

$$5y \leq 3y + 10 + 6(x + 3) = 6x + 18 + 3y + 24 + x$$

# Paper Patterns

Students will “half” a great time figuring out the pattern that evolves when a piece of paper is folded again and again.

## Directions

1. Start by discussing patterns. Tell students that to complete a pattern, they can decide what math was done to get each successive number in the pattern. Then they can test the idea to make sure it works.
2. Hold up a piece of paper and fold it in half, like this:  
Have each pair of students fold a piece of paper as well. Note to the class that with 1 fold, you have 2 sections of paper.
3. Now fold the paper again, like this:  
With 2 folds, there are now 4 sections.
4. On the board, write a table like the following:

PATTERN OF FOLDS	
FOLDS	SECTIONS
1	2
2	4

Have students copy and continue the table on their own paper, looking for patterns. After 3 folds, each pair should try to predict how many sections there will be with 6 folds. Then they can test to see if their predictions were correct.

## Taking It Farther

A piece of paper can be folded only a few times. But say it could be folded 15, 20, or 25 times. Challenge students to find ways to figure out how many sections there would be. One way is to continue the table, doubling the number of sections each time. Another way is to express FOLDS as  $n$ , and SECTIONS as  $2^n$ . So after 15 folds, you'd have  $2 \times 15$ , or 30 sections.

## Assessing Skills

Observe how many folds it takes for students to discover the pattern. Are they able to correctly predict how many sections there will be after 6 folds?

### LEARNING OBJECTIVE

Students make a table to find a pattern.

### GROUPING

Pairs

### MATERIALS

- paper and pencil