

# **Daily Intermediate Math Investigations**

**Entry Tasks  
Math Routines  
Black Line Masters**

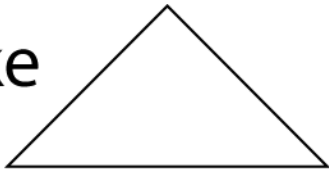


Level 1

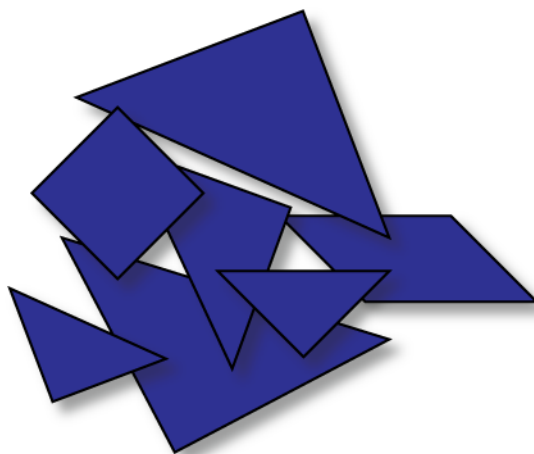
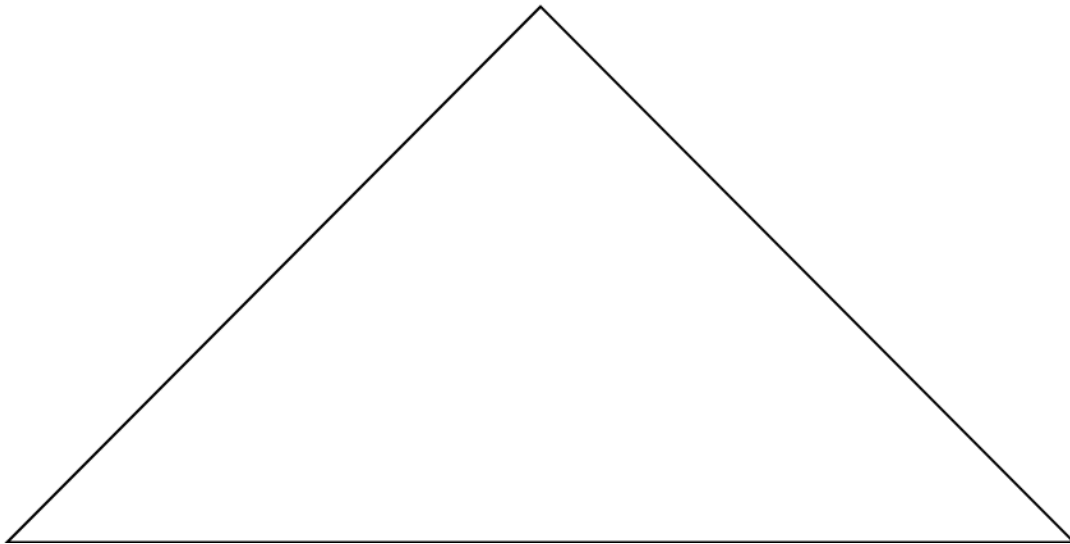
# Shape Shifter 4

- ➡ Use only 4 of the tangram pieces to make the triangle.
- ➡ Move only one of the pieces to form a square.

Make  
this



Change  
to this



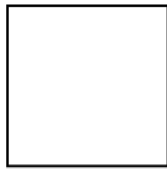


Level 2

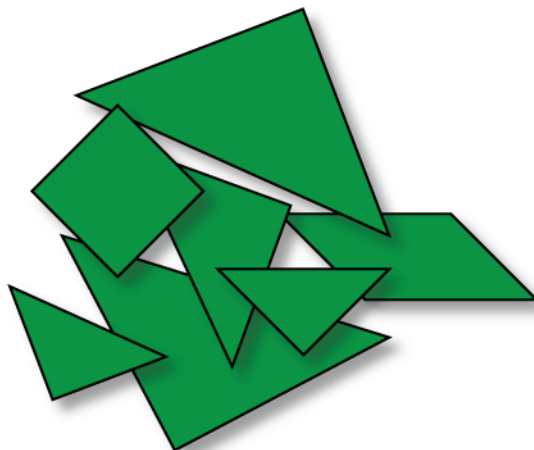
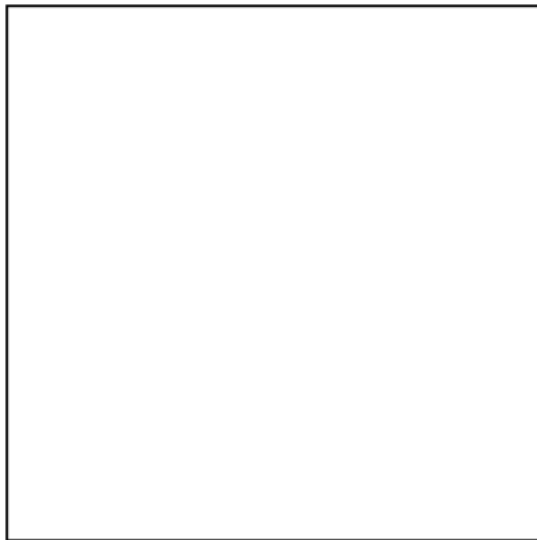
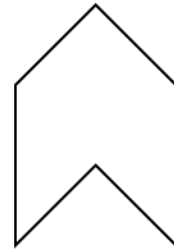
# Shape Shifter 5

- ➡ Use only 5 of the tangram pieces to make the square.
- ➡ Move only one of the pieces to form a rocket.

Make  
this



Change  
to this



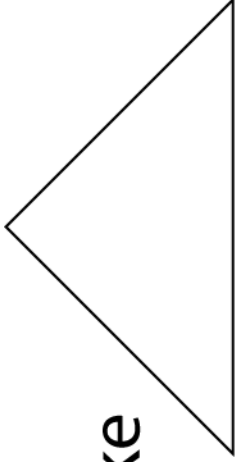


Level 3

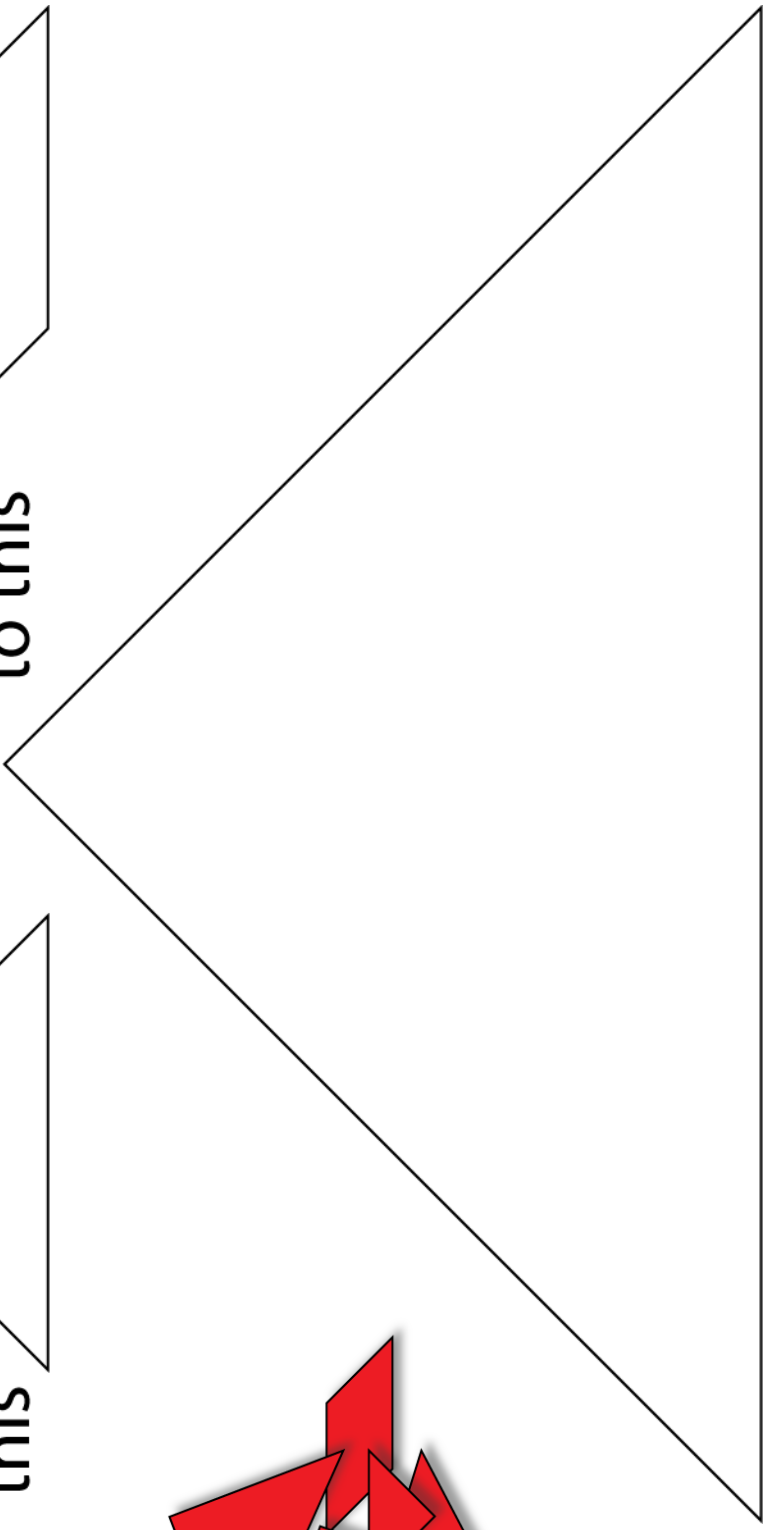
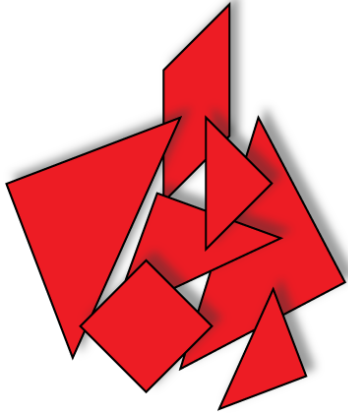
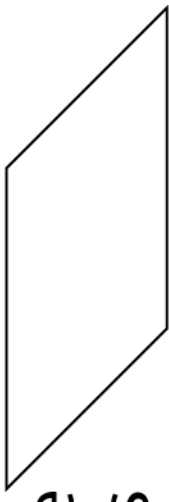
# Shape Shifter 7

- ➡ Use all 7 of the tangram pieces to make the triangle.
- ➡ Move only one of the pieces to form a parallelogram.

Make  
this



Change  
to this



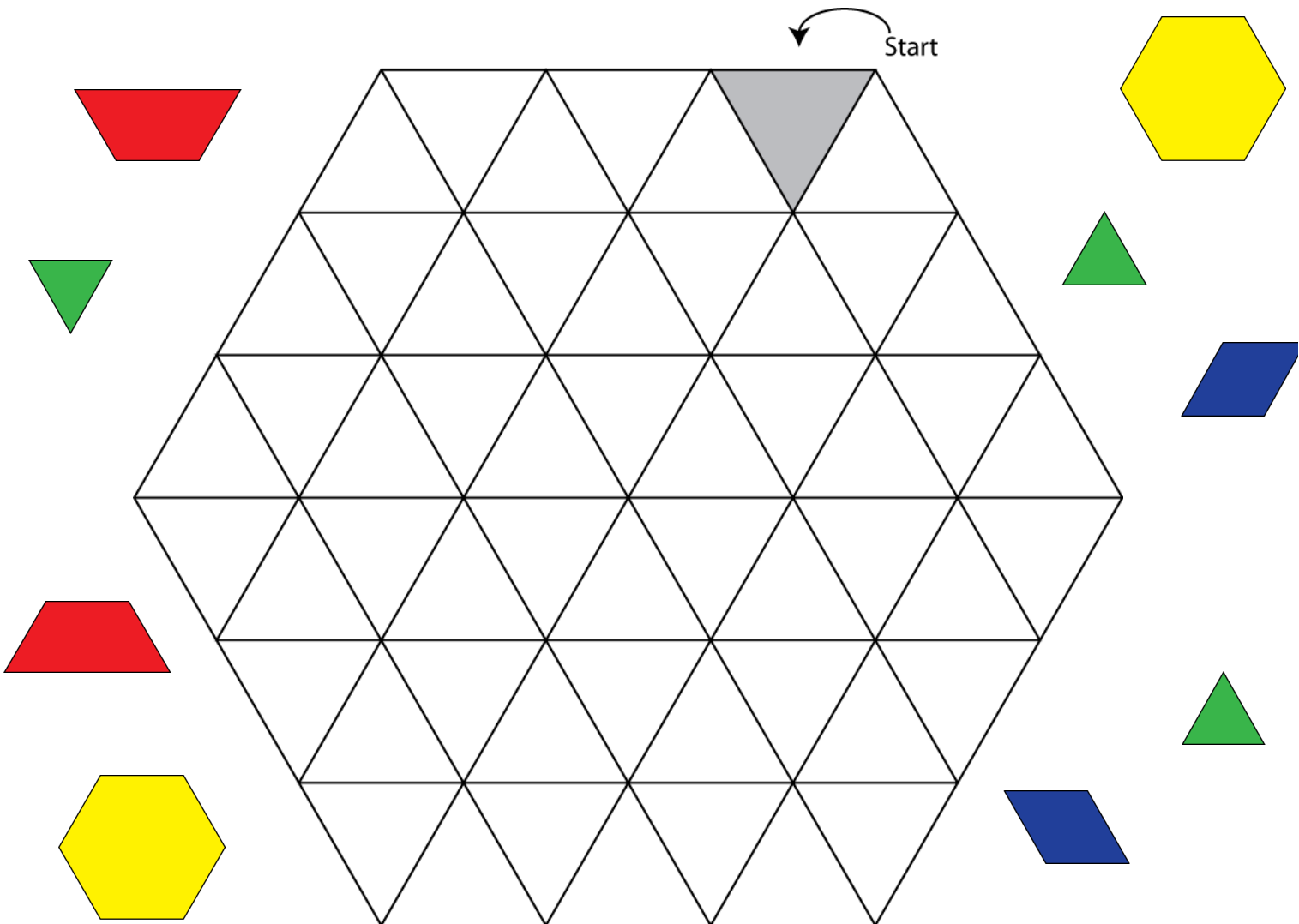




Level 1

# The Last Block

- ➡ This is a game for 2 players. The object is to be the player who places the last Pattern Block on the game board.
- ➡ The first player places a green triangle on the space marked “Start.”
- ➡ Players take turns placing a Pattern Block on the board. At least 1 side of each new block must touch at least 1 complete side of a block that is already on the board.
- ➡ The player who covers the last open space wins.



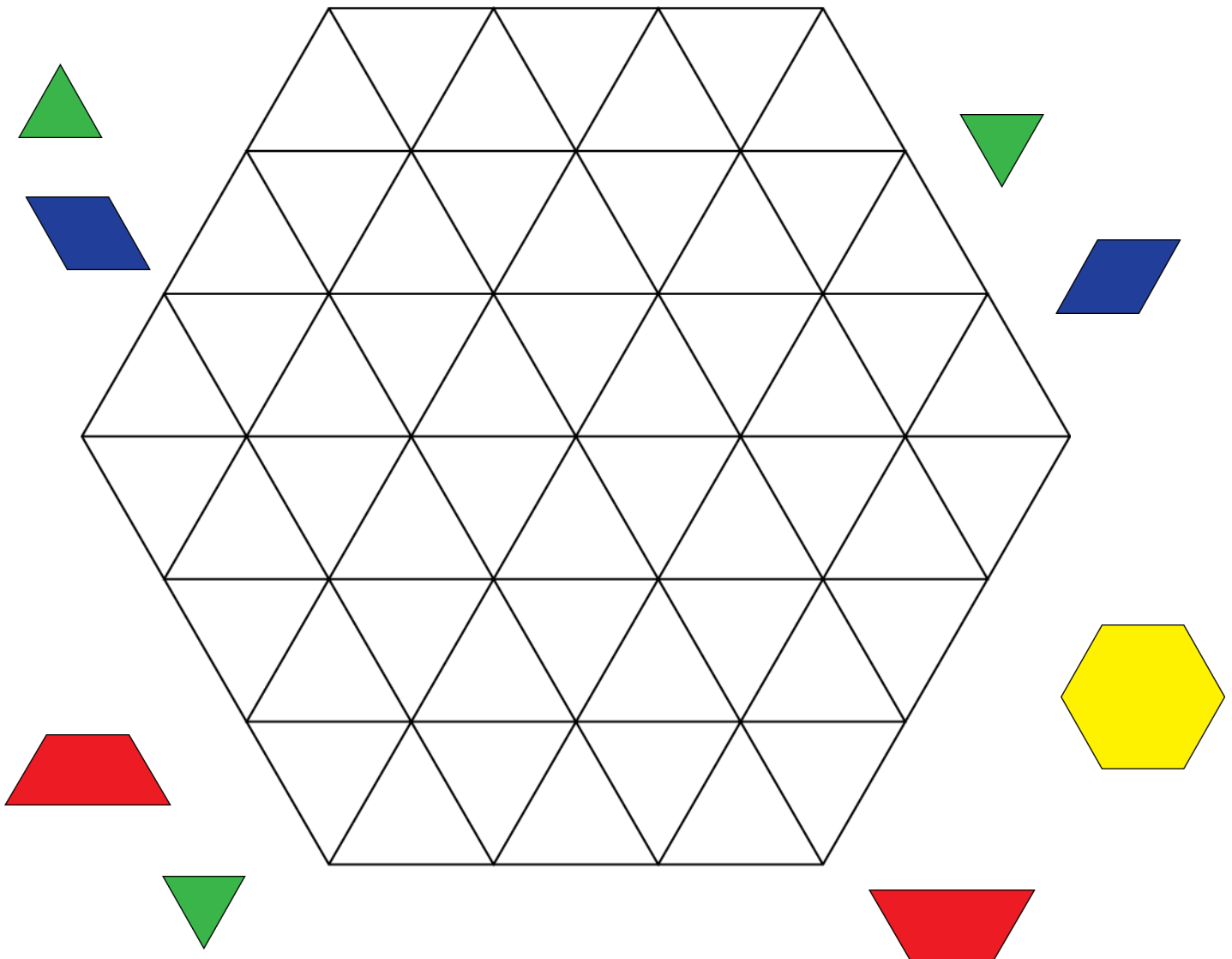


Level 2

# The Last Block

~ Play Anywhere ~

- ➡ This is a game for 2 players. The object is to be the player who places the last Pattern Block on the game board.
- ➡ The first player places a Pattern Block anywhere on the board.
- ➡ Players take turns placing a Pattern Block anywhere on the board.
- ➡ The player who covers the last open space wins.



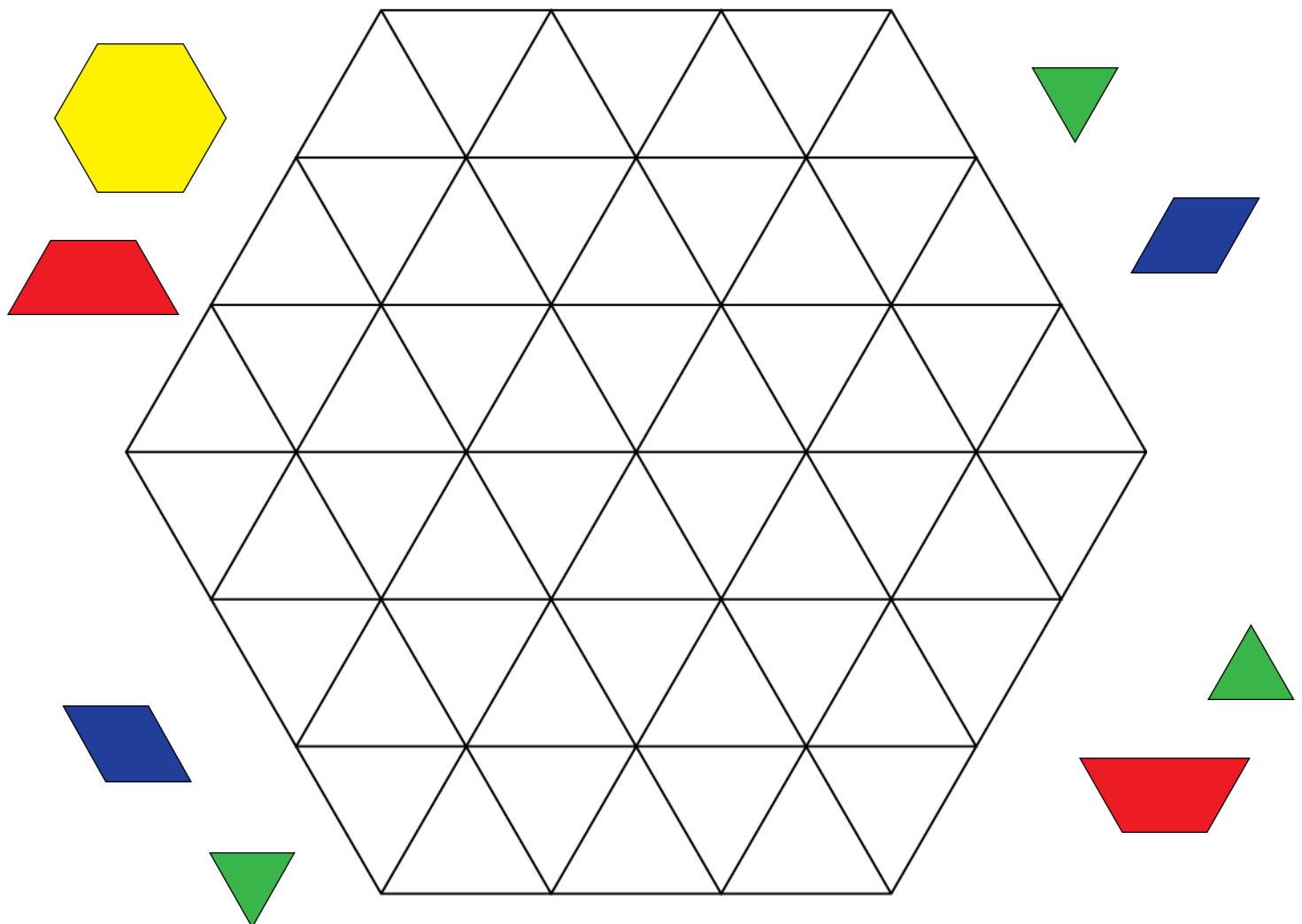


Level 3

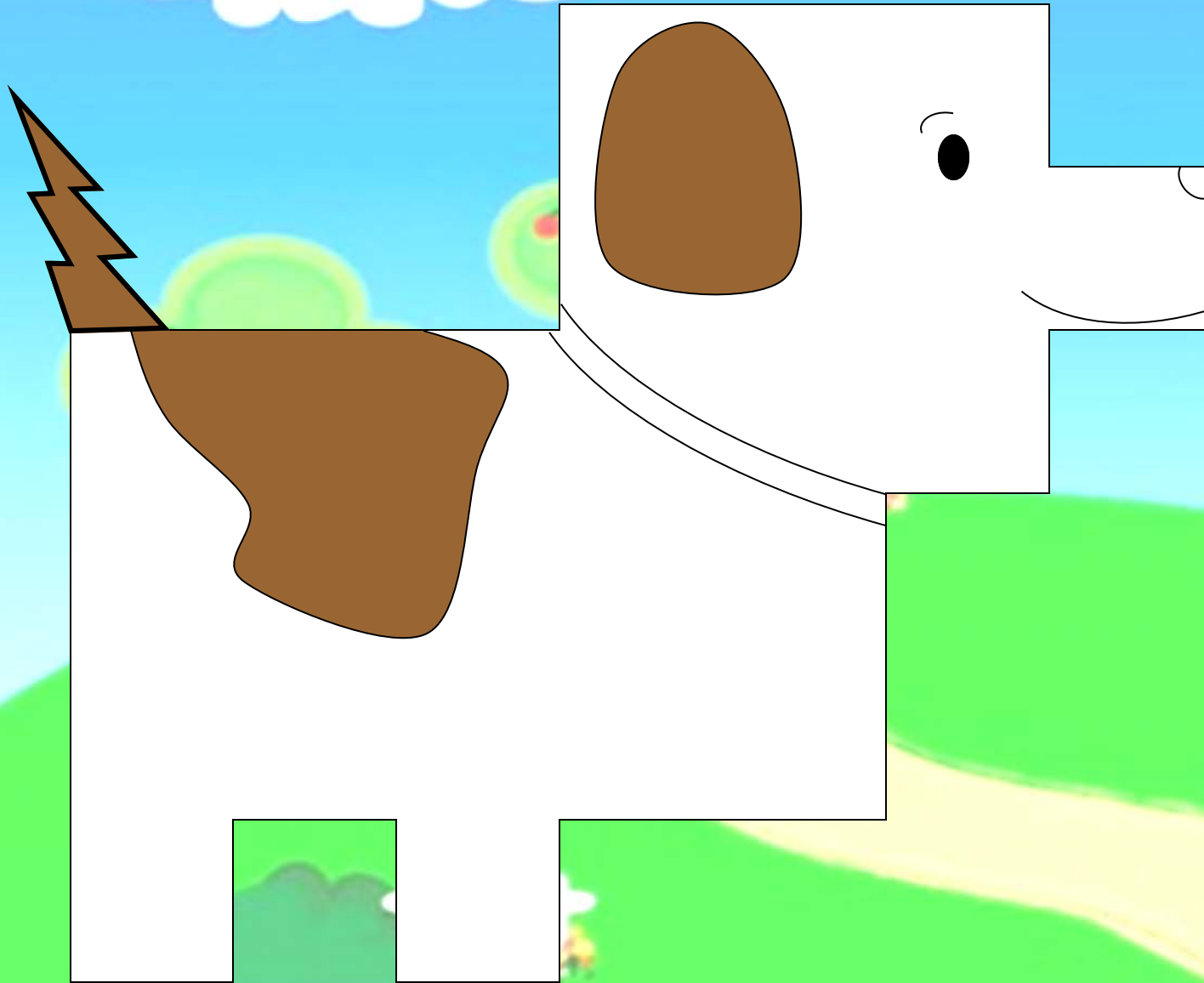
# The Last Block

~ Choose Your 12 ~

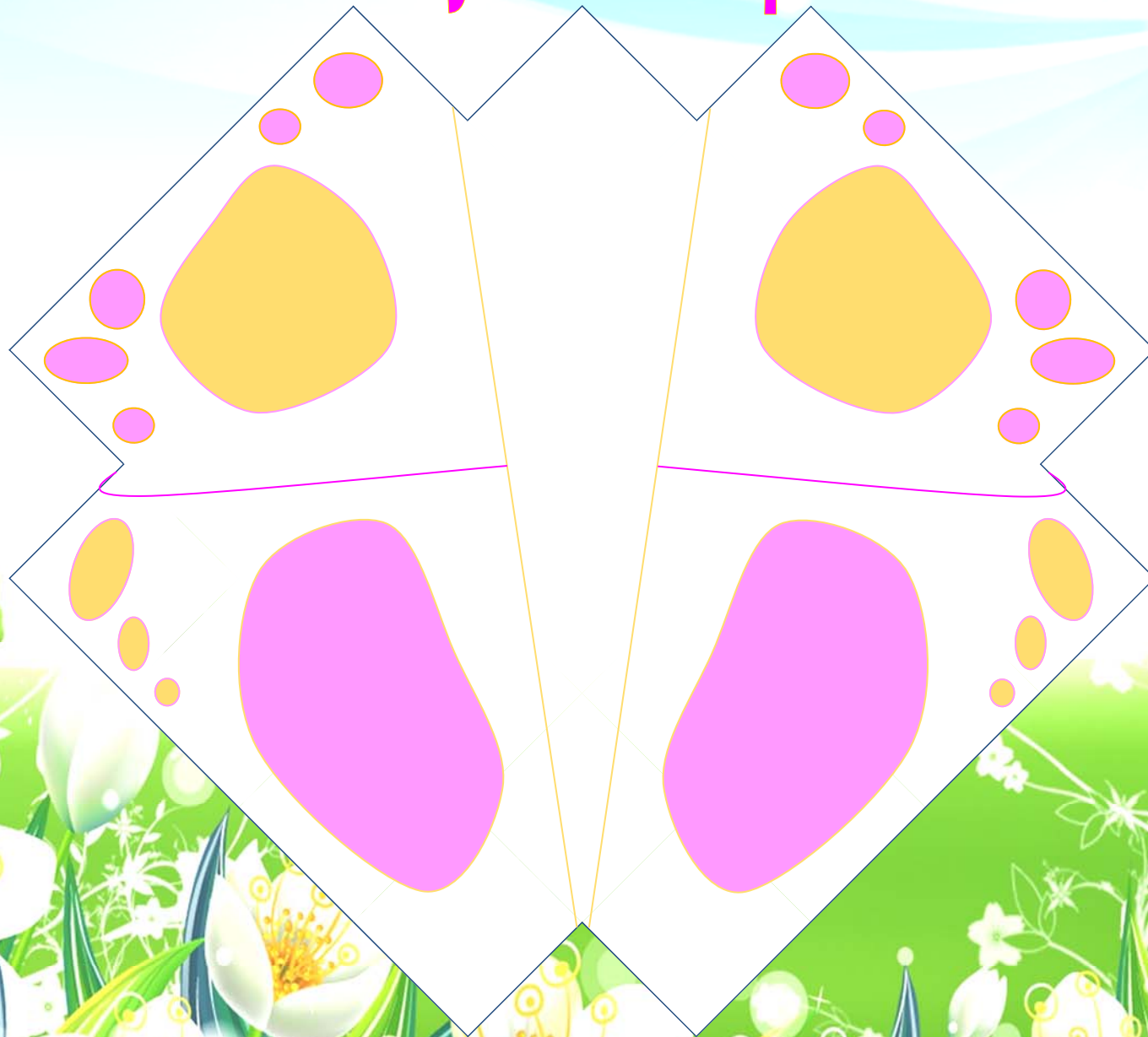
- ➡ This is a game for 2 players. The object is to be the player who places the last Pattern Block on the game board.
- ➡ Each player chooses 12 Pattern Blocks, of any type
- ➡ The first player places a Pattern Block anywhere on the board.
- ➡ Players take turns placing a Pattern Block anywhere on the board.
- ➡ The player who covers the last open space wins.



**Cover the dog with 5 pentomino pieces.**  
**Find other ways to cover the dog.**



# Cover the butterfly with 6 pentomino pieces.



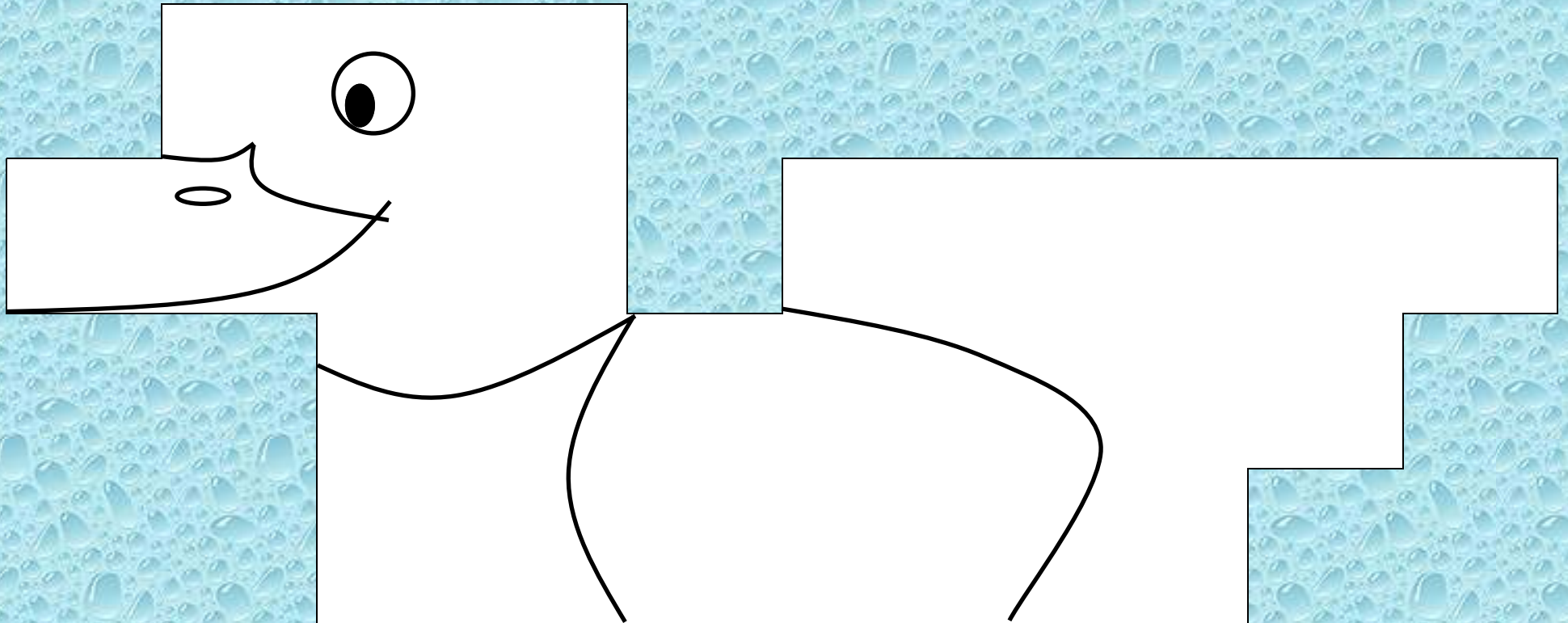
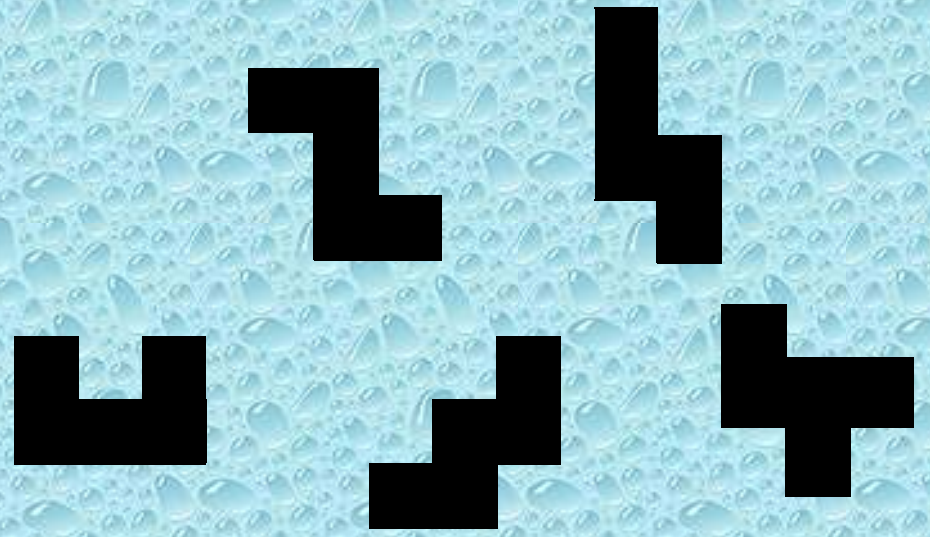


# Make the Duck

Use your pentomino pieces.

Make the Duck using the pieces shown.

Trace around each shape on another sheet of paper.

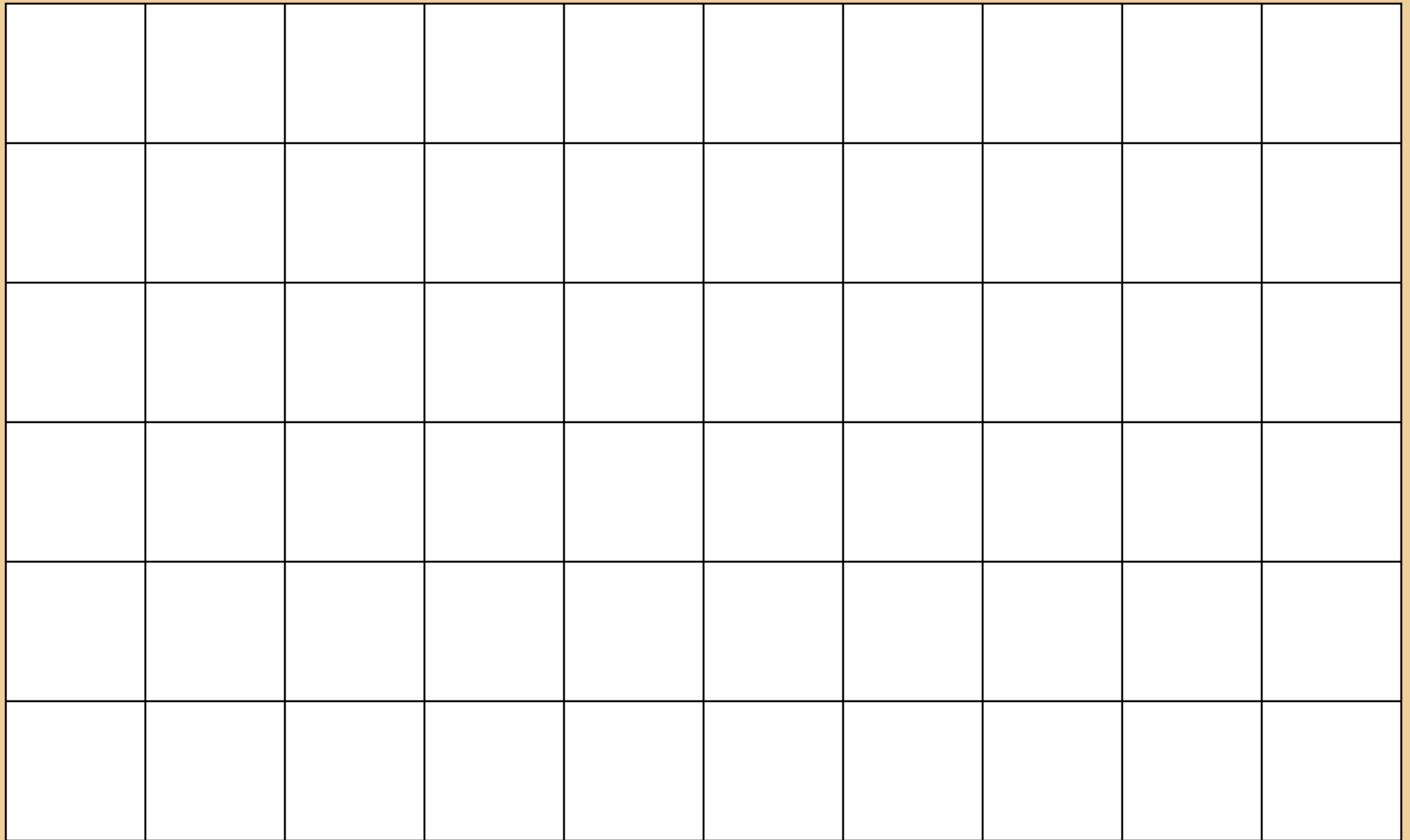


# Make the Shape



Use all 12 pentomino pieces to make the shape

The hole in the shape does not need to be covered



## Pentomino Challenge

### How to Play

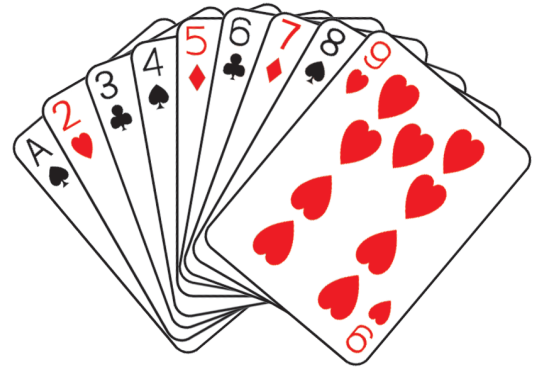
1. Place the 12 pentomino pieces on the table.
2. The first player chooses one piece and fits it on the gameboard.
3. Players take turns placing pieces on the gameboard.
4. The last player who is able to fit a piece onto the gameboard.
5. Players should have a 5 - 10 game tournament. Keep track of wins to decide who is the Pentomino Challenge Champ.



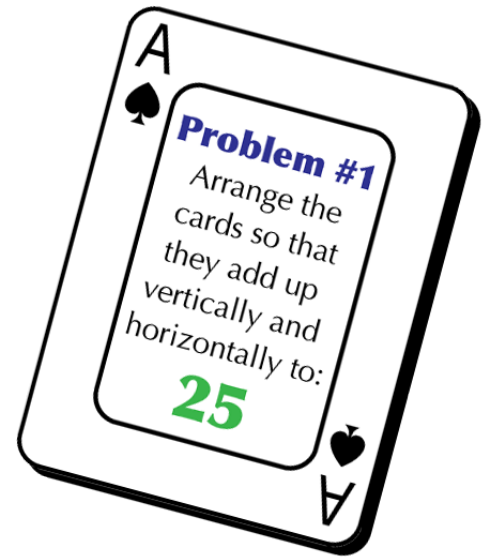


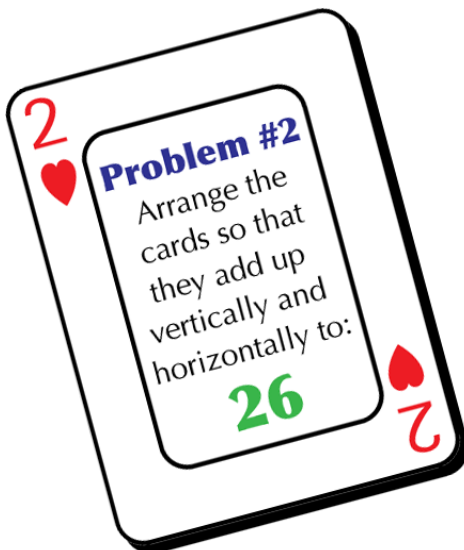
Level 1

# Cards Plus



- ➔ Use the cards 1 (Ace) to 9.
- ➔ Place the 9 cards in a plus sign as shown to solve one of the problems.
- ➔ If you have time, try solving both problems.

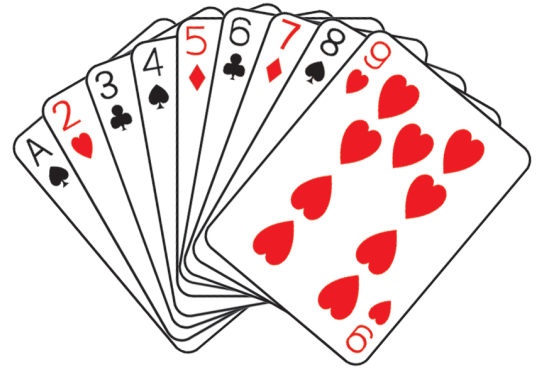


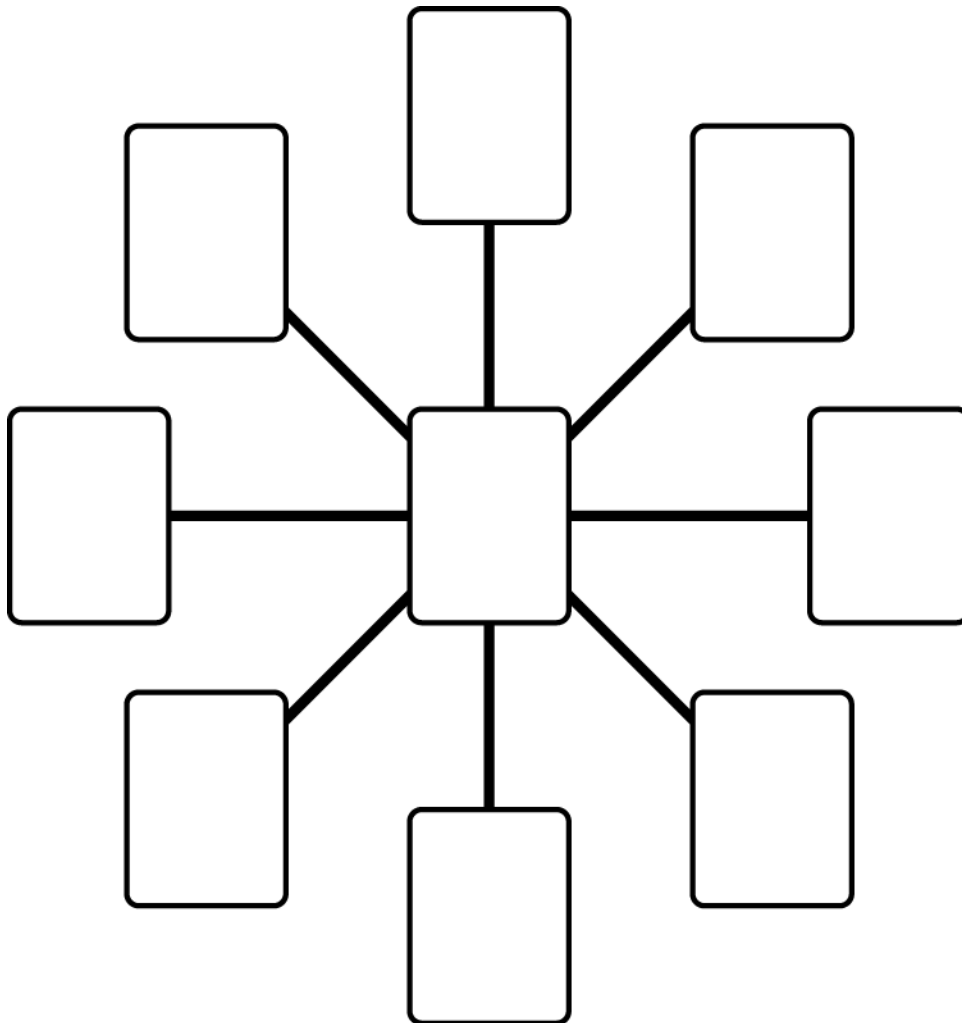


Level 2

# Magic Circle

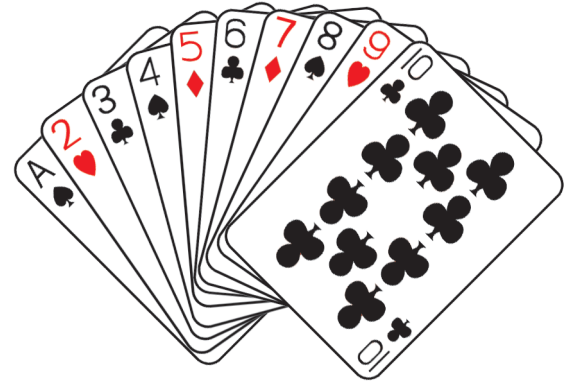


- ➔ Use the cards 1 (Ace) to 9.
- ➔ Place the 9 cards as shown in the diagram so that each of the four rows (groups of 3 cards) through the centre has the same sum.



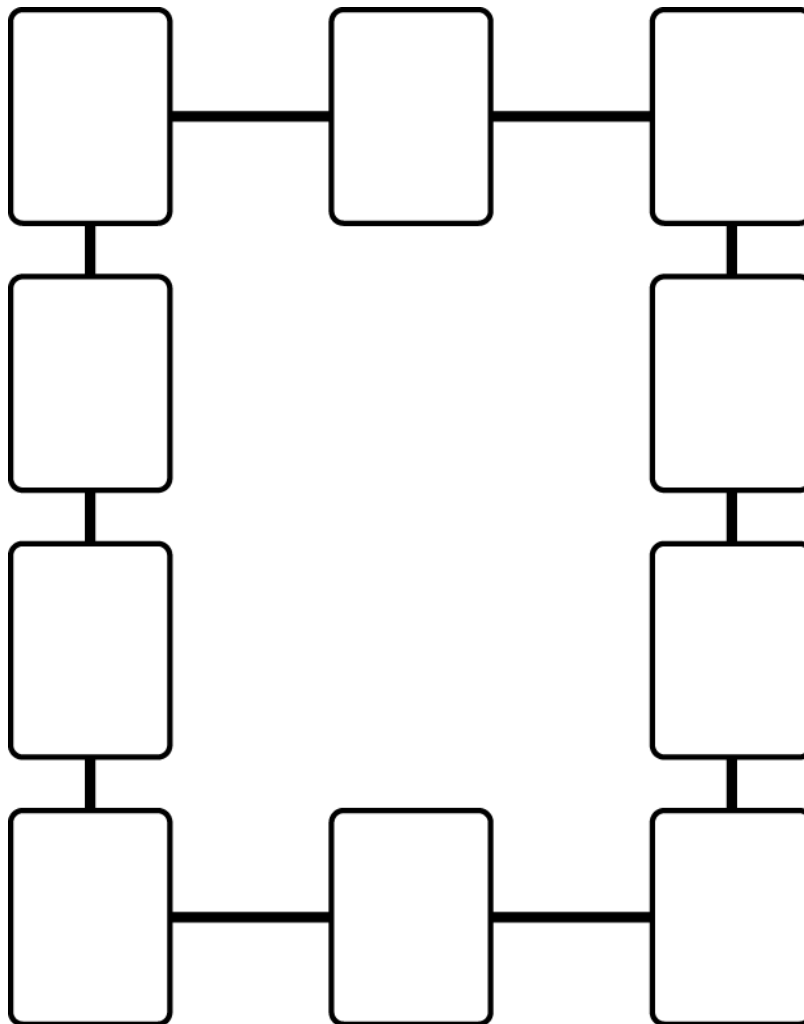


Level 3



# Magic Rectangle

- ➡ Use the cards 1 (Ace) to 10.
- ➡ Place the 10 cards as shown in the diagram so that each side of the rectangle adds to the same number.



# Number Puzzler

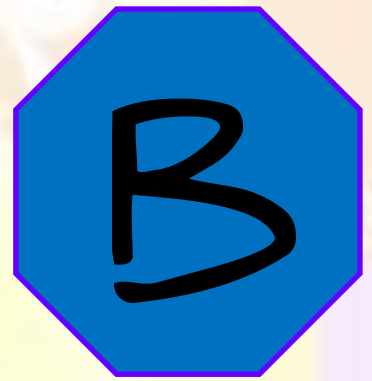


Use the digits 1-9 to make the multiplication equations true.

<input type="text"/>	x	3	=	<input type="text"/>
3	x	<input type="text"/>	=	<input type="text"/>
<input type="text"/>	x	<input type="text"/>	=	30
7	x	<input type="text"/>	=	<input type="text"/>
<input type="text"/>	x	4	=	<input type="text"/>

# Number Puzzler

Use each number once to make the sentence true.



8	9	7
4	4	6
3	14	36

$$\square + \square = \square$$

$$\square - \square = \square$$

$$\square \times \square = \square$$

3	7	5
4	28	9
8	3	12

$$\square + \square = \square$$

$$\square - \square = \square$$

$$\square \times \square = \square$$

6	4	13
9	7	27
8	12	3

$$\square + \square = \square$$

$$\square - \square = \square$$

$$\square \times \square = \square$$

10	6	13
7	4	5
9	5	42

$$\square + \square = \square$$

$$\square - \square = \square$$

$$\square \times \square = \square$$

11	3	15
21	8	6
7	7	5

$$\square + \square = \square$$

$$\square - \square = \square$$

$$\square \times \square = \square$$

7	9	12
20	5	16
3	9	4

$$\square + \square = \square$$

$$\square - \square = \square$$

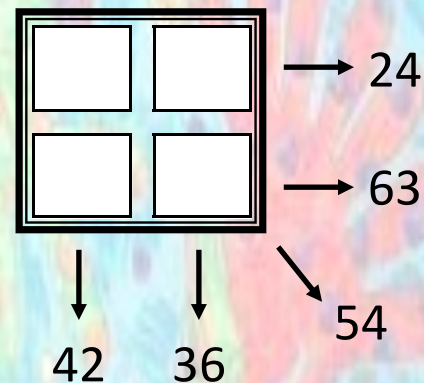
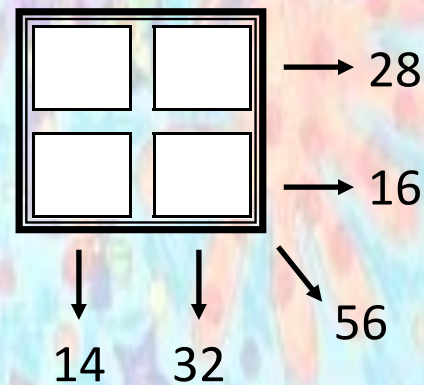
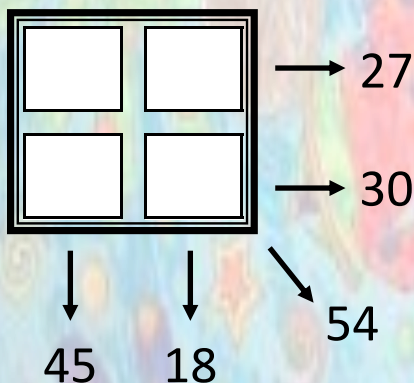
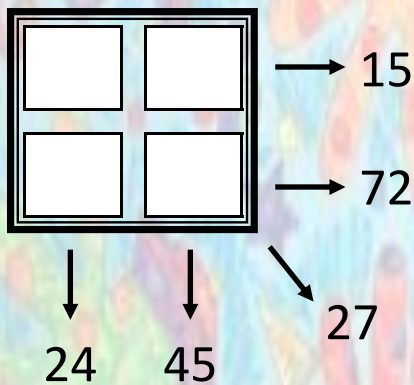
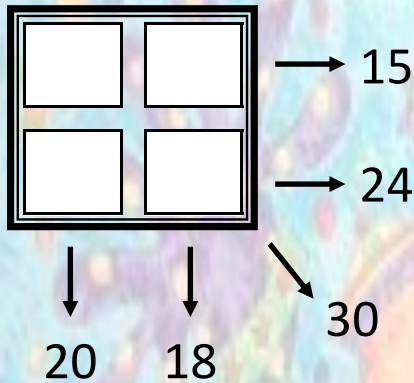
$$\square \times \square = \square$$



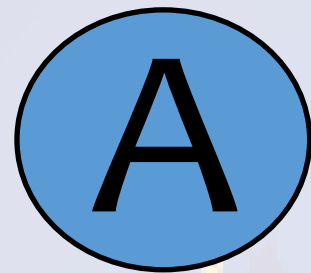
# Number Puzzler



- ♦ Use any of the numbers 1-9 to make the given products.
- ♦ The across, down, and diagonal products are given as clues.



# Roll and See

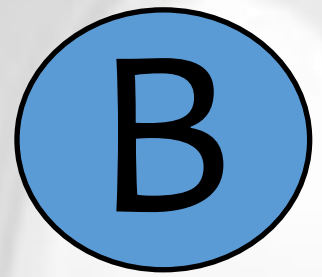


14	+	<input type="text"/>	=	<input type="text"/>
<input type="text"/>	-	3	=	<input type="text"/>
<input type="text"/>	x	5	=	<input type="text"/>
30	÷	<input type="text"/>	=	<input type="text"/>
<input type="text"/>	-	9	=	<input type="text"/>
<input type="text"/>	x	7	=	<input type="text"/>
18	-	<input type="text"/>	=	<input type="text"/>
<input type="text"/>	÷	4	=	<input type="text"/>
<input type="text"/>	+	25	=	<input type="text"/>
10	x	<input type="text"/>	=	<input type="text"/>
<input type="text"/>	÷	6	=	<input type="text"/>
<input type="text"/>	+	8	=	<input type="text"/>

- ⇒ Roll a 12-sided dice.
- ⇒ Use the number in one of the number sentences.
- ⇒ Complete that number sentence.



# Roll and See

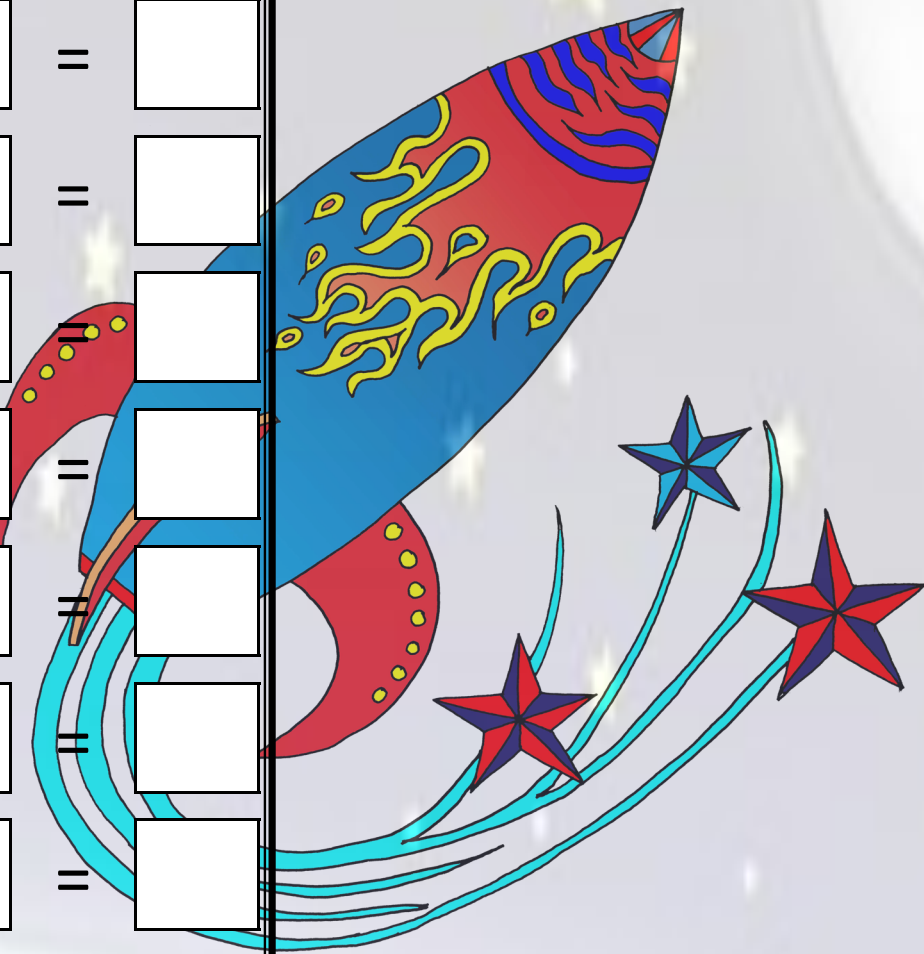


⇒ Roll two 30-sided dice.

⇒ Use the 2 numbers in one of the number sentences.

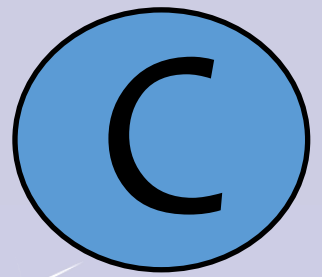
⇒ Fill in the 3<sup>rd</sup> box to complete the equation.

<input type="text"/>	+	<input type="text"/>	=	<input type="text"/>
<input type="text"/>	-	<input type="text"/>	=	<input type="text"/>
<input type="text"/>	x	<input type="text"/>	=	<input type="text"/>
<input type="text"/>	÷	<input type="text"/>	=	<input type="text"/>
<input type="text"/>	+	<input type="text"/>	=	<input type="text"/>
<input type="text"/>	-	<input type="text"/>	=	<input type="text"/>
<input type="text"/>	x	<input type="text"/>	=	<input type="text"/>
<input type="text"/>	÷	<input type="text"/>	=	<input type="text"/>
<input type="text"/>	-	<input type="text"/>	=	<input type="text"/>
<input type="text"/>	x	<input type="text"/>	=	<input type="text"/>
<input type="text"/>	÷	<input type="text"/>	=	<input type="text"/>
<input type="text"/>	x	<input type="text"/>	=	<input type="text"/>



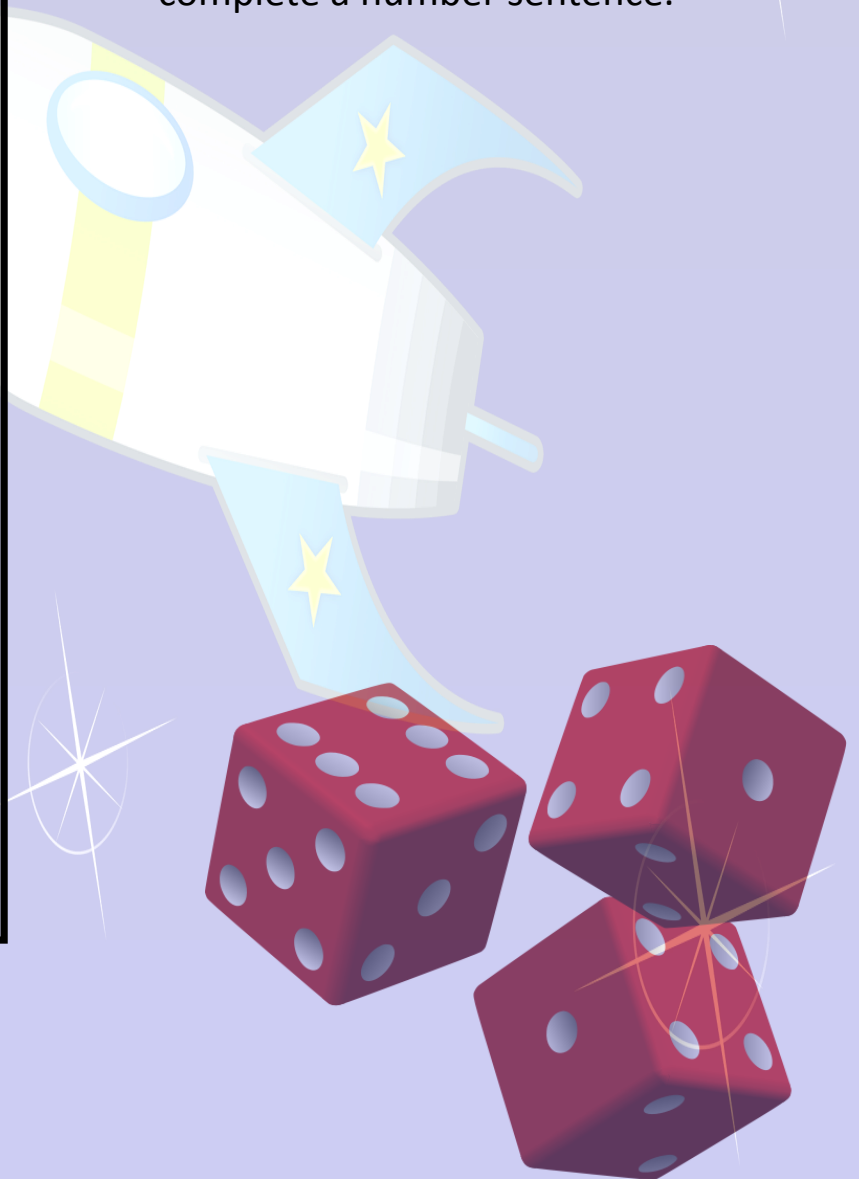


# Roll and See



<input type="text"/>	-	<input type="text"/>	=	1
<input type="text"/>	+	<input type="text"/>	=	7
<input type="text"/>	x	<input type="text"/>	=	12
<input type="text"/>	-	<input type="text"/>	=	4
<input type="text"/>	+	<input type="text"/>	=	11
<input type="text"/>	x	<input type="text"/>	=	24
<input type="text"/>	-	<input type="text"/>	=	5
<input type="text"/>	+	<input type="text"/>	=	12
<input type="text"/>	x	<input type="text"/>	=	32

- ⇒ Roll three 6-sided dice.
- ⇒ Choose 2 of the numbers to complete a number sentence.



# Roll and See

D

<input type="text"/>	+	4	=	6	x	<input type="text"/>
<input type="text"/>	x	3	=	12	÷	<input type="text"/>
10	-	<input type="text"/>	=	2	x	<input type="text"/>
30	-	<input type="text"/>	=	10	÷	<input type="text"/>
6	x	<input type="text"/>	=	25	-	<input type="text"/>
<input type="text"/>	+	4	=	<input type="text"/>	x	7
15	÷	<input type="text"/>	=	7	-	<input type="text"/>
<input type="text"/>	-	5	=	6	x	<input type="text"/>
<input type="text"/>	x	2	=	<input type="text"/>	÷	4
12	+	<input type="text"/>	=	<input type="text"/>	x	6

⇒ Roll a 10-sided dice.

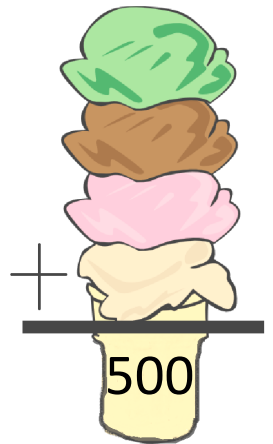
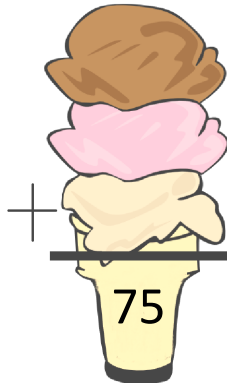
⇒ Use the number to fill a blank.

⇒ Complete that equation.



# Adding Several Numbers

- Add to make the given sum.
- Do not use "o".



+



+

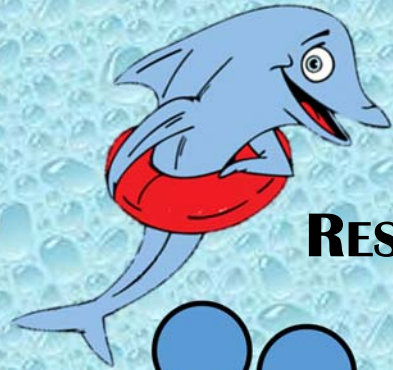


=

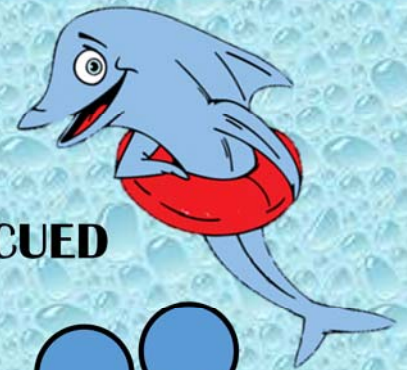




# SINK OR SWIM



**RESCUED**



**RESCUED**

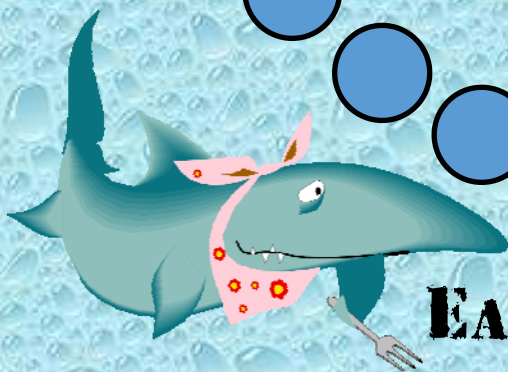
## THE GAME

Two divers are diving for buried treasure. Their tanks begin to run low on air. See which diver is the first to either sink and be eaten or swim and be rescued.

## HOW TO PLAY

1. Each player puts his/her marker on a START circle.
2. Player A rolls the dice and either **adds**, **subtracts** or **multiplies** the two numbers.
3. If the answer equals an odd number, move one space toward the shark.
4. If the answer equals an even number, move one space toward the life raft.
5. Player B takes his/her turn.
6. Alternate turns until one player reaches either the life raft or the shark. Then points are scored:
  - ~ A player reaching the life raft first earns 5 points.
  - ~ A player reaching the shark first earns 3 points.
7. Play as many games as you can in 10 minutes. The player with the greatest number of points is the winner.

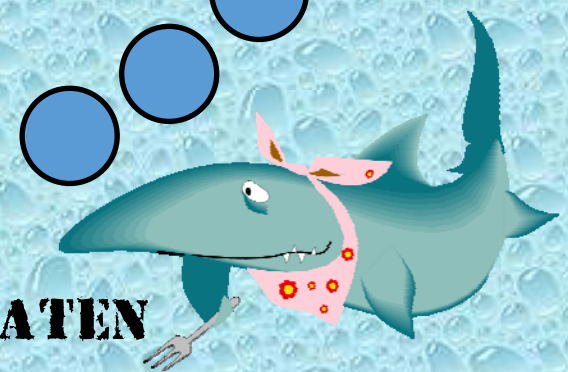
**Start**



**EATEN**



**Start**



**EATEN**

## TWO-DIGIT SCAVENGER HUNT

It's a two-digit number.

The first digit is even.

The sum of the two digits is 11.

the second digit is 3 more than the first digit.

The number is    — — .

## TWO-DIGIT SCAVENGER HUNT

It's a two-digit number.

Both of the digits are multiples of 3.

The second digit is three more than the first digit.

The number is  $< 90$  but  $>$  than 40.

The number is    — — .

## TWO-DIGIT SCAVENGER HUNT

It's a two-digit number.

The second digit is three times the first digit.

Both digits are even numbers.

The number is          .

## THREE-DIGIT SCAVENGER HUNT

It's a three-digit number.

All the digits are odd.

The second digit is 2 more than the first digit.

The third digit is 4 more than the second digit.

The number is  $< 300$ .

The number is             .

### THREE-DIGIT SCAVENGER HUNT

It's a three-digit number.

The first and third digits are the same.

It is odd.

The second digit is less than the first and third digits.

The sum of the digits is 15.

The number is    \_ \_ \_ .

### THREE-DIGIT SCAVENGER HUNT

It's a three-digit number.

The digits are consecutive numbers.

The number is odd.

It is greater than 400.

5 is not one of the digits.

The number is    \_ \_ \_ .

## CLEANING DAY

Mrs. Bailey tells each of her five children that they must clean one room each week. The rooms that need to be cleaned are the living room, den, kitchen, bathroom, and one bedroom. Which room does each child clean?

[illegible]



## FIND THE SPORT

Each of the five children like to play one particular sport. No two like the same sport. The children are Joe, Donna, Denise, Kent and Scott. The sports that they like to play are soccer, baseball, hockey, football and kickball. Which sport does each play?

[illegible]

### You Got What?



For this activity you need a partner and a regular 6-sided die.

Taking turns, roll the die a total of fifty times.

Record your results using tallies in the table below.

1	2	3	4	5	6

Answer each question.

1. Which number was rolled most often? \_\_\_\_\_
2. Which number was rolled the least often? \_\_\_\_\_
3. Try the experiment again. Do you notice any differences in our results?  
\_\_\_\_\_
4. Compare your results with another group. Record their results in your table in another colour.
5. Which number seemed to be more likely to show up? \_\_\_\_\_
6. Which number seemed least likely to show up? \_\_\_\_\_



## Pair of Dice

With a partner and a pair of six-sided dice, roll the dice a hundred times. Record your results in the chart below.

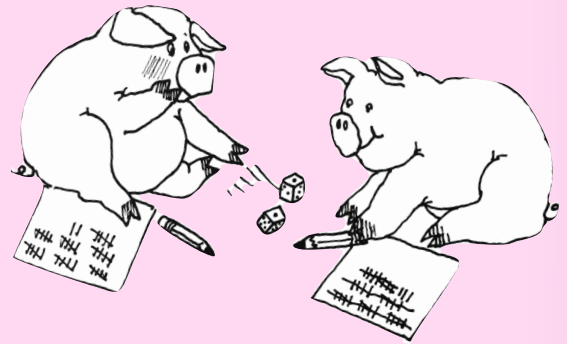
1	2	3	4	5	6	7	8	9	10	11	12

Answer each question

1. What number can never be rolled using a pair of dice? \_\_\_\_\_
2. What number was rolled most frequently?
3. What number(s) were rolled the least often? \_\_\_\_\_
4. What is the only combination possible to roll a two? \_\_\_\_\_
5. What possible combinations can you have to roll a seven?  
\_\_\_\_\_
6. What possible combinations can you have to roll a 10?  
\_\_\_\_\_
7. What possible combinations can you have to roll a 4?  
\_\_\_\_\_
8. How do your chances of rolling a number change as the number of combinations possible changes?  
\_\_\_\_\_



## GREEDY PIG



Work in a group of 2 or more.

- ★ Goal is to be the first to reach 100 or more.
- ★ First player rolls two dice as many times as she/he likes, keeping a running total of the sum.
- ★ The player's turn ends when:
  - the player decides to stop and records their current total
  - or a one comes up on one of the dice (player loses that turn's points)
  - or two ones are rolled. (player loses all points).
- ★ Next player rolls and follows the same rules.
- ★ On each turn, the player adds that turn's total (if any) to their previous score.

*Can you think of any winning strategies?*

# HIDDEN SUMS OF 20



- ♦ Loop 3, 4, or 5 numbers that equal 20.
- ♦ The numbers must be next to each other.
- ♦ Find as many as you can.
- ♦ You can use a number more than once.

5	2	15	4	9	8	5	3
10	13	4	3	15	11	4	10
12	7	9	1	8	12	15	3
7	4	17	8	1	2	0	11
11	1	2	13	6	14	10	6
2	14	7	0	11	12	8	0
5	5	10	8	9	7	13	11
6	3	9	14	0	6	12	1



# HIDDEN SUMS

## OF 30

- ♦ Loop 3, 4, or 5 numbers that equal 30.
- ♦ The numbers must be next to each other.
- ♦ You can use a number more than once.

Challenge - Use every number at least once.

11	5	3	27	1	9	6	15
4	22	7	18	29	24	14	1
13	3	4	20	9	3	30	17
8	12	2	16	17	4	0	23
10	7	20	28	19	26	11	16
1	7	18	2	6	25	12	5
14	5	1	9	15	2	0	13
10	19	8	21	10	15	6	11

# HIDDEN SUMS

## OF 100



- ◆ Loop pairs of numbers next to each other that equal 100.
- ◆ Each number has a partner.

15	95	5	43	28	72	41
85	74	78	57	66	34	59
26	70	22	82	53	45	55
84	30	56	18	47	86	75
16	64	44	9	73	25	14
36	29	71	27	91	33	67

# HIDDEN SUMS

## OF 100

- ♦ Loop 2, 3, or 4 numbers that equal 100.
- ♦ The numbers must be next to each other.
- ♦ You can use a number more than once.

Challenge - Use every number at least once.



20	80	70	10	15	85	30	50
35	65	80	20	60	45	40	5
90	45	90	65	85	15	10	95
40	10	55	35	25	75	25	75
15	20	85	90	75	55	35	15
60	25	50	5	40	30	35	30
70	80	5	10	45	55	30	65
75	20	60	50	25	70	5	95



# HIDDEN SUMS

## OF 500



- ♦ Loop pairs of numbers that equal 500.
- ♦ The numbers must be next to each other in a line going across, down, or diagonally in the puzzle.
- ♦ Find at least 20 pairs.

250	250	110	285	360	370	180	320
101	175	390	215	170	140	499	1
399	425	325	365	330	162	210	390
450	50	275	235	270	448	76	290
140	260	265	225	52	248	424	86
383	40	150	490	444	56	252	275
117	373	350	219	10	240	225	63
200	300	281	130	370	260	265	437

# Hidden Sums of 1



- Loop 2, 3, or 4 fractions that equal 1.
- The fractions must be next to each other.
- A fraction can be looped more than once.

$$\frac{3}{4}$$

$$\frac{1}{4}$$

$$\frac{1}{2}$$

$$\frac{1}{4}$$

$$\frac{1}{2}$$

$$\frac{1}{8}$$

$$\frac{1}{8}$$

$$\frac{3}{8}$$

$$\frac{6}{8}$$

$$\frac{3}{8}$$

$$\frac{1}{4}$$

$$\frac{7}{8}$$

$$\frac{2}{8}$$

$$\frac{1}{2}$$

$$\frac{4}{8}$$

$$\frac{1}{4}$$

$$\frac{5}{8}$$

$$\frac{1}{4}$$

$$\frac{5}{8}$$

$$\frac{3}{8}$$

$$\frac{1}{2}$$

$$\frac{3}{8}$$

$$\frac{3}{4}$$

$$\frac{3}{4}$$

$$\frac{2}{4}$$

$$\frac{1}{2}$$

$$\frac{3}{4}$$

$$\frac{1}{2}$$

$$\frac{1}{8}$$

$$\frac{7}{8}$$

$$\frac{1}{2}$$

$$\frac{6}{8}$$

$$\frac{1}{4}$$

$$\frac{3}{4}$$

$$\frac{4}{8}$$

$$\frac{1}{2}$$

# Hidden Equivalent Pairs

$\frac{1}{4}$        $\frac{7}{10}$       .70       $\frac{1}{5}$       .04      .10

.60      .25      .20      .02       $\frac{1}{10}$        $\frac{1}{25}$

$\frac{3}{5}$        $\frac{7}{20}$       .90       $\frac{1}{50}$        $\frac{2}{4}$       .50

$\frac{2}{10}$       .35      .80       $\frac{9}{10}$       .15       $\frac{3}{20}$

.20       $\frac{3}{4}$        $\frac{4}{5}$       .40       $\frac{2}{5}$        $\frac{1}{2}$

.75      .05       $\frac{1}{20}$       .30       $\frac{3}{10}$       .50

- Loop pairs of fractions and decimals that are equivalent.
- The pairs must be next to each other.

**Challenge:** Use each number once.



# Hidden Equivalent Fractions

$$\frac{5}{10}$$

$$\frac{1}{2}$$

$$\frac{1}{6}$$

$$\frac{2}{12}$$

$$\frac{4}{16}$$

$$\frac{1}{4}$$

$$\frac{2}{3}$$

$$\frac{8}{12}$$

$$\frac{4}{8}$$

$$\frac{1}{3}$$

$$\frac{3}{9}$$

$$\frac{2}{8}$$

$$\frac{4}{6}$$

$$\frac{6}{9}$$

$$\frac{1}{5}$$

$$\frac{1}{2}$$

$$\frac{6}{12}$$

$$\frac{6}{15}$$

$$\frac{3}{4}$$

$$\frac{9}{12}$$

$$\frac{10}{20}$$

$$\frac{2}{10}$$

$$\frac{8}{20}$$

$$\frac{2}{5}$$

$$\frac{6}{8}$$

$$\frac{2}{6}$$

$$\frac{3}{8}$$

$$\frac{6}{16}$$

$$\frac{2}{4}$$

$$\frac{4}{10}$$

$$\frac{1}{3}$$

$$\frac{4}{12}$$

$$\frac{5}{6}$$

$$\frac{10}{12}$$

$$\frac{3}{6}$$

$$\frac{1}{2}$$

- Loop equivalent fractions that are next to each other.
- A number can be looped more than once.
- Each number has a partner.



# In Between

## Directions:

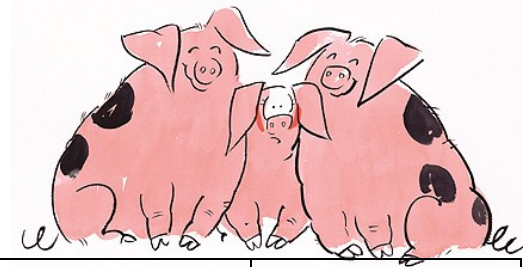
- ~ Player 1 rolls the die
- ~ Player 2 chooses a number that is either two more or two less than the number rolled
- ~ Player 1 finds the sum of the "two apart" numbers, and places a bingo chip on the sum
- ~ Player 2 then gets a turn

Keep playing until one player gets 3 in a row in their colour!

Players: 2

## Materials:

- ~ a 10-sided die
- ~ bingo chips in 2 colours



4	18	10	2	8
6	14	12	20	16
10	20	6	18	2
8	4	14	16	12
2	10	12	8	6

0 1 2 3 4 5 6 7 8 9 10 11



# Cross over for 2 players

you need:

~ 2—1-6 dice

~ 2 small play people

## First of all

Put your people on 18 and 20

## When it's your turn

Roll both dice and choose one of the numbers.

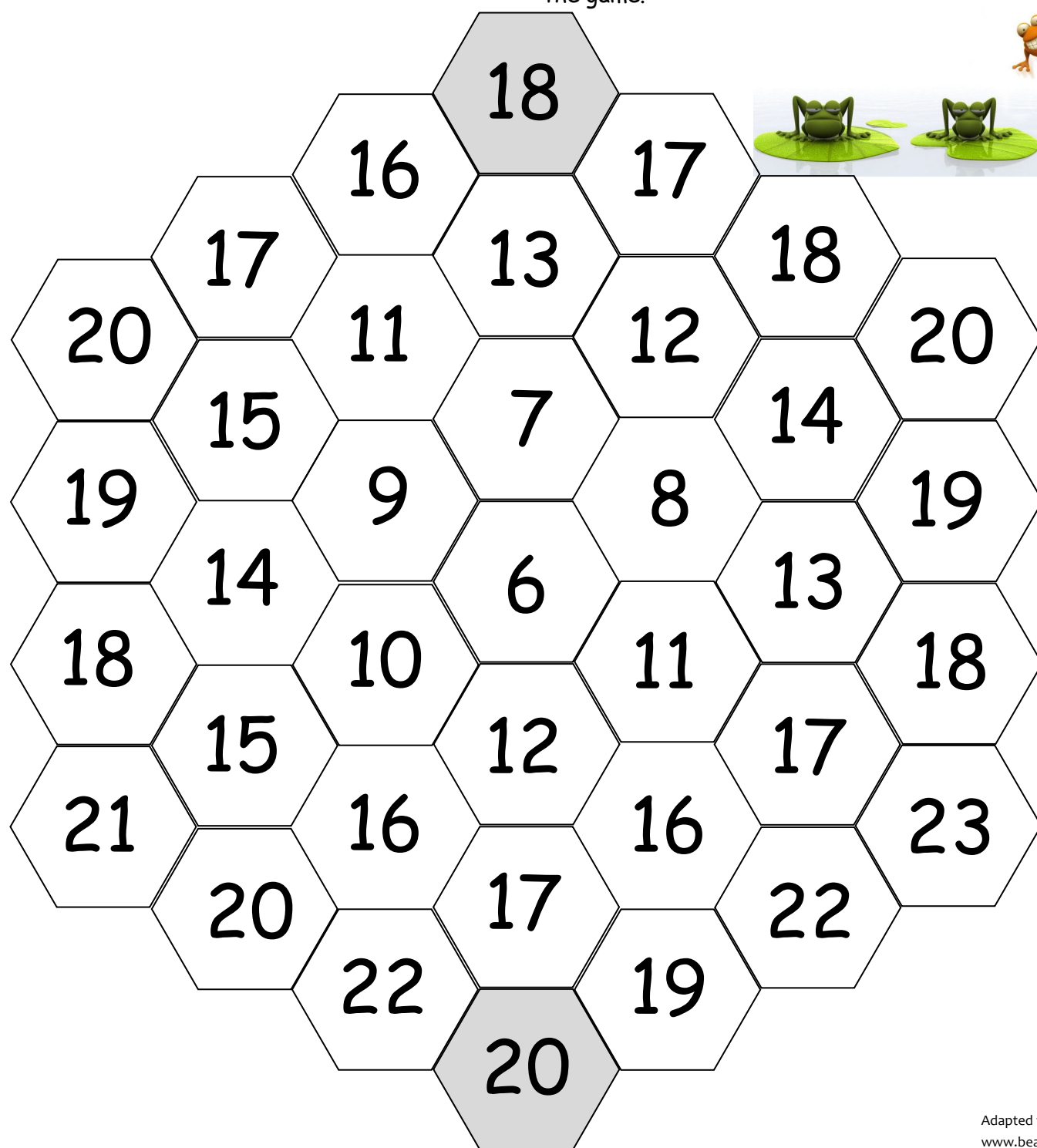
Add that to, or take away from, the number you are on and say the answer.

If one of the next-door spaces shows that answer, move your play person there.

If you don't want to move, you don't have to.

## The end of the game

Keep playing like this. The first player to cross the board and reach the opposite grey space wins the game.





# That's **Sum** Game!



3	7	18	6	10	19
19	14	13	2	20	6
11	17	9	2	7	12
4	16	3	15	4	8
14	8	11	13	5	12
18	9	5	10	15	16

The addends:

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----



## Double or Double-Double

Pick a factor from the **Factor Box**.

Double it (multiply by 2) or double-double it (multiply by 4).

Find the product below and cover it in your colour.

Four in a row wins!

### Factor Box

1	2	3	4	5	6
7	8	9	10	12	14



24	8	6	20	12	4
16	28	14	32	18	24
10	2	6	36	28	40
12	14	18	4	16	20
10	8	24	32	36	2
40	28	18	16	4	6

# Doubles and Halves for 2 players

## When it's your turn

Roll the dice and say the number.

Put a counter on:

- ~ the number the dice shows, or
- ~ double that number, or
- ~ half of that number (if the answer is a whole number).



## The end of the game

Go on until all the counters are used up. Whoever makes the longest straight line wins the game.

## Rules

- ~ Only one counter on a square
- ~ If all the available spaces are full, roll the dice again until you can find a space
- ~ A line can go sideways, or up and down, or diagonally

## you need:

- ~ 1-20 dice or spinner
- ~ 10 counters each, in your own colour

## Sample Game

Paul rolled a 7. He could cover 7 or 14, but not  $3\frac{1}{2}$ . He put it on 14, completed a line of four, and won the game.

6	7	8	14	20
6	7	18	7	20
22	7	26	28	7
7	7	36	7	40

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
22	24	26	28	30
32	34	36	38	40

# Square Number Capture

## How to Play

Each player chooses a color.

Player 1 rolls the die.

Number showing tells the dimensions of the square.

Draw the square in your color.

Record the number sentence and its product.

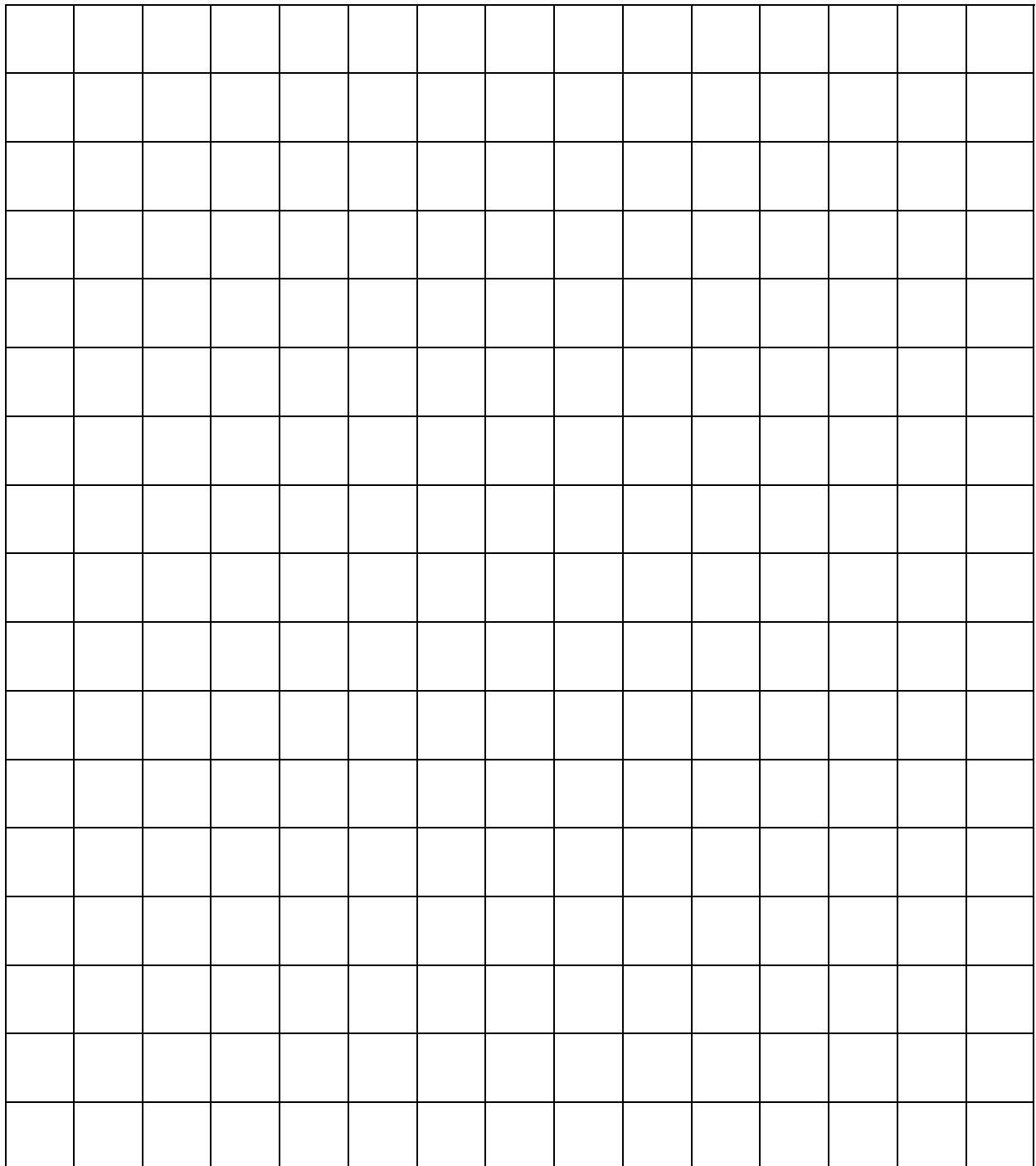
Player 2 takes a turn.

Play until 1 person cannot record a square.

## You Need:

~ 1-6 dice

~ 2 different color  
whiteboard markers



# The Ugly Ones - Four in a Row!

You need  
~ counters in two  
different colors

## How to Play

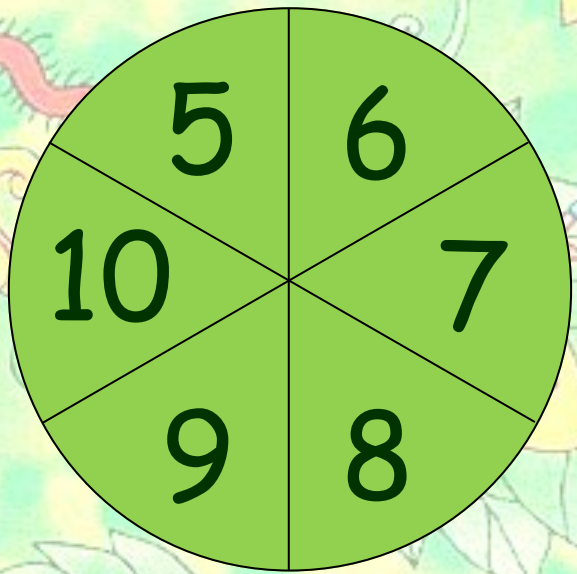
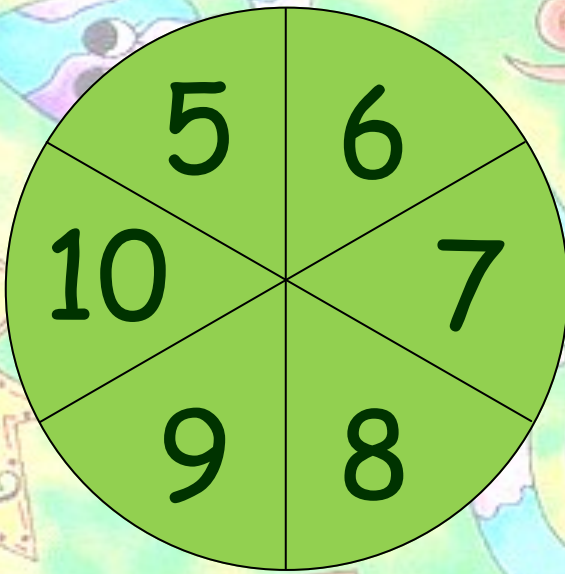
Spin each spinner.

Multiply your numbers.

Find the product on the  
gameboard and cover it in your  
colour.

Give your partner a turn.

The first one to have 4 in a line  
wins!



25	30	35	40	45	50
30	36	42	48	54	60
35	42	49	56	63	70
40	48	56	64	72	80
45	54	63	72	81	90
50	60	70	80	90	100

## WHAT'S THE RULE?



Use a hundred chart.

Look for a pattern in each row of numbers.

Continue the pattern.

Write the rule for each row.

	Rule
Example 1, 3, 5, 7, 9, 11, 13, 15	+2
A. 2, 4, 6, ____, ____, ____, ____, ____	_____
B. 71, 68, 65, ____, ____, ____, ____, ____	_____
C. 11, 22, 33, ____, ____, ____, ____, ____	_____
D. 88, 78, 68, ____, ____, ____, ____, ____	_____
E. 12, 24, 36, ____, ____, ____, ____, ____	_____
F. 115, 100, 85, ____, ____, ____, ____, ____	_____
G. 64, 55, 46, ____, ____, ____, ____, ____	_____
H. 36, 31, 26, ____, ____, ____, ____, ____	_____

Create your own pattern and give it to a friend to solve. Have them figure out the pattern rule.



## CALENDAR TIME!

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	5	25	26
27	28	29	30			

Look to see if you can find any patterns in this month. See if you can figure out the pattern rules for the questions below.

What do you notice when you go down a column? Is it true for all columns?

What do you notice when you move diagonally down to a number? Is it true for every diagonal? Why does this pattern happen?

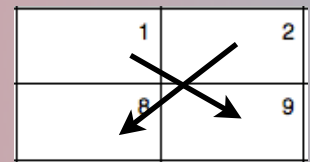
What do you notice about the sums of the 4 adjacent dates? e.g.  $1 + 9$  and  $2 + 8$

What do you notice about the sum of the four numbers?

Grades 6 and 7

What do you notice about the products of the diagonals?  $1 \times 9$  and  $2 \times 8$

What other patterns can you find?



## NAME GRID

Choose one of the grids.

Start in the top left corner.

Fill the grid by spelling your name.

Put one letter in each square.

Continue the pattern throughout each row of the grid without missing a square.

Choose one of the grids.

Start in the top left corner.

Fill the grid by spelling your name.

Put one letter in each square.

Continue the pattern throughout each row of the grid without missing a square.

Choose one of the grids.

Start in the top left corner.

Fill the grid by spelling your name.

Put one letter in each square.

Continue the pattern throughout each row of the grid without missing a square.

Choose one of the grids.

Start in the top left corner.

Fill the grid by spelling your name.

Put one letter in each square.

Continue the pattern throughout each row of the grid without missing a square.

Choose one of the grids.

Start in the top left corner.

Fill the grid by spelling your name.

Put one letter in each square.

Continue the pattern throughout each row of the grid without missing a square.


Describe the patterns you see.

[illegible]

## Thinking About Number



\_\_\_\_\_ > \_\_\_\_\_ .

\_\_\_\_\_ < \_\_\_\_\_ .

\_\_\_\_\_ = \_\_\_\_\_ .

\_\_\_\_\_ is too many \_\_\_\_\_ .

\_\_\_\_\_ is too few \_\_\_\_\_ .

\_\_\_\_\_ is just enough \_\_\_\_\_ .

\_\_\_\_\_ is about \_\_\_\_\_ .

\_\_\_\_\_ is close to \_\_\_\_\_ , but is far from \_\_\_\_\_ .

\_\_\_\_\_ people could \_\_\_\_\_ .

\_\_\_\_\_ paper clips could \_\_\_\_\_ .

\_\_\_\_\_ drops of water would \_\_\_\_\_ .

\_\_\_\_\_ jelly beans would \_\_\_\_\_ .

\_\_\_\_\_ seconds is about the same as \_\_\_\_\_ .

\_\_\_\_\_ seconds is too short for \_\_\_\_\_ .

\_\_\_\_\_ seconds is too long for \_\_\_\_\_ .

\$ \_\_\_\_\_ is enough for \_\_\_\_\_ .

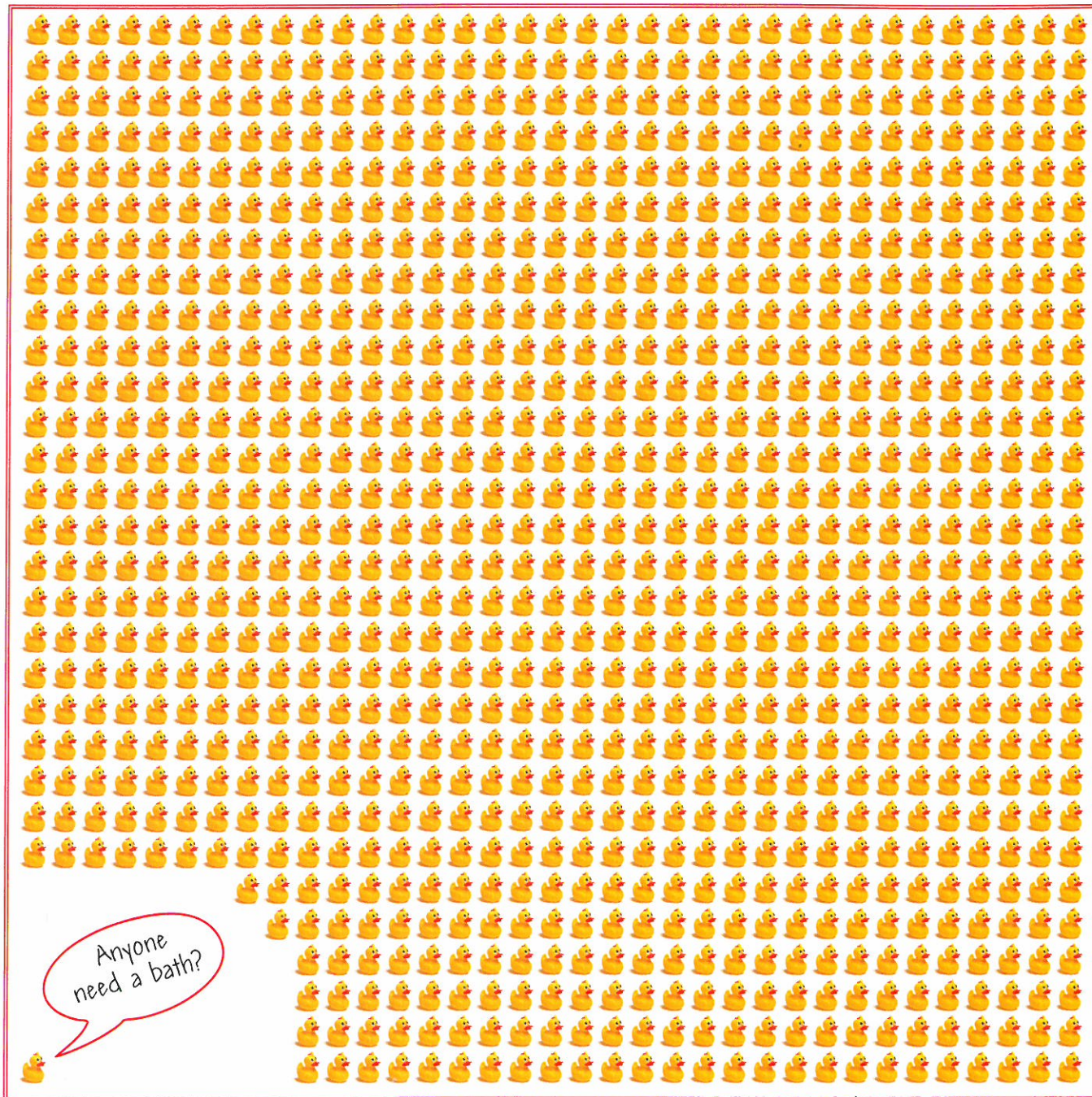
\$ \_\_\_\_\_ is not enough for \_\_\_\_\_ .

\$ \_\_\_\_\_ is more than \_\_\_\_\_ .

\$ \_\_\_\_\_ is less than \_\_\_\_\_ .

\$ \_\_\_\_\_ is the same as \_\_\_\_\_ .



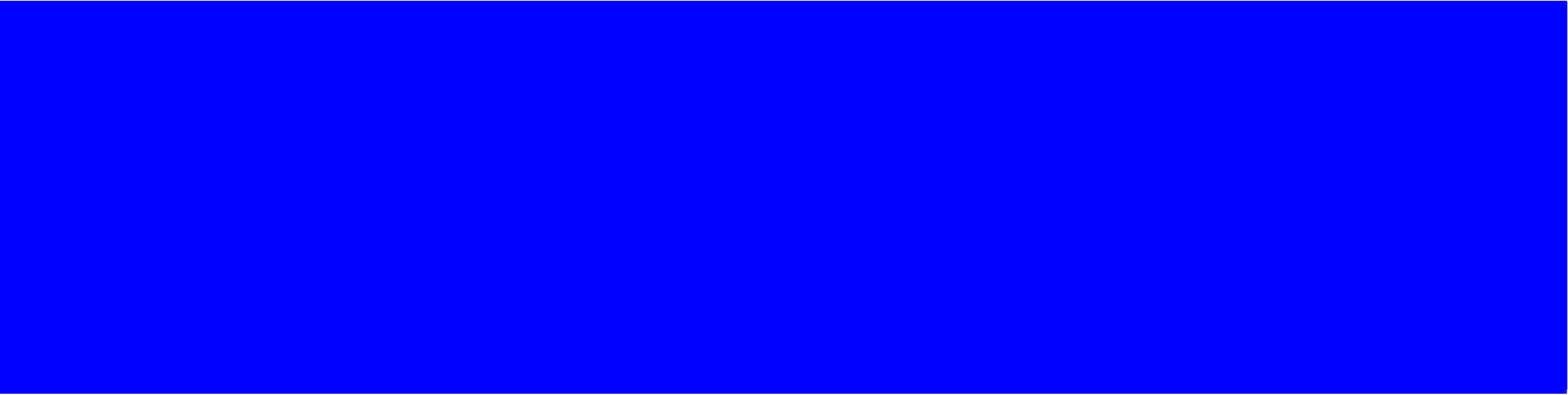
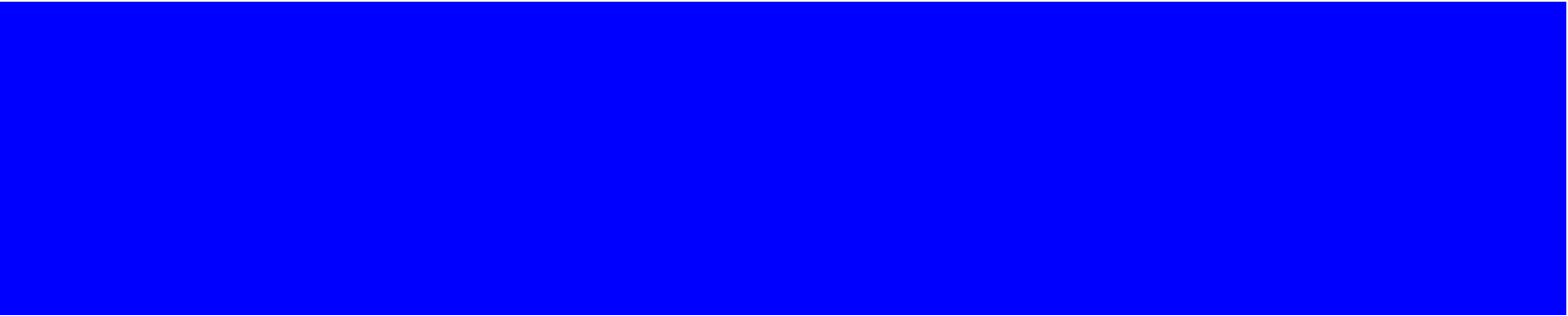


What do 1,000 rubber ducks look like?

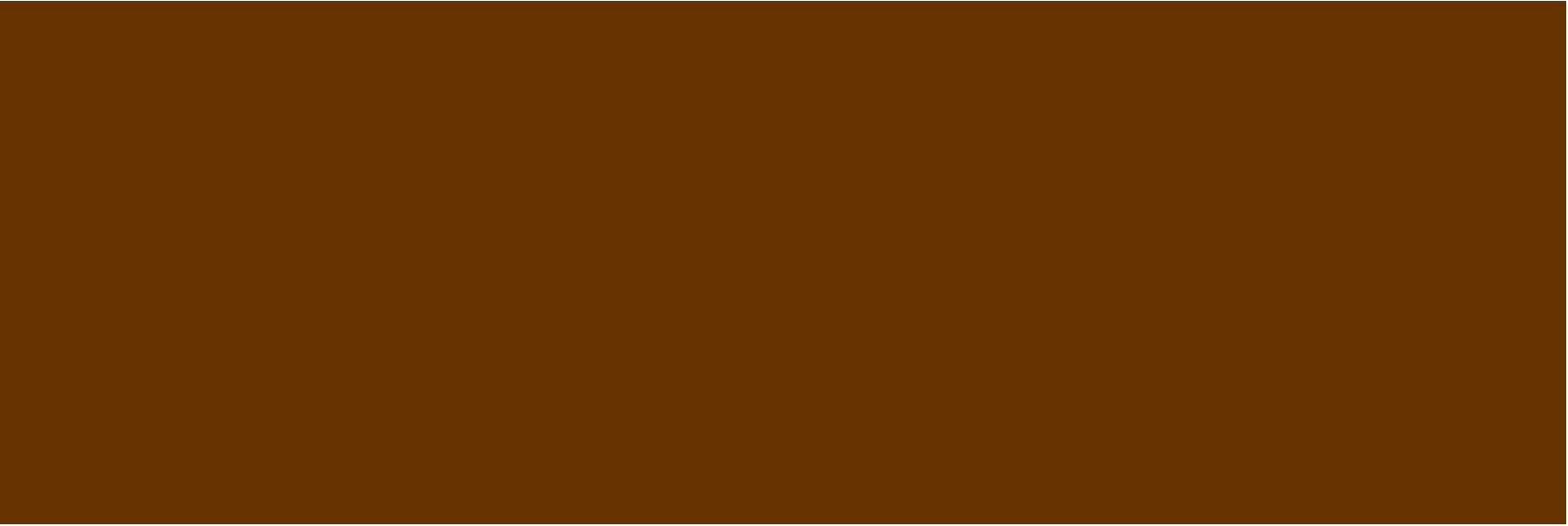
Hints

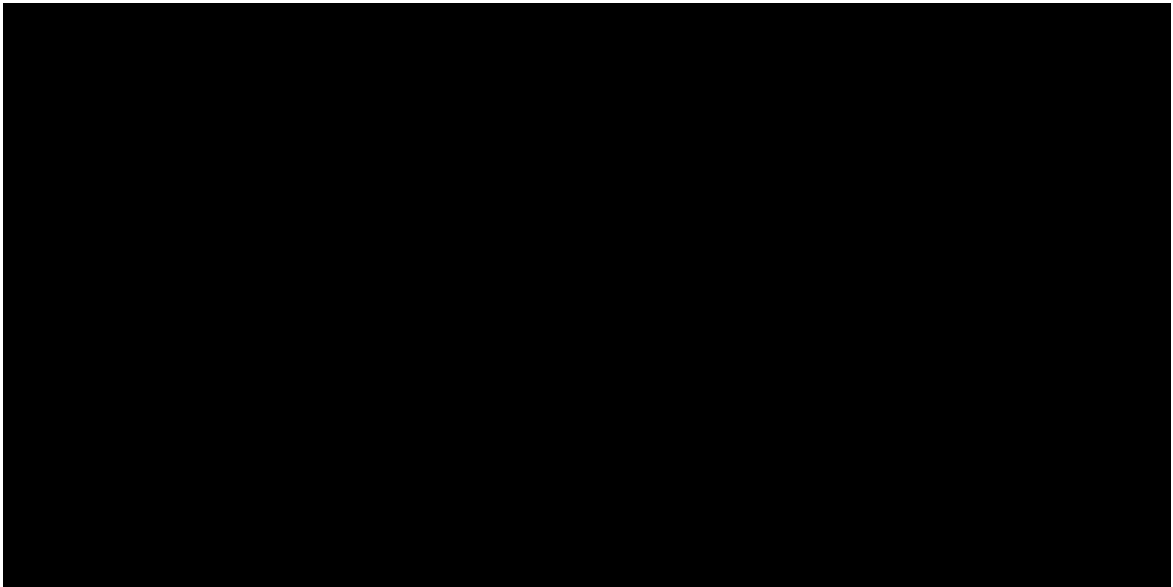
You can train your eyes to look for tens or hundreds, even when you're looking at larger numbers. About how much space do 10 ducks take up in this group of 1,000? What about 100 ducks?





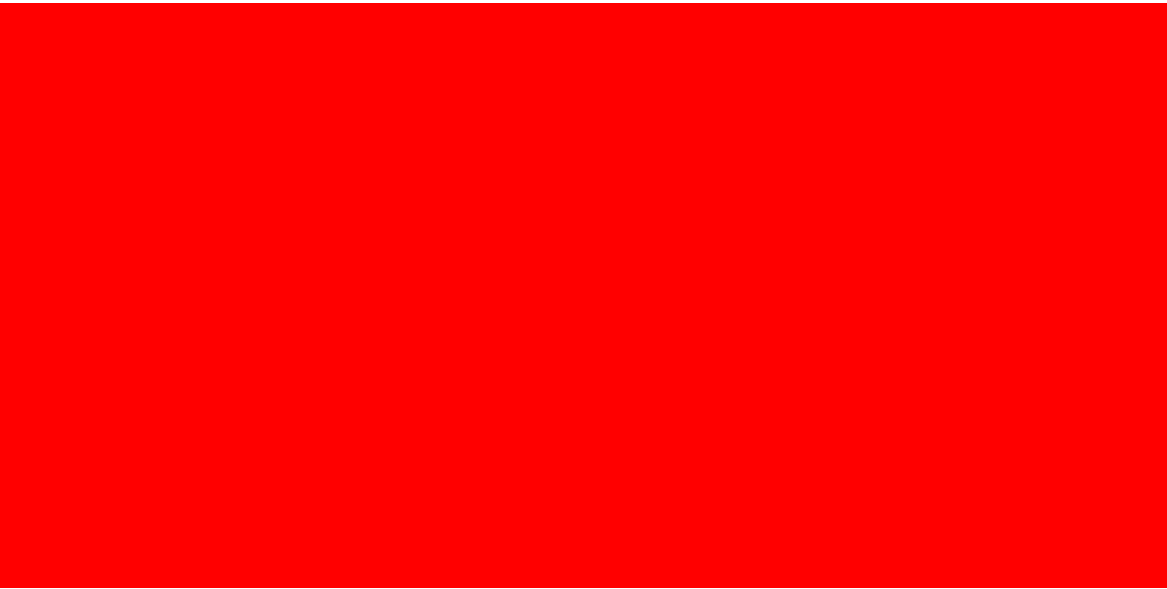
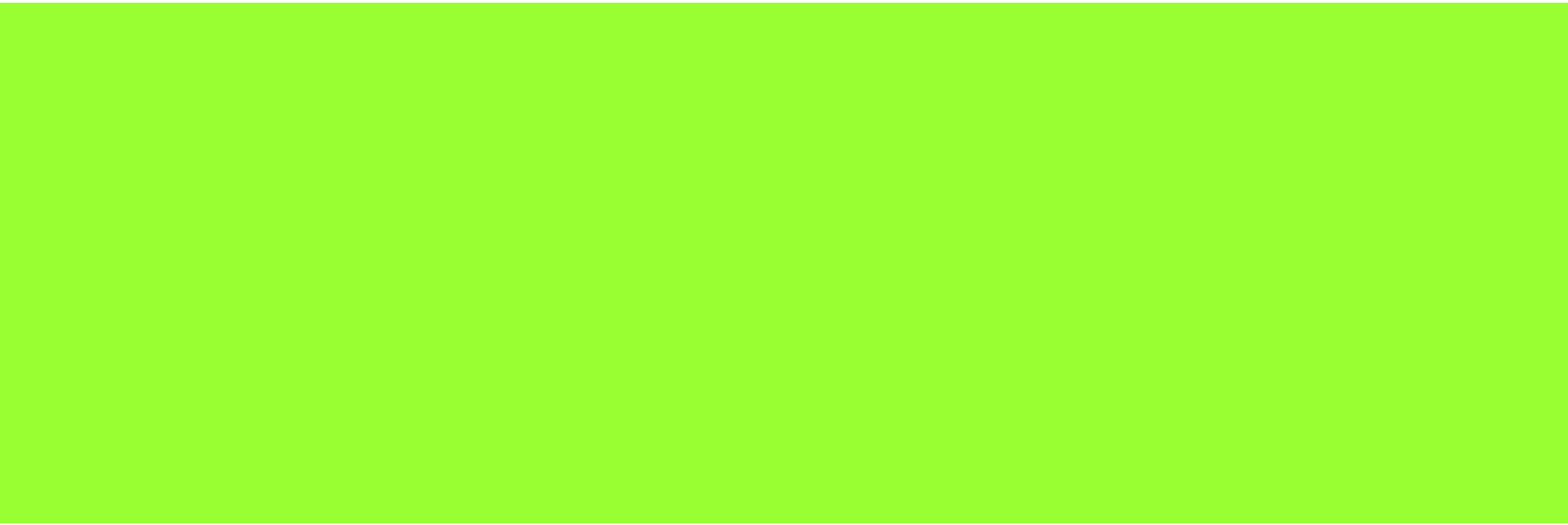












# Hundred Chart

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



21 22 23 24 25 26 27 28 29 30

11 12 13 14 15 16 17 18 19 20

0 1 2 3 4 5 6 7 8 9 10

51 52 53 54 55 56 57 58 59 60

41 42 43 44 45 46 47 48 49 50

31 32 33 34 35 36 37 38 39 40

81 82 83 84 85 86 87 88 89 90

71 72 73 74 75 76 77 78 79 80

61 62 63 64 65 66 67 68 69 70

91	92	93	94	95	96	97	98	99	100
81	82	83	84	85	86	87	88	89	90
71	72	73	74	75	76	77	78	79	80
61	62	63	64	65	66	67	68	69	70
51	52	53	54	55	56	57	58	59	60
41	42	43	44	45	46	47	48	49	50
31	32	33	34	35	36	37	38	39	40
21	22	23	24	25	26	27	28	29	30
11	12	13	14	15	16	17	18	19	20
1	2	3	4	5	6	7	8	9	10

Color in  
multiples of 12

91	92	93	94	95	96	97	98	99	100
81	82	83	84	85	86	87	88	89	90
71	72	73	74	75	76	77	78	79	80
61	62	63	64	65	66	67	68	69	70
51	52	53	54	55	56	57	58	59	60
41	42	43	44	45	46	47	48	49	50
31	32	33	34	35	36	37	38	39	40
21	22	23	24	25	26	27	28	29	30
11	12	13	14	15	16	17	18	19	20
1	2	3	4	5	6	7	8	9	10

Color in  
multiples of 3

# My Multiple Book

This book belongs to:

91	92	93	94	95	96	97	98	99	100
81	82	83	84	85	86	87	88	89	90
71	72	73	74	75	76	77	78	79	80
61	62	63	64	65	66	67	68	69	70
51	52	53	54	55	56	57	58	59	60
41	42	43	44	45	46	47	48	49	50
31	32	33	34	35	36	37	38	39	40
21	22	23	24	25	26	27	28	29	30
11	12	13	14	15	16	17	18	19	20
1	2	3	4	5	6	7	8	9	10

91	92	93	94	95	96	97	98	99	100
81	82	83	84	85	86	87	88	89	90
71	72	73	74	75	76	77	78	79	80
61	62	63	64	65	66	67	68	69	70
51	52	53	54	55	56	57	58	59	60
41	42	43	44	45	46	47	48	49	50
31	32	33	34	35	36	37	38	39	40
21	22	23	24	25	26	27	28	29	30
11	12	13	14	15	16	17	18	19	20
1	2	3	4	5	6	7	8	9	10

Color in  
multiples of 2

Notes:

---

---

---

---

---

---

---

---

---

---

101	66	68	67	96	56	96	46	63	26	16
90	68	88	78	98	58	98	48	65	28	18
80	67	87	77	97	57	97	47	64	27	17
70	69	89	79	99	59	99	49	66	29	19
60	65	85	75	95	55	95	45	62	25	15
50	64	84	74	94	54	94	44	61	24	14
40	66	86	76	96	56	96	46	63	26	16
30	68	88	78	98	58	98	48	65	28	18
20	67	87	77	97	57	97	47	64	27	17
10	69	89	79	99	59	99	49	66	29	19

91	92	93	94	95	96	97	98	99	100
81	82	83	84	85	86	87	88	89	90
71	72	73	74	75	76	77	78	79	80
61	62	63	64	65	66	67	68	69	70
51	52	53	54	55	56	57	58	59	60
41	42	43	44	45	46	47	48	49	50
31	32	33	34	35	36	37	38	39	40
21	22	23	24	25	26	27	28	29	30
11	12	13	14	15	16	17	18	19	20
1	2	3	4	5	6	7	8	9	10

Color in  
multiples of 4

Color in  
multiples of 7

91	92	93	94	95	96	97	98	99	100
81	82	83	84	85	86	87	88	89	90
71	72	73	74	75	76	77	78	79	80
61	62	63	64	65	66	67	68	69	70
51	52	53	54	55	56	57	58	59	60
41	42	43	44	45	46	47	48	49	50
31	32	33	34	35	36	37	38	39	40
21	22	23	24	25	26	27	28	29	30
11	12	13	14	15	16	17	18	19	20
1	2	3	4	5	6	7	8	9	10

Color in  
multiples of 11

Color in  
multiples of 8

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

91	92	93	94	95	96	97	98	99	100
81	82	83	84	85	86	87	88	89	90
71	72	73	74	75	76	77	78	79	80
61	62	63	64	65	66	67	68	69	70
51	52	53	54	55	56	57	58	59	60
41	42	43	44	45	46	47	48	49	50
31	32	33	34	35	36	37	38	39	40
21	22	23	24	25	26	27	28	29	30
11	12	13	14	15	16	17	18	19	20
1	2	3	4	5	6	7	8	9	10

Color in  
multiples of 5

91	92	93	94	95	96	97	98	99	100
81	82	83	84	85	86	87	88	89	90
71	72	73	74	75	76	77	78	79	80
61	62	63	64	65	66	67	68	69	70
51	52	53	54	55	56	57	58	59	60
41	42	43	44	45	46	47	48	49	50
31	32	33	34	35	36	37	38	39	40
21	22	23	24	25	26	27	28	29	30
11	12	13	14	15	16	17	18	19	20
1	2	3	4	5	6	7	8	9	10

Color in  
multiples of 10

Color in  
multiples of 6

101	66	86	67	96	56	46	36	26	16
96	88	78	68	58	48	38	28	18	
87	77	67	57	47	37	27	17		
78	69	59	49	39	29	19			
69	60	50	40	30	20	10			
50	41	31	21	11					
41	32	22	12						
32	23	13							
23	14								
14									
5	6	7	8	9	10	11	12	13	14

d

Color in  
multiples of 9

101	66	86	67	96	56	46	36	26	16
96	88	78	68	58	48	38	28	18	
87	77	67	57	47	37	27	17		
78	69	59	49	39	29	19			
69	60	50	40	30	20	10			
50	41	31	21	11					
41	32	22	12						
32	23	13							
23	14								
14									
5	6	7	8	9	10	11	12	13	14





Or maybe it will.

Ta-da!

## SMARTIES GALORE !!!!

Predict how many Smarties are in your box. \_\_\_\_

Open the box. Count them. \_\_\_\_\_

Arrange them in rows according to colour.

List how many of each colour you have in the following table.



Colour	Number

Compare your results with a partner. Add your partner's results to your own. With your partner and using your **combined** results, predict the following:

- how many of each colour are in the classroom
- which colour is the most common
- which colour is the least common



## SMARTIES FOR ALL



Record the class actual results in the table below

Colour	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	Total

Compare the class results to you and your partner's original findings.

1. What similarities did you notice?

---

2. What differences did you notice? \_\_\_\_\_

3. What is the most common colour in the class? \_\_\_\_\_

4. What is the least common colour in the class? \_\_\_\_\_

5. Do you think your results represent a random survey of numbers and colours in Smarties boxes? Why or why not?

---

---

6. If you bought another package of Smarties what is the probability of having the same number of candies?

---

7. Which colour are you most likely to pull out blindly, based on the class data?

---