**Finding Area & Perimeter with variables.**

**Description:** Students will be presented with different scenarios in which they must manipulate the information they are given (the knowns) in order to find the total area and/or perimeter (the unknowns).

**Key Words:** Area, Perimeter, Variables

**Introduction:** Area and perimeter have many applications in the real world, such as planning a building, arts and crafts, etc. Students will apply their knowledge of area and perimeter to real world problems.

**Group Size:** Parts of this lesson include individual work, partner work and whole class discussion.

**Learning Objectives:**

* Students will create problems which integrate both area and perimeter into one situation.
* Applying geometric and algebraic knowledge into real world situations.

**Guided Questions:**

* How could you use your knowledge of area and perimeter in the real world?
* A school needs your help building its new football field. What information must you know in order to place an order for the proper amount of turf?

**Materials:**

* Computer lab
* SmartBoard
* Student worksheets

**Procedure:**

* Begin the class with a poll each student will answer on their own. The questions that will be asked are:

 1.) How could you use your knowledge of area and perimeter in the real world?

 2.) A school needs your help building its new football field. What information must you know in order to place an order for the proper amount of turf?

* As a warm-up review as a class what area and perimeter are and how we find the area and perimeter of polygons. Also discuss what a variable is and what its purpose is. Review how to manipulate equations with variables, e.g. 2x + 5 = 11.
* As a class go through and complete the large figure area & perimeter problem.



* Next pair up each student and hand out the clickers. Students are to work together on the following word problem.

 - If the rectangular solar panel for the top of the building has a width is 3 more than half of the length and the length is 14ft what is the area? What is the perimeter?

* As a class have students share their answers and discuss the different solutions.
* Student then work on their own and will create their own word problem similar to what they just worked with. Once they have written up their situation they are to switch papers with their partner and then will solve their partner’s scenario
* The final part of the lesson is the assessment, it will be an extending word problems where the students must draw a garden that has an area of 391 square feet and a perimeter of 40 ft.

**Benchmarks:**

* MA.912.A.2.13 – Solve real-world problems involving relations and functions.
* MA.912.A.10.1 – Use a variety of problem-solving strategies, such as drawing a diagram, making a chart, guessing-and-checking, solving a simpler problem, writing an equations, working backwards, and creating a table.