GEOMETRY TRACKER LIST (June 2022)

2d Shapes

Standards 3 & 4

• Pupil picks out described shapes from a collection

• Pupil responds to mathematical vocabulary such as “straight”, ”circle”, “larger” to describe the shape and size of solids and flat shapes
• Pupil describes shapes in simple models, pictures and patterns

Step 1

- Use terms such as ‘side, straight, curved, round, pointed’.
- Count the sides of a 2D shape (up to 5 sides).
- Use the mathematical names for rectangle and circle.
- Draw round common shape templates such as a rectangles & squares.
- Matches or sorts shapes regardless of size e.g. circles from a collection of shapes.

Step 2

- Can identify triangles, squares, rectangles and circles.
- Identify a 2d shape on the surface of a 3d shape e.g. a circle on top of a tin of beans
- Draws lines & shapes using a ruler.
- Compares the shapes of everyday objects
- Describe and discuss simple 2D shapes (circle, square, rectangle & triangle).

Step 3

- Use the mathematical names for pentagon and hexagon.
- Draw and describe them (by number of sides).
- Can identify a line of symmetry in common shapes.
- Sort shapes according to mathematical criteria e.g. sides, angles, lines of symmetry
- Find the area of a rectangle by counting squares.
- Identifies symmetrical and non-symmetrical shapes.
- Identify the net of a cube

Step 4

- Draw and use the mathematical names for quadrilateral, octagon and decagon
- Draw a line of symmetry on a 2d shape
- Identify nets of common shapes such as pyramids and cylinders.
- Estimate areas of irregular shapes
- Calculate areas of rectangles

Step 5

- Recognise different kinds of triangle e.g. equilateral, isosceles and right angled triangles.
- State how many lines of symmetry regular 2d shapes have e.g. pentagons, octagons.

- Complete a drawing given a line of symmetry.
- Calculate areas of compound shapes

3D Shapes

Standards 1 & 2

• Pupil manipulates three-dimensional shapes

Step 1

- Sort 3d shapes from 2d shapes
- Recognise terms like solid, flat, curved to describe 3d shapes
- Compare a sphere and a cube (actual names not required).
- Putting cubes together to make other simple 3D shapes such as a T or a cuboid
- Recognise a cube and a sphere around school

Step 2

- Use the mathematical name for a cube.
- Can identify a cube from a group of 3D shapes
- Recognise and use the following geometric features for a cube: corners & faces.
- Describe and discuss simple 3D shapes.
- Find cubes, spheres, cuboids and cylinders around school.
- Count the number of faces on a cube.

Step 3

- Can name the following 3D shapes (including 2D representations of these shapes): cube, cuboid, pyramid, cylinder, cone and sphere.
- Give examples of 3d shapes found in real life e.g. balls are spheres, boxes are cuboids, an ice cream has a sphere and a cone.
- Recognise 2d shapes on the faces of 3d shapes e.g. a cuboid has rectangles, a cube has squares.
- Count the faces and corners of cubes, cuboids and pyramids.
- Know that vertices is another name for corners.
- Know that edges are another name for sides of a 3d shape.

Step 4

- Can name the 3d shapes above plus a triangular prism and both kinds of pyramid (square based and triangular based).
- Recognise and use the geometric features of 3D shapes, including vertices, edges and faces for cubes, cuboids, pyramids, cylinders, cones and spheres.
- Makes 3d shapes e.g. from nets
- Calculate the area on a face of a cube or cuboid

Step 5

- Identify prisms such as a hexagonal prism
- Count the faces, vertices and edges of prisms.
- Calculate the volume of a 3d shape such as a cuboid
- Answer questions of area and volume of 3d shapes

Position, Direction & Movement

Standards 1 & 2

- Pupil searches intentionally for objects in their usual place
- Pupil explores the position of objects
- Pupil searches for objects not found in their usual place demonstrating their understanding of object permanence
- Pupil shows understanding of words, signs and symbols that describe positions

Standards 3 & 4

- Pupil responds to “forwards” and “backwards”

Step 1

- Describe positions using common words.
- Use words like up, down, top, bottom, on, inside, above, under, behind, next to, etc.
- Be aware of left, right, forwards & backwards.
- Copy, continue and make patterns. For example Δ □ Δ □ Δ □ Δ □ Δ•

Step 2

- Recognise movements in a straight line and rotations.
- Confidently use the terms : Forwards, backwards, turning right and left and be able to move accordingly
- Move half & whole turns
- Follow and give directions to move in straight lines and turns.

Step 3

- Recognise movements in a straight line and rotations, and combine them in simple ways.
- Describe a simple journey on a map.
- Use mathematical vocabulary to describe position, such as up/down, left/right
- Give instructions for moving a programmable toy.

Step 4

- Give directions using words such as forwards, turn left/right, halfways, quarter and so forth.

- Know and use North, South, East and West
- Use mathematical vocabulary to describe position, direction and movement (including clockwise and anti-clockwise).
- Read and plot coordinates in the first quadrant e.g. Plot x = 3 and y = 2 (with the grid already drawn).

Step 5

- Give directions using turns and angles e.g. “turn clockwise 45 degrees.”
- Know eight points on a compass, e.g. North-East.
- Know a bearing is measured from North and has three digits
- Read and plot coordinates in all four quadrants

Angles

Step 1

- Makes a whole turn and two turns
- Know left and right turns.
- Be able to go straight on and backwards.

Step 2

- Understand angle as a measure of turn
- Describe turns as clockwise or anti-clockwise
- Know that a half-turn is greater than a quarter-turn.
- Give instructions for moving a programmable toy (forwards, backwards, turns right or left).

Step 3

- Recognise right angles around the classroom.
- Turn an object through 1, 2 or 3 right angles, to the left or right.
- Identifies horizontal and vertical lines
- Sort shapes according to the number of right angles

Step 4

- Identify an angle as smaller than a right angle or bigger than a right angle.
- Compare and order angles up to 1800 by size.
- Identifies pairs of parallel and perpendicular lines.

Step 5

- Work out “missing angle” problems
- Read a 3-digit bearing and work out the direction from it
- Work out the bearing from a line drawn accurately.