

**Math4020**  
**PORTFOLIO ASSIGNMENT**

**Objectives For Portfolio** The student will

- See an overview of what was learned this semester.
- Have examples to use with children.
- Reflect on the material covered in the course.
- Have a model of a good assessment tool.

**Portfolio Requirements**

- Utah State Core draft on Geometry and Data Analysis (10%)
- Statistics (15%)
  - Stem-leaf
  - Pie chart
  - Histogram
  - Data with mean, median, mode and standard deviation
  - Box/whisker plot
  - Scatter plot
  - Examples of graphs and statistics from current events.
- Probability (15%)
  - Experimental probability example
  - Sample probability problems using:
    - Tree Diagram
    - Venn Diagram
    - Pascal's Triangle
  - Conditional Probability
  - Odds
  - Sample permutation problems
  - Sample combination problems
- Shapes (15%)
  - Examples of various shapes in the real world
  - Definitions and properties of 2d shapes
  - Definitions and properties of 3d shapes
  - Symmetry
  - Venn Diagram of quadrilaterals
  - Tessellation by regular polygons
  - Angle relationships (corresponding, alternating interior, etc.)
- Measurement (15%)
  - Measurement lesson or activity (geared toward elementary students)
  - Measurement conversions

Perimeter and Area formulas and examples  
Volume and Surface Area formulas and examples  
Pythagoras' Theorem proof and examples  
Page about pi (scatter plot, slope of best fit line, definition of pi, etc.)  
Scaling example or activity

o Other Geometry Topics (15%)

Congruence Theorems and examples  
Similarity Theorems and examples  
Constructions==perform all the following constructions with a compass and straightedge, and then prove one of them.  
Bisect an angle  
Construct perpendicular bisector to segment  
Construct a perpendicular to a given line through a point NOT on the line  
Construct a perpendicular to a given line through a point ON the line  
Construct your favorite regular polygon  
Algebra/Geometry tie-in formulas and examples

o Reflections (10%)

From all problem sets  
Final reflection (typed, about a page) to address these questions  
How did your view of the world change due to this exploration into geometry? In other words, are you looking at things differently, noticing things you didn't used to notice, etc.?  
What is the most meaningful tidbit you learned in this course?  
From all the topics we covered this semester, what are you now excited to teach children?

o Other items of your choice (5%)