Name _____   Class / Period / Teacher _____
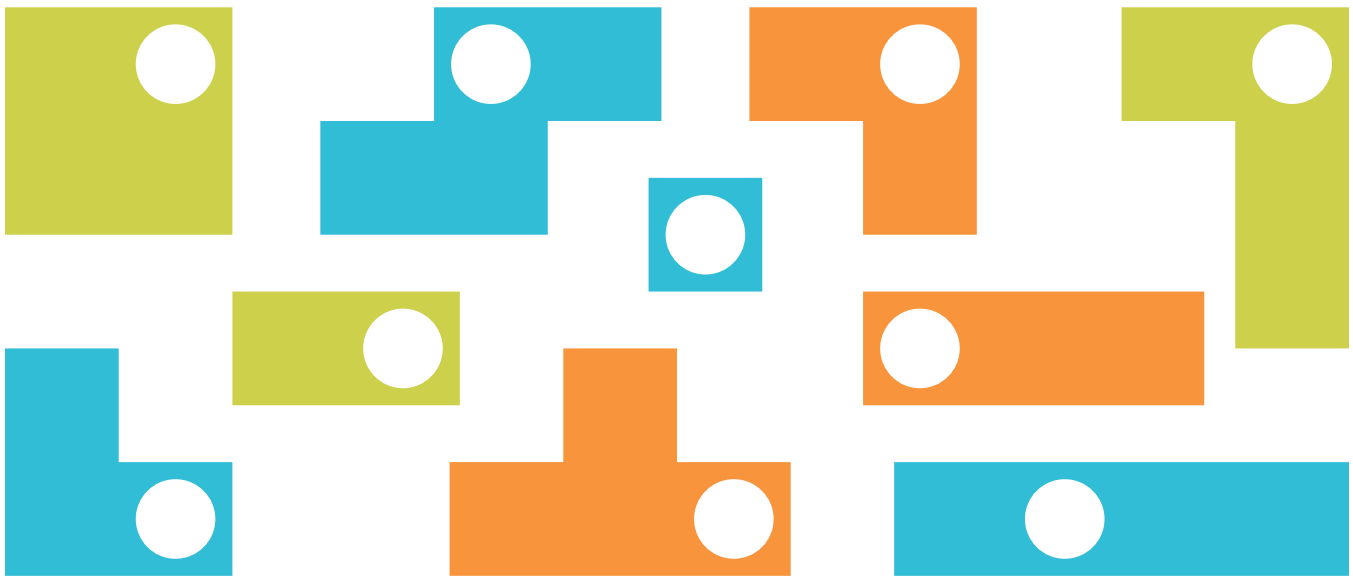
SHIFTING SHAPES
STUDENT HANDOUT

PART 1 - BASICS

1. Look at a Neighborhood Hide & Seek puzzle card. What is the total number of squares that can be covered up on a puzzle card?

2. How many squares does each shape in Neighborhood Hide & Seek cover up? Write the number in the circle of each of the shapes below. These represent the area of each shape.

3. What is the total area of all the blue shapes?

4. What is the total area of all the orange shapes?

5. What is the total area of all the green shapes?

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6. Can all of the shapes fit on one puzzle card? Why or why not?

(blank answer box)

Pick a Neighborhood Hide & Seek puzzle to solve. Then answer these questions.

7. How many squares were covered up by the shapes to solve the puzzle?

(blank answer box)

8. Based on your answers above, can a Neighborhood Hide & Seek puzzle be solved with only two colors? Why or why not?

(blank answer box)

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PART 2 - COMBOS

Build your skills by working on these challenges using the shape pieces from *Neighborhood Hide & Seek*.

1. Choose a group of shapes that make a total area of 5. Draw them here.

2. What other groups of shapes can add up to an area of 5? Draw as many combinations as you can think of.

3. Find and draw two groups of shapes that each add up to an area of 7.

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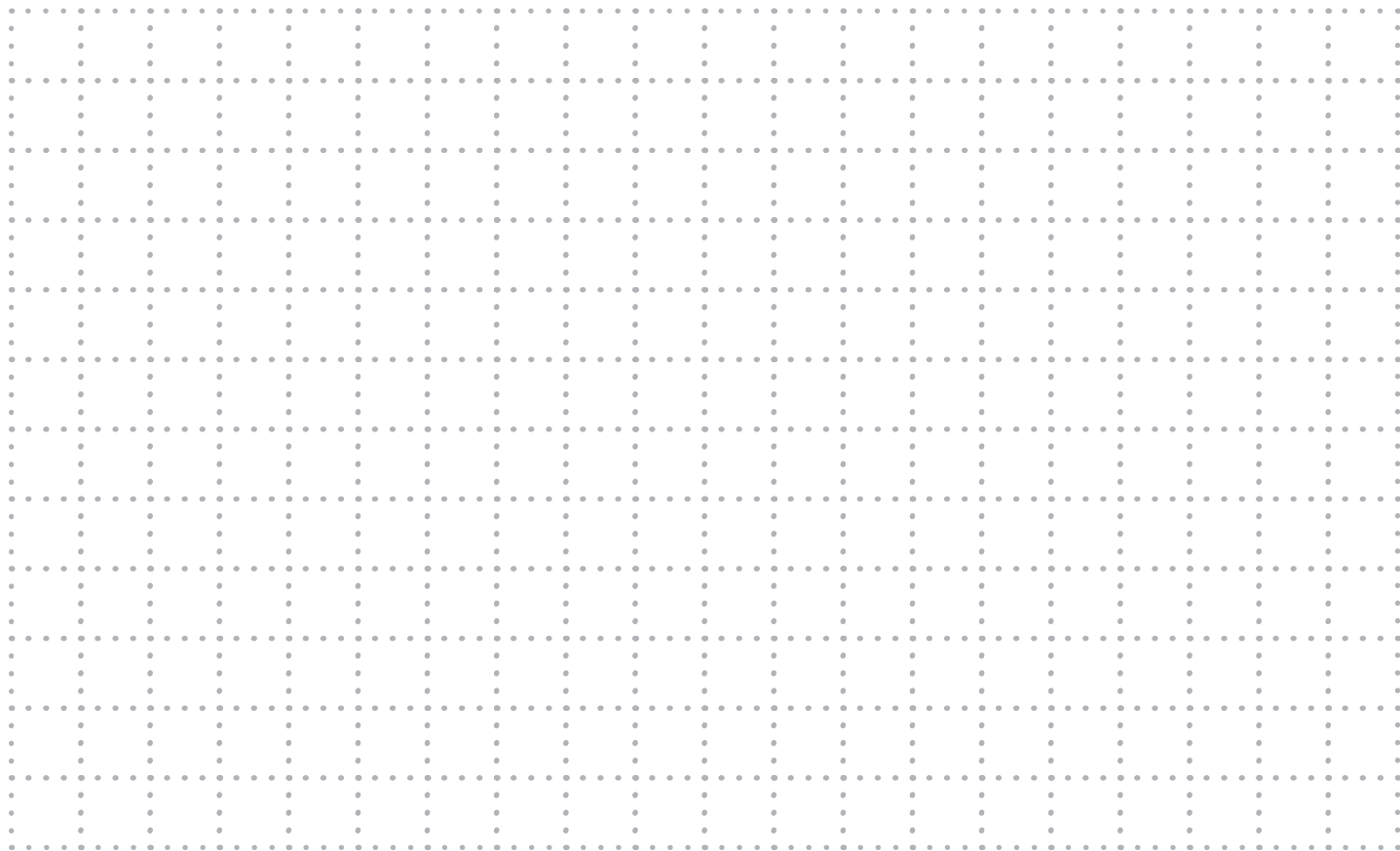4. *Now find and draw four groups of shapes that each add to an area of 8.*

5. *Find three shapes that have a combined total area of 9 and can be arranged in a 3x3 square.*

6. *Now find four shapes with a total combined area of 9 that can be arranged in a 3x3 square.*

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7. *Find and label sets of shapes that have areas of: 10 squares, 13 squares, 16 squares, and 19 squares.*

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PART 3 - MAKING PUZZLES

In this section, you will make your very own 4x4 mini puzzle, as well as a mega-puzzle using all the shapes from *Neighborhood Hide & Seek*. Follow the steps below.

4x4 Mini Puzzle

1. *Select a set of shapes that have a sum of 15 and arrange them in the 4x4 grid below.*

2. *In the one uncovered space, draw a stick figure or emoji face.*

3. *Trace the circles from each shape onto the grid in the correct location.*

4. *Now sketch the appropriate piece shapes in each of the circles you traced.*

5. *Finally, remove all the pieces from the grid and draw more stick figures or emoji faces in a few additional squares.*
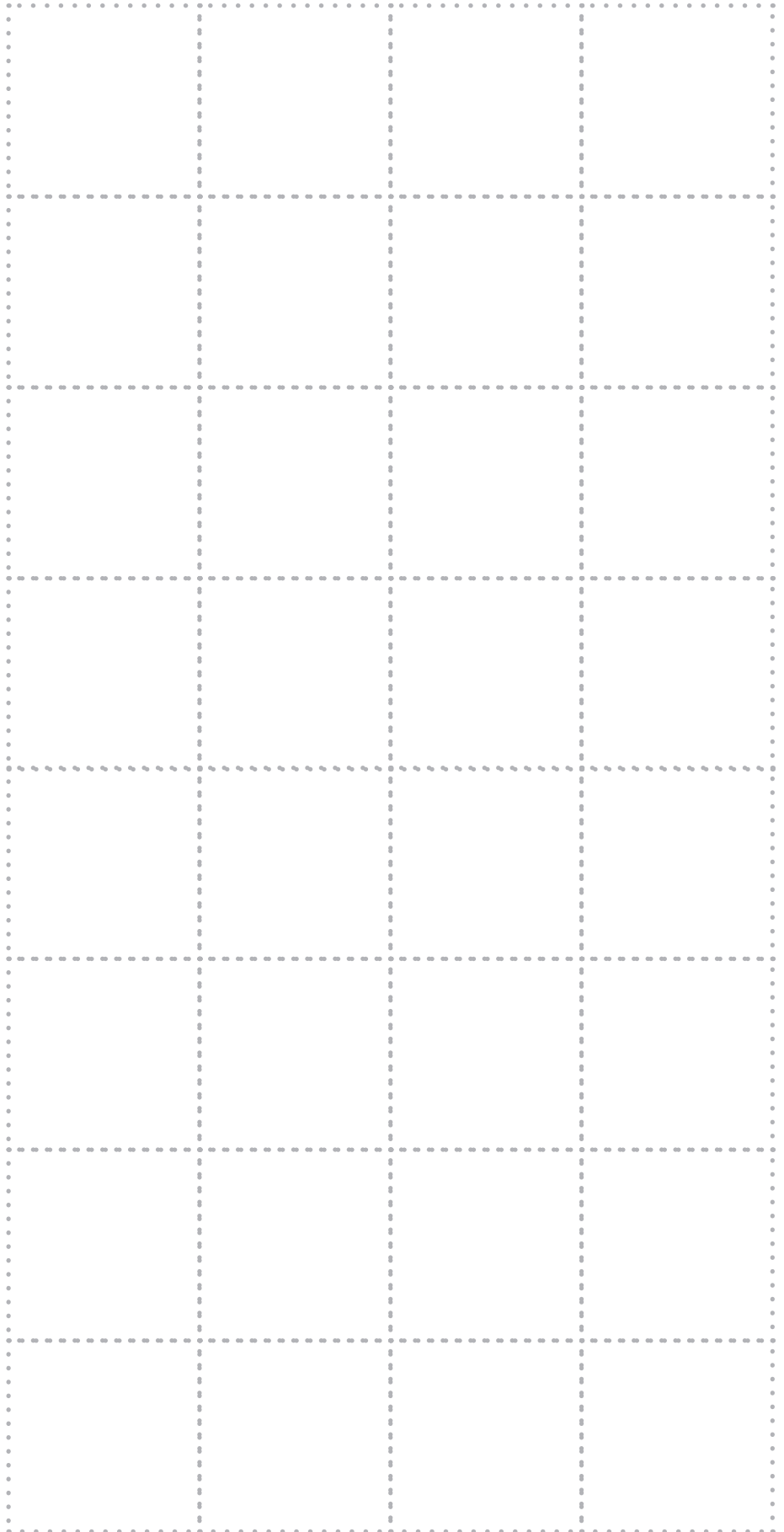
Congratulations! You have made your very own *Neighborhood Hide & Seek* mini puzzle to challenge your friends.

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Mega-Puzzle

1. *Using all of the shapes, arrange them to fill the 4x8 grid to the right.*

2. *Remove the small blue square piece. This spot will be the solution for your puzzle.*

3. *Draw a stick figure or emoji face in the uncovered space.*

4. *Trace the circles from each shape onto the grid in the correct location.*

5. *Now sketch the appropriate piece shapes in each of the circles you traced.*

6. *Finally, remove all the pieces from the grid and draw more stick figures or emoji faces in a few additional squares.*

Congratulations! You have made your very own *Neighborhood Hide & Seek* mega-puzzle to challenge your friends.

CHIP THEORY **Kids**