LEARNING PLAN

Exploratory Activities

2D Shape – Read *The Greedy Triangle* by Marilyn Burns and discuss.
2D or 3D Shape – Mystery bag.
Guess My Rule: Venn Diagram Activity.
Angles & Lines – Read *Sir Cumference & the Great K of Angleland* by Cindy Neuschwander and discuss.

CONCEPT

Geometry (4th Grade)
Shapes
Solids
Angles
Lines

Concept Development Activities

2D Shape

- ✓ Make tangram pieces: RUSMP
- ✓ Tinkering With Tangrams: (pg 15) Math: 23 Ready-to-go Lesson Plans
- ✓ Challenge of the Polygons Game Board: Just for Tangrams
- ✓ Using geoboards create shapes from descriptions given. Draw the shape they made. (See lines and angles section)
- ✓ Polygon Quilt: Website 4
- ✓ It'll Cost You

CENTERS

- ✓ *Polygon Pairs: (pg 77) Games Galore*
- ✓ *Shape Pairs: (pg 111) Take it to your Seat Math Centers*
- ✓ *Square Up: (pg 97) Math by all Means: Geometry*
- ✓ *Cross the River: (pg 84) Instant Math Games that Teach*
- ✓ *Shape Bingo: RUSMP*

3D Shape

- ✓ Make a 3D mobile of the solids showing the flow chart.
- ✓ Target Practice Shape Game using 3D attribute cards
- ✓ Shape sorter: (pg 26) Fun 5-Minutes Math Practice
- ✓ 3D Shape Activity Mat: Aldine ISD Math Resource Packet
- ✓ Solid Sweets: (pg 23) Out and About Math
- ✓ GeoCity: Navigating through Geometry (Group work Extension Activity)

CENTERS

- ✓ *Shape scavenger hunt Sweet Shapes: pg 32 Mailbox Intermediate June/July 1996*

Angles & Lines

- ✓ Simon Says Game
- ✓ Angling For Angles: (pg 19) Math: 23 Ready-to-Go Lesson Plans
- ✓ Raising the Roof: (pg 27) Fun 5-Minutes Math Practice
- ✓ Mark the Angles
- ✓ Web of Lines: Website 3
- ✓ Geoboards in the Classroom: Website 2
- ✓ Acrobatic Angles/Getting Gym Equipment in Line: Teacher Helper Feb/March 2003 by the Mailbox
- ✓ Ordered Pairs – Tic Tack Toe (Review prior knowledge for What is your angle center)

Materials and Resources

Books

The Greedy Triangle by Marilyn Burns
Sir Cumference & the Knight of Angleland by Cindy Neuschwander
Games Galore Math by The Mailbox
Fun 5-Minute Math Practice Pages by Denise Kiernan
Take It To Your Seat Math Centers by Evan Moor
Big Book of Books by Dinah Zike
Out & About Math by The Mailbox
Math By All Means: Geometry by Marilyn Burns
Math: 23 Ready-To-Go Lesson Plans By the Mailbox
Navigating through Geometry in Grade 3-5 by NCTM
Instant Math Games That Teach by Creative Teaching Press
Just for Tangrams – Creative Publications
The Maths Collection by Kathie Barrs & Paul Briten

Mailbox Intermediate June/July 1996
Teacher Helper Feb/March 2003 by the Mailbox
RUSMP June 2003 Notes
Aldine ISD Math Resource Packet
Math Art Creative Teaching Press
Recreation Addison-Wesley Publishing Co.
Parallelograms Practice 4 Scott, Foresman & Co.

Websites

1 - www.math.rice.edu/~lanius/lessons/index.html
2 - www.mathforum.org/trscavo/geoboards
3 - www.ericir.syr.edu/virtual/lessons/mathematics/geometry
4 - www.teams.lacoe.edu/documentation/classrooms/amy/geometry
5 - www.polyart.google.critiques

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CENTERS

- ✓ *What is your angle – Coordinate Graphing & Recognizing Angles: (pg 31) Take it to your Seat Math Centers*
- ✓ *Angle Tangle Game: Adapted from The Maths Collection*
- ✓ *Geominoes: (pg 79) Games Galore Math*

Mixed Objectives

- ✓ Roping in Quadrilaterals: (pg 22) Navigating through Geometry (3-5)
- ✓ Geometry Crossword: Recreation

Manipulatives

Paper or Cloth Bag
Shapes & Solids (2D & 3D)
Geoboards
Geoboard Dot Paper
Rubber Bands
Tangrams
Target and Velcro darts
3D attribute cards
Nets (Jackets) of 3D shapes
Magazines
Cameras
Poster board
Construction / manila paper
Glue
Scissors
Yarn
Angle Tangle gameboard and cards
Counters (2 Colors)
Game Markers
Various Spinners (see sheets)
Timer
Unifix Cubes
Colored Pencils
Die
Game Cubes
Attribute Grouping Circles
Geometry Concentration cards (*Hands on Learning* by Cheryl Cox)
"Man with a Cane" (1920) by Fernand Léger - oil on canvas MFAH
Mask Art works from different cultures
3D Activity Mats
Art paper
Paint or artist crayons
Ruler
Pencil

Basic Facts and Standard Algorithms Formalized

Identify properties and vocabulary to describe shapes and solids in terms of vertices, edge and faces.

Identify properties and vocabulary of right, acute and obtuse angles

Identify properties and vocabulary of parallel and perpendicular lines

Describe the relationship between two sets of related data such as ordered pairs in a table.

District Benchmarks & Tests (Aldine ISD)

Originality and Creativity
Student Products

Written

- ✓ Journal Entry – write definitions for geometric terms.
- ✓ Students write a story about the 2D solids creatures

Verbal

- ✓ Describe a shape or solid verbally to a group and they have to guess it.
- ✓ Study a piece of artwork and price it. Then convince an art collector to buy the artwork at their chosen price. (Polyart Gallery: Website 5)

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Assessment

2D & 3D Shapes

- ✓ Hidden Polygons: Parallelograms: Website 1
- ✓ The Knight Game
- ✓ Solid Geometry Quiz

Lines & Angles

- ✓ Create a definition flap book to illustrate lines and angles: Adapted from the Dinah Zike book

Combined objectives

- ✓ Take photographs of the surrounding area and use magazines to show examples of 2D & 3D shapes, line and angles. Students create a poster to illustrate the definitions and properties in everyday/real world examples.
- ✓ Geometry Concentration: Hands on Learning

Related TEKS

4.8.a., 4.8.b, 4.8.c

Kinesthetic

- ✓ Make a 2D creature using a variety of polygons. Shape-a-picture worksheet (Math Art)
- ✓ Make a mask using 3D solids. Look at artwork of various masks from different cultures.

Visual

- ✓ Geometry Picture created with lines. Using the painting "Man with a Cane" (1920) by Fernand Léger - oil on canvas as example
- ✓ Create a Bulletin Board of magazines and photographs

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