance apart

perpendicular lines

cross to form a right angle

Angles

B ray

vertex → A ray C

$\angle CAB$

$\angle BAC$

Types of Angles

90°

right angle

obtuse angle

greater than 90°

less than 90°

acute angle

measuring angles

? ? ? 180°

$60° + 60° + 60° = 180°$

protractor tool to measure angles

Classifying figures

angles

length or relation to sides

right angles

parallel sides

triangles

equilateral

scalene

isosceles

Symmetry

4

2

0

lines of symmetry divide shape into mirror images

Mathematical Standards and Practices

We will look for and make use of structure when drawing and identifying points, lines, rays, and angles.

We will use appropriate tools strategically to measure and sketch angles

We will construct viable arguments when classifying two-dimensional figures.

Inquiry

What we know about geometry?

What we want to learn about geometry