Technology Lesson Plan

Lesson Created by: Lisa Whitmire

E-Mail or Contact: whitmirel@wcschools.com

Title of Lesson: Designing a City Park

Subject: Geometry

Grade(s): 9-12

Description of Project or Narrative:

The students will divide into teams of four to develop a city park. They will each be assigned a role for the project plus each member will have to research one aspect of the park design. They will be given one square mile of land and must make a blueprint of this park. This means finding how much land is in a square mile. Then they must decide the best scale to use to represent the park so that all parts could be visible. The members will log minutes for all the research they have done and present the park design to the city council (myself and the remaining students). The presentation must use PowerPoint and provide a written report.

Associated Curriculum Standard(s):

2.1 – The student will use concepts of length, area, and volume to estimate and solve real-world problems.
2.2 – The student will apply measurement concepts and relationships in algebraic and geometric problem-solving situations.
2.3 – The student will choose appropriate techniques and tools to measure quantities in order to meet specifications for precision, accuracy, and tolerance.
3.2 – The student will analyze mathematical patterns related to algebra and geometry in real-world problem solving.
3.3 – The student will solve problems in number theory, geometry, probability and statistics, and measurement and estimation using algebraic thinking and symbolism.
5.1 – The student will analyze relationships among corresponding parts of similar or congruent figures.
5.2 - The student will apply geometric properties of solids, polygons, and circles to solve real-world problems.
5.5 – The student will communicate position using spatial sense with two-and three-dimensional coordinate systems.
5.6 – The student will demonstrate an understanding of transformations of geometric figures (i.e., translations, rotations, dilations, and reflections)
5.10 – The student will demonstrate understanding of geometric properties of congruence, similarity, perpendicularity, and parallelism.

5.11 The student will recognize and articulate relationships among families of geometric figures (e.g. quadrilaterals, prisms).

Hardware and Software Required:

The students will use the wireless laptops, desktops, Internet Explorer, Microsoft Word, Power Point, and Web quest.

Timeline:

The students will be given two weeks to complete the projects then present the city park proposals. Five class periods will be given to do research or to work as a team. Some work will be expected outside of class.

Teacher Preparation:

Develop web quest including sites students will use for research

Prerequisite Skills Needed:

The students should have some knowledge of proportions and scaling.

Activities and Procedures:

Day 1 – The students will determine groups then explore "Designing A City Park" Webquest. Once the students have read the webquest, they will determine the roles for each group and determine which topic they will research.

Day 2 – The students will use the internet to explore their topics and begin working as a team to design the park.

Day 3 – The students will have access to the computers and to work as a team as needed.

Day 4 – The students should be finalizing the projects.

Day 5 – The students will use power point to make presentations to the class.

Sample(s) of Student Work:

See logs of minutes, written reports, PowerPoint presentations, scale model of park

Assessment and Evaluation:

The students will be graded in five categories; individual log, team log, blueprints, written report, group presentation. Each grading rubric is provided in the webquest.

Follow-up Activities:

Several lessons could result as spin offs to this lesson which result in interdisciplinary units of study with other departments.

Other Resources:

I researched on the Internet and used Krystlin Thomas' web quest and adapted it for my students.