Discover (Mod 4 Less 2)
Try This 1 – 12 ** Print this out and complete it**

In the following illustrations, pay attention to the number of tiles in the border of various square arrays.

This shows an illustration of four squares arranged in a 2×2 array.

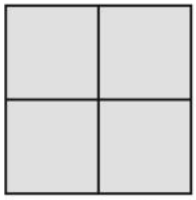


Figure 1

This shows an illustration of Figure 1 surrounded on all sides by squares.

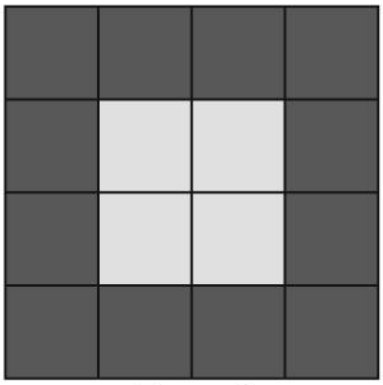


Figure 2

This shows an illustration of Figure 2 surrounded on all sides by squares.

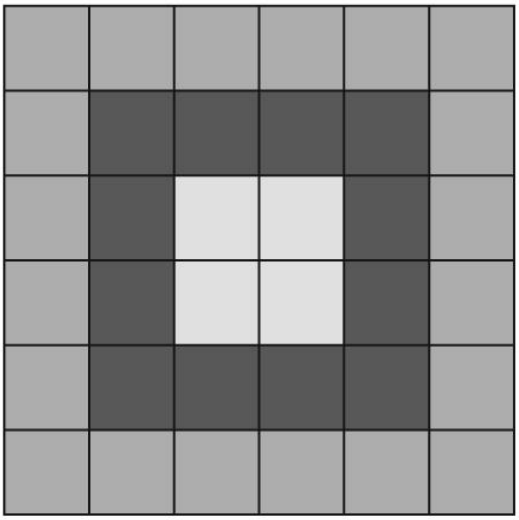


Figure 3

This pattern continues. Each figure is surrounded by tiles along its border that result in the next figure.

TT 1. Complete the table by writing the number of tiles in the border

Figure	Number of Squares in the Border
1	4
2	12
3	
4	
5	
6	

TT 2. Prepare to construct a graph by answering the following questions.

a. What are the smallest and largest values you will use for plotting the figure number?

b. What are the smallest and largest values you will use for plotting the number of squares in the border?

c. Which of the following statements makes more sense?

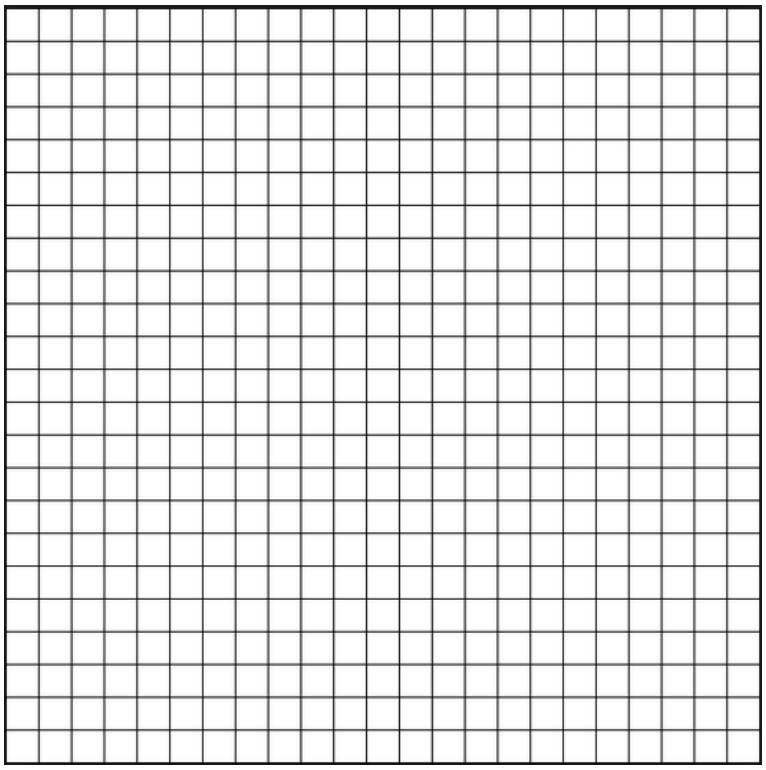
The figure number depends on the number of squares in the border.

OR

The number of squares in the border depends on the figure number.

TT 3. Use your answers from TT 2 to construct a graph from the data table.

- Plot the data in the first column on the horizontal axis and the data in the second column on the vertical axis.
- Choose an appropriate scale for each axis.
- Label each axis.



TT 4. Describe the relationship between the figure number and the number of squares in the border.

TT 5. Suppose you are required to complete Figure 7 and Figure 10. Show how you can use the description in TT 1 to determine the number of squares in the border to create Figure 7 and Figure 10.

TT 6.

a. Identify the independent and dependent variables in this scenario. How do you know?

b. Identify all possible values for the independent variable.

c. Identify all possible values for the dependent variable.

Consider the data in the information shown.

The data shows the temperature of juice over time when an insulated glass of juice at a temperature of 22.10°C was placed in a refrigerator.

Time (h)	0	1	2	3	4
Juice Temperature (°C)	22.10	18.70	15.90	13.51	11.48

TT 7. Prepare to construct a graph by answering these questions.

a. What are the smallest and largest values that you will use for plotting the time?

b. What are the smallest and largest values that you will use for plotting the juice temperature?

c. Which of the following statements makes more sense?

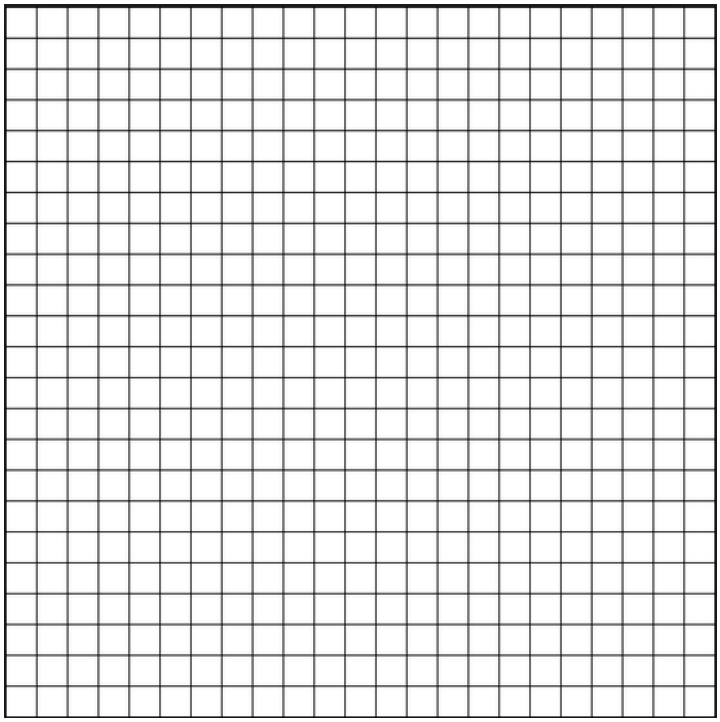
The elapsed time depends on the juice temperature.

OR

The juice temperature depends on the elapsed time.

TT 8. Use your answers from TT 7 to construct a graph from the data table.

- Plot the data in the first row on the horizontal axis and the data in the second row on the vertical axis.
- Choose an appropriate scale for each axis.
- Label each axis.



TT 9. Describe the relationship between the elapsed time and the juice temperature.

TT 10. Describe how you could determine the following values.

a. the juice temperature after 2.5 hours

b. the elapsed time when the juice temperature is 10°C

TT 11.

a. Identify the independent and dependent variables in this scenario. How do you know?

b. Identify all possible values for the independent variable.

c. Identify all possible values for the dependent variable.

TT 12. Compare the graphs in TT 3 and TT 8. For one of the graphs, it is appropriate to join the points with a line. For the other one, it is not. For which graph do you think it is appropriate to join the points? Provide reasons to support your answer.

Note: You will learn more about graphs later in the lesson. At that time, you will be able to compare what you learn with your original hypothesis. You will have an opportunity to make revisions to your hypothesis as you learn more.