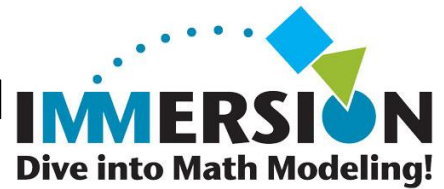


Building the Best Playground

Learning Goals



Grade Band	3 – 5
Possible Math Tools	<ul style="list-style-type: none">• Use the four operations• Calculations of area and perimeter• Data collection• Working with money• Estimation• Rates• Unit conversions
Real-World Context	Students divide into groups, and each group imagines rebuilding the school playground. Students may brainstorm one of many different modeling problems: <ul style="list-style-type: none">• What kind of playground would they want at school?• How many of each piece of equipment should there be?• What is the most efficient way to organize the playground? Is efficiency a measure of area, time to travel between parts of the playground, minimized cost, or something else (maybe a combination of several factors)?• How can you minimize cost of the new playground without reducing the number of kids who can play on it at the same time?
Cross-Curricular Connections	This modeling problem goes well with an art or design course that helps the students think about what looks good and what people would enjoy playing on. It can also be combined with a finance course and emphasis can be put on budgeting and the cost of the playground.

Relevant Common Core Standards:

CCSS.MATH.CONTENT.4.OA.A

Use the four operations with whole numbers to solve problems.

Task: Calculate how many students could use your playground at one time.

CCSS.MATH.CONTENT.4.NBT.B

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Task: Determine what the cost should be for the playground and how the cost changes for different equipment choices, given costs of pieces of equipment and the number of each to be bought.

CCSS.MATH.CONTENT.4.MD.A

Solve problems involving measurement and conversion of measurements.

Task: Convert all units of dimension given for the various playground equipment pieces to the same unit system (ex. feet to meters).

CCSS.MATH.CONTENT.4.MD.B

Represent and interpret data.

This lesson was developed by Jody Britten, Marka Carson, Misael Jimenez and Erika Villegas-Jimenez

Grant STEM-C-1441024

Last Edited Date: 8/3/2017



Template developed at



Task: Design a survey for classmates about which equipment to purchase and display the results in some form of graph or table.

CCSS.MATH.CONTENT.4.G.A

Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

Task: Identify shapes and angles within the different pieces of playground equipment in use.

CCSS.MATH.CONTENT.5.NBT.B

Perform operations with multi-digit whole numbers and with decimals to hundredths.

Task: Include a fence around the playground in the design and incorporate the cost of the fence into the budget given a cost of the fence per unit length.

CCSS.MATH.CONTENT.5.NF.B

Apply and extend previous understandings of multiplication and division.

Task: Calculate the area of the playground the chosen playground items will cover.

CCSS.MATH.CONTENT.5.MD.A

Convert like measurement units within a given measurement system.

Task: If some of the playground items dimensions are given in yards or inches, convert them to feet.

CCSS.MATH.CONTENT.5.MD.B

Represent and interpret data.

Task: Draw the playground layout using the first quadrant of the coordinate plane and name the positions of the corners of the shapes used to represent the equipment using with ordered pairs.