Familiar Algebraic Equations

As you solve these equations use your understanding from the bags of gold problems to explain your answer. You may want to refer back to your work on **A Menu of Pattern Activities** from session 1.

1. Remember the flying birds problem? You may want to go back to your notes on this.

   In the birds problem if p is the pattern number and b in the number of birds then the equation is 2p + 1 = b.

   • *If there are 89 birds, then the equation is 2p + 1 = 89. What is the pattern number?*

   • *If there are 55 birds, then the equation is 2p + 1 = 55. What is the pattern number?*

   • *If there are 30 birds, would there be a complete formation?*

2. Then there was the Toothpick Houses problem. If s represents the number of stories and t represents the number of toothpicks, then the equation for this problem is 3s + 3 = t.

   • *If there are 57 toothpicks, how many stories would the house be? Would you use all the toothpicks?*

   • *If there are 101 toothpicks, how many stories would the house have? Would you use all the toothpicks?*

3. Then there was the hexagon problem where you were looking for the perimeter of the joined hexagons. If h represents the number of hexagons and p represents the perimeter, what is the equation for this problem?

   • *Is it possible to have a perimeter of 30? 22? 106? Why or Why not?*