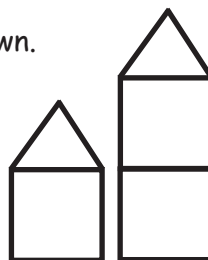## A Menu of Pattern Activities

1. Toothpick Houses

Materials: Flat toothpicks
A one and a two story toothpick house are built as shown.

How many stories can you build if you have 35 toothpicks?

Story Number	Number of Toothpicks
1	6
2	9

2. Flying Vs and Ws

Materials: Cubes, tiles, or similar objects
Birds and airplanes often fly in a shape that forms a **V** or **W**.
*   Investigate the number of birds in the **V** shape and the number of airplanes in the **W** shape.
*   Find the number of birds and the number of airplanes in the 10ᵗʰ pattern.

1.

2.

3.

Pattern Number	Number of Birds
1	3
2	5
3	

1.

2.

3.

Pattern Number	Number of Airplanes
1	5
2	9
3	

3. Diagonals of Polygons

Materials: Paper and pencil
Use what you know about patterns and relationships to find the number of diagonals in a decagon, a ten-sided figure.

Triangle =
3 sides
0 diagonals

Quadrilateral =
4 sides
2 diagonals

Sides	Diagonals
3	0
4	2
5	
10	

4. Cut-Cut

Materials: Paper and scissors
*   Cut a sheet of paper in half and count the pieces.
*   Cut each piece in half and count the pieces after the second cut.
*   Continue to cut and count.

How many pieces do you have after 5 cuts?
How many would you have if you made 8 cuts?

Number of Cuts	Number of Pieces
1	2
2	4
3	