Public Park Project

**THE BIG IDEA:** Redesign Brown Park in North Evanston.

**PURPOSE:** Demonstrate knowledge of volume and surface area of at least two, three dimensional figures.

**SUMMARY:** During this 3 week project, you will create your own design of the park as a team. Constructing this park is part of the greater study of mathematics in everyday life. Not only will you design your portion of the park, but you will also calculate necessary material costs. You will use Google Docs to journal your progress, collaborate with your team on the power point, and turn in your reflection paper.

**LEARNING GOALS:**

* Apply knowledge of surface area, volume, angles, and sides of figures
* Explore the role of landscape architecture
* Integrate notes and discussions into a fully envisioned outcome
* Apply the representations of the categories by using verbal, graphical, and algebraic representations
* Your team will be required to demonstrate six to eight shapes.
* You will be required to choose at least two figures from the following list:
* Cylinder
* Sphere
* Cone
* Prisms (Triangular, Rectangular, Hexagonal, etc)
* Pyramid

**OVERVIEW OF DELIVERABLES:**

* A 15 to 20 minute oral presentation.
* Complete drawings or models of the specific shapes
* Analysis of the categories (calculations and drawings to support the mathematics)
* A two page paper summarizing what you did and reflecting upon the process.

**DATES AND DEADLINES:**  (subject to change)

Project Assigned

Field trip to the Park

Design project and math analysis due

Presentation

**MATERIALS PROVIDED:**

* Poster paper for final project
* Scissors
* Rulers
* Graph paper
* Tracing paper
* Colored and permanent markers
* Compasses
* Protractors
* LCD
* Smart board
* Document camera

**RESOURCES: (Found on ALLmathPORT.wikispaces.com)**

* Park project instructions
* Surface area and volume tutorial
* Unit conversion
* Concrete, sand, gravel, sod, and sprinkler information
* Field trip permission form
* Rubric for scoring project

**MATH REQUIREMENTS**

* You must choose at least two of the categories.
* Working with your other teammate’s categories, design your category to fit within the park boundaries.
* Show drawings and calculations of surface area and volume of your categories.
* Be careful and precise with your measurements and calculations.
* Include costs of materials.
* As a team include landscape, water (sprinklers), and playground equipment.
* Overall pricing guidelines to be assigned by your teacher.
* During the oral presentation, all teammates must be able to answer any question about surface area and volume, and give an overview how to calculate each.
* Analyze the verbal representation of your design
  + Explain in words how your category affects the shape and orientation of the park.
* Explain in words how the surface area and volume models were useful for analyzing and completing the project.