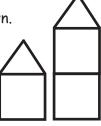## A Menu of Pattern Activities

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?

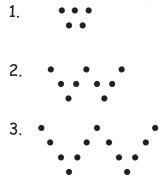| Story Number	Number of Toothpicks
1	6
2	9
3	12
4	15
5	18

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	7
4	9
5	11

1.

2.

3.

Pattern Number	Number of Airplanes
1	5
2	9
3	13
4	17
5	21

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	5
6	9
10	35

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	8
4	16
5	32