Party Time

Level A

Cindy had a party. She invited two guests. Her guests each invited four guests, and then those guests each invited three guests.

How many people were at Cindy's party?

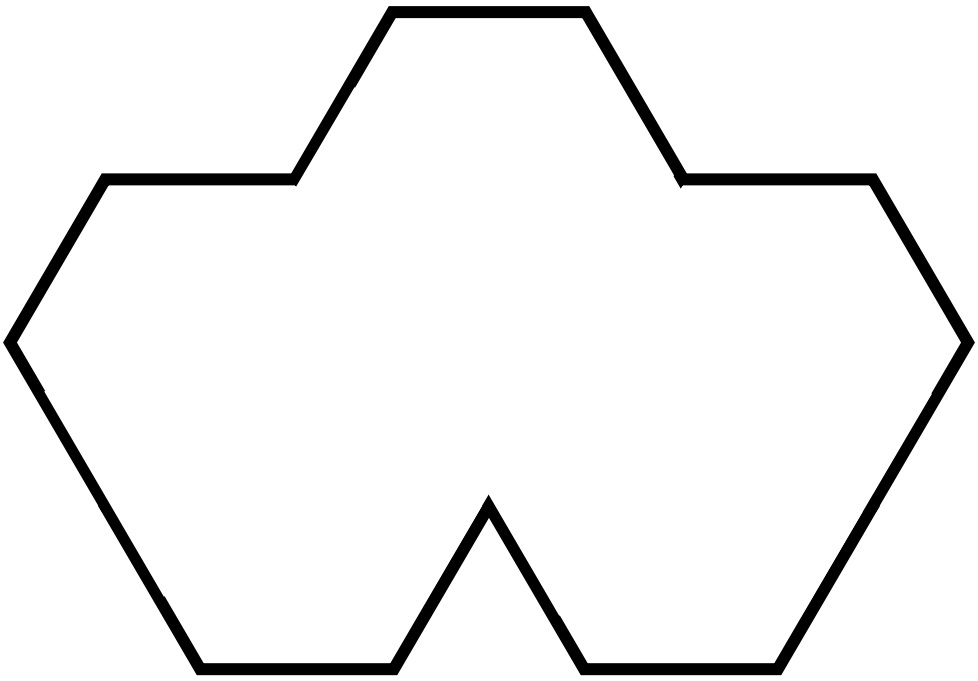
Explain how you determined your solution.

Piece It Together

Level B

Consider the outline of the figure below. Investigate how to cover up that outline by arranging different pattern blocks to fit into the space exactly.

If you were to use only one type of pattern block, which block(s) can be used to cover the outline? Explain how you know for sure.



If you could use more than one type of pattern block, which combination of blocks could be used to cover the outline? Explain or draw your solutions.

Party Time

Level C

Mia, Jake, Carol, Barbara, Ford, and Jeff are all going to a costume party. Figure out what costume each person is wearing and when they arrived at the party.

- The person who arrived fourth was wearing a bathing suit.
- Barbara was the last to arrive.
- Jake and Mia arrived and stayed together.
- The first person was dressed as a dinosaur.
- Superman arrived right before Barbara.
- The potato heads were always together at the party.
- Ford was a surfer dude.
- The dinosaur was not Carol.
- The vampire arrived after Superman.

Party Time

Level D

You have created a game to play with your friends.

You put red tiles and blue tiles into a bag.

You ask two guests, Mia and Tam, to pick one tile out of the bag without looking.

If their tiles are the same color, Mia wins, and if their tiles are two different colors, then Tam wins.

You want each player to have an equal chance of winning when playing the game.

How many tiles of each color should you put into the bag to make sure that both players have an equal chance of winning?

Explain your solution and why it is fair.

Party Time

Level E

A husband and his wife invite 5 other couples to a dinner party. As the guests arrive before dinner, they shake hands. Later, as they sit down to dinner, the husband asks each other person, including his wife, how many hands he or she shook. The husband notices, to his surprise, that they all shook a different number of hands, but that he, the husband, shook the same number of hands as one other person.

The dinner party guests realize that in order for this to be true, the following conditions must have been met:

- Not everybody shook everyone else's hands.
- No one shook hands with their spouse.

Model how the guests exchange handshakes with each other and the hosts. What patterns do you notice?

Generalize this pattern for inviting ***n*** couples. If a husband and his wife invite ***n*** couples, how many hands will each of them shake?

