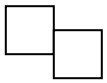
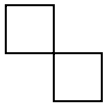
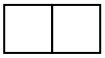
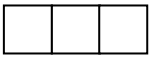
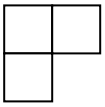
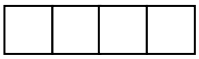
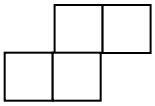
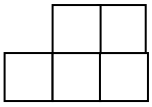
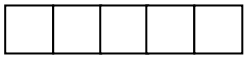
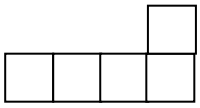
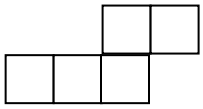
Exploring Name: _____

Area and Perimeter Date: _____ Period ____

All squares must touch on an entire side. No vertex to vertex or side to partial side connections  

If a shape can be turned or flipped to be the same shape then they are considered the same

Drawing of Squares	Area	Perimeter	Drawing of Squares	Area	Perimeter
	1 Square	4 units		2 Squares	6 units
	3 Squares			3 Squares	8 units
	4 Squares			4 Squares	
	4 Squares			4 Squares	
	4 Squares			5 Squares	
	5 Squares			5 Squares	
	5 Squares			5 Squares	
	5 Squares			5 Squares	
	5 Squares			5 Squares	
	6 Squares			6 Squares	
	6 Squares			6 Squares	
	6 Squares			6 Squares	

Questions from the Exploration

Name: _____

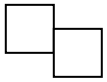
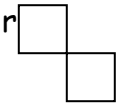
Date: _____ Period ____

1. Can you have the same number of squares with different perimeters?
   If yes give an example.

2. Can you have a different number of squares with the same perimeter?
   If yes give an example.

3. How can you tell how many different perimeters there will be for any given number of squares?

4. Is there a pattern for the different perimeters for a given area?

5. What must be true for all perimeters given the instructions that:
   All squares must touch on an entire side. No vertex to vertex or side to partial side connections  ? 

6. How might we use the information on the table outside of a math class?

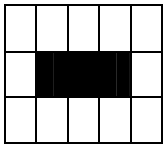
7. What have you learned from doing this exercise?

Constant Area
Changing Perimeter

Name: _____

Date: _____ Period ____

You are hosting Thanksgiving Dinner for your entire family. You have stockpiled 24 card tables that you can arrange in any manner except for the fact that you cannot create holes with the tables. An example of a hole would be:



1. Given 24 tiles to represent the card tables give all possible dimensions that will create 1 large rectangular table using all 24 tables.

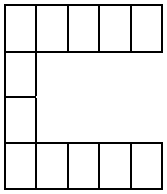
2. What is the perimeter of each of those rectangles?

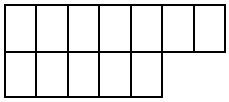
For questions 3 and 4 only one person can sit on a side of the table.

3. What is the maximum number of family members you could seat for dinner with the 24 card tables set up as a rectangle? Draw that arrangement.

4. What is the fewest number of family members you could seat for dinner with the 24 card tables set up as a rectangle? Draw that arrangement.

5. Now using the 14 tiles to represent the card tables arrange the tiles in any shape that are not rectangles and give the perimeter (number of family members that could be seated at the table) of that shape. Alleyways and missing corners are OK, for example:





6. What are two different arrangements that have different shapes but the same perimeter? Are there others with different shapes but the same perimeter?

For questions 7 and 8 only one person can sit on a side of the table.

7. Now extend out what you have discovered with this exercise. What would the maximum number of family members that could be seated with 50 tables, 100 tables and finally x tables.

8. Now extend out what you have discovered with this exercise. What would the minimum number of family members that could be seated with 50 tables, 100 tables and finally x tables.

Name: _____

Date: _____ Period ____

If a shape can be turned or flipped to be the same shape then they are considered the same

Table for use with Questions 1 and 2				
Drawing	Length	Width	Perimeter	Area
				24 Square tables
				24 Square tables
				24 Square tables
				24 Square tables

Name: _____

Date: _____ Period ____

If a shape can be turned or flipped to be the same shape then they are considered the same

Table for use with Questions 5 and 6					
Drawing	Perimeter	Area	Drawing	Perimeter	Area
		14 Square Tables			14 Square Tables
		14 Square Tables			14 Square Tables
		14 Square Tables			14 Square tables
		14 Square Tables			14 Square Tables
		14 Square Tables			14 Square Tables
		14 Square Tables			14 Square Tables
		14 Square Tables			14 Square Tables
		14 Square Tables			14 Square Tables
		14 Square Tables			14 Square Tables