Pick My PIN

ACTIVITY

Holly and Ian are playing a peg code game. Holly secretly chooses four coloured pegs to make a code. There are six colours to choose from. Ian has to work out her code.

1. How many different four-peg codes can Holly make if each peg is a different colour? Explain how you got your answer.

2. In the game, Holly is allowed to use pegs of the same colour more than once.
   a. How many four-peg codes are possible?
   b. Why do pegs of the same colour make it more difficult for Ian to work out the code?

GAME

PIN code   P = Perfect   I = In   N = Not

You can play Holly's game using digits instead of coloured pegs.
Pick My PIN is a game for two or more players.

Choose any four digits from 1 to 6 to make an imaginary PIN number. You can use the same digit more than once. Write your PIN down (make sure that the other players don't see it!).

The other players have to guess your PIN.
Evaluate each guess using this code:
- **P** for Perfect : That digit is in my code, and you've put it in the correct place.
- **I** for In : That digit is in my code, but it's not in the correct place.
- **N** for Not : That digit isn't in my code.

When you give your evaluation, reply in this order: P I N. For example:

My PIN is 2565.

Is it 6342?
I I N N

Is it 2635?
P P I N
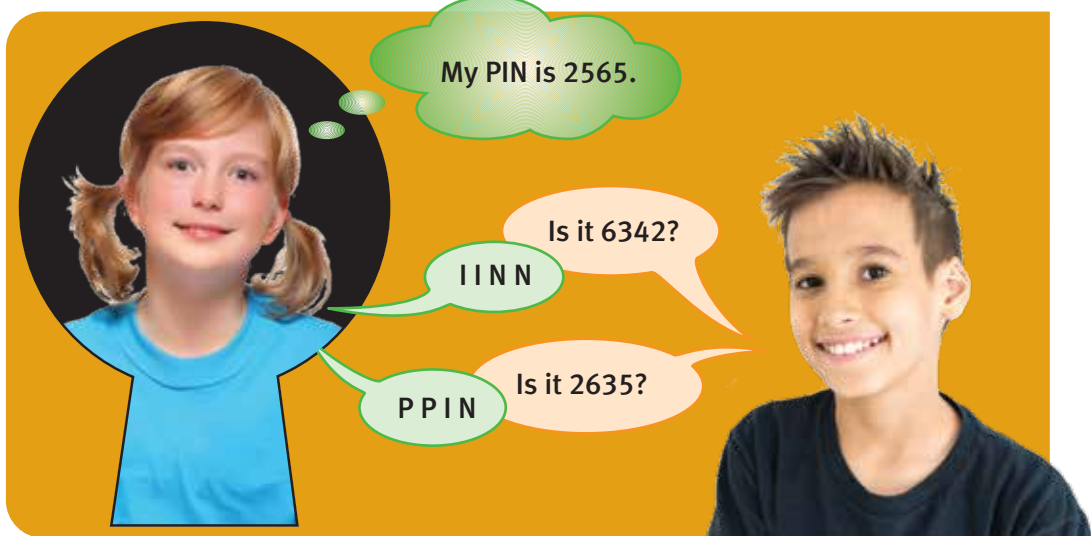
Play Pick My PIN a few times.
Discuss why each PIN is found in less than 100 guesses when there are so many possibilities.