

## Objective

Place the dominoes on the puzzle so that the numbers on the dominoes match the numbers on the puzzle.

Rules:

1. You may only use each domino once.
2. Dominoes may not overlap or hang off the board.

## Introduction

Have ready to go dominoes with only 1, 2, 3, and 4 pips (dots) and the first task sheet.

### Explain

1. Show the students how to doublecheck that they have the correct dominoes by placing them on the dominoes on the first task sheet.
2. Use the first puzzle to demonstrate the rules by placing dominoes on the puzzle.
3. Point out that for the second and third pages of puzzles they'll need four-pip dominoes and five-pip dominoes for the last page.

### Engage

Ask the students for suggestions for placing a few of the dominoes on the first puzzle. Encourage them to explain their thinking as they choose which domino to place.

### Common misconceptions

Students might think that:

- a. They can use a domino more than once.
- b. They can let dominoes overlap or hang off the board.
- c. They can place the dominoes anywhere on the entire first page of puzzles.
  - i. Note: While this is not the intent of the activity, some students might find it easier to get started this way. You could then challenge them to place the six dominoes anywhere on 6 of the puzzles, then on 5 of the puzzles, etc.

## Exploration

In pairs, have the students finish the first puzzle and explore the next puzzles, using the dominoes to solve.

Circulate and ask questions to encourage deeper thinking:

- a. Are there any dominoes that you know for sure where they go?

- a. What's a good first domino to place? Which of these puzzles have no easy first domino to place and how can you get started on those puzzles?
- b. The spots where a domino shouldn't be placed can be just as important as the spots where you know one must be placed! How can you keep track of these bad spots when you find them?
- c. Which puzzle did you find the hardest so far? The easiest? Why?
- d. Have you found a strategy that works for all or many of the puzzles?
- e. When a student is stuck, ask:
  - i. Could you have made another choice?
  - ii. What are you thinking about trying?
  - i. Encourage them to clear their grid and restart.
- f. "Tell me more." is a great basic prompt for getting a student to explain their thinking.

### **Extend**

Encourage the students to create their own puzzles. Challenge them to find one with a unique solution. For example, ask if they can design a 4-pip puzzle that has only one solution.

### **Discussion**

As a group, have students share something about their experience with Domino Dissection. Try to have at least 3 students share out. Variations of the questions asked earlier are great for generating discussion, such as:

- a. How do you start a puzzle? What do you do first?
- b. What strategies did you come up with? Did they always work?
- c. What did you do when you had to choose between different options? How did you decide?
- d. Did you keep track of places you didn't want to put a particular domino?

## Materials

One set of [mini-dominos](#) for every two students.

Domino Dissection (mini) [task sheets](#) pp. 6-11

or

One set of standard-dominoes for every two students

Domino Dissection (standard) [task sheets](#) pp. 12-18

Optional: Domino Dissection [instructions sheet](#) p. 5

*To explore the activity yourself, you can try our digital version here:*

[jrmf.org/activities/domino-dissection](http://jrmf.org/activities/domino-dissection)

## Assessment

Evidence of student learning during problem-solving activities can be obtained from three sources: observations, conversations, and products.

**Observation** involves actually observing students while they perform tasks and demonstrate skills and may take the form of a checklist or quick note.

**Conversation** involves engaging students in discussion that encourages them to articulate what they are thinking and then capturing that with a quick note.

**Products** are student-created records that capture not only their answer, but some of the process that led them to the answer.

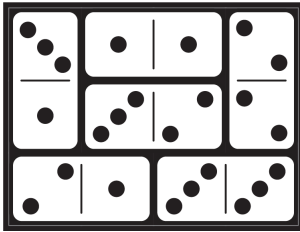
## Standards

1. Make sense of problems and persevere in solving them.  
CCSS.MP1
2. Construct viable arguments and critique the reasoning of others.  
CCSS.MP3
3. Model with mathematics.  
CCSS.MP4
4. Attend to precision.  
CCSS.MP6

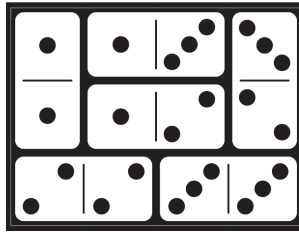
## Answers

### Puzzle Solutions (for some of the first puzzles):

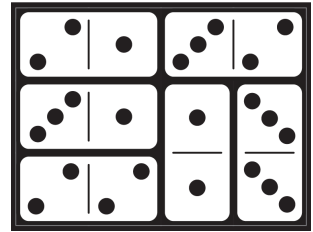
Puzzle 1



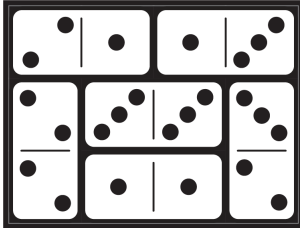
Puzzle 2



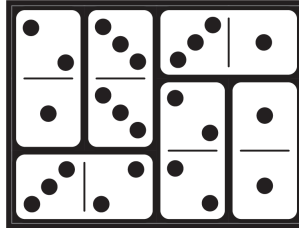
Puzzle 3



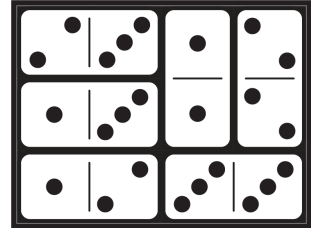
Puzzle 4



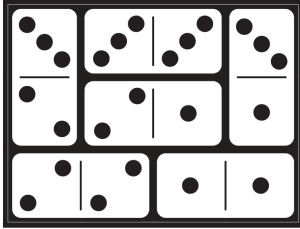
Puzzle 5



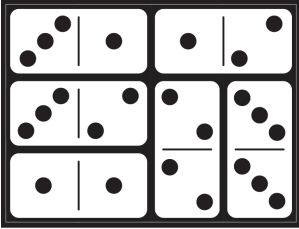
Puzzle 6



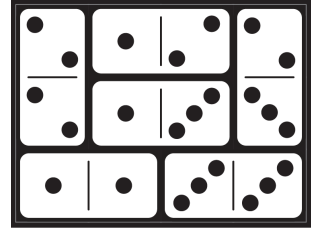
Puzzle 7



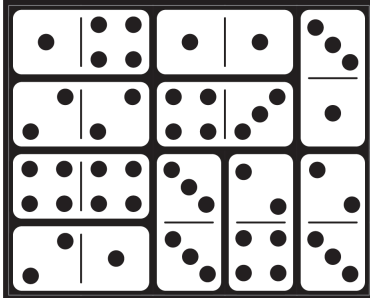
Puzzle 8



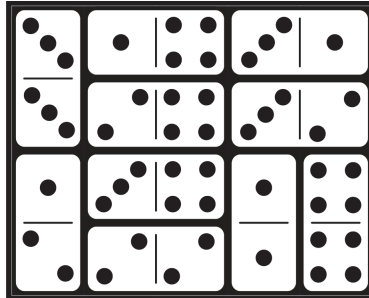
Puzzle 9



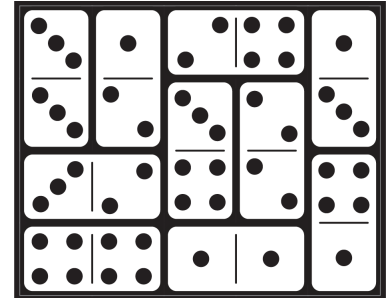
Puzzle 11



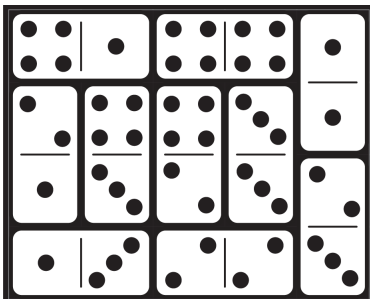
Puzzle 13



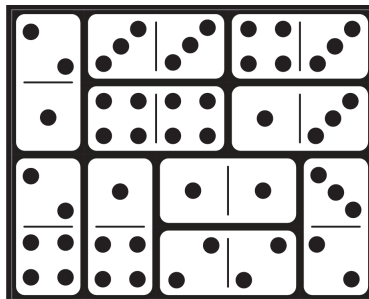
Puzzle 15



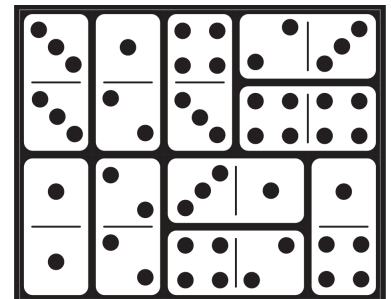
Puzzle 16



Puzzle 18



Puzzle 19

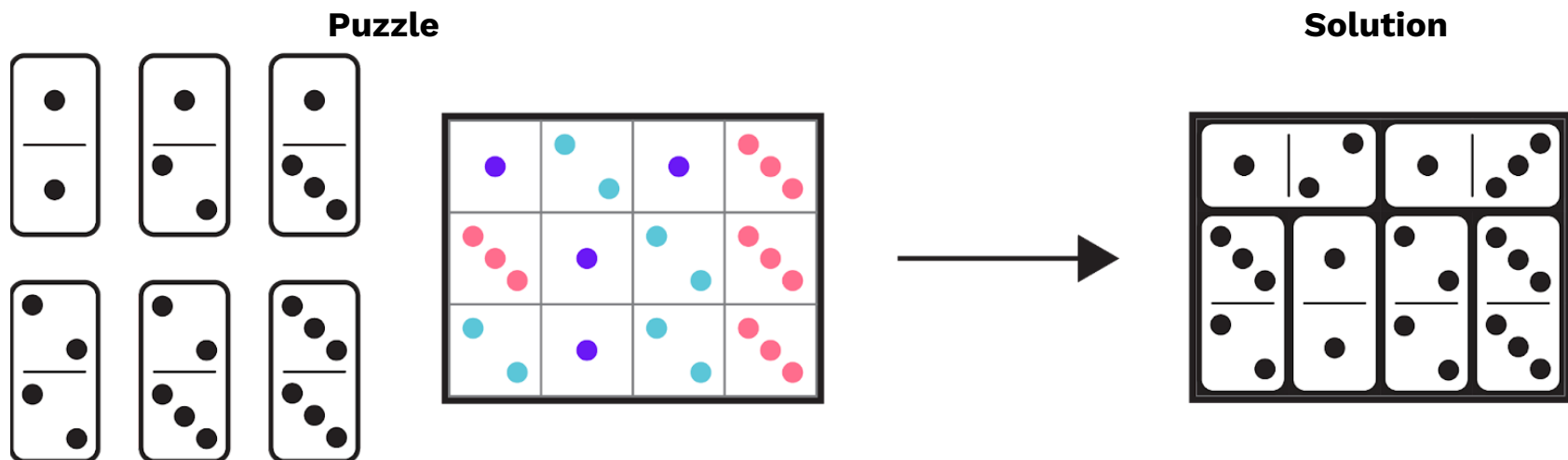


## Domino Dissection Instructions

**Can you place the dominoes on the puzzle so that the numbers on the dominoes match the numbers on the puzzle?**

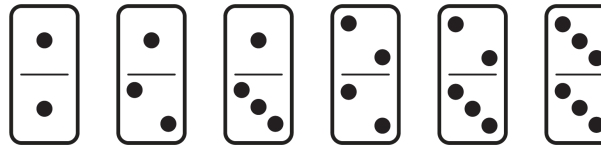
Rules:

- You may only use each domino once.
- Dominoes may not overlap or hang off the board.

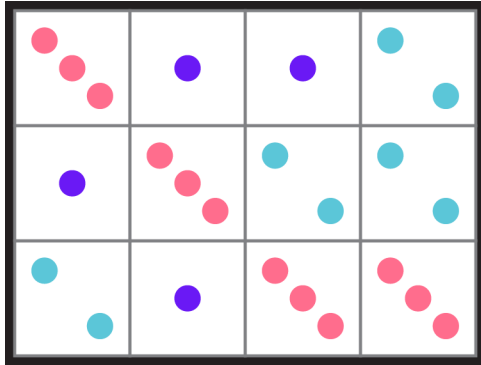


# Domino Dissection Tasks

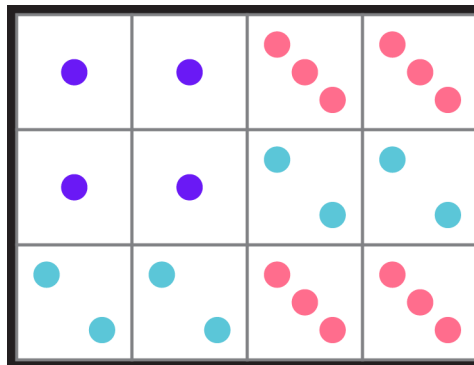
For these nine puzzles, you'll need these dominoes:



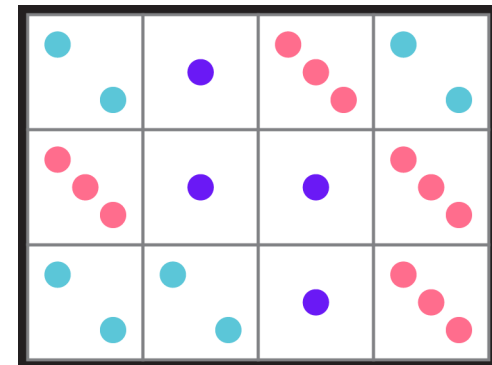
Puzzle 1



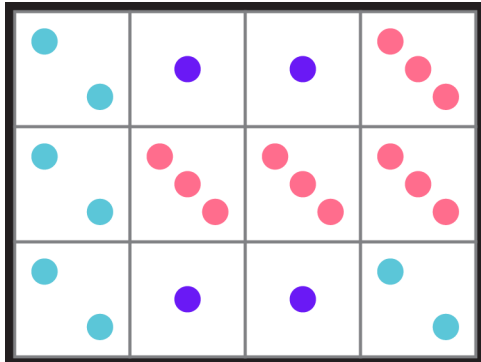
Puzzle 2



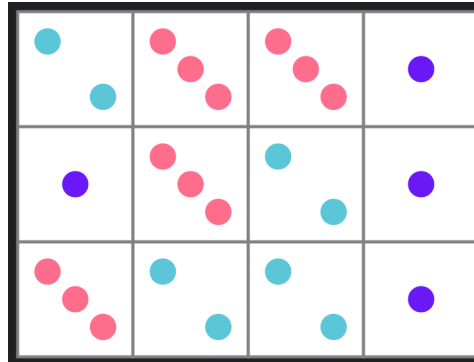
Puzzle 3



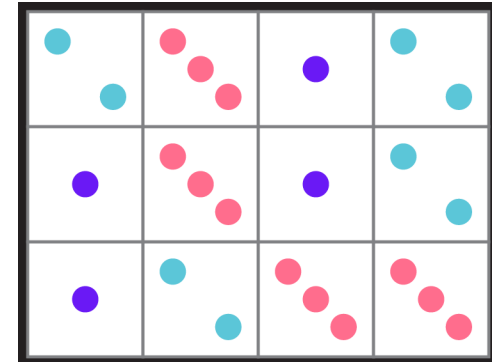
Puzzle 4



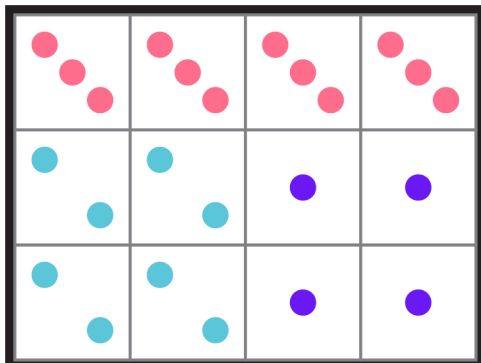
Puzzle 5



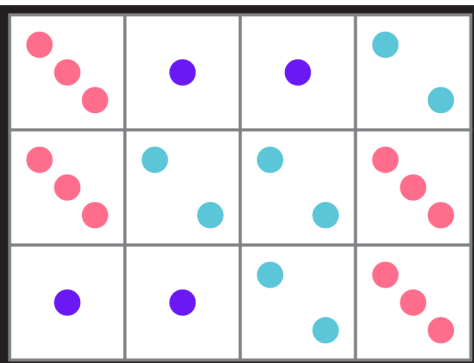
Puzzle 6



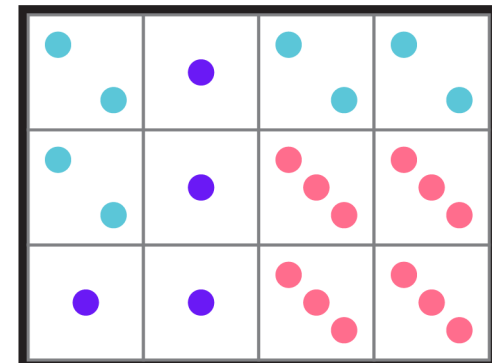
Puzzle 7



Puzzle 8

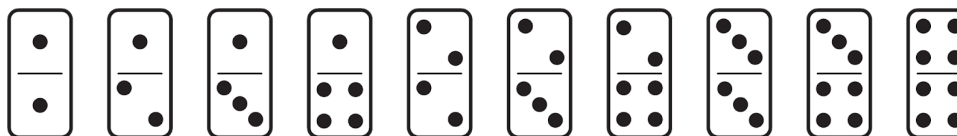


Puzzle 9

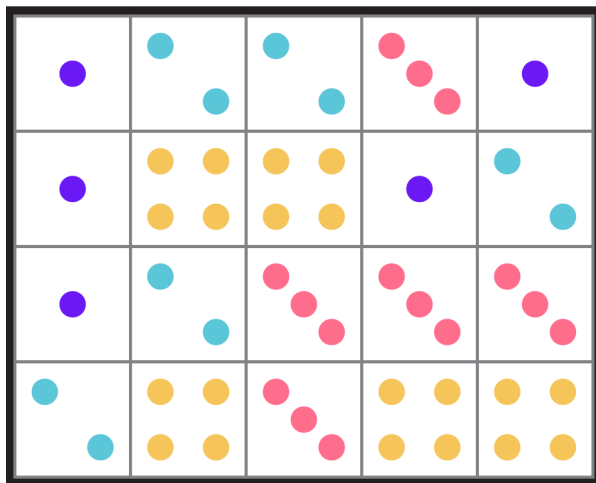


## Domino Dissection Tasks

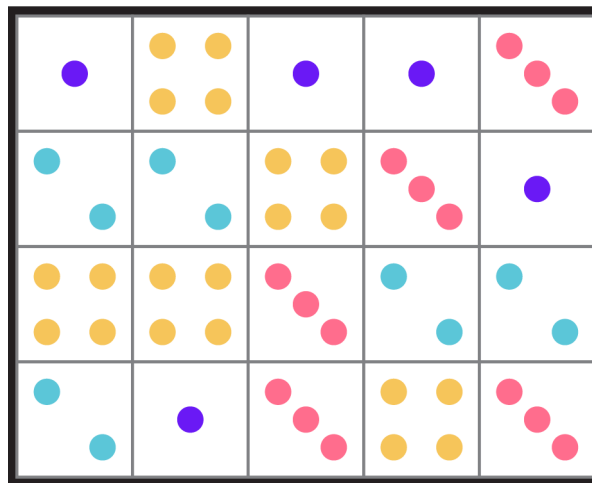
For these six puzzles, you'll need these dominoes:



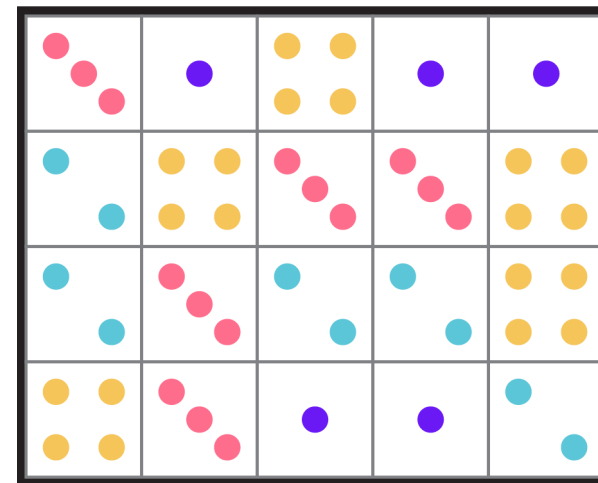
Puzzle 10



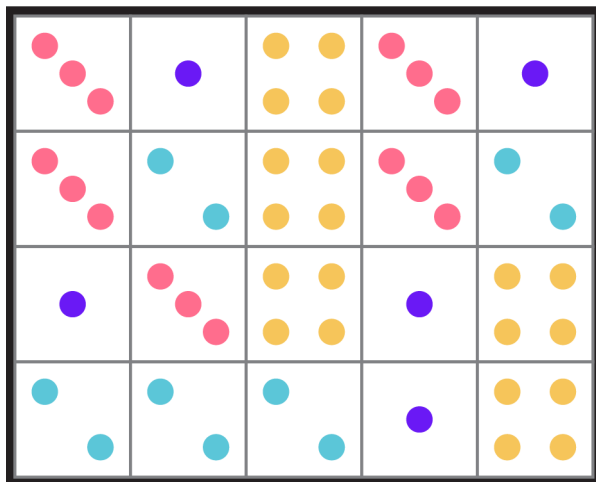
Puzzle 11



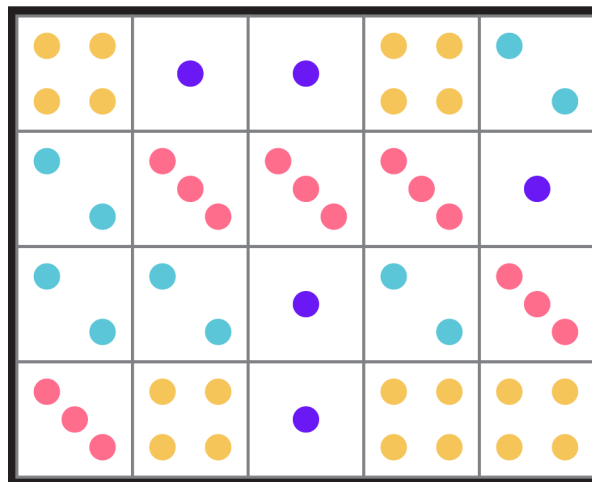
Puzzle 12



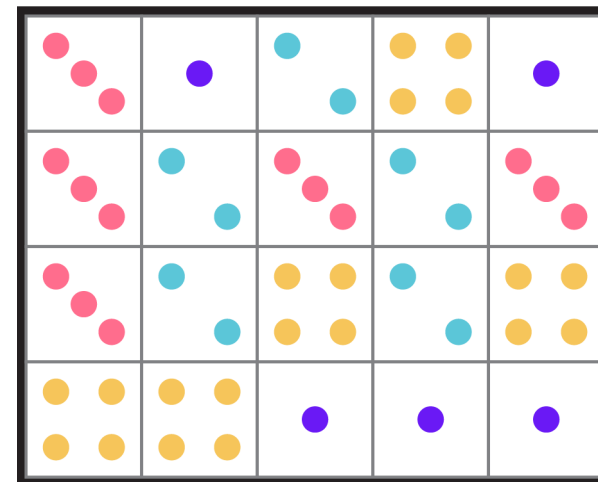
Puzzle 13



Puzzle 14

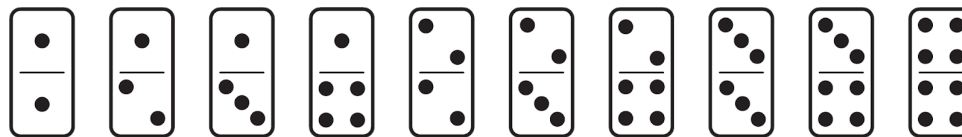


Puzzle 15

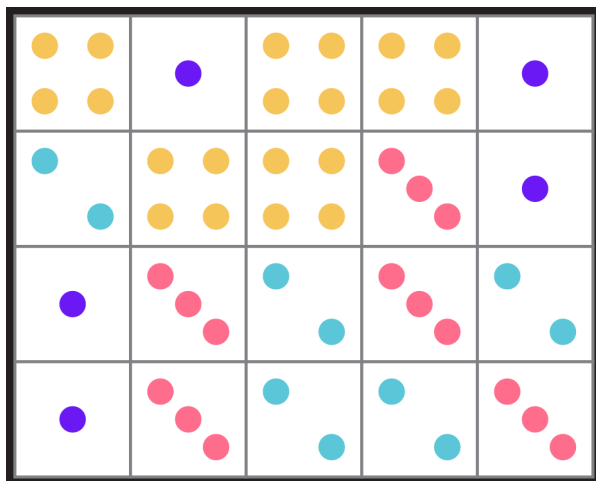


# Domino Dissection Tasks

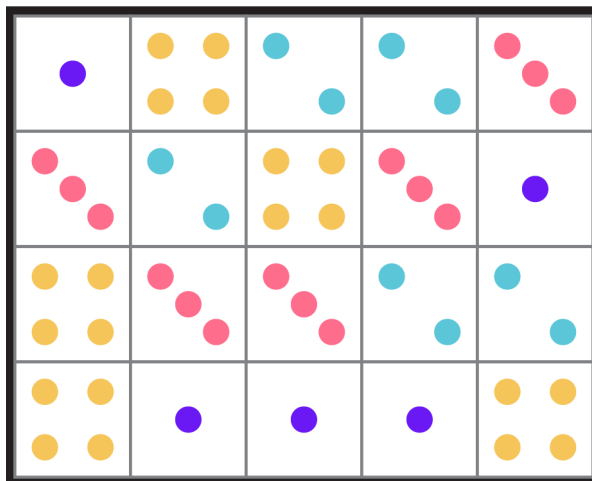
For these six puzzles, you'll need these dominoes:



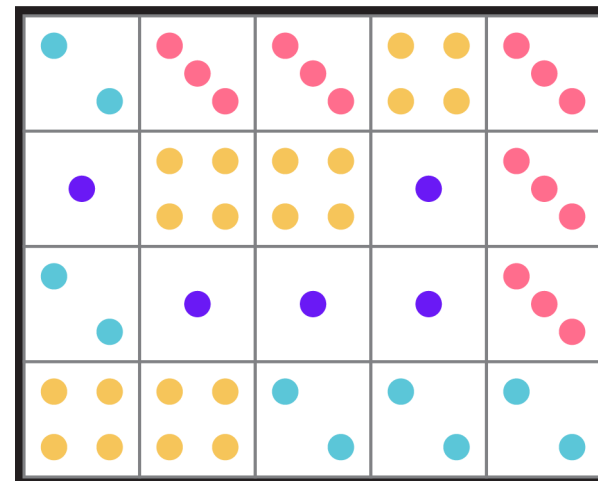
Puzzle 16



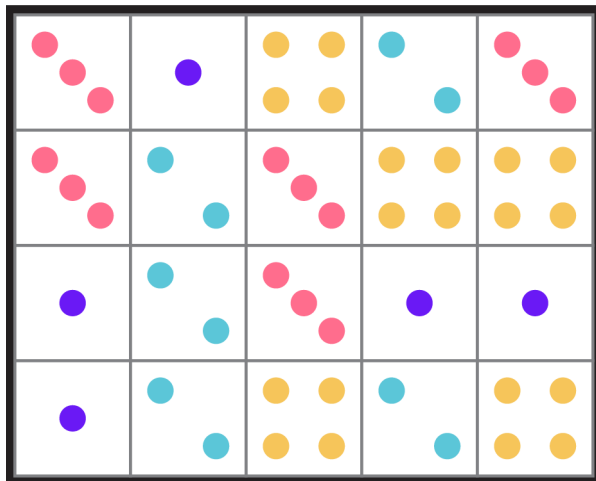
Puzzle 17



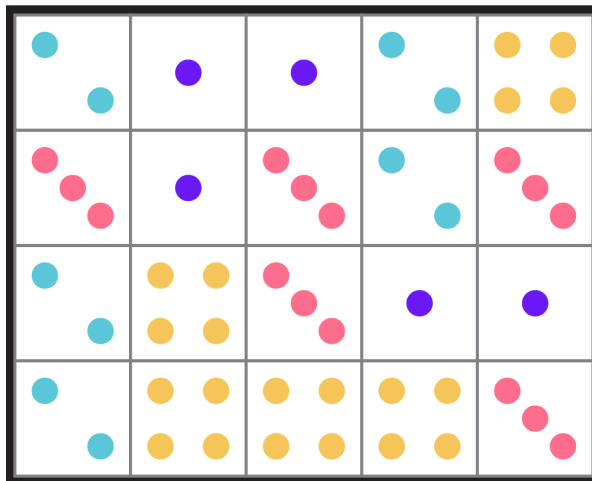
Puzzle 18



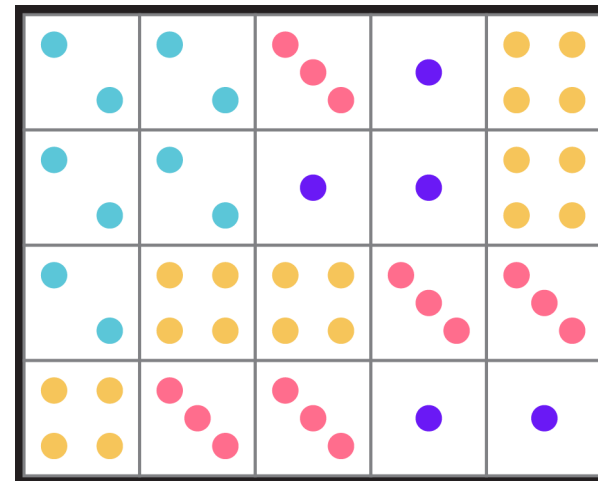
Puzzle 19



Puzzle 20



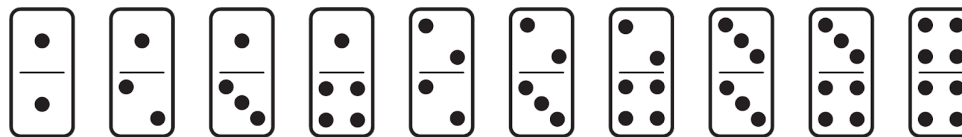
Puzzle 21



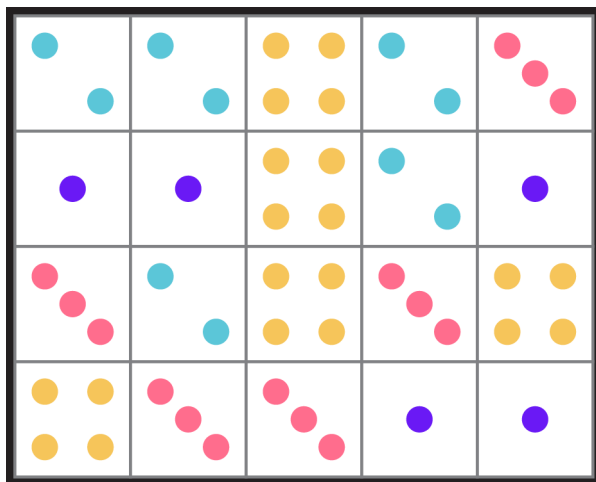


# Domino Dissection Tasks

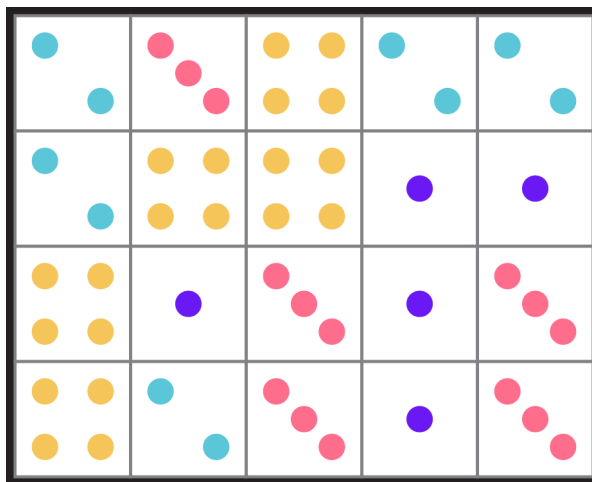
For these six puzzles, you'll need these dominoes:



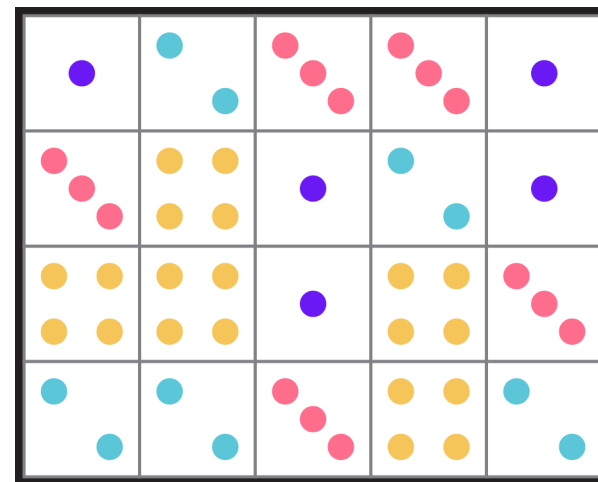
Puzzle 22



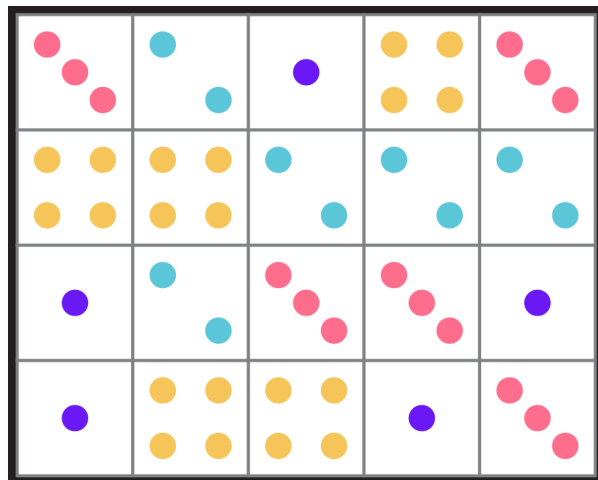
Puzzle 23



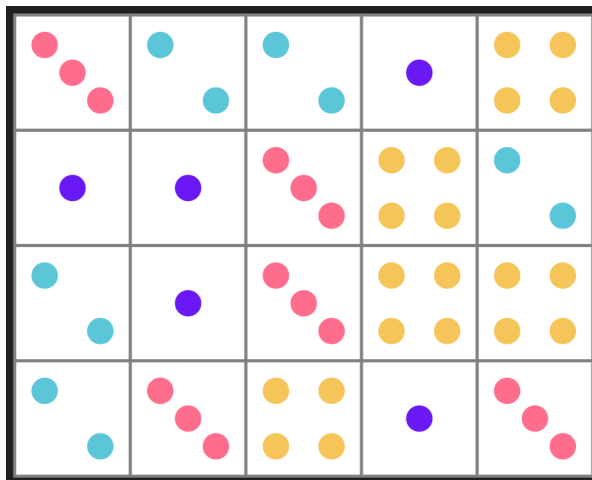
Puzzle 24



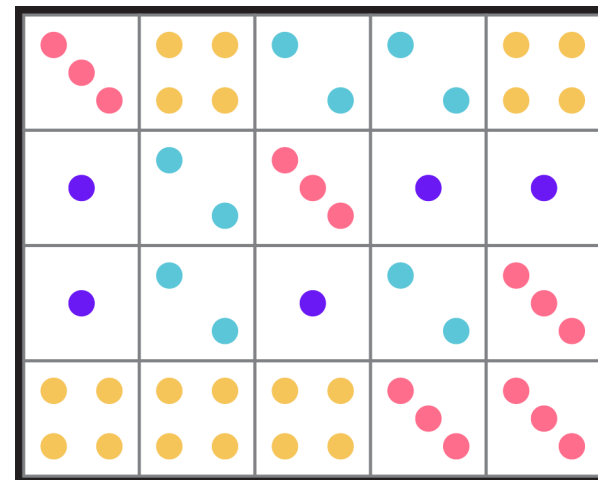
Puzzle 25



Puzzle 26

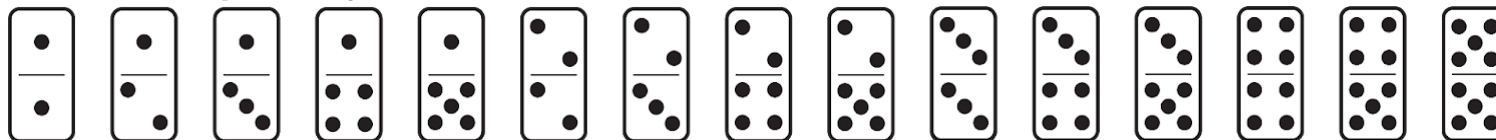


Puzzle 27

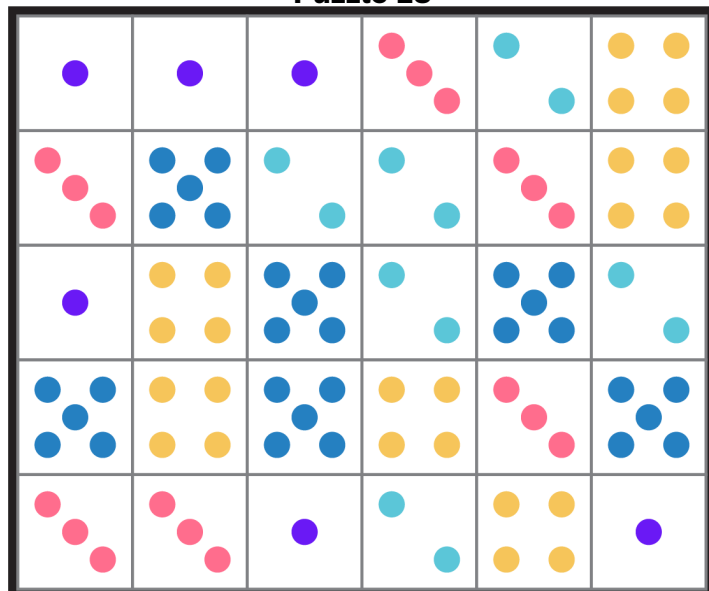


## Domino Dissection Tasks

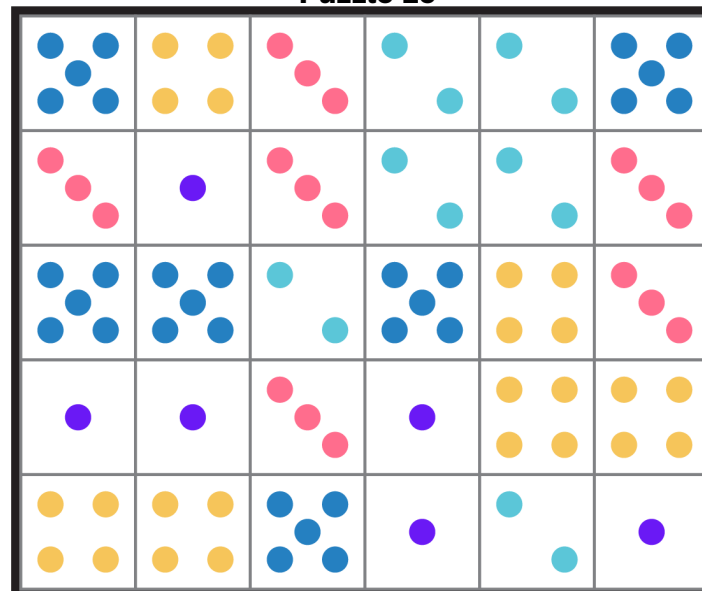
For these four puzzles, you'll need these dominoes:



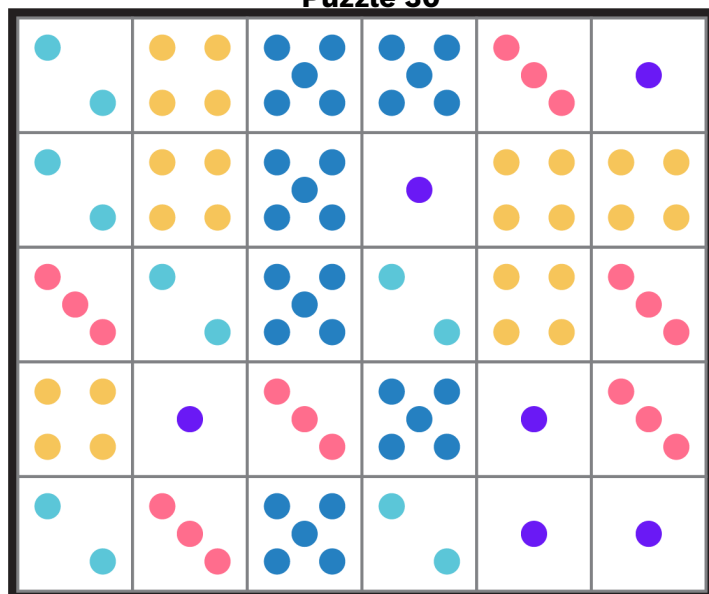
Puzzle 28



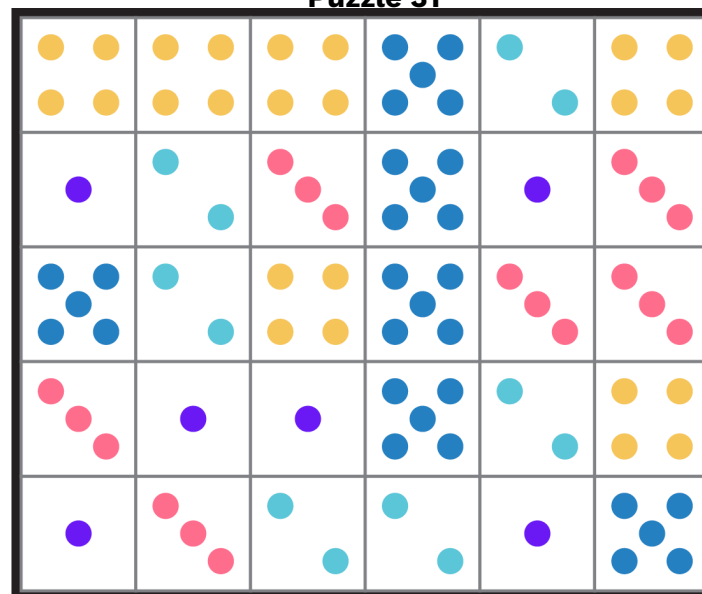
Puzzle 29



Puzzle 30



Puzzle 31

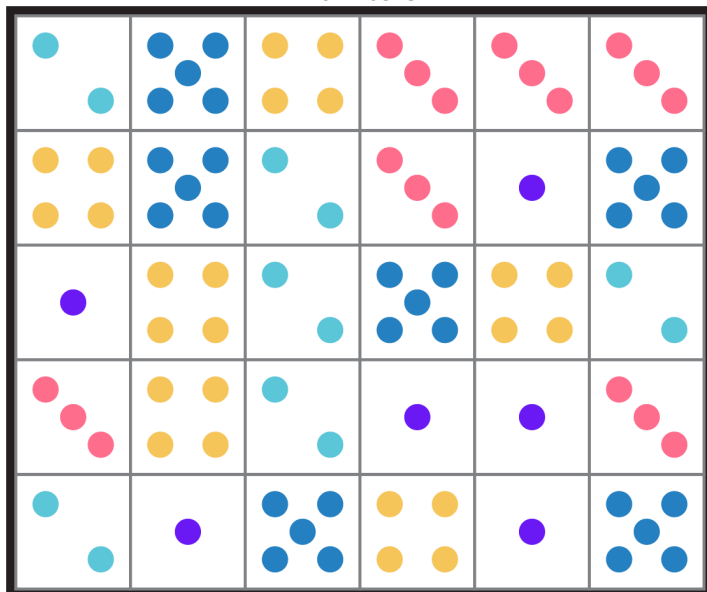


## Domino Dissection Tasks

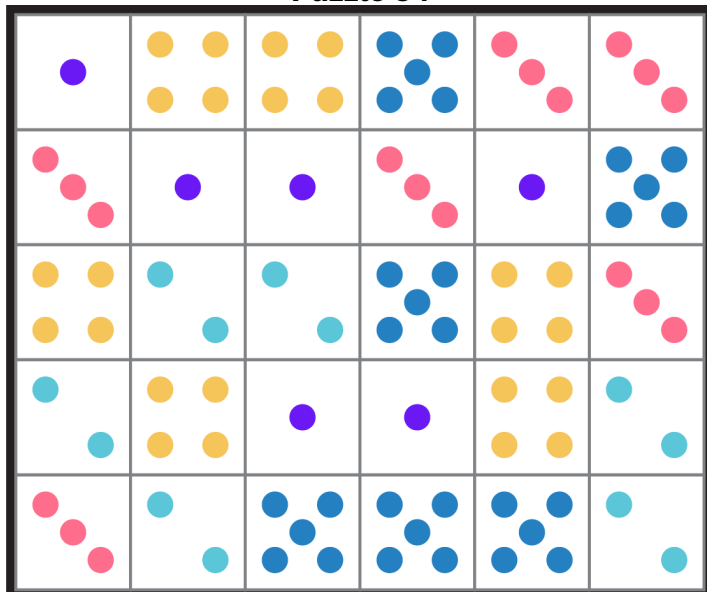
For these four puzzles, you'll need these dominoes:



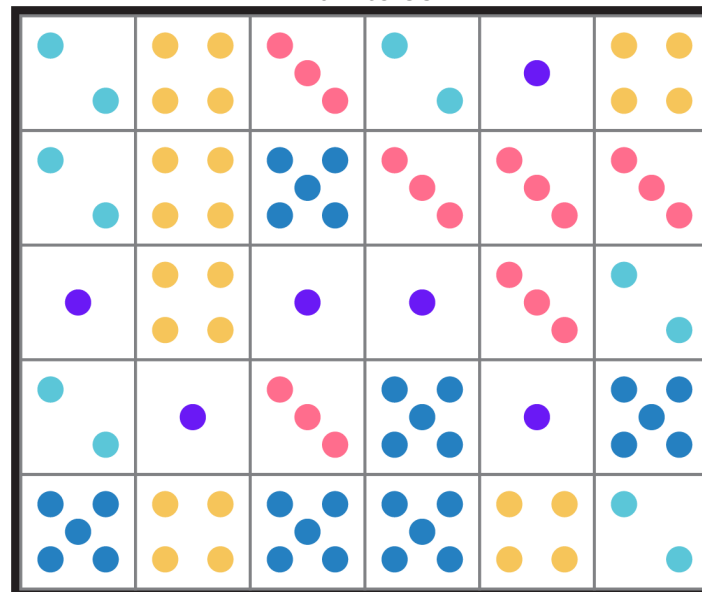
**Puzzle 32**



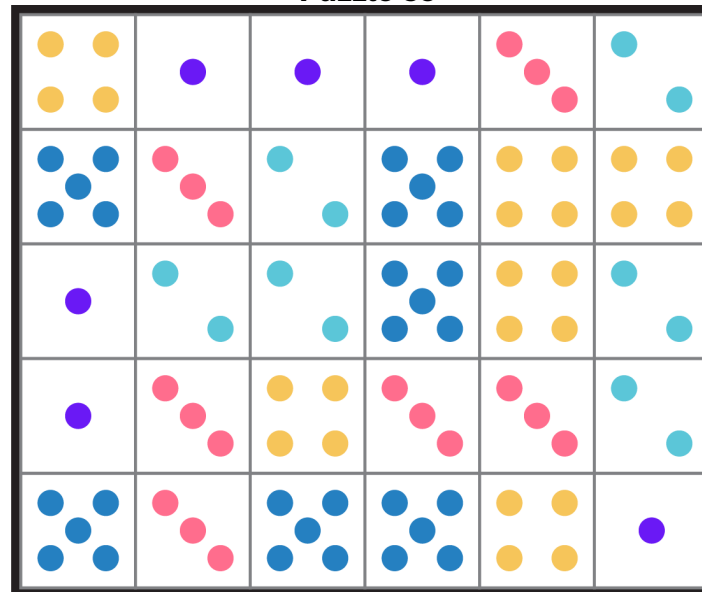
**Puzzle 34**



**Puzzle 33**

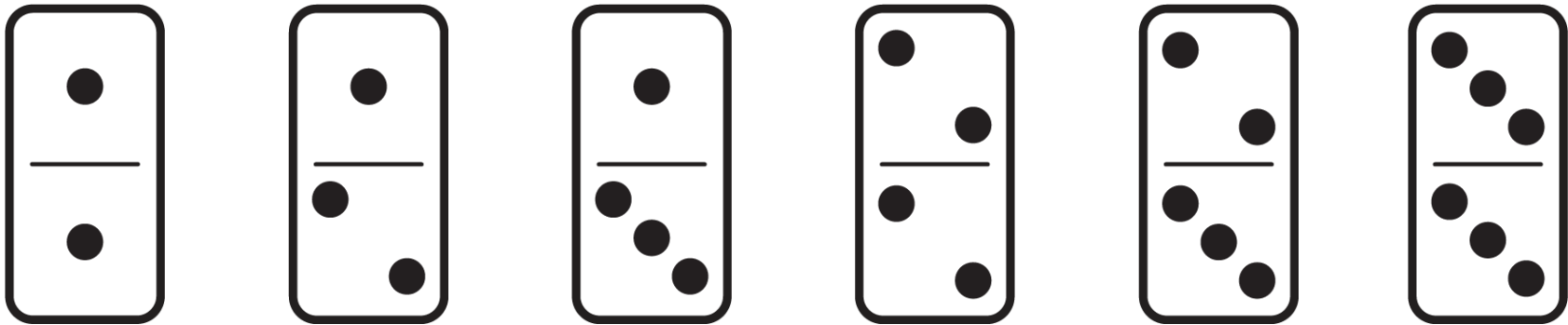


**Puzzle 35**

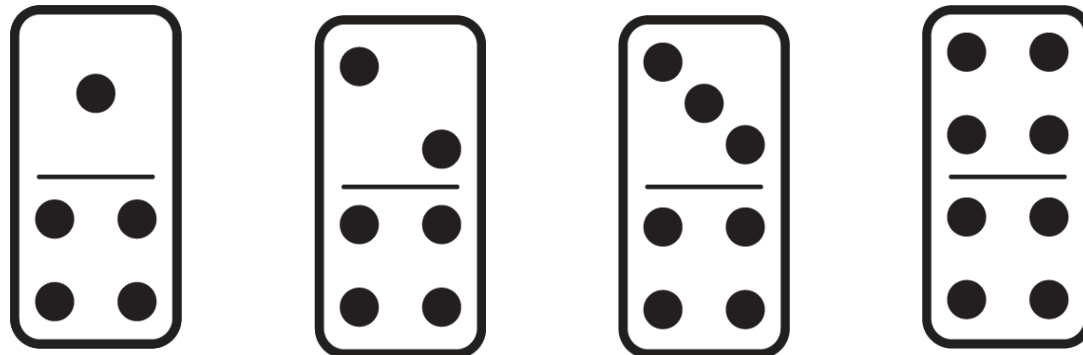


## Domino Dissection Set

### Dominoes for Puzzles 1 - 16

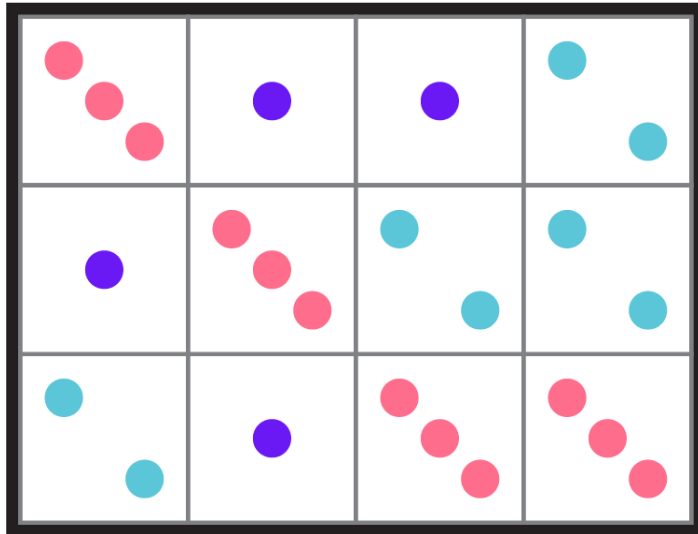


### Dominoes for Puzzles 9 - 16

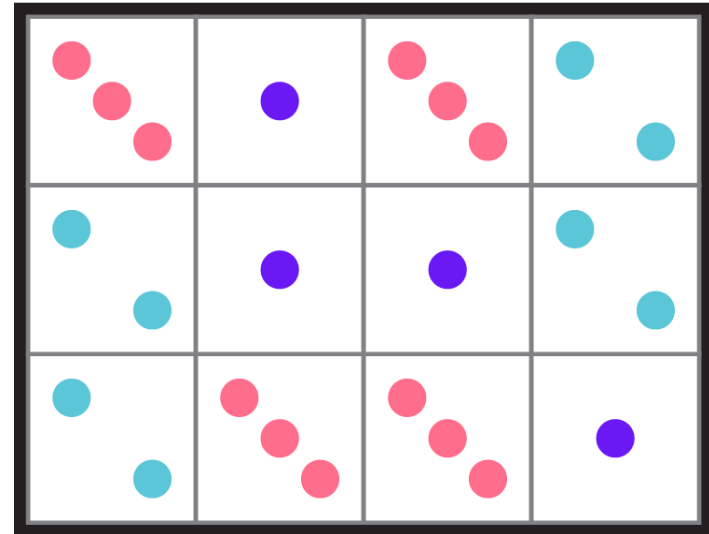


## Domino Dissection Tasks

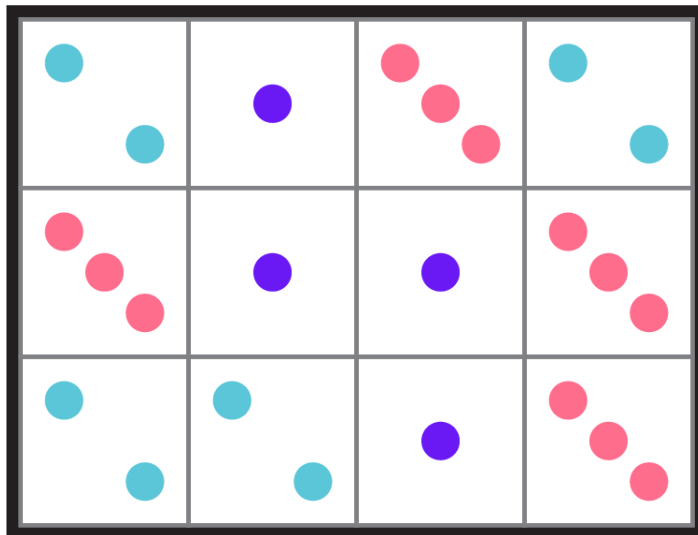
**Puzzle 1**



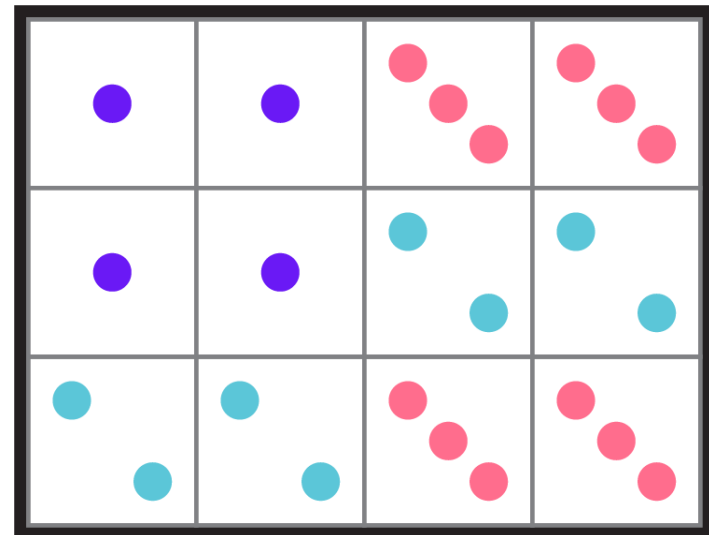
**Puzzle 2**



**Puzzle 3**

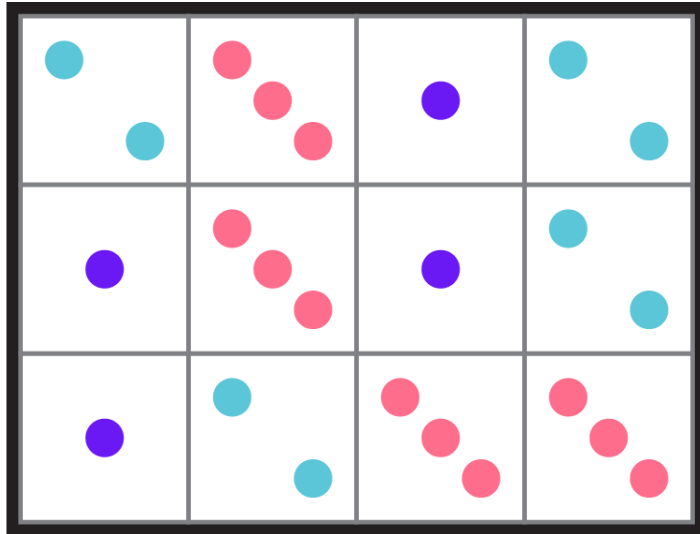


**Puzzle 4**

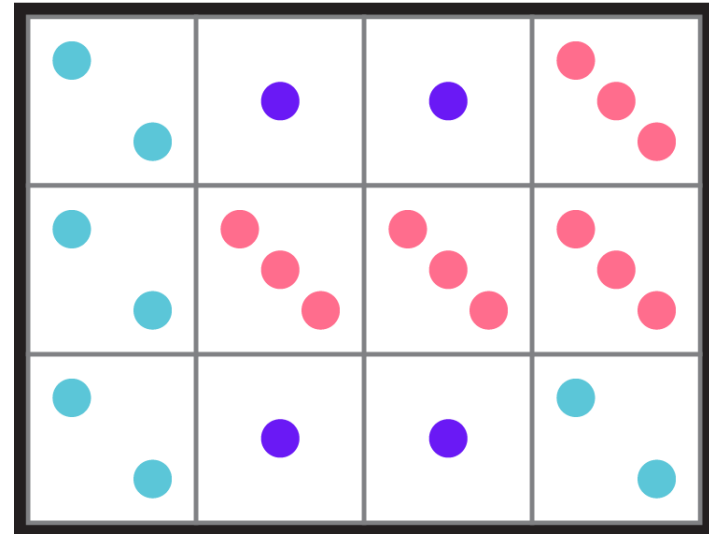


## Domino Dissection Tasks

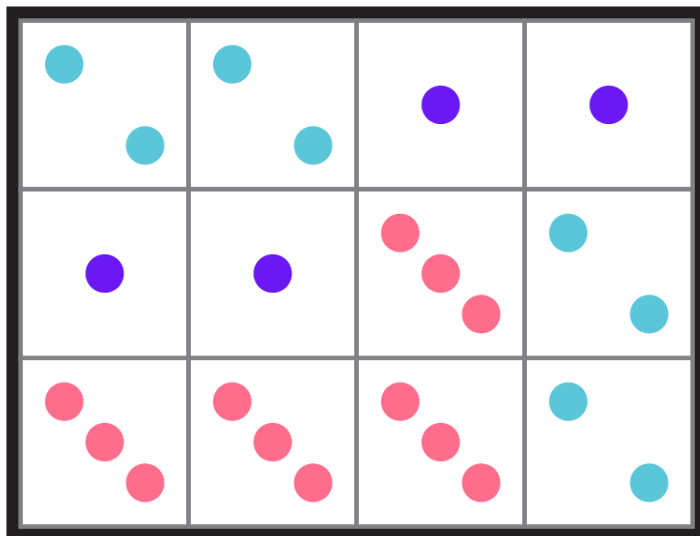
**Puzzle 5**



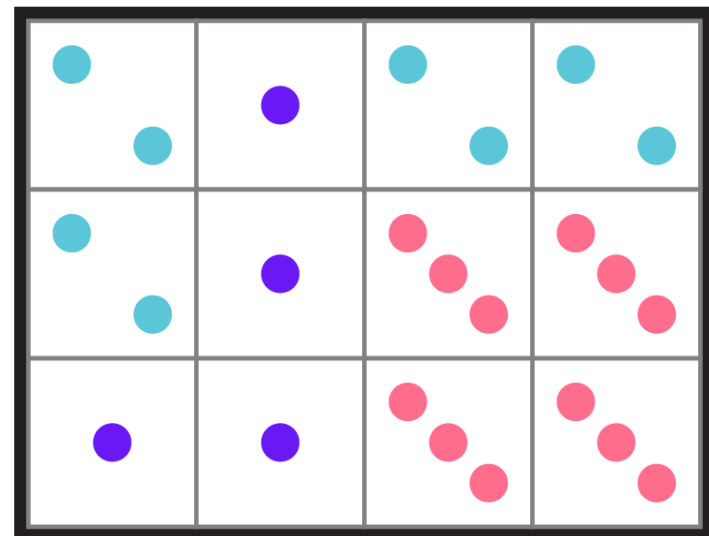
**Puzzle 6**



**Puzzle 7**

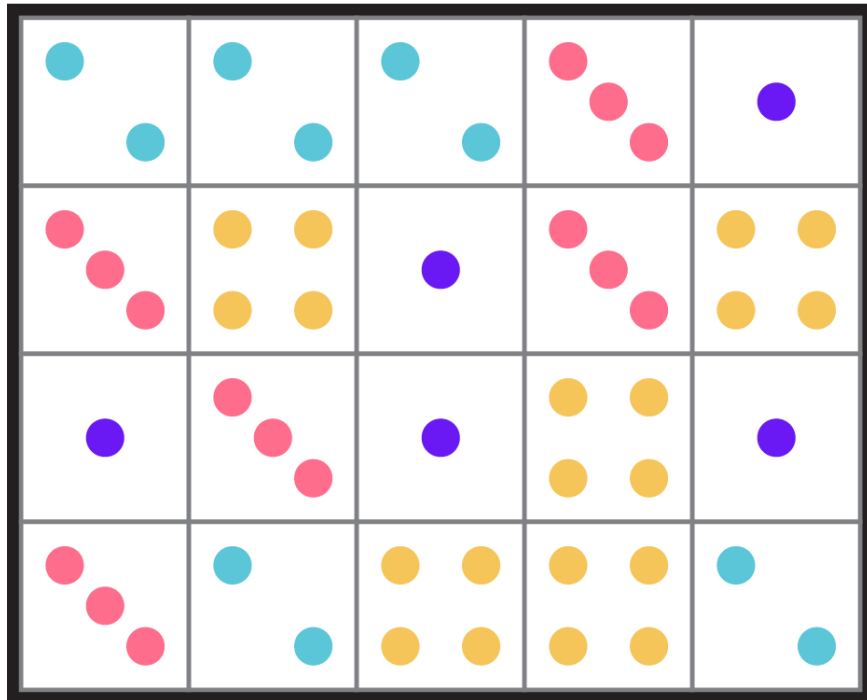


**Puzzle 8**

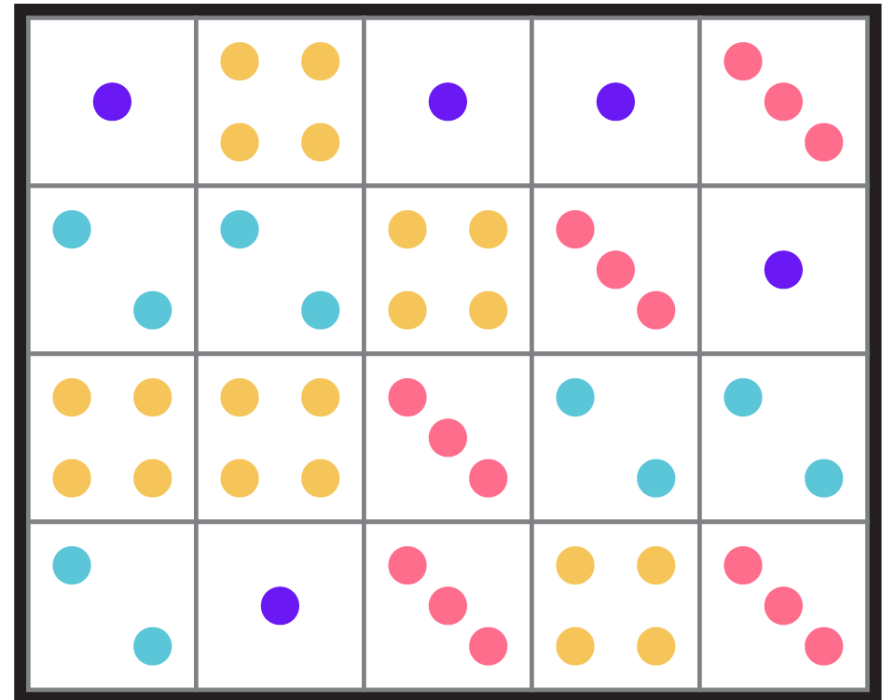


## Domino Dissection Tasks

**Puzzle 9**

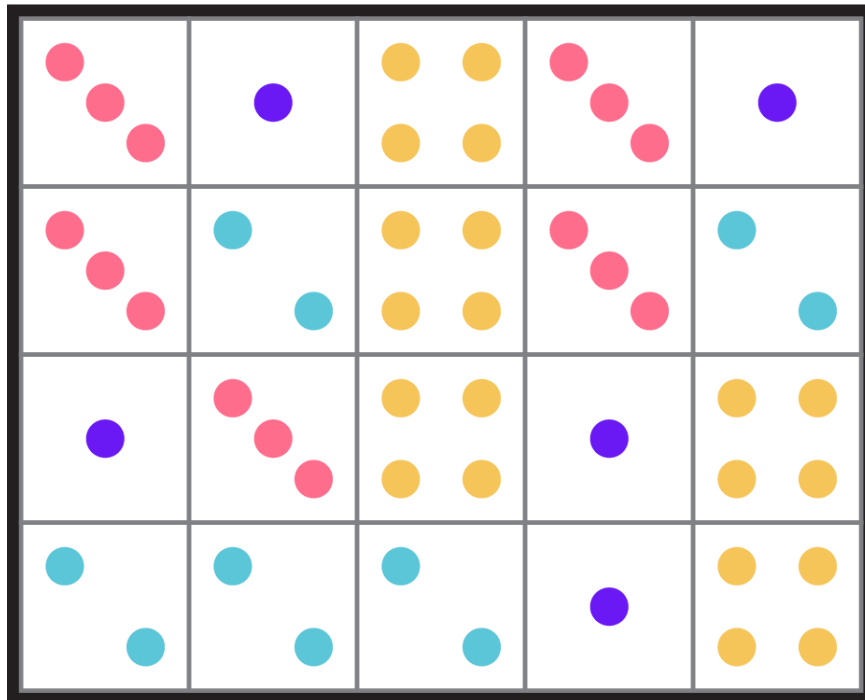


**Puzzle 10**

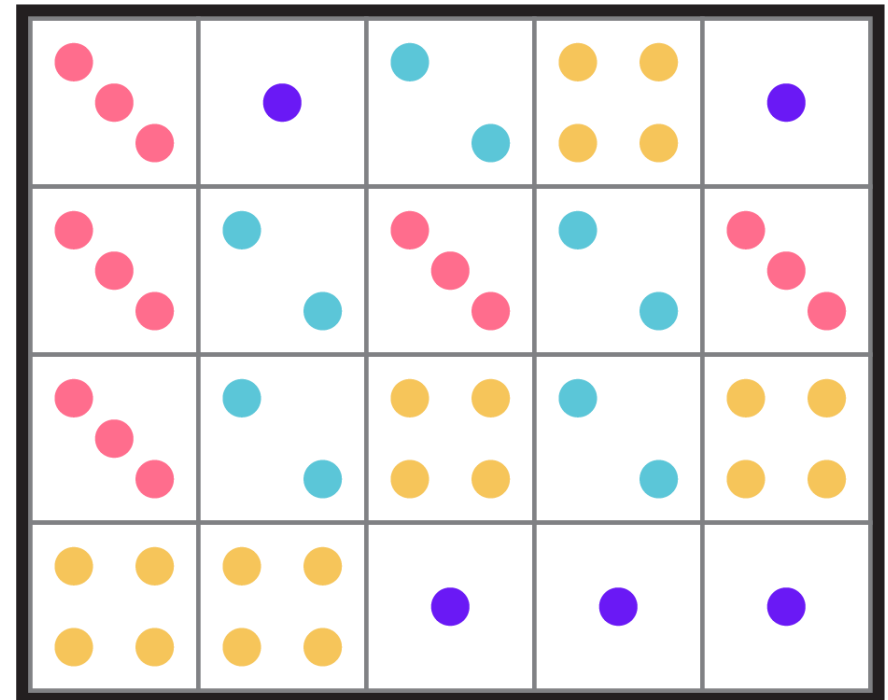


## Domino Dissection Tasks

**Puzzle 11**



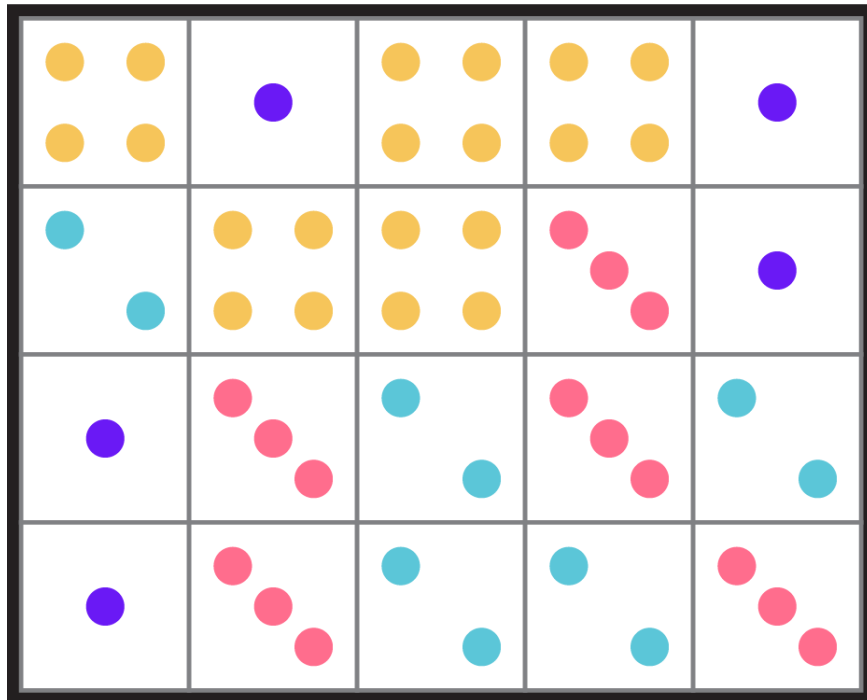
**Puzzle 12**



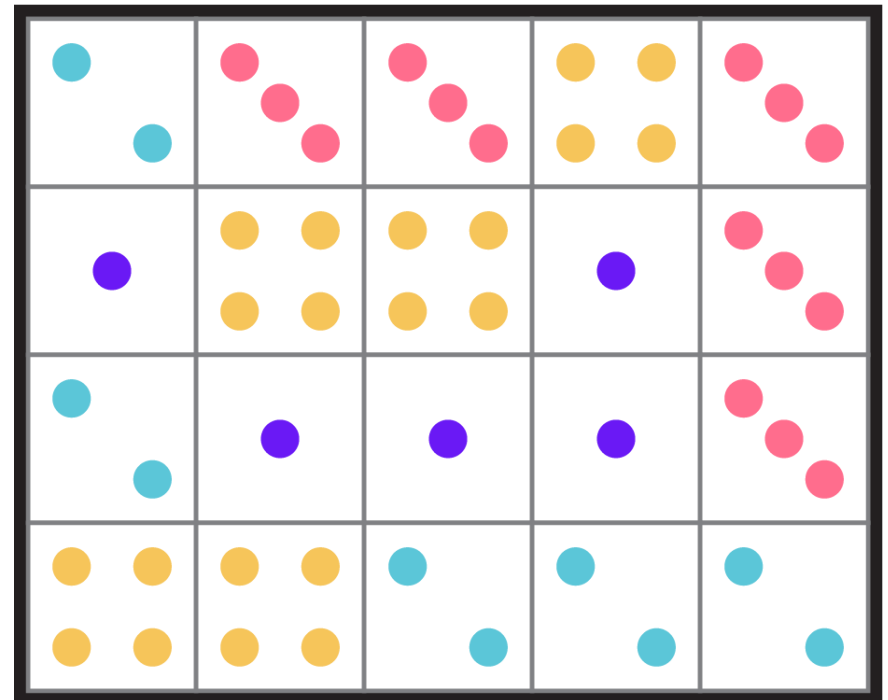


## Domino Dissection Tasks

**Puzzle 13**

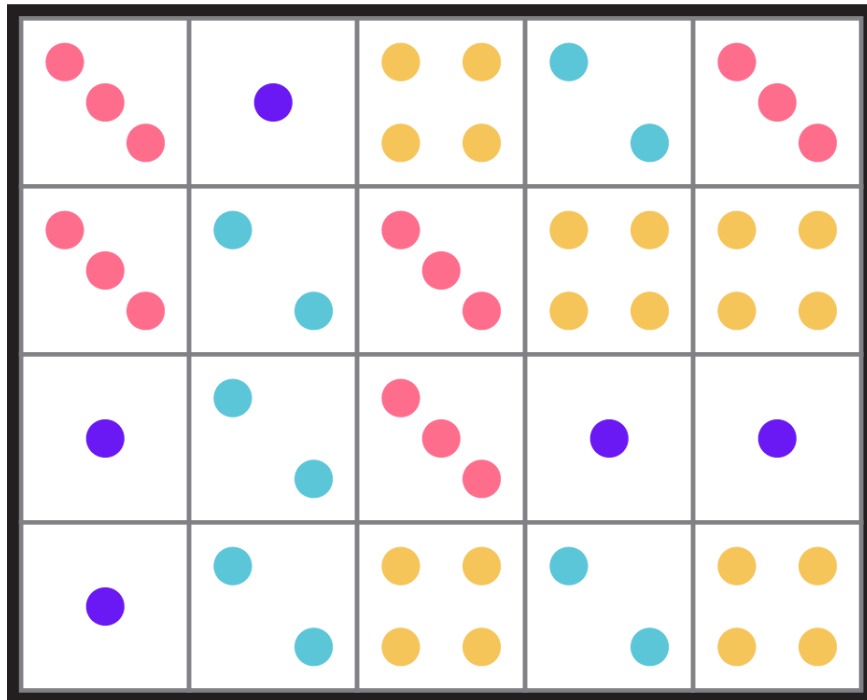


**Puzzle 14**



## Domino Dissection Tasks

**Puzzle 15**



**Puzzle 16**

