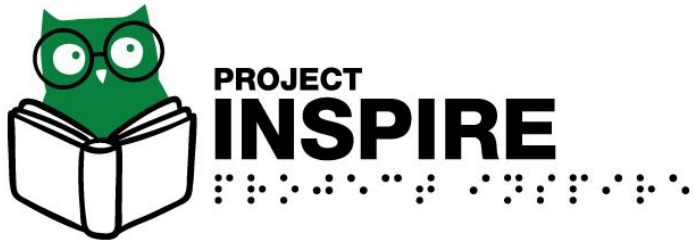
Geometry and Tactile Graphics for Students in Grades 3 to 8

Lesson 3: Materials and Strategies for Geometry Instruction Part 1



University of South Carolina Upstate

Objectives

Participants will be able to:

- Identify materials that can be used when teaching geometry and tactile graphics to students in grades 3-8.
- Recognize ways they can support math instruction for students in grades 3-8 who are learning geometry.

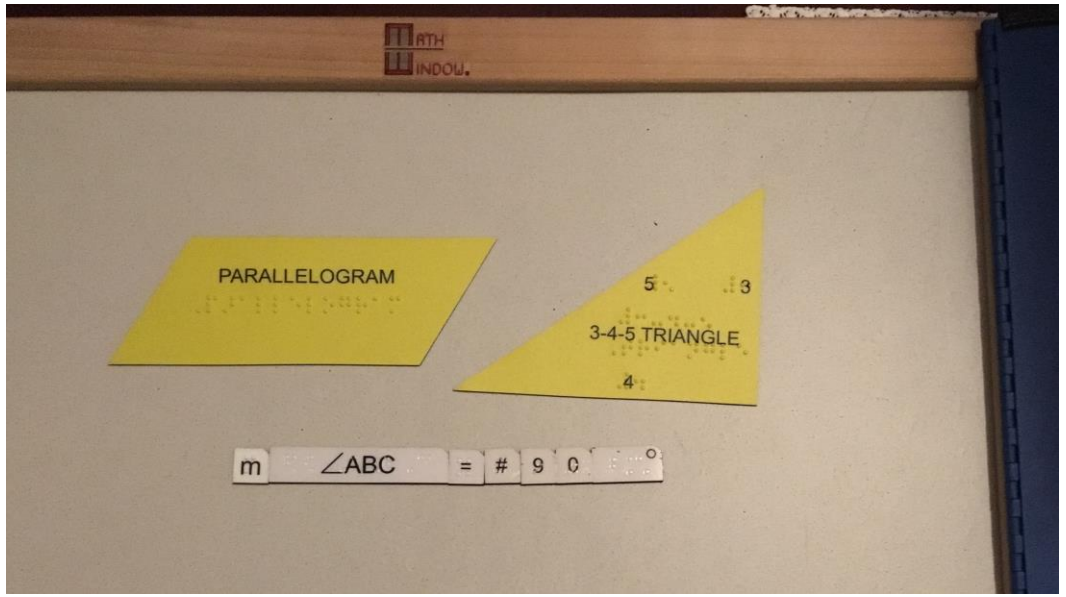
Math Builders Unit 6

- Binder of lessons
- Velcro boards
- Diagramming strips
- Geometro geometric shapes
- Activity sheets
- Nemeth Code Reference Sheet for Basic Mathematics
- 2-dimenstional shapes
- 3-dimenstional shapes

Geometry Math Window

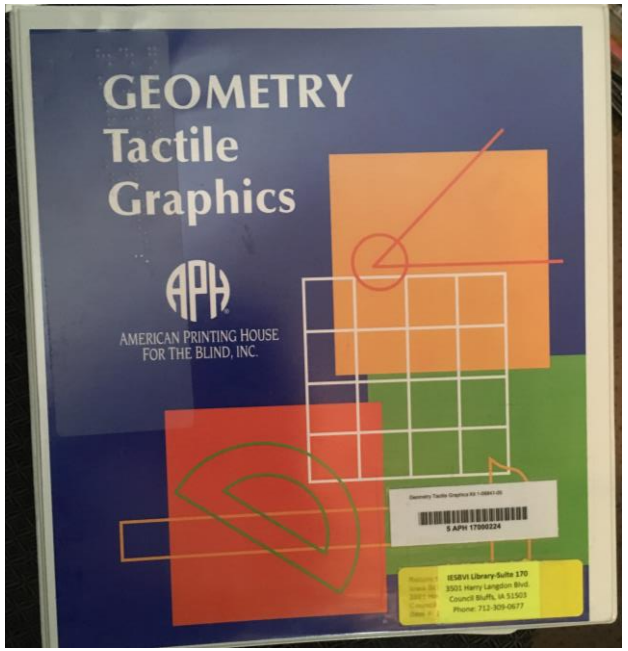
Contains

- Symbols and expressions in print and braille on magnetic tiles
- Magnetic board flat on one side and raised grid on the other side
- 2-dimensional geometric shapes identified with print and braille
- Point markers
- Wikki Stix
- Attachable tile pallet
- Canvas bag



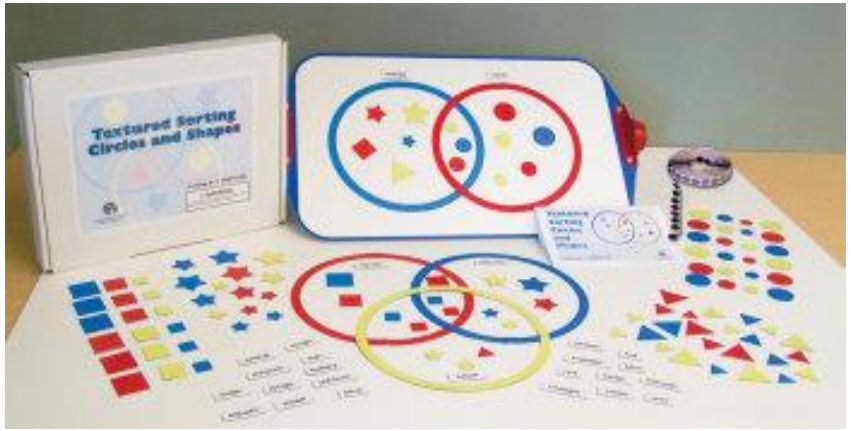
Geometry Tactile Graphics Kit

- Binder of common geometry graphics
- Concepts presented through graphics in the binder:
  - Parallel/perpendicular
  - Types of angles/triangles/quadrilaterals
  - Congruence
  - Area
  - Pythagorean theorem
  - Similarity
  - And More!



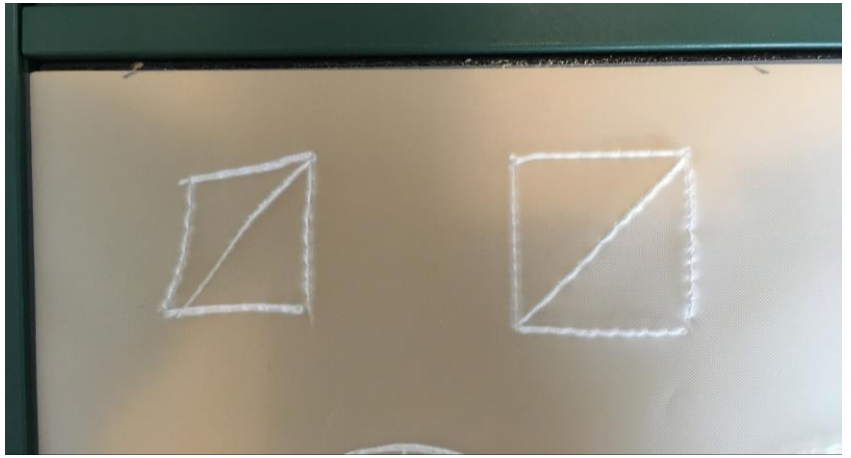
2-D Shapes

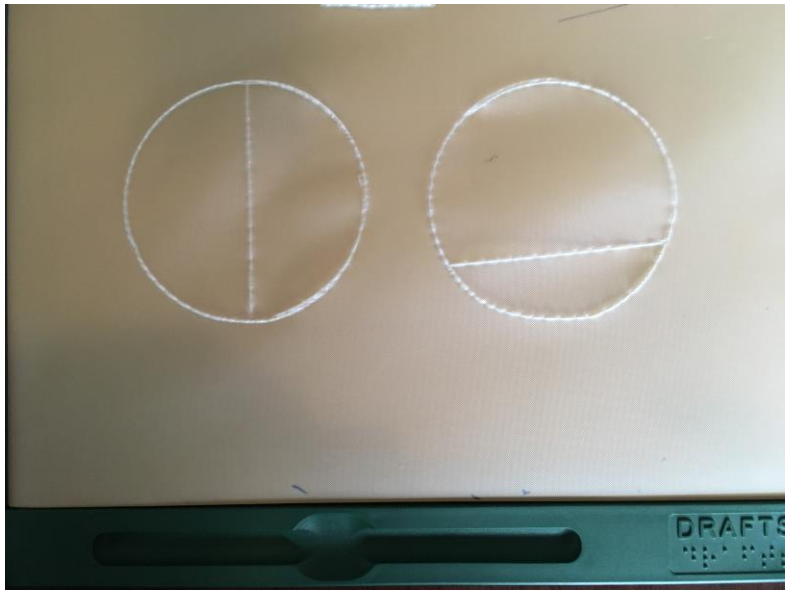
- 3rd - 5th grade skill
- Attributes of shapes
  - Number of sides or angles
  - Congruent sides or angles
  - Parallel or perpendicular sides
- Classifying shapes
- Students need to understand how to count the number of sides (keeping a starting point).
- Use: Geometry Tactile Graphics Kit, Tactile Tangrams, Geoboard



Symmetry

- 4th grade skill
- Finding lines of symmetry (e.g., diagonal of a square) – there may be more than one for some figures
- Paper folding
- Use: Draftsman board, graphic art tape, Wikki Stix



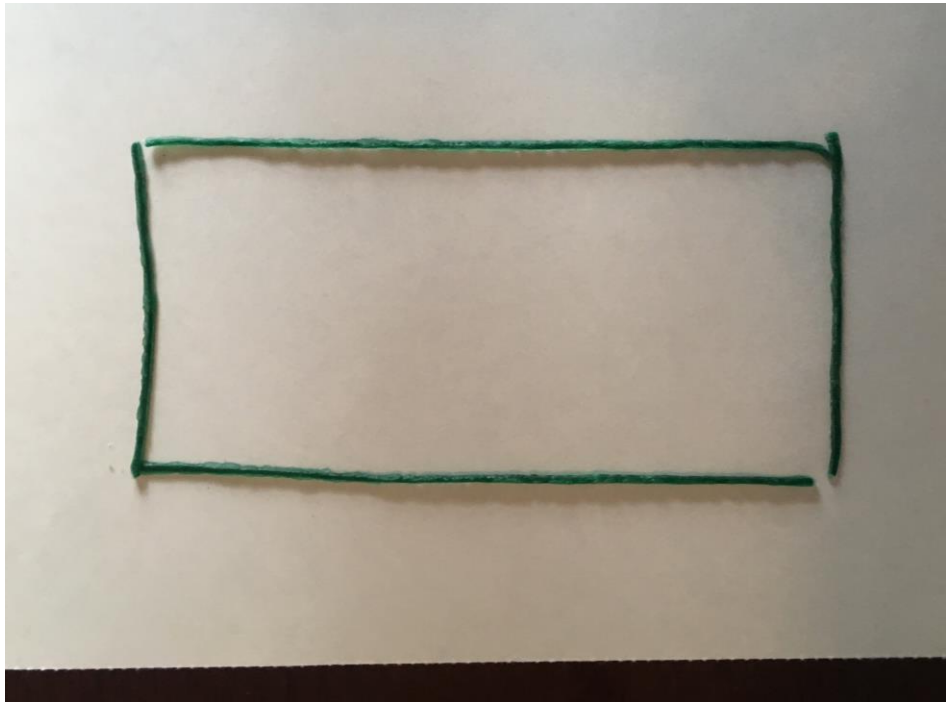


Points, Segments, Rays, and Lines

- 4th grade skill
- The student needs to be able to
  - Tactually differentiate between points and arrows
  - Track lines
  - Notice intersections of lines
  - Find them within 2-D and 3-D shapes
  - Name them
- Use: Draftsman board, Geometry Tactile Graphics Kit, Feel ‘n Peel Stickers: Braille-Print Alphabet Letters

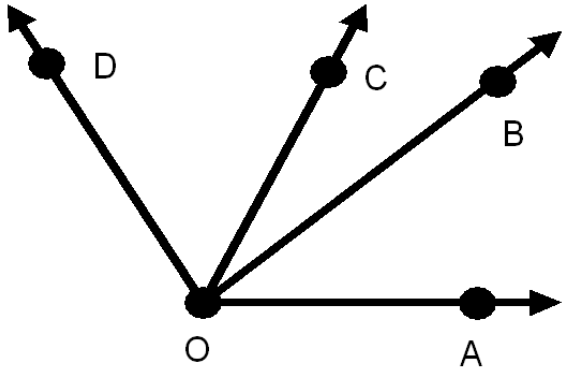
Parallel and Perpendicular

- 4th grade skill
- Identifying parallel and perpendicular line in a 2-D drawing
- Classify 2-D figures based on whether they have parallel/perpendicular sides
- Use: Wheatley Board, Draftsman board, Wikki Stix



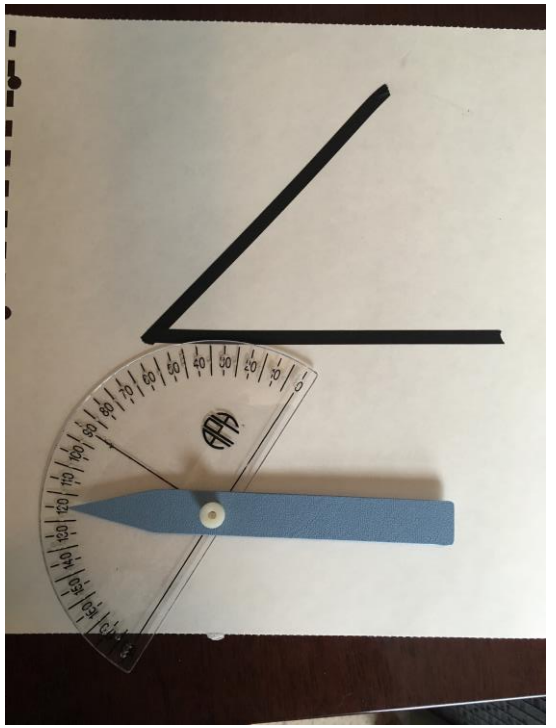
Angles

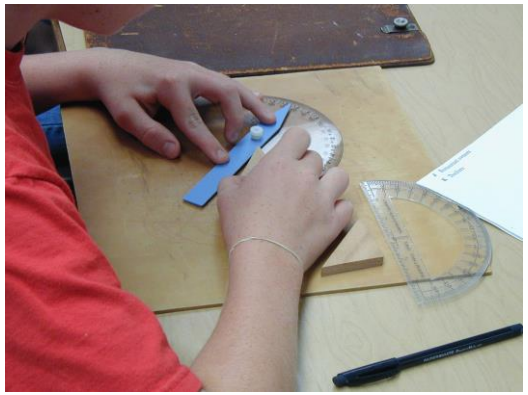
- 4th grade skill
- Formed by two rays that share a common endpoint
- Naming an angle
- Finding angle measurements with and without lead lines
- Composing and decomposing to find measures
- Use: Draftsman board, Geometry Tactile Graphics Kit, Feel ‘n Peel Stickers: Braille-Print Alphabet Letters, Feel ‘n Peel Stickers: Nemeth Braille-Print Numbers 0-100



Angle Measurement

- 4th grade skill
- Equal, acute, obtuse, and right angles
- Measuring angles using a protractor
- Classifying 2-D figures based on the types of angle in the figure
- Use:
  - Tactile/Large Print
  - Braille
  - Draw2Measure App



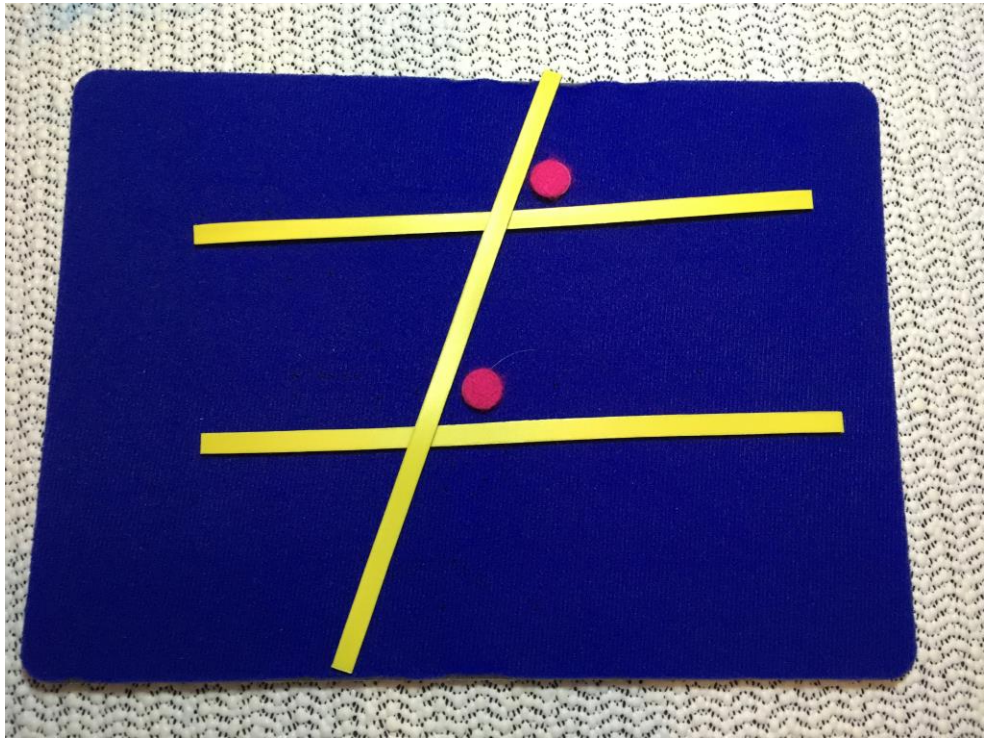


Angle Relationships with Lines

- 7th grade skill
- Supplementary - two angles whose sum is 180°
- Complementary - two angles whose sum is 90°
- Vertical - opposite angles made by two intersecting lines
- Adjacent – angles that share a side
- Solve problems involving these relationships
- Use: Wheatley board, Draftsman board

Angle Relationships with Parallel Lines

- 8th grade skill
- Parallel lines cut by a transversal
- Interior angles
- Exterior angles
- Corresponding angles
- Use: Wheatley board, Draftsman board



Angle Relationships with Triangles

- 8th grade skill
- Interior angles
- Exterior angles
- Angle sum (totals 180° and forms a straight line)
- Use: Wheatley board, Draftsman board