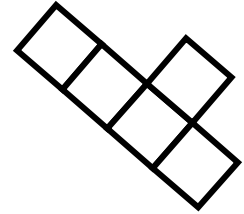


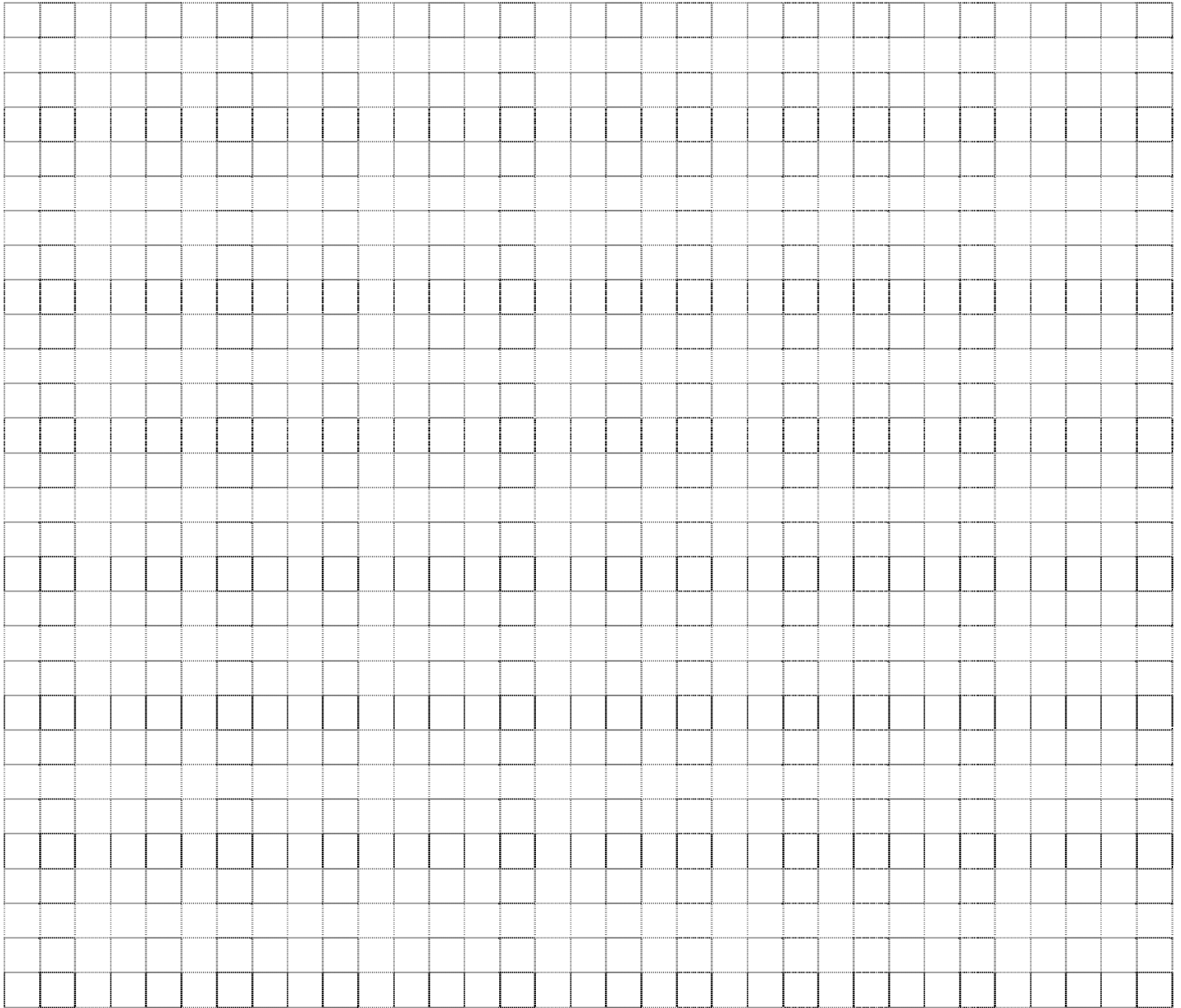
# Pentominoes

## 1. Build and Draw Pentominoes

Create a set of shapes called “pentominoes.” You might be familiar with dominoes – the “do-” stands for two, so they’re two squares that share an edge. The “pent-” in pentominoes stands for five, so they have five squares that share edges. There are only twelve ways to arrange five squares (two pentominoes are considered the same if they are congruent – if you can flip or rotate one to match it up to another, they’re the same).



Draw each of the pentominoes on the graph paper below. Number your pentominoes 1-12 so you can refer to them in the next section.



## 2. Cut and Fold

A “net” is a two-dimensional pattern that you could cut out and fold up to get a three-dimensional shape. The net of a cube is made up of six squares, but they must be arranged in certain ways so that the squares won’t overlap when it’s folded up.

Use all 12 of your pentominoes and figure out which ones you can fold to make **part** of a cube (a box with an open top). Write down which of the pentominoes **will** work and which **will not** work as **part** of the net of a cube. Explain your answer.

## 3. Adding a Face

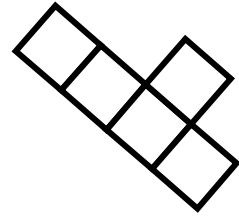
Take three of the pentominoes that **will** work (from part 2) and explain where to add a sixth square to make it a net of a cube. There will probably be more than one place where you could add a square, so make sure you identify them all. Be sure to be clear with your explanation. You may need to include pictures to help with your explanation.

# Pentominoes

## 1. Build and Draw Pentominoes

As a group, you need to create a set of 12 shapes called “pentominoes.”

*You might be familiar with dominoes – the “do-” stands for two, so they’re two squares that share an edge. The “pent-” in pentominoes stands for five, so they have five squares that **share edges**. There are only **twelve** ways to arrange **five squares** (two pentominoes are considered the same if they are congruent – if you can flip or rotate one to match it up to another, they’re the same).*



Use your five square pieces of paper to create the shapes. Draw each of your pentominoes on graph paper and share them with your group. Make sure your pentominoe is not the same as another one in your group.

## 2. Cut and Fold

*A “net” is a two-dimensional pattern that you could cut out and fold up to get a three-dimensional shape. The net of a cube is made up of six squares, but they must be arranged in certain ways so that the squares won’t overlap when it’s folded up.*

Use the pentominoes you just created and figure out which ones you can fold to make **part** of a cube (a box with an open top). Write down which of the pentominoes **will** work and which **will not** work as **part** of the net of a cube. As a group you will need to write an explanation of your answers.

## 3. Adding a Face

Take three of the pentominoes that **will** work (from part 2) and explain where to add a sixth square to make it a net of a cube. There will probably be more than one place where you could add a square, so make sure you identify them all. Be sure to work with your group to write a clear explanation. You may need to include pictures to help with your group’s explanation.