Shape, Form and Structure (January 2020)

Key focus areas:

- STEAM approach
- Introduction of geometry
- Distinction amongst polygons (square vs rectangle)
- Basic vocabulary of shapes and geometries
- The concept of 2D and 3D
- Construction of 3D
- Material combinations in construction
- Creating/Building as a collective
- Understanding of space and object in a space
- Introduction to quantification of size (height, weight, length)
- Relative size and measurements
- Shapes/Structures in the everyday environment

Activity list:

- Shape matching game
- Construction blocks
- Multimedia construction (blocks of different sizes and materials)
- Combining 2D and 3D for construction
- 2D to 3D - creating 3D shapes by multiplication of 2D shapes
    - Square - cube
    - Rectangle - cuboid
    - Triangle - pyramid (3-face)
    - Triangle, square - pyramid (4-face), trapezoid
    - Circle - sphere, cylinder
- The math in shapes; learning polygons
- Shapes and architecture, spotting shapes on the walk
- Shape collage
- Building shapes with our bodies (with own body and also a collective group activity where kids lay down and make shapes)
- Froggy hops on shapes game (decal circle stickers on the floor that mark the corners of shapes); pretending to be frogs and hop on the marked spots (learning geometries and counting)
- Finding shapes in paintings by famous artists (H.S. Raza, Picasso, Wassily Kandinsky)
- Looking at paintings inspired from or emphasizing on geometrical composition
- Drawing/coloring animals using shape stencils
- Learning how to measure; measuring each other's height in pairs
- Measuring classroom furniture
- Learning how to weigh by measuring the weight of wooden building blocks
- Balancing weights on a see-saw scale

- Learning vocabulary of relative terms (ex. big, bigger, biggest) using plush animals for comparison or going on a walk and compare what we see
- Painting 3D shapes (each side a different color) to learn the number of sides each shape has
- Tessellation art, learning how to create patterns by repeating shapes (shape stamping activity)
- Playdough shapes, cooking pies (pretend play)
- Making shape jello/cookies and then decorating them

Week 1: Introduction to Shapes

Day 1

- What shapes do we know? What shapes can we name?
- Coloring using shape stencils
- Creating familiarity with shapes

Day 2

- Understanding distinction between circle, oval and ellipse
- Circle/Oval/Ellipse matching game
- Spending time baking pretend pies, cakes or cookies with playdough

Week 2: 2D Shapes

Day 1

- Learning to distinguish between square and rectangle (all equal sides vs 2 longer sides)
- Separating fabric cutout game; connecting respective fabrics to make two patchwork quilts
- Making squares and rectangles using peg boards
- This would also lay emphasis on counting the number of pegs; squares would have equal number on all sides while rectangle would not

Day 2

- Learning polygons
- Making a polygon chart in ascending order
- Triangles - Quadrilaterals (square/rectangle/rhombus) - Pentagon - Hexagon - Heptagon - Octagon - Decagon
- What shape is your name?
- To remember the number of sides each polygon has, every child would count the number of alphabets in their first name and pick the relevant polygon to write their name on it

- This is mainly focused at the older kids since younger ones with longer names may not have developed the vocabulary yet

Day 3

- Shape vocabulary matching game; revising shapes
- Shape walk
- Noticing shapes around us, in the neighborhood; spotting shapes on signboards, prints and graphics while on the walk

Day 4

- Introducing importance of shapes in architecture
- Showing children unique buildings
- Architecture walk
- Architecture/shape collage; house/building with shape cutouts

Day 5

- Shape hunt activity
- Looking for shapes in famous paintings; focusing on artists that used abstraction as a tool of expression (H.S. Raza, Picasso, Wassily Kandinsky)
- Introducing how shapes are used
- Refreshing all the shapes learnt thus far; frog hop game

Week 3: 3D Geometries

Day 1

- Making shapes with our bodies (laying down)
- Seeing how 2D shapes look different with volume addition
- Shape song/dance with hand gestures
- This would also lay emphasis on counting the number of pegs; squares would have equal number on all sides while rectangle would not

Day 2

- Introducing the transition of 2D to 3D, Coloring 3D shapes (each side different color)
- Square - Cube / Rectangle - Cuboid / Triangle - Pyramid / Rectangle + Triangle - Trapezoid / Circle - Sphere, Cylinder
- Playing with magnet tiles

Day 3

- 3D Shape hunt; recognize 3D shapes in the classroom
- 3D Shape popsicles/jello
- Exploring 3D shapes in edible form

- Introducing the aspect of transition of form/state and how it affects geometries

Day 4

- Building a paper house; making a 3D house with paper shapes, basic origami
- Building with wooden blocks
- Building exploration with wooden blocks

Day 5

- Gingerbread town; focus on assembling shapes together
- 3D witch hats
- Exploring shapes that are more organic and less rigid and basic

Week 4: Size and Measurement

Day 1

- Introducing the concept of relative sizes through dramatic storytelling
- Vocabulary and language development; comparative and superlative adjectives
- Making a vocabulary chart (pictorial)

Day 2

- Opposites card matching game (focused on measurement/quantification)
- Focus on vocabulary; big/large-small, tall-short, huge-tine, long-short, thick-thin, heavy-light
- Nature walk
- Looking at things in nature in comparative terms

Day 3

- Measure your partner's height
- Learning how to use a measuring tape, units of measurement of length (cm/inch)
- Looking at numbers and introducing the concept of basic decimals (half and quarter) to older children
- Building a tower with mega blocks

Day 4

- Weigh it out (different materials/adding subtracting weight)
- Learning how to use a weighing scale, units of measurement
- Looking at comparative weights (material-vise) and understanding how the scale changes reading with addition/subtraction of weight
- The weight see-saw; balancing wooden blocks on a weighing scale
- For older kids, focus on math of balance

Day 5

- Arrange by size; arranging animals in order of height/thickness/size in dramatic play
- Building a zoo with mega blocks
- Building a separate enclosure for every single animal
- Understanding how size uses and interacts with space

Week 5: Construction/ Navigating 2D/3D Geometries

Day 1

- Constructing a city (dramatic play + mega blocks + wooden blocks)
- Interaction with multiple materials while building

Day 2

- Stamp art activity
- Exploring repetition of 2D shapes and tessellation

Day 3

- Mixed media construction

Day 4

- Juxtapose- 2D over 3D
- Understanding how 2D and 3D interact and change in 2D geometries in a 3D space

Day 5

- Working with clay

Final Curriculum

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1 Introduction to shapes	--	--	--	What is that shape? (shapes we know) --- Coloring using shape stencils	Circle/oval/ellipse matching game --- Playdough shapes baking (pretend) cookies/pies/cakes
Week 2 2D shapes	Is that a square or a rectangle? Making 2 patchwork quilts --- Making a square/rectangle using peg boards	Making a polygon chart in ascending order (square-pentagon-hexagon-octagon) --- What shape is my name? (finding shape based on the length of name and writing it on it)	Shape vocabulary (matching shapes and names) --- Shape walk (look for shapes on prints, signboard, ads, etc)	Shape and architecture (finding shapes in buildings, doors, windows, walls) --- Architecture collage with shapes	Shape hunt in famous paintings --- Refreshing shapes, frog hop game (jump to the right shape when called out)
Week 3 3D geometries	Making shapes with our bodies (laying down) --- Shape song and dance using hand gestures to make shapes	Introducing 2D to 3D (square-cube, triangle-pyramid) painting each side a different color --- Making 3D shapes with magnet tiles	Shape hunt (finding 3D shapes in the classroom) --- Making 3D shape Jello/popsicles	Building a 3D house with paper shapes --- Building with wooden blocks	Creating a gingerbread town --- Making 3D witch hats for dramatic play (going wild with geometries)
Week 4 Size and Measurement	Introduction to the concept of relativity (story) --- Making a vocabulary chart (comparative and superlative adjectives)	Opposites card matching game (ex. big-small) --- Nature walk and comparative terms (stones, trees, pathways, leaves)	Measure your partner's height --- Building the tallest tower (as tall as the child) with mega blocks	Learning how to use a weighing scale (material vs weight exploration) --- See-saw weight balance activity (pairs)	Dramatic play; arranging all animals by order of size --- Building a zoo with mega blocks for these animals
Week 5 Construction Navigating 2D-3D	Constructing an entire city with mega blocks and other props	Creating tessellation patterns with stamping art activity	Mixed media construction (mega-blocks, wooden blocks, fabric shapes, etc)	Sticking 2D shapes on sphere balls and see how the shapes change	Working with clay on the wheel