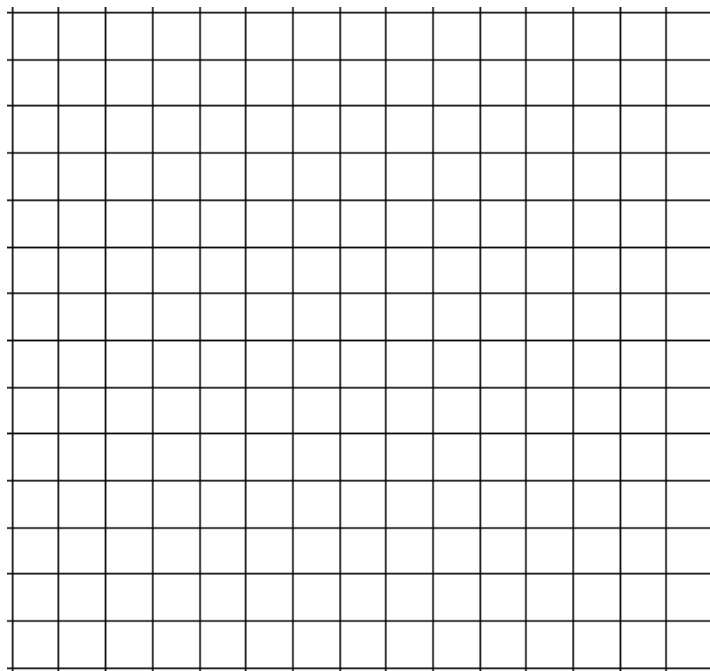


Linear patterns and functions

Block 4 Student Activity Sheet

1. Graph the data from your table on graph paper. Then create a graph of the function rule on your graphing calculator and sketch it below. Look at the graphs. How are they different? Similar? Why does the graph of the problem situation contain fewer points than the graph of the function rule?



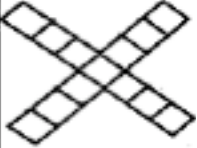


2. What is the constant pattern of addition for the tower-painting situation?
3. The point $(25,101)$ is on the graph of your function rule. What does this point mean in the context of the problem situation (painting the towers)?
4. The point $(1.25,6)$ is on the graph of your function rule. What does this point mean in the context of the problem situation?
5. **REINFORCE** Write a function rule for the number of faces to be painted for a tower of triangular prisms if you paint both the top and bottom of the tower.

Linear patterns and functions

Block 4 Student Activity Sheet

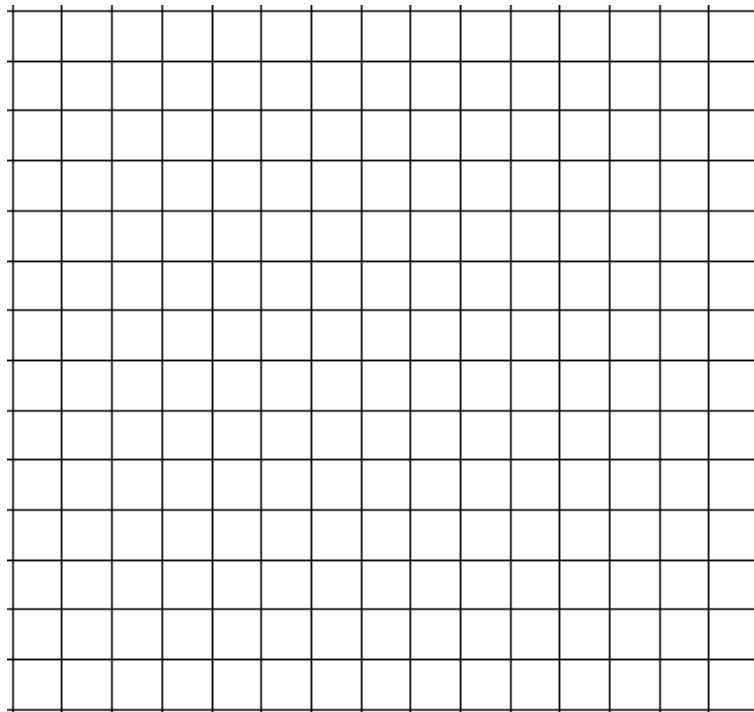
6. **REINFORCE** Using blocks or tiles, build windmills that illustrate the pattern shown in this table. Complete the table and look for patterns. Describe one process that will give you the number of blocks for each windmill number. Then describe a second process to find the number of blocks. Use the patterns to write a function rule that will model the relationship between the windmill number, w , and the number of blocks needed to build the windmill, b .

	Windmill number	Visual form	Process	2nd process	Number of blocks to build windmill
a.	0				1
b.	1		Center block plus 4 groups of single blocks $1 + 4 \cdot 1$		5
c.	2		Center block plus 4 groups of 2 blocks $1 + 4 \cdot 2$		9
d.	3				13
e.	4				17
f.	5				21

Linear patterns and functions
 Block 4 Student Activity Sheet

g.	58				233
h.	100				
i.	<i>w</i>				

j. Create a scatterplot of the data. Graph each of your function rules on the grid below. Describe what you notice.



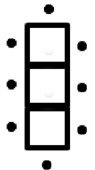


Linear patterns and functions

Block 4 Student Activity Sheet

7. **REINFORCE** A restaurant has tables that seat 4 people each. They can seat larger groups by pushing tables together in the pattern shown in this table.

- a. Complete the table and look for patterns. Describe one process that will give you the number of seats for each number of tables. Then describe a second process to find the number of seats. Use the patterns to write a function rule that will model the relationship between the number of tables, t , and the number of seats around the table, s .

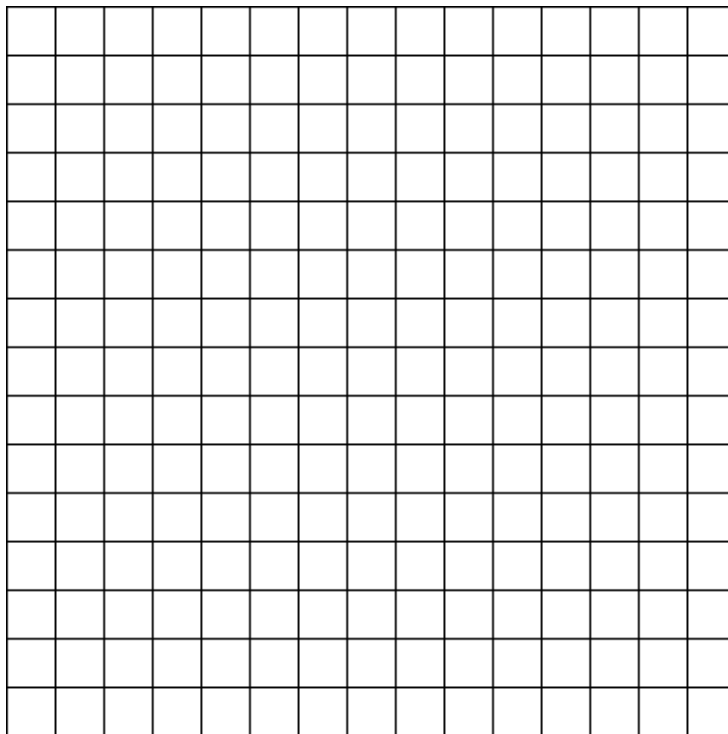
Table number, t	Visual form	Process	2nd process	Number of seats around the table, N
1		2 seats at the top and bottom plus 2 groups of single seats on the sides $2 + 2 \cdot 1$		4
2		2 seats at the top and bottom plus 2 groups of 2 seats on the sides $2 + 2 \cdot 2$		6
3				8
4				10
5				12

Linear patterns and functions

Block 4 Student Activity Sheet

10				22
t				

b. Create a scatterplot of the data.



c. How is this scatterplot similar to the plot from the windmill question? How is it different?