

Received Date \_\_\_\_\_

Name \_\_\_\_\_

## 2nd Semester 7/8 Math Expedition: City "Park" Proposal

### **Description:**

Students will spend second semester digging deep into geometry, and real-world problem solving standards as they design their own "park" to be put in Falcon/Colorado Springs to service the community. Students will be building in the lot next to the school. There will be multiple drafts in which the students will fine tune their original ideas into a proposal to be presented to the school board. They will be required to construct two-dimensional shapes using a compass. The map of the park will be scaled appropriately, applying many of the ratio/proportion standards within the 7th/8th grade curriculum. Students will use a protractor and straightedge in order to map what they believe to be the best design regarding: design, purpose, location, and budget for building the park. Alongside the design will come a financial plan outlining the costs of materials to construct the park, as well as a scaled model to present in a video request of city council to consider their park for construction. Improve this city!

**Possible Ideas:** Baseball Diamond, Football Field / Stadium, Dog Park, Cat Park..., Open Reserve, Greenhouse, Paintball Arena, Nerf Zone, Bowling Alley, Gaming Center. Truly any use of space that could be interpreted as a park is fair game with approval from Mr. Troy:

IDEA: \_\_\_\_\_ - Initial by Mr. Troy \_\_\_\_\_

Comments from Mr. Troy:

**This packet is the most important thing to  
keep this entire semester #KeepIT**

**Main 7th Grade Standards Met:**

**7.RP.1** Compute unit rates associated with ratios of fractions, including ratios of lengths, area, and other quantities measured in like or different units.

**7.RP.3** Use proportional relationships to solve multistep ratio and percent problems.

**7.NS.3** Solve real-world and mathematical problems involving the four operations with rational numbers.

**7.EE.4** Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

**7.G.1** Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing from a different scale.

**7.G.2** Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions.

**7.G.4** Know the formulas for the area and circumference of a circle and use them to solve problems.

**7.G.5** Use facts about supplementary, complementary, vertical, and adjacent angles in a multistep problem to write and solve simple equations for an unknown angle in a figure.

**7.G.6** Solve real-world and mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

**Main 8th Grade Standards Met:**

**8.EE.5** Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.

**8.EE.7** Solve linear equations in one variable.

**8.F.3** Interpret the equation  $y = mx + b$  as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.

**8.G.7** Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems.

**8.G.8** Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.

## **Main PARCC Descriptors Addressed:**

### **7 Subarea A:**

- Analyzes and uses proportional relationships to solve real-world and mathematical problems, including multi-step ratio/percent problems.
- Computes unit rates of quantities associated with ratios of fractions.
- Determines when it is appropriate to use unit rates and understand when it has its limitations.
- Determines reasonableness of a solution and interprets solutions in real-world contexts.
- In mathematical or real-world contexts, uses variables to represent quantities, construct and solve simple equations and inequalities, and graph and interpret solution sets.

### **7 Subarea D:**

- Devises a plan to apply mathematics in solving problems arising in everyday life, society and the workplace by: using stated assumptions and making assumptions and approximations to simplify a real-world situation, mapping relationships between important quantities by selecting appropriate tools to create models, analyzing relationships mathematically between important quantities to draw conclusions, writing a complete, clear and correct algebraic expression or equation to describe a situation, applying proportional reasoning, writing/using functions to describe how one quantity of interest depends on another, using reasonable estimates of known quantities in a chain of reasoning that yields an estimate of an unknown quantity, reflecting on whether the results make sense.

### **8 Subarea A:**

- Describes the effect of dilations, translations, rotations, and reflections on two-dimensional figures with and without coordinates, determines whether two given figures are congruent or similar through one or more transformations and describe multiple sequences of transformations that justify congruence or similarity of the two figures.
- Applies the pythagorean theorem in the planar case and to find the distance between two points in a coordinate system.

### **8 Subarea B:**

- Knows the formulas for the volume of cones, cylinders and spheres, and uses them to find the volume or dimensions of composite solids in mathematical and real-world problems.
- Draws, with precision, geometric figures - freehand, with a ruler and protractor or with technology - and describes their attributes.
- Constructs triangles with given angle and side conditions and notices when those conditions determine a unique triangle, more than one triangle, or no triangle.
- Solve mathematical and real-world problems involving circumference, area, surface area, and volume of two- and three-dimensional objects.
- Solves problems involving scale drawings of geometric figures, including reproducing a scale drawing at a different scale.

# Final Product Assignment List

Name \_\_\_\_\_

<b>Assignment</b>	<b>Date Due</b> (Time Since Assigned)	<b>Finished</b> (Teacher Initial)
Concept & Sketch Design Draft A (See Rubric A for Requirements)	<u>Friday 4/5/19</u> (5 Days)	
Concept Feedback Form (Peer Edit)	<u>Wednesday 4/10/19</u> (5 Days)	
Concept & Sketch Design Draft B (See Rubric B for Requirements)	<u>Wednesday 4/17/19</u> (1 Week)	
Scale Analysis Form	<u>Monday 4/22/19</u> (5 Days)	
<b>Scaled</b> Design Draft A (See Rubric C for Requirements)	<u>Friday 4/26/19</u> (4 Days)	
<b>Scaled</b> Design Draft B (See Rubric D for Requirements)	<u>Friday 5/3/19</u> (1 Week)	
Construction & Maintenance Expense Report	<u>Wednesday 5/8/19</u> (5 Days)	
Proposal (See Rubric E for Requirements)	<u>Wednesday 5/15/19</u> (7 Days)	
Video of Presentation (See Rubric F for Requirements)	<u>Tuesday 4/21/19</u> (6 Days)	
E.C. - Fundraising Idea - Budget, Profit Plan & Idea	<u>Thursday 5/23/17</u>	

# Financial Estimation

Name \_\_\_\_\_

## Calculation

A large, empty grey rectangular area intended for the student to perform their calculations. It occupies the majority of the page below the 'Calculation' header.

