Fourth Grade Mathematics – Unit 5

Dear Parents and Guardians,

During Unit 5, your child will build their understanding of geometry by making constructions, identifying attributes within geometric figures such as perpendicular and parallel lines, obtuse, right, and acute angles, and classifying figures based on those attributes.

Students will also understand angles as the space between intersecting rays or line segments. They will see angles as parts of a circle and will be able to measure angles in degrees using a protractor or information about the angle in relation to a circle.

Students will recognize patterns within a group of shapes and be able to make a conjecture based on the pattern. Patterns will also be found when studying symmetry of shapes.

GEOMETRY AND PATTERNS

Students need to:

- Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
- 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.
- 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 symmetrical figures and draw lines of symmetry.
- Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:
- Understand that an angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles.
- Recognize that an angle that turns through ***n*** one-degree angles is said to have an angle measure of ***n*** degrees.
- Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
- 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.
- Generate a shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.

KEY VOCABULARY

acute angle/triangle
angle
circle
decompose
degree
endpoint
figure
geometric shape
intersect
line
line segment
parallel
perpendicular
point
protractor
obtuse angle/triangle
one-degree angle
ray
right angle/triangle
straight
unknown
vertex
equilateral triangle
isosceles triangle
scalene triangle
line of symmetry

BACKGROUND INFORMATION AND EXAMPLES FOR PARENTS

Lines, Line Segments, and Rays

Parallel and Perpendicular Lines

Classify Shapes by Lines and Angles

Properties of Quadrilaterals

Lines of Symmetry

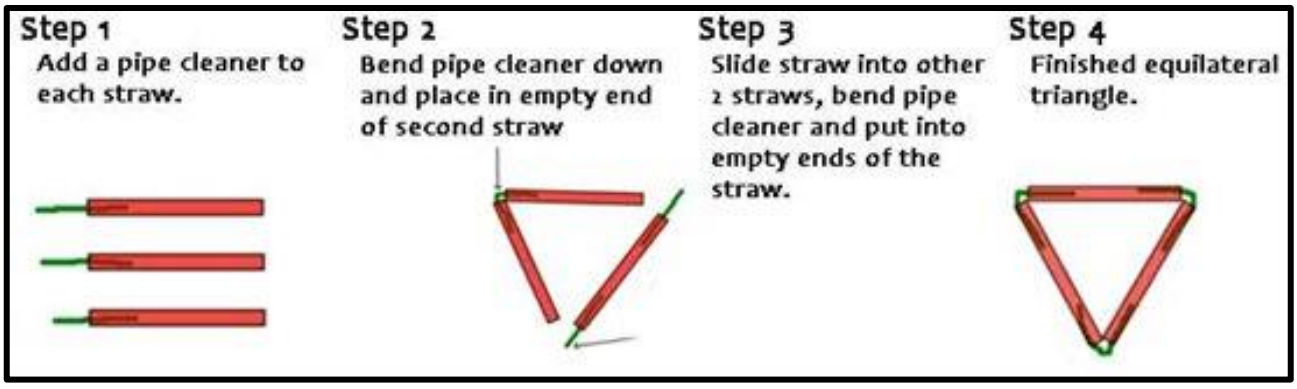
Measure Angles Using a Protractor

Complementary and Supplementary Angles

WAYS PARENTS CAN HELP

- Help your child to identify examples of angles in real life objects. Use a protractor to measure the angles.
- See the directions/illustrations on the next page for how to use straws and pipe cleaners to create geometric shapes.

Steps to make an equilateral triangle:



Apply the same linking strategy to make other polygons.