

# Exploring Patterns

For each pattern, follow these instructions:

1. Study the pattern your teacher has provided.
2. Build step 4.
3. Make a sketch of step 4 and step 5. How many units make up each step?
4. Use the pattern you discover to sketch step 10. How many units make up step 10?
5. Describe any number patterns you notice.
6. Suggest other ways to describe how this pattern grows.

**Function** \_\_\_\_\_

step 4	step 5	step 10
units: _____	units: _____	units: _____

What patterns do you notice? \_\_\_\_\_

Can you suggest other ways this pattern might grow? \_\_\_\_\_

**Function** \_\_\_\_\_

step 4	step 5	step 10
units: _____	units: _____	units: _____

What patterns do you notice? \_\_\_\_\_

Can you suggest other ways this pattern might grow? \_\_\_\_\_

WORKSHEET 1 (Continued)

**Function** \_\_\_\_\_

step 4	step 5	step 10
units: _____	units: _____	units: _____

What patterns do you notice? \_\_\_\_\_

Can you suggest other ways this pattern might grow? \_\_\_\_\_

**Function** \_\_\_\_\_

step 4	step 5	step 10
units: _____	units: _____	units: _____

What patterns do you notice? \_\_\_\_\_

Can you suggest other ways this pattern might grow? \_\_\_\_\_

**Function** \_\_\_\_\_

step 4	step 5	step 10
units: _____	units: _____	units: _____

What patterns do you notice? \_\_\_\_\_

Can you suggest other ways this pattern might grow? \_\_\_\_\_

# Exploring Patterns

For each pattern, sketch steps 4 and 5. Then predict how many units would be in step 10. Describe the pattern.

**Function 1.** Count the toothpicks.



4

5

How many would be in step 10? \_\_\_\_\_  
 How is the pattern changing or growing? \_\_\_\_\_

**Function 2.** Count the toothpicks.

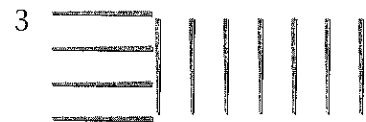
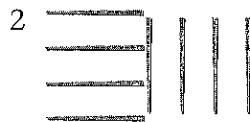
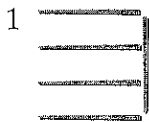


4

5

How many would be in step 10? \_\_\_\_\_  
 How is the pattern changing or growing? \_\_\_\_\_

**Function 3.** Count the toothpicks.



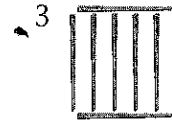
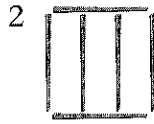
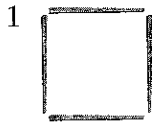
4

5

How many would be in step 10? \_\_\_\_\_  
 How is the pattern changing or growing? \_\_\_\_\_

HOMEWORK 1 (Continued)

**Function 4.** Count the toothpicks.



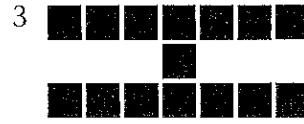
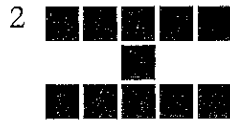
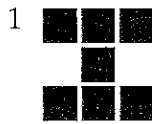
4

5

How many would be in step 10? \_\_\_\_\_

How is the pattern changing or growing? \_\_\_\_\_

**Function 5.** Count the tiles.



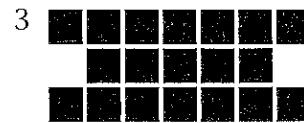
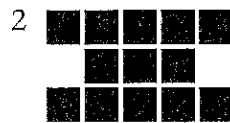
4

5

How many would be in step 10? \_\_\_\_\_

How is the pattern changing or growing? \_\_\_\_\_

**Function 6.** Count the tiles.



4

5

How many would be in step 10? \_\_\_\_\_

How is the pattern changing or growing? \_\_\_\_\_

## HOMEWORK 1 (Continued)

Find the next three numbers in each pattern. Then find step 10.  
Describe in words how the pattern is changing.

### Function 7.

step	1	2	3	4	5	6	...	10
result	8	12	16	—	—	—		—

Describe the pattern. \_\_\_\_\_

### Function 8.

step	1	2	3	4	5	6	...	10
result	7	11	15	—	—	—		—

Describe the pattern. \_\_\_\_\_

### Function 9.

step	1	2	3	4	5	6	...	10
result	8	13	18	—	—	—		—

Describe the pattern. \_\_\_\_\_

### Function 10.

step	1	2	3	4	5	6	...	10
result	15	23	31	—	—	—		—

Describe the pattern. \_\_\_\_\_

### Function 11.

step	1	2	3	4	5	6	...	10
result	25	29	33	—	—	—		—

Describe the pattern. \_\_\_\_\_

HOMEWORK 1 (Continued)

**Function 12.**

step	1	2	3	4	5	6	...	10
result	57	63	69	—	—	—		—

Describe the pattern. \_\_\_\_\_

**Function 13.**

step	1	2	3	4	5	6	...	10
result	101	115	129	—	—	—		—

Describe the pattern. \_\_\_\_\_

**Function 14.**

step	1	2	3	4	5	6	...	10
result	68	64	60	—	—	—		—

Describe the pattern. \_\_\_\_\_

**Function 15.**

step	1	2	3	4	5	6	...	10
result	8	10.5	13	—	—	—		—

Describe the pattern. \_\_\_\_\_

**Function 16.**

step	1	2	3	4	5	6	...	10
result	2	4	8	—	—	—		—

Describe the pattern. \_\_\_\_\_