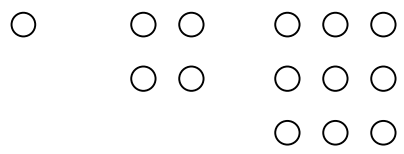
Figurate Number Investigation #1

Investigating Square Numbers

The first three square numbers are shown below.



1 **2** **3**

Draw the fourth and fifth square numbers below.

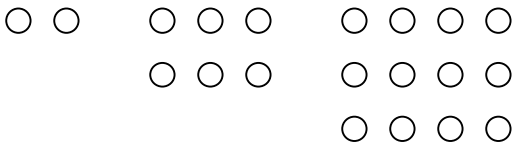
Find a pattern and predict the number of dots needed to show the tenth square number and the one-hundredth square number.

Give a rule (explicit rule) that will work for any square number.

Figurate Number Investigation #2

Investigating Rectangular Numbers

The first three rectangular numbers are shown below.



1 **2** **3**

Draw the fourth and fifth rectangular numbers below.

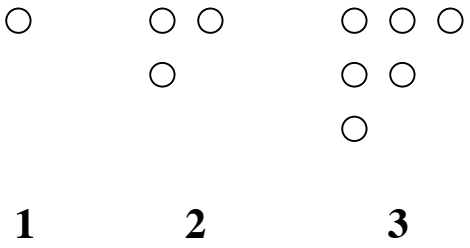
Find a pattern and predict the number of dots needed to show the tenth rectangular number and the one-hundredth rectangular number.

Give a rule (explicit rule) that will work for any rectangular number.

Figurate Number Investigation #3

Investigating Triangular Numbers

The first three triangular numbers are shown below.



1 **2** **3**

Draw the fourth and fifth triangular numbers below.

Find a pattern and predict the number of dots needed to show the tenth triangular number and the one-hundredth triangular number.

Give a rule (explicit rule) that will work for any triangular number.

Mother's Day Dilemma

Connor and Lura are saving their money to buy their mother and grandmother a very nice box of candy for Mother's Day. The candy store clerk tells Connor and Lura that the store will package the candy in square, rectangular, or triangular boxes (see the figurate number investigations). Connor and Lura have decided the following:

They will buy the same number of pieces of candy for their mother and their grandmother.

They can afford up to 50 pieces of candy each for their mother and their grandmother.

They want the two boxes to be different shapes.

After completing the investigations about square, rectangular and triangular numbers, write a paragraph to recommend to Connor and Lura the shapes and sizes of the boxes you think they should buy. Be sure you explain your mathematical thinking.

Figurate Numbers Less than 50

Square Numbers	***Rectangular Numbers***	***Triangular Numbers***

Write your recommendation to Connor and Lura on the back of this sheet or on a separate sheet of paper.