The NRICH Maths Fair

This pack contains 40 of our favourite NRICH activities to enable you to run a Maths Fair. This pack contains:

- An activity list with information about required resources
- 40 printable activities (their instruction sheets and game boards)
- Printable resources (to be printed and cut out)

Many of the activities require physical resources which are not included. These are standard maths classroom equipment such as multi-link, counters and dice.

Please carefully check the equipment needed for each activity you decide to use. Many require printable cut outs which can be found at the back of this pack. Not all of the printable resources included at the back of the pack are essential.

| No.	Activity Name	Age Suitability			Resources	
		7-11	11-14	14-16	Essential	Optional
1	4 DOM	✓	✓		4 specific dominoes (or the printed cutouts).	
2	Add Three Dice	✓			3 dice.	Paper and pencils.
3	Bean Bags	✓			8 counters.	Printed record sheets and pencils.
4	Can You Traverse it?		✓	✓		Paper and pencils.
5	Creating Cubes		✓		27 multi-link cubes (3 colours, 9 of each).	
6	Crossing the Bridge			✓	Paper and pencils.	
7	Dicey Operations	✓	✓		Printed grids and pencils	Laminate the question sheet and provide a dry wipe pen.
8	Domino Square		✓	✓	10 specific dominoes (or the printed cutouts).	
9	Domino Tetrads	✓	✓		A full set of 28 dominoes (or the printed cutouts).	
10	Domino Windows			✓	A full set of 28 dominoes (or the printed cutouts).	
11	Egg Tangram	✓			Egg Tangram Pieces.	
12	Factors & Multiples Game		✓	✓	At least 40 small counters (or lots of copies of the printed grids and pencils).	

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No.	Activity Name	Age Suitability			Resources	
		7-11	11-14	14-16	**Essential**	**Optional**
13	Fifteen	✓			The digits 1-9 (fridge magnets or the printed cutouts).	
14	First Connect Three		✓		2 dice and 18 counters (2 colours, 9 of each).	
15	Four Colours	✓			8 multi-link cubes (4 colours, 2 of each).	
16	Frogs		✓	✓	10 counters (2 colours, 5 of each).	
17	Gabriel's Problem		✓	✓	Numbered counters (or the printed cutouts).	
18	Largest Product		✓	✓	Paper and pencils.	
19	Last Biscuit		✓	✓	12 counters (2 colours, 8 of one and 4 of the other).	
20	Make 37		✓		Paper and pencils.	Cut out 1s, 3s, 5s and 7s.
21	Marbles in a Box			✓	Paper and pencils.	27 multi link cubes, made into a cube.
22	Mixed Up Socks	✓			Printed sock cutouts.	
23	NIM	✓			7 counters.	Additional 2-3 counters.
24	Nine Colours			✓	27 multi-link cubes (9 colours, 3 of each).	
25	One Big Triangle	✓			Printed triangle cutouts.	
26	Penta Place	✓			Squared paper and pencils.	60 multilink cubes, ideally (but not essentially) 12 different colours, 5 of each.
27	Pentanim	✓	✓	✓	10 counters.	
28	Sandwiches		✓	✓	14 printed number cutouts.	14 fridge magnet numbers.

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28	Sandwiches		✓	✓	14 printed number cutouts.	14 fridge magnet numbers.
29	Square Tangram	✓	✓		10 printed tangram cutouts in colour.	
30	Sticky Numbers		✓	✓	17 printed number cutouts	
31	Take three from five			✓	Paper and pencils.	
32	Teacups		✓	✓	16 printed teacup and saucer cutouts	
33	Teddy Bear Line-Up	✓			16 teddy bear printouts	16 teddy bears (4 each of 4 colours).
34	Teddy Town	✓			18 printed house and teddy cutouts	
35	The Tower of Hanoi	✓	✓	✓	7 printed cutouts	Wooden Tower of Hanoi puzzle
36	Two and Two		✓		Paper and pencils.	
37	Two Stones	✓			4 counters (2 each of 2 different colours)	
38	Two-digit Targets	✓			10 printer number cutouts	
39	What's it Worth?	✓	✓		Paper and pencils.	
40	Who's Who?		✓	✓	13 printed name cutouts	

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4 DOM
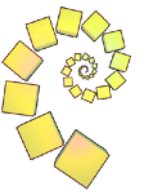
Use the four dominoes on the right to make a square 'window' like the one on the left.
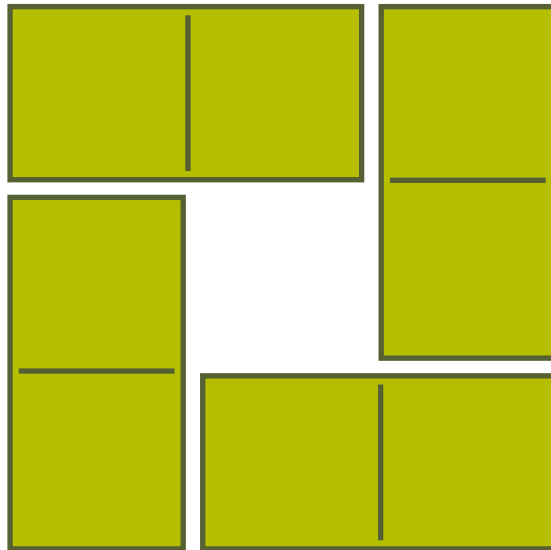
The dominoes do not need to match where they touch but there must be the same number of dots on all four sides.
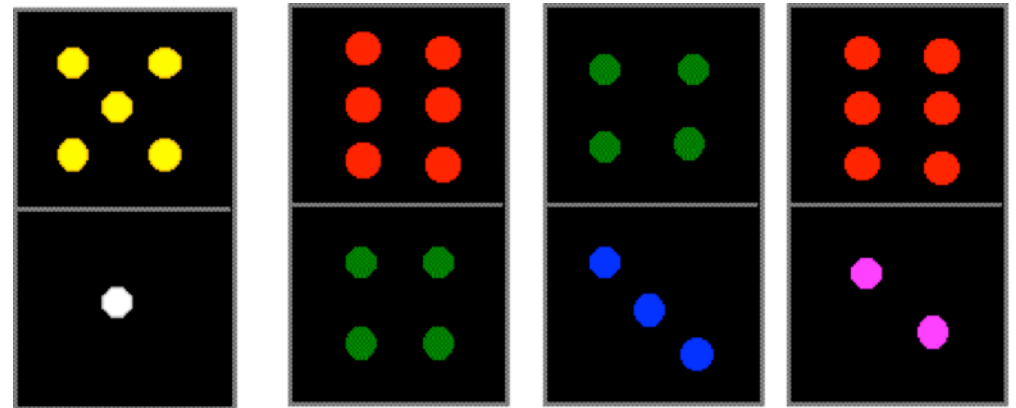
Add Three Dice
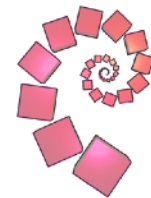
Place three dice in a row like the diagram below.

Find a way to turn each one so that the three numbers on top of the dice total the same as the three numbers on the front of the dice.
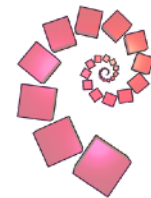
There is more than one way to do this. Can you find all of them?

You might want to record your answers.

Look at the totals on the back and bottom of the three dice – what do you notice?

Rings 1
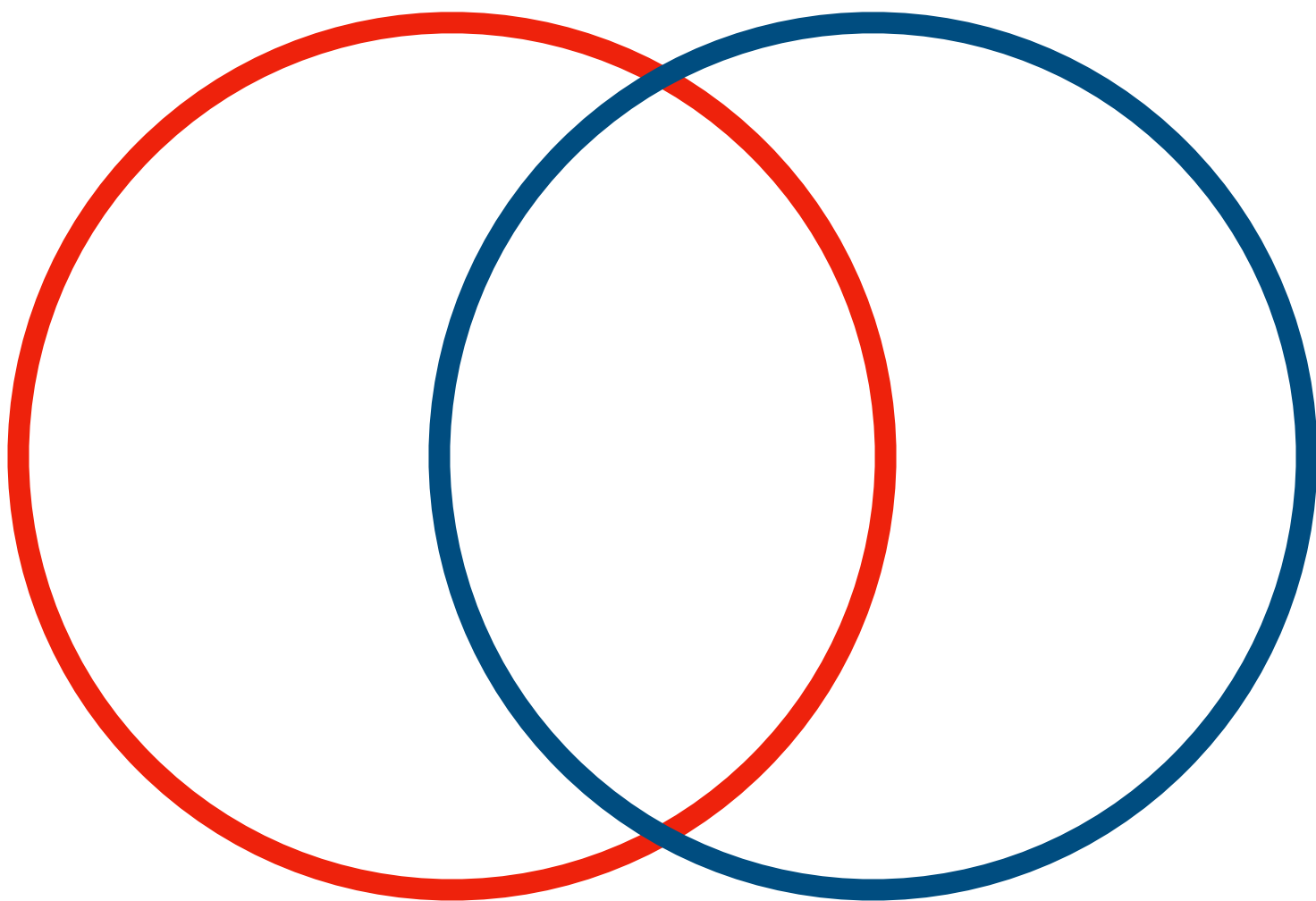
1 Place 8 counters into the rings above so that there are **4 in the blue ring** and **6 in the red ring**.

How many counters need to be in the overlap of the two rings?

2 Now try with **2 in the blue ring** and **7 in the red ring**.

How many counters need to be in the overlap now?

Activity
3

Rings 2
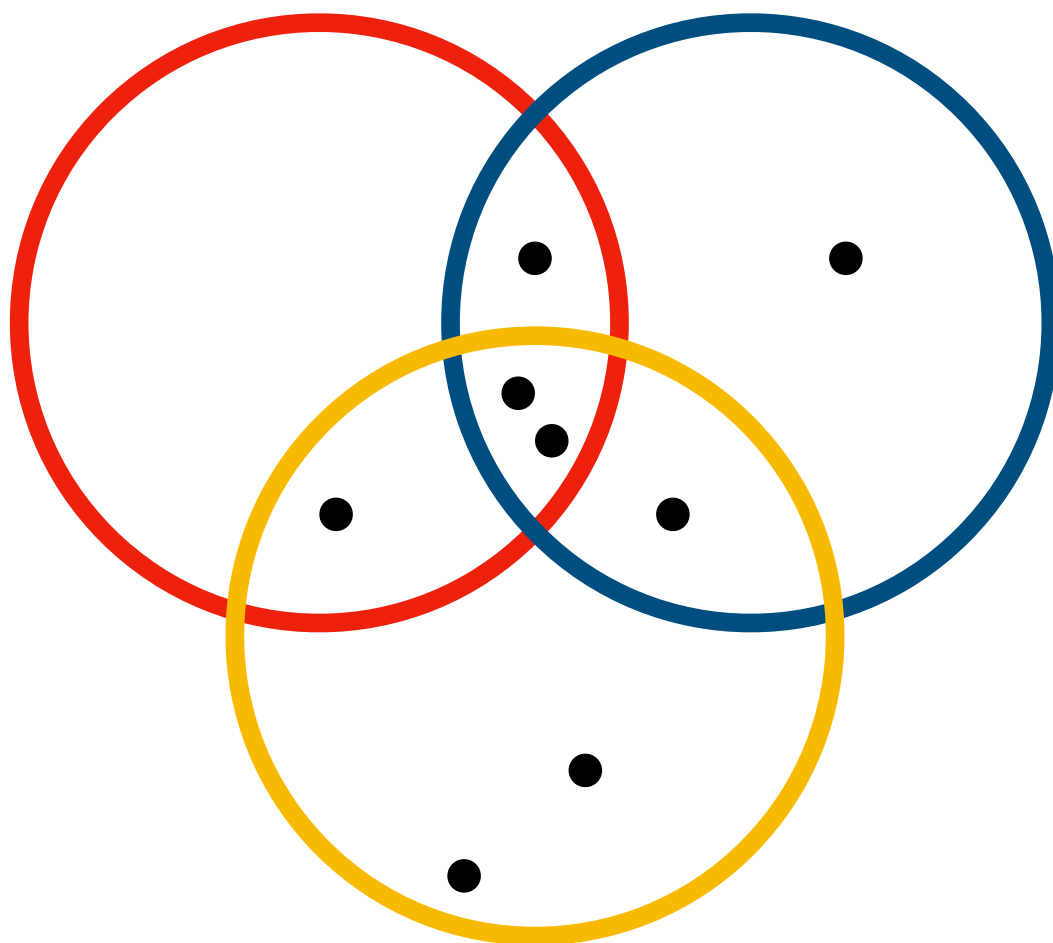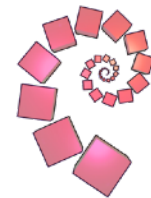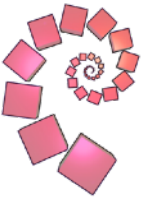
This picture shows **4 in the blue ring**, **5 in the red ring** and **6 in the yellow ring**.

This is not the only way in which it can be done. Use the next sheet to find **at least two more ways** to put 4 in the blue ring, 5 in the red and 6 in the yellow.

How many different ways are there of doing this in total?

You might want to record your answers as you go.

Rings 3

Activity
3
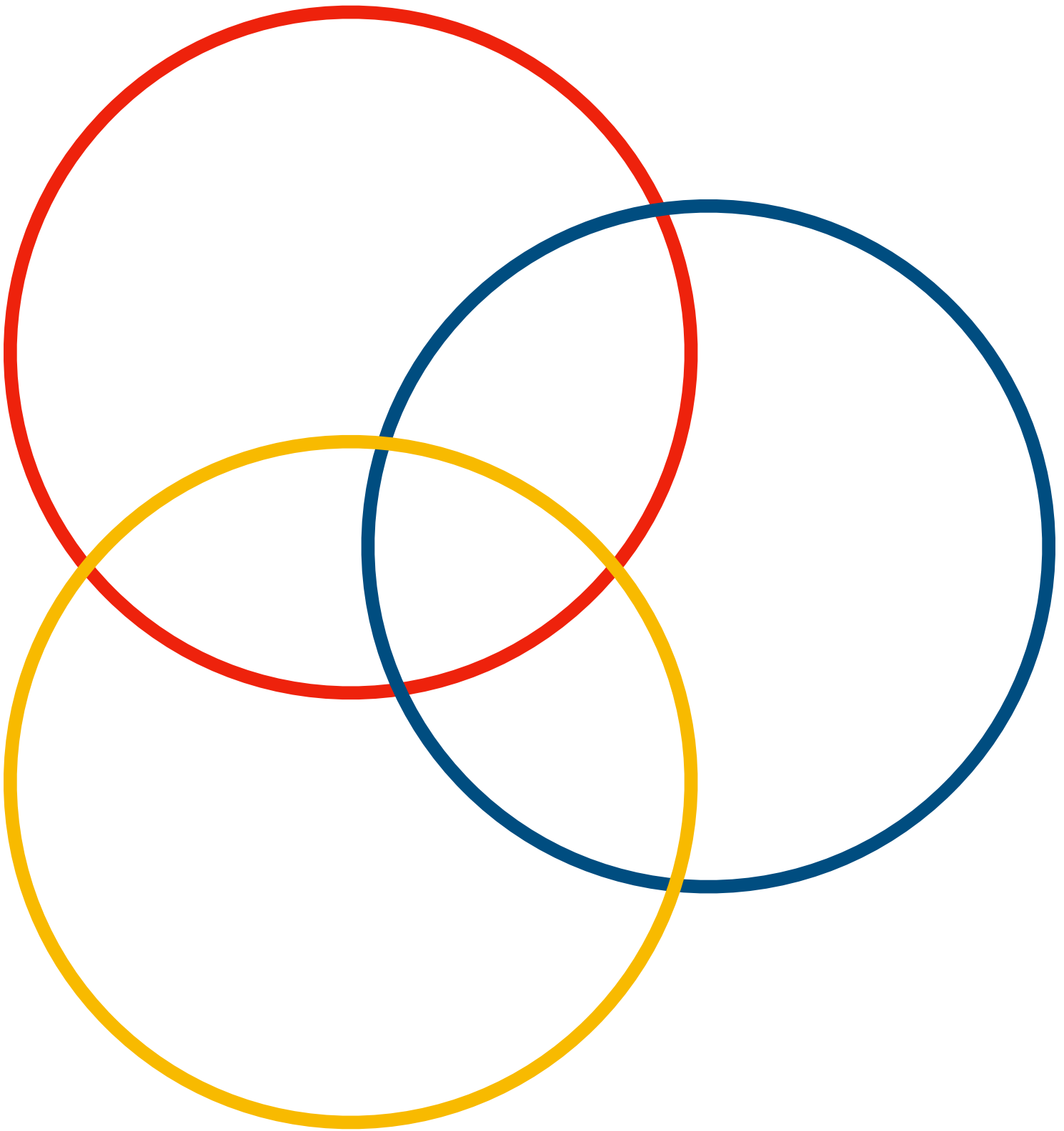
Can You Traverse It? 1

A traversable graph is one you can draw without taking your pen off the paper, and without going over any edge twice.

For each graph, decide whether or not it it traversable.

It might be helpful to keep a track of where you started, the route you took, and where you finished.

Activity
4
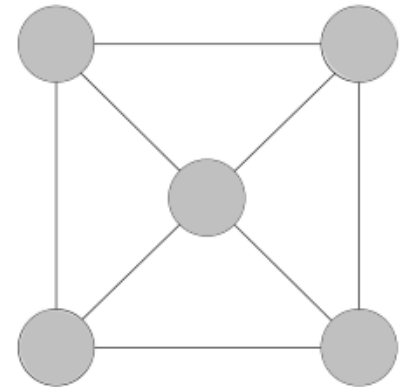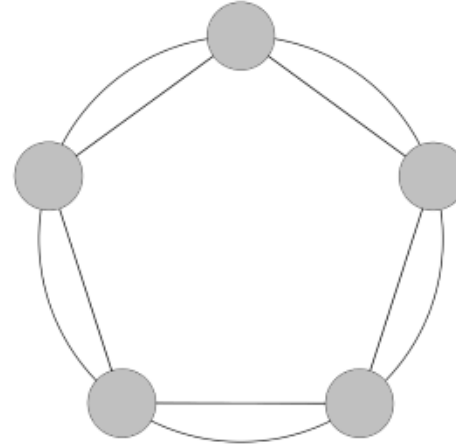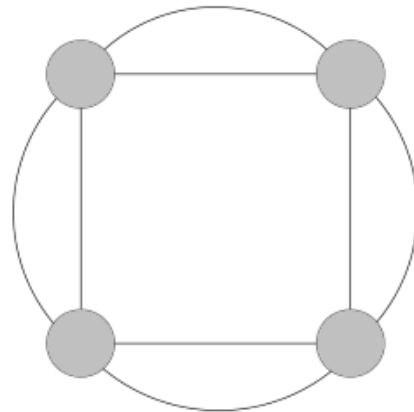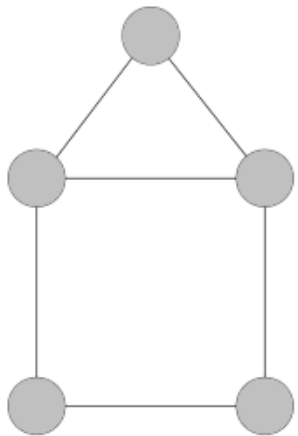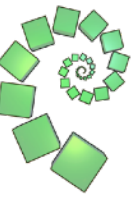
Can You Traverse It? 2

Activity
4
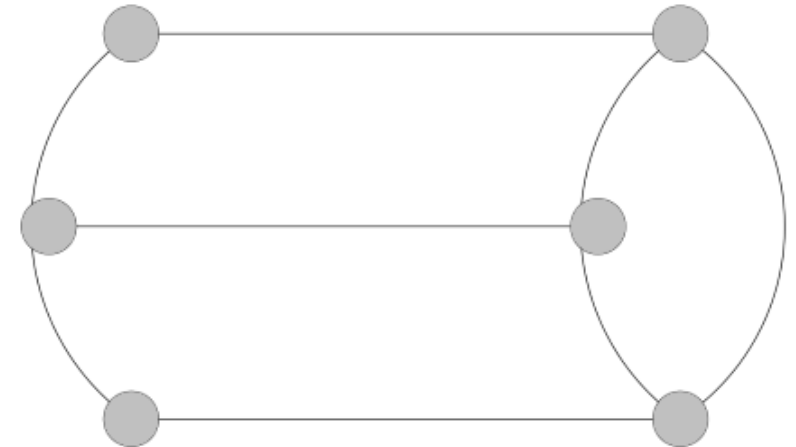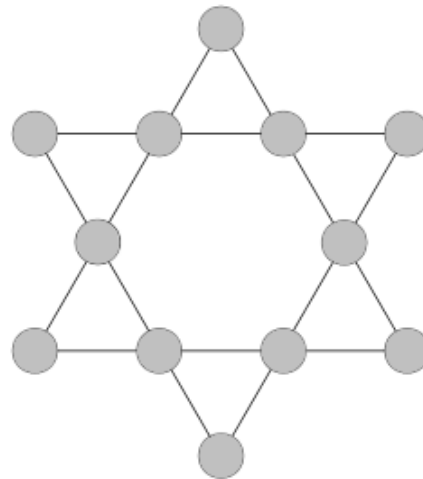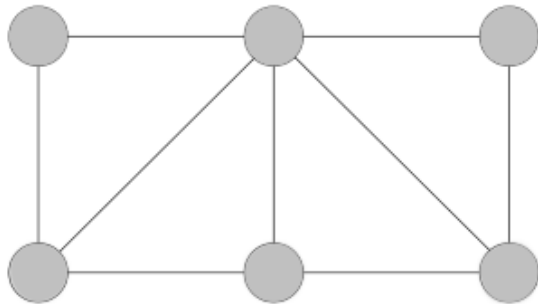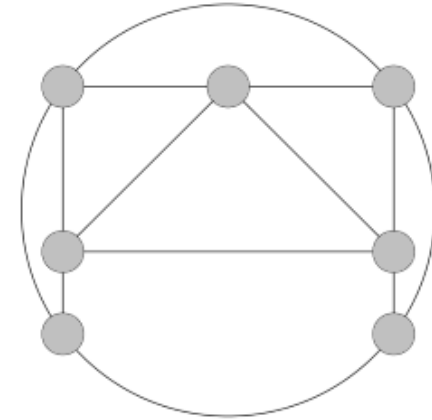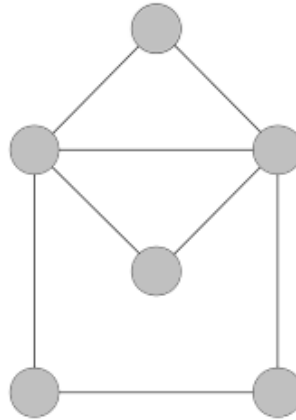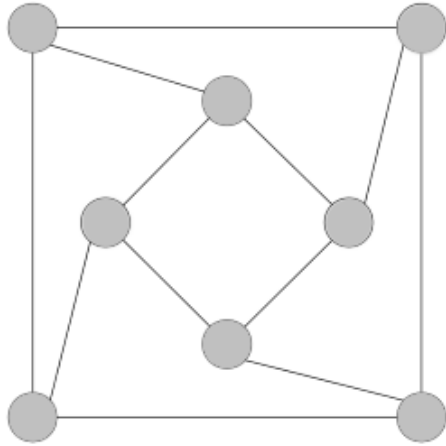
Creating Cubes

You have 27 cubes. There are 3 different colours and there are 9 cubes of each colour.
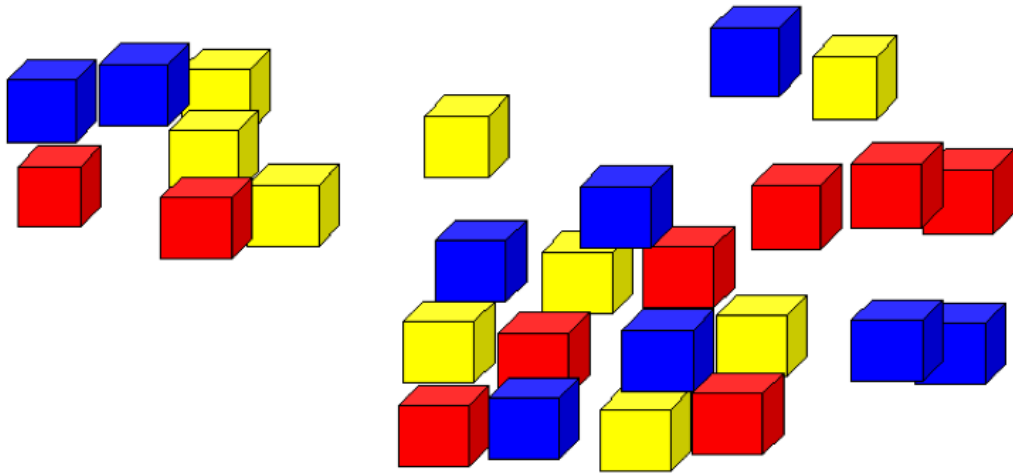
Arrange them into a large **3 by 3 by 3 cube** in this special way:

On each face of the new large cube, **no row** or **column** of cubes can contain **two** cubes of the **same** colour.

Crossing the Bridge

Four friends (Matt, Helen, Tom and Asha) need to cross a bridge. **They all start on the same side of the bridge**.

It is an old bridge so **a maximum of two people can cross at once.**

It is dark and dangerous and they have just one lamp. **When anyone crosses the bridge they must carry the lamp** to see the way.

Each person walks at a different speed:

- Matt takes **1 minute** to cross
- Helen takes **2 minutes** to cross
- Asha takes **7 minutes** to cross
- Tom takes **10 minutes** to cross

When a **pair crosses together they cross at the speed of the slower person.**

Can you figure out how all four friends can get to the other side in just **17 minutes**?

Activity

6

Dicey Operations
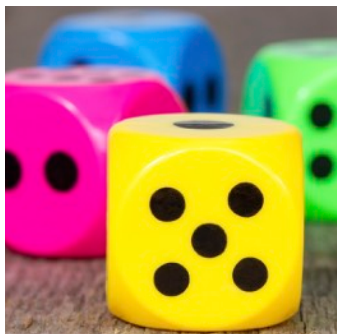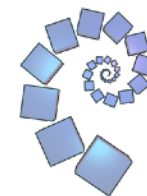
This is a game for two players.

To Start: You need a die and two empty grids.

How to play: Takes turns to roll a die and write the number you rolled into a square on your grid.

To Win: When your grid is complete add together the three 3-digit numbers. The closest to 1000 wins.

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Dicey Operations

Player 1

☐ ☐ ☐

\+ ☐ ☐ ☐

\+ ☐ ☐ ☐

_____

_____

Player 2

☐ ☐ ☐

\+ ☐ ☐ ☐

\+ ☐ ☐ ☐

_____

_____
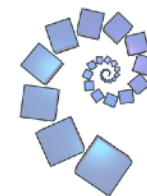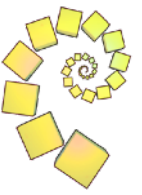
Domino Square

You need these 10 dominoes.

The highest is 'double three'.
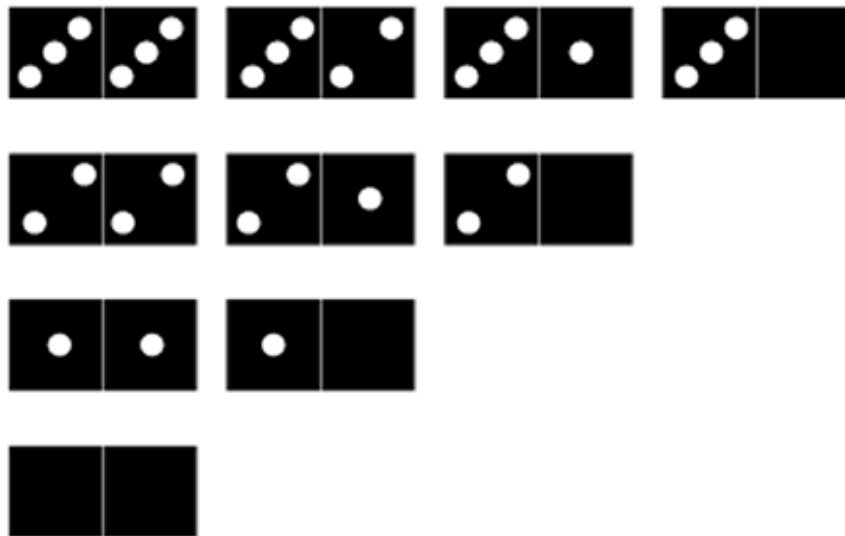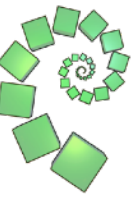
Use these dominoes to make a square so that each side has **8 dots.**

The dominoes do not have to match.

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Activity
8
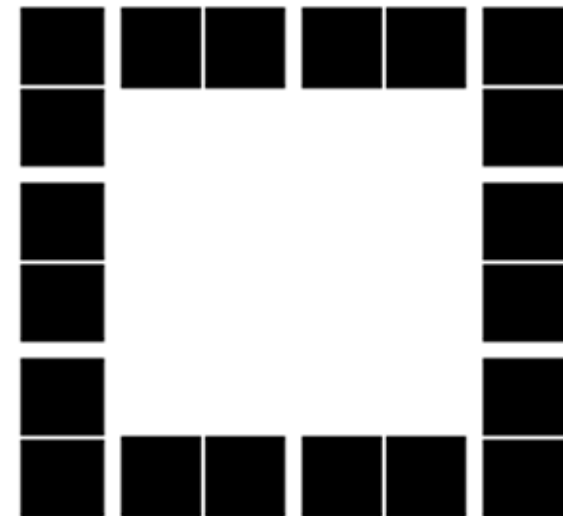
Domino Tetrads

You can make a small square like the example on the right by using four dominoes.

Make sure that where the dominoes touch, the numbers of spots on each side is the same.

Your Task

Using a full set of 28 dominoes can you make 7 small squares (each with 4 dominoes)?

match

match

match

match

match
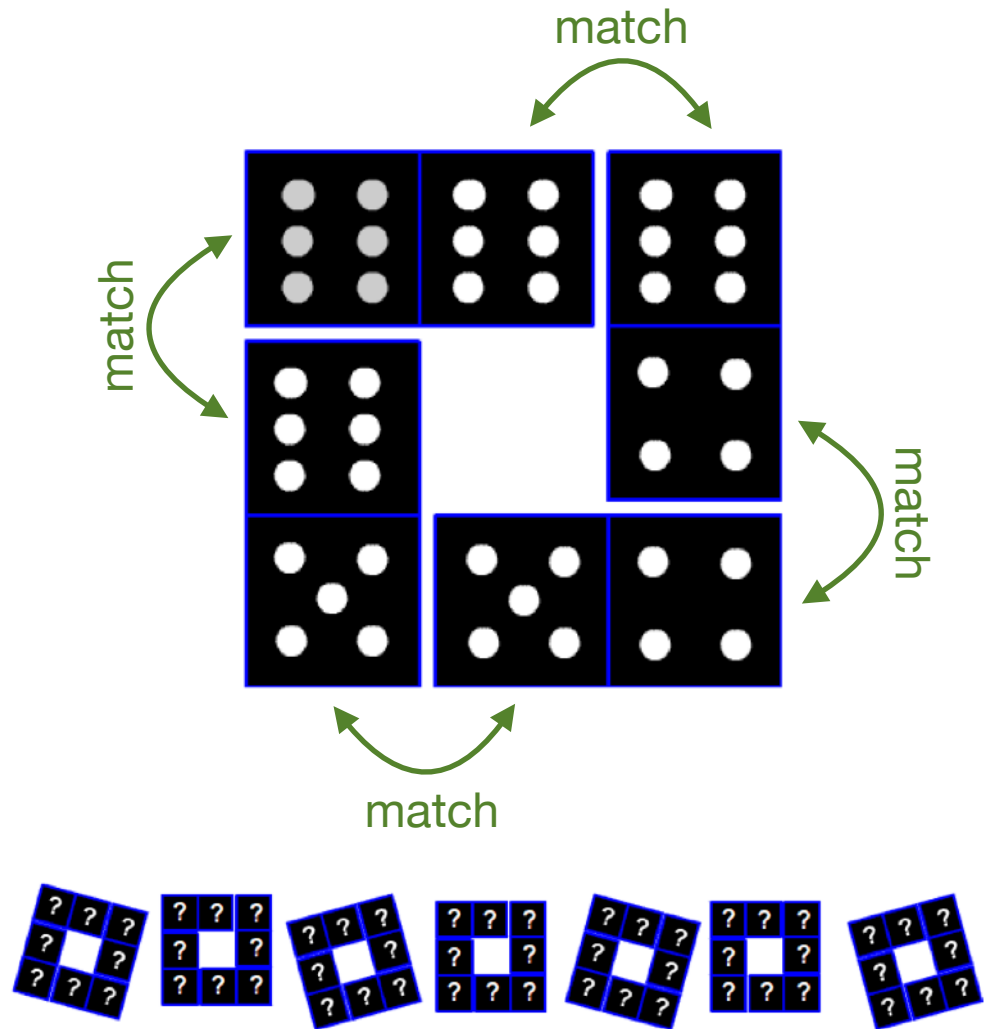
Activity

9

Domino Windows

In this diagram the four dominoes make a small square.
We will call this small square a "domino window".

The spots on all four sides add up to make 9.
We will call this total the "spot sum".
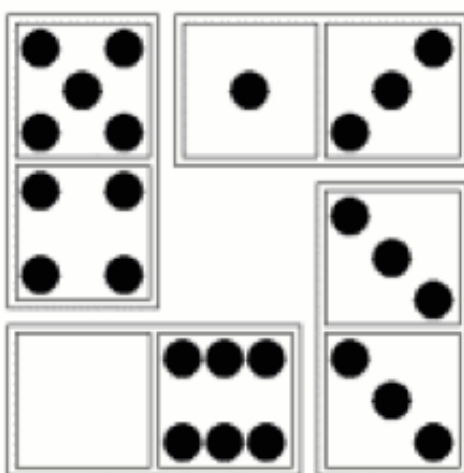
Use an entire set of 28 dominoes to make **7 domino windows**, each made up of 4 dominoes.

Each window must have the same "spot sum" on all 4 sides.

However, your windows can have different spot sums. In fact, it is not possible to have the same spot sum on every every window. Can you explain why?
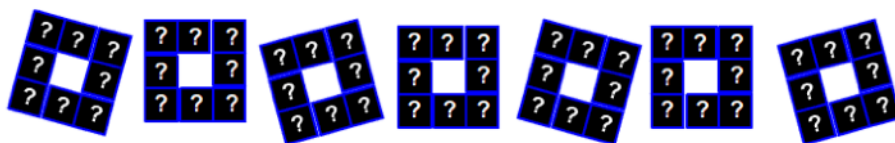
Activity
10
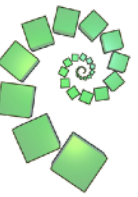
Egg Tangram 1

First, try to make this egg shape using **all 9 pieces**.

When you have done that, see if you can make some of the bird shapes on the other sheet, each bird uses **all 9 pieces**.
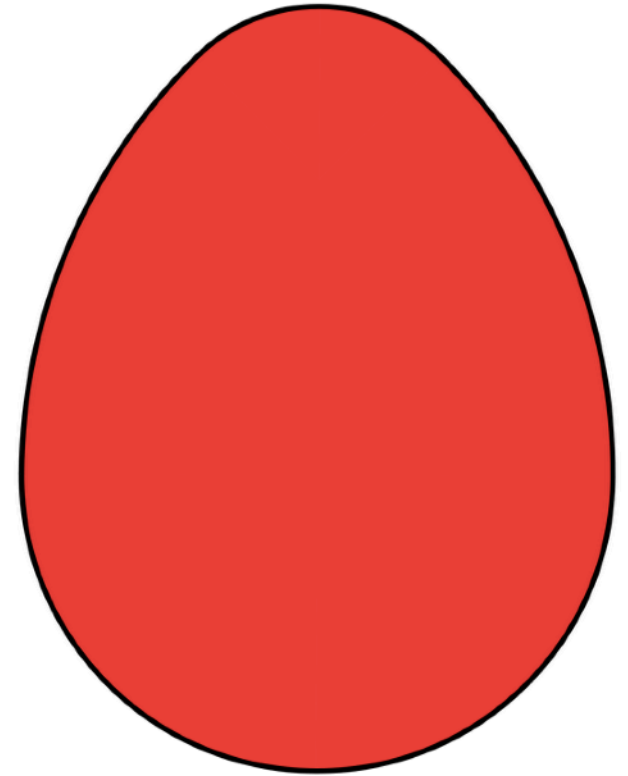
Egg Tangram 2
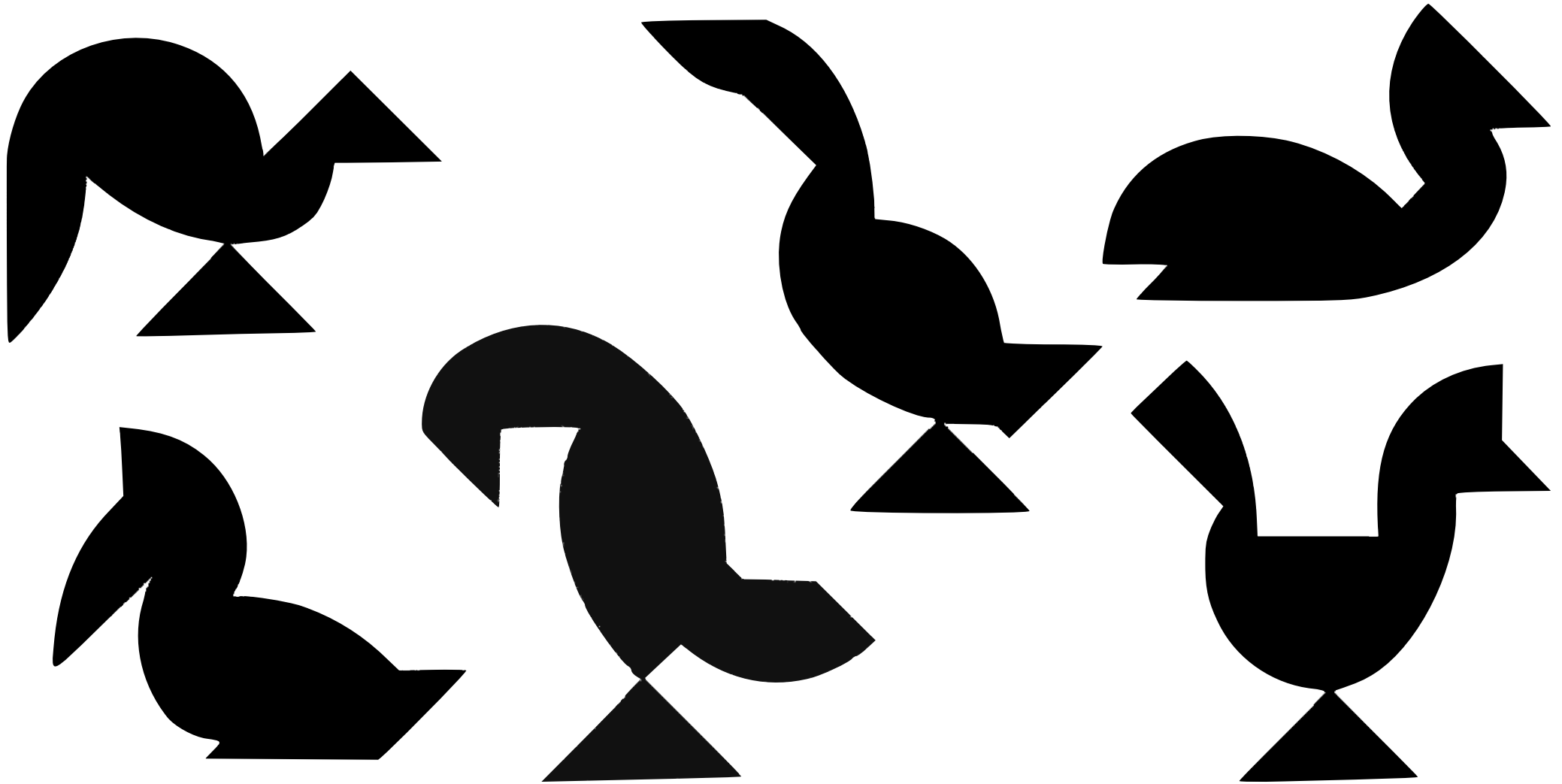
Factors & Multiples Game 1

This is a game for two players. You can either play with counters on a board or by crossing numbers out on a printed sheet.

To Start

Decide who will go first, that person chooses an even number from the grid that is less than 50, and crosses it out (or puts a counter on it).

To Play

On your turn you choose a number and cross it out. The number you choose must be a factor **or** multiple of the number crossed out last turn.

To Win

If there are no valid numbers remaining for you to cross out then you lose the game.

An example game

The first five turns in the game on the right were:

Player A: **12** 🔴

Player B: **4** 🟢

Player A: **88** 🔴

Player B: **11** 🟢

Player A: **77** 🔴

It is now player B's turn and there is only one number which they can cross out.

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

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Activity
12

Factors & Multiples Game 2

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

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Activity
12

Fifteen
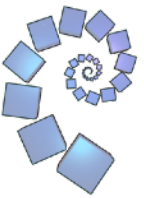
This is a game for two players.

To Play the Game

Take it in turns to choose a number from **1** to **9**.

Each number can only be chosen once.

To Win the Game

If any three of your numbers add up to **15**, you win.

If both players have three numbers but neither has a total of 15, continue choosing numbers. **Any** three of them can make 15 to win.

If there are no numbers left to choose and no-one has won then it is a draw.
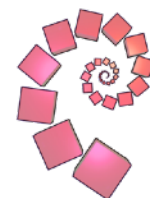
Is there a winning strategy to the game?

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First Connect Three

This is a game for two players.

To play the game:

On you turn do the following:

- Roll both dice

- Choose whether to add them together other or subtract one from the other.

- Place a counter on top of your answer on the board.

For example, if you roll a 1 and a 4, your options are:

$$\boxed{::} + \boxed{\cdot} = 5 \qquad \boxed{::} - \boxed{\cdot} = 3 \qquad \boxed{\cdot} - \boxed{::} = -3$$

You cannot cover a number which has already been covered.

If all the numbers you can make are covered, then you must pass.

To win the game:

The winner is the first to complete three in a row. The row can be horizontal, vertical or diagonal.

In the game on the right the red player has won.

-5	-4	-3	-2
-1	0	1	2	3
4	5	6	7	8
9	10	11	12

First Connect Three

	-5	-4	-3	-2
-1	0	1	2	3
4	5	6	7	8
9	10	11	12	

Four Colours

Fit these 8 smaller cubes together to make a larger cube.

On each face there must be one of each colour.
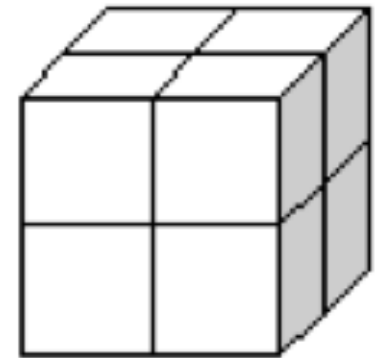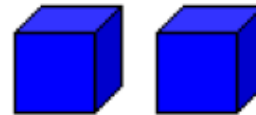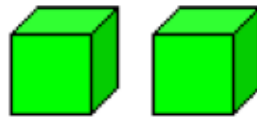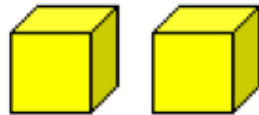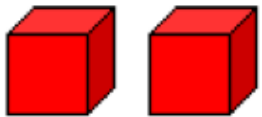
Is there more than one way to do it?

Frogs 1

There are five brown frogs and five green frogs sitting on their lily pads like this:
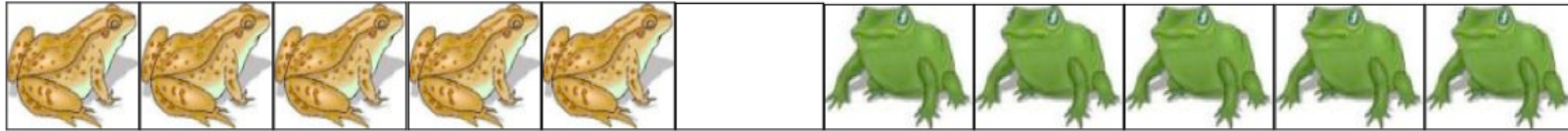
The aim: Swap the positions of the green frogs and the brown frogs.

The Rules

Only **one frog can move** at a time.

Frogs can jump over another frog, but not two or more frogs.

Frogs can only move **one square at a time.**

The **brown** frogs can only move (or jump) **right**.
The **green** frogs can only move (or jump) **left**.

Frogs 2

If you can't find real frogs, use counters. Choose one of the grids to start with and set up your counters (the smaller grids are the easiest).

Move and jump the frogs until they have completely swapped positions.
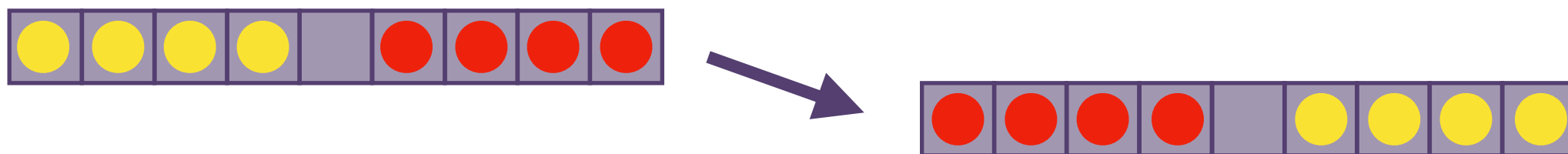
What is the smallest number of moves it takes to swap all the frogs over?

Try putting more frogs at one end than the other.

Activity
16

Frogs 3
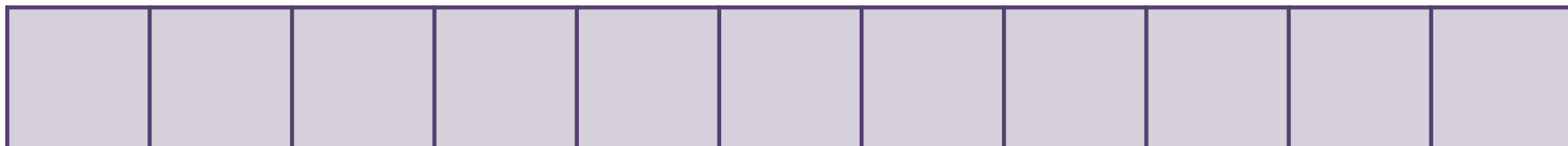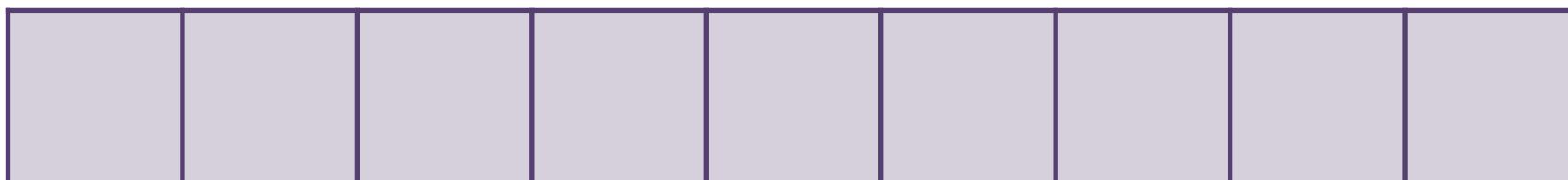
Gabriel's Problem 1
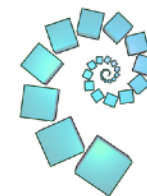
Gabriel wrote the numbers 1-9 in a 3x3 grid.

He then multiplied together all the numbers in each row and wrote the resulting product next to that row. He also multiplied the numbers in each column together, and wrote the product under that column.

He then rubbed out the numbers 1-9.

Can you work out where Gabriel placed the numbers 1-9 in the grid?

Did you have enough information, not enough, or exactly the right amount?

24

40

378

60   21   288

Gabriel's Problem 2
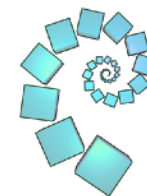
Can you place the numbers 1-9 in the grid to give the marked products in each row and column?

One of these two grids has more than one solution.

24
120
126

24   72   210

28
144
90

40   48

Gabriel's Problem 3
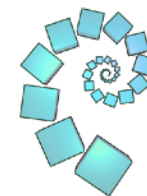
To make this grid, Gabriel used the numbers **1**, **2**, **3**, **4**, **5**, **6**, **9**, **10** and **12**.

Can you place these numbers in the grid to give the marked products in each row and column?

12

60

20   135

Largest Product

$3 + 3 + 4 = 10$
$3 \times 3 \times 4 = 36$

$3.3 + 6.7 = 10$
$3.3 \times 6.7 = 22.11$

What is the greatest product that can be made from numbers that add up to 10?

$5 + 5 = 10$
$5 \times 5 = 25$

$1 + 9 = 10$
$1 \times 9 = 9$

$1 + 2 + 3 + 4 = 10$
$1 \times 2 \times 3 \times 4 = 24$

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Activity
18

Last Biscuit 1
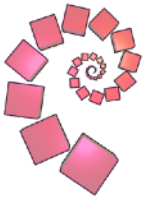
This is a game for two players.

To Start

Put 4 biscuits in one jar and 8 in the other jar.

To Play

Take turns to remove biscuits from the board following the rules below:

When it's your turn you can either:

1) take any number of biscuits from just one jar, or

2) take the same number of biscuits from both jars.

To Win

The winner is the person who takes **the last biscuit** (or biscuits).

Think carefully and see if you can discover a winning strategy.

Do you think it matters who goes first?

Last Biscuit 2
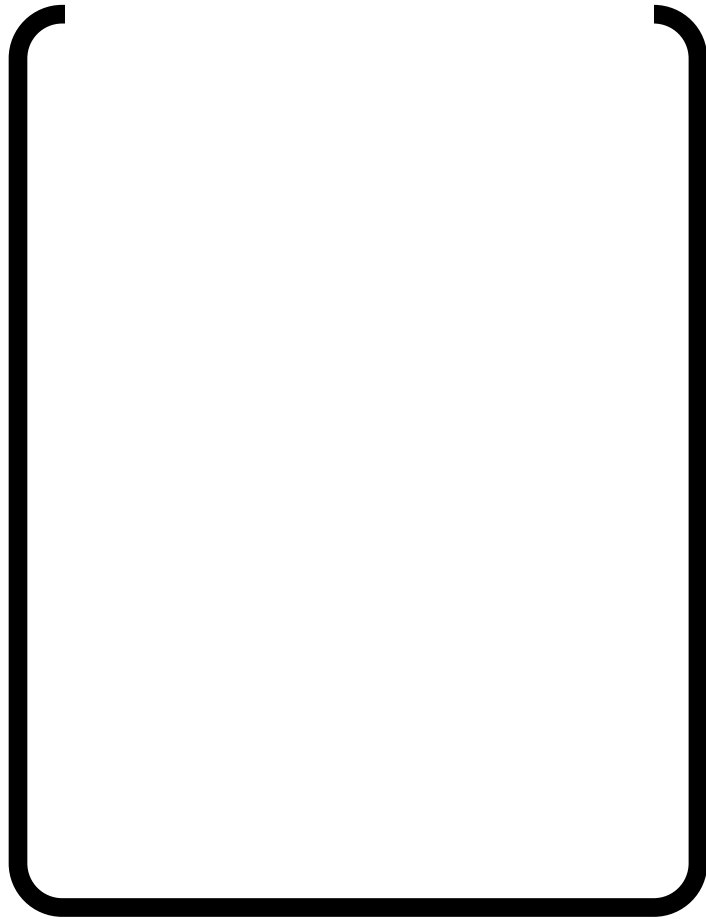
Start with 8 biscuits in this jar.
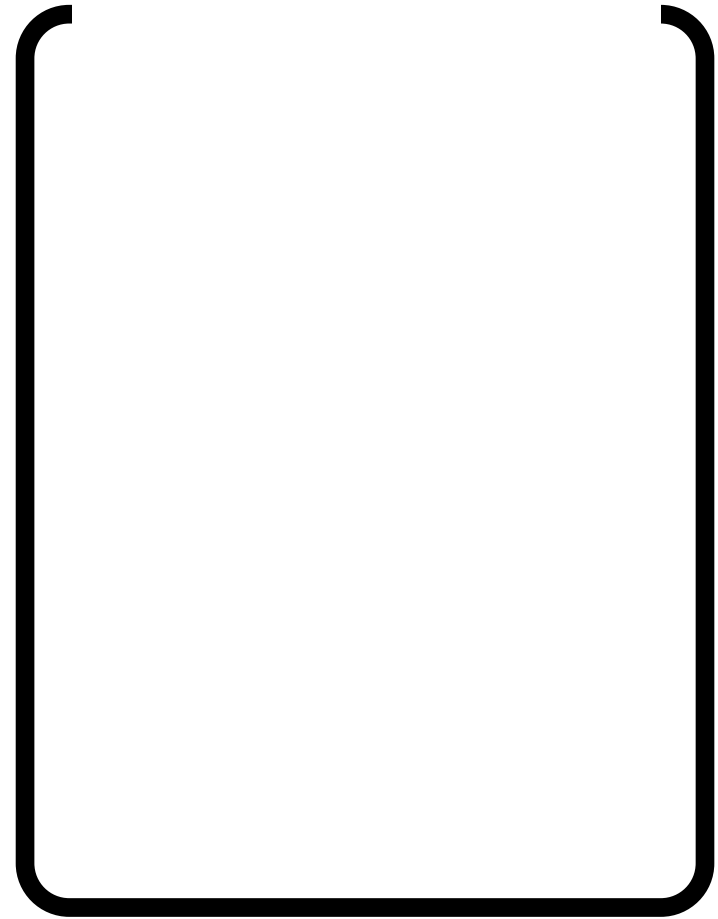
Start with 4 biscuits in this jar.

Make 37
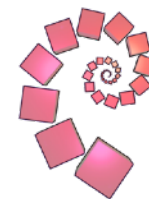
Four bags contain a large amount of 1s, 3s, 5s and 7s.

Pick any ten numbers from the bags so that their total is 37.
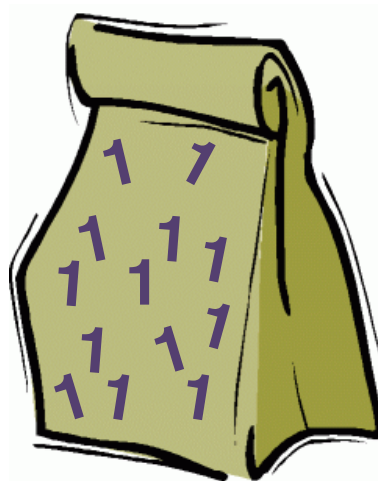
Marbles in a Box

Imagine a three dimensional version of noughts and crosses where two players take it in turn to place different coloured marbles in a box.

The box is made from 27 transparent unit cubes arranged in a 3-by-3 array.

The object of the game is to complete as many winning lines of three marbles as possible.
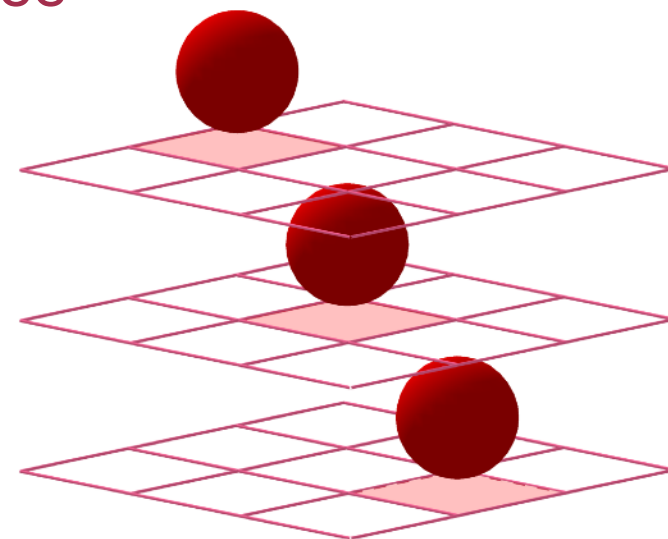
How many different ways can you make a winning line?

Activity

21

Mixed Up Socks
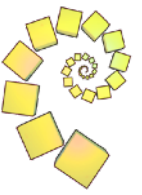
Start with three pairs of socks.

Mix them up so that each pair has two different socks in it.

Now can you mix them so that each pair is different from the other pairs?

Now try it with four pairs of socks. Can you find more than one way to do it?

How many ways are there to do it? How do you know you have found all the ways?

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Activity
22

NIM
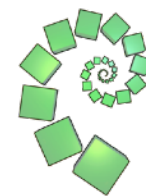
This is a game for two players.

To Start: Place the 7 counters in a group.
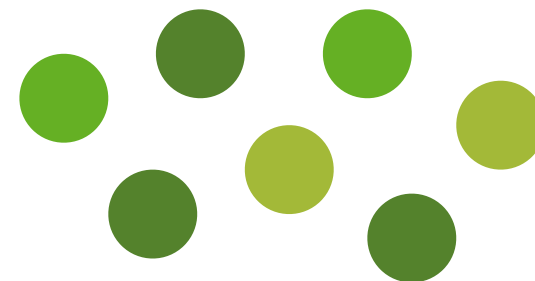
How you play: Takes turns to pick up either one or two counters.

To Win: The player that picks up the last counter loses.

Can you find a winning strategy that guarantees you will win?

Does it matter who goes first?

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Activity
23

Nine Colours

You have 27 small cubes of 9 different colours. There must be 3 cubes of each colour.

Can you use all the small cubes to make a larger cube (3x3x3) so that each face of the larger cube contains one of each colour?

Activity
24

One Big Triangle

You have nine triangles, each triangle has three numbers on it.

Your challenge is to arrange these triangles to make one big triangle, so the numbers that touch add up to 10.
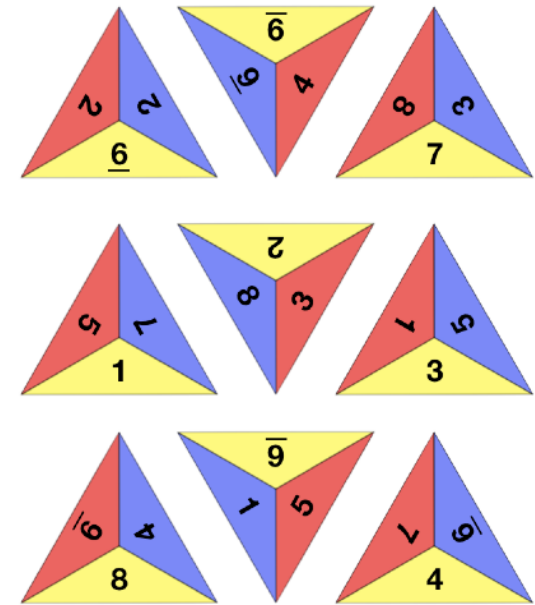
For example:
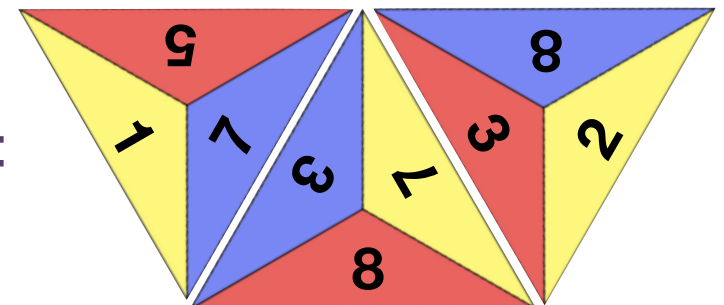
Pentominoes 1

Penta people always build their houses using **five square rooms on one level** (the ground level).

The houses can be made in a variety of different shapes, but a room **must be joined to at least one other room by a wall.**

Here is an example of a Penta house,
viewed from above:

Here is different example:

Try to find **all** the different shapes that a Penta house can be.

Pentominoes 2
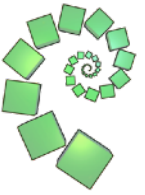
New Penta houses are being built in Penta Place.

The homes are built right next to each other and are arranged and fitted together to create rectangles.

1) Use **three of the Penta houses** you created and fit them together to make a 3x5 rectangle like this one.
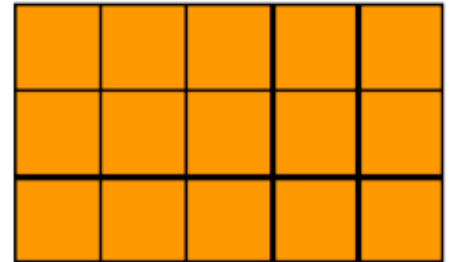
2) Can you make other sized rectangles using **three of the Penta houses**?
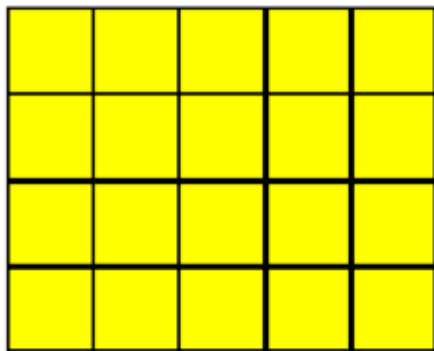
3) Try to find **four of the Penta houses** that fit together to make a larger rectangle like the one on the left.
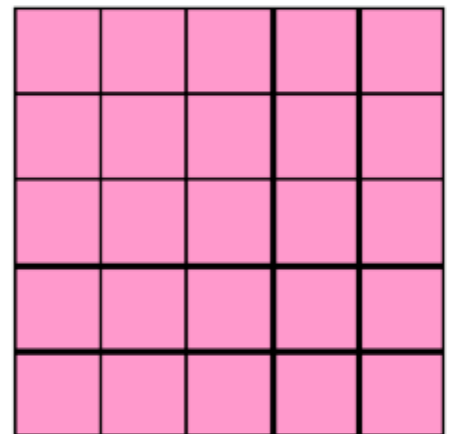
4) On the right is a 5 by 5 square. Use **five of the Penta houses** to construct a similar square.

Pentanim 1

This is a game for two players.

To Start

Put 10 counters onto the 'Pentanim' game board, one in each space.

To Play

Take turns to remove either one counter or two counters from the board. You can only remove two counters if they are connected by a straight line (there can be empty spaces between the two counters).

To Win

The winner is the player who picks up the last counter (or the last two counters).

Pentanim 2

Activity
27
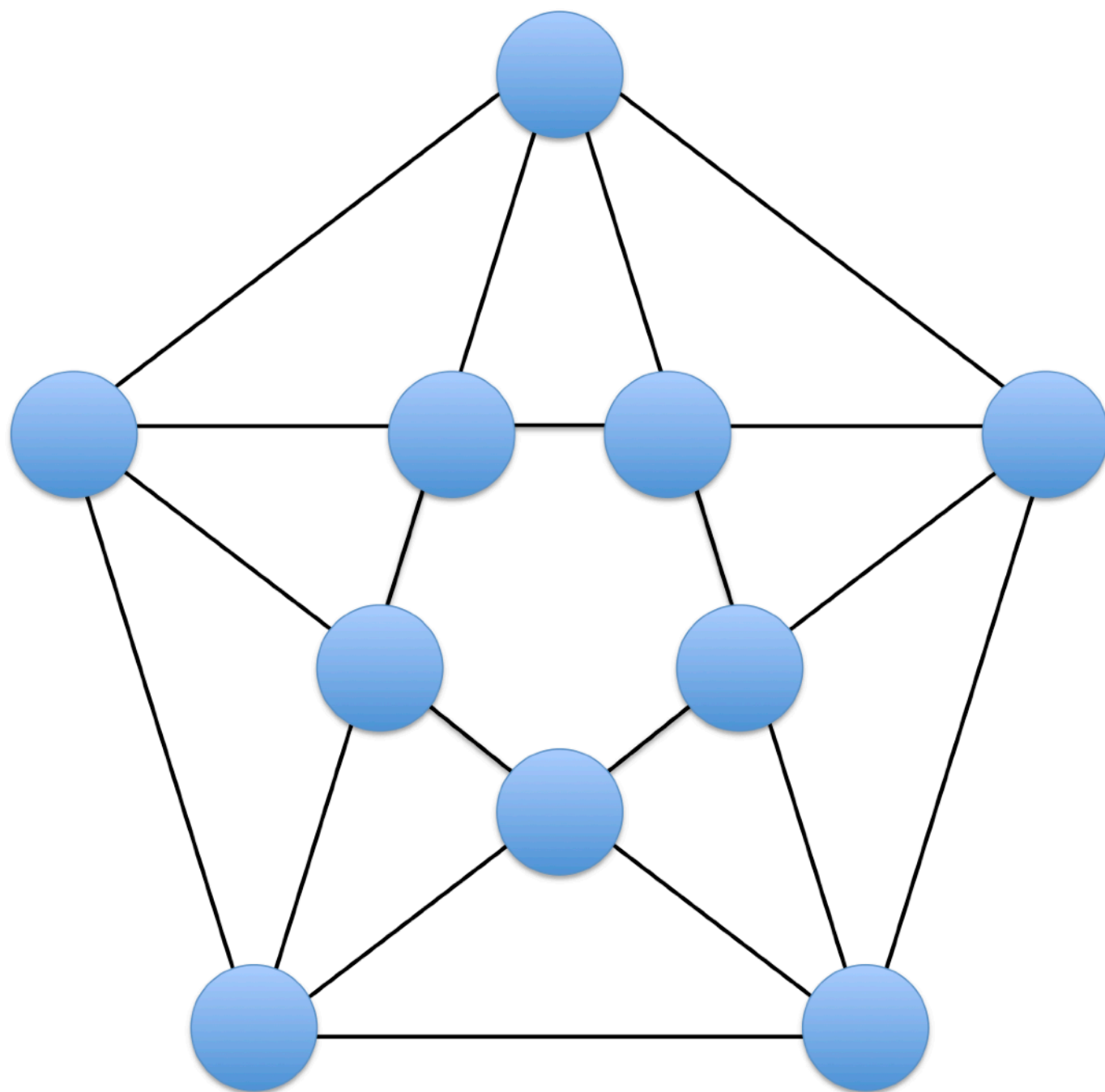
Sandwiches 1

1) Start with two 1's, two 2's and two 3's (as below).

| 1 | 1 | 2 | 2 | 3 | 3 |

Arrange these six digits in a line so that:

- between the two 1's there is one digit,
- between the two 2's there are two digits, and
- between the two 3's there are three digits

2) Now, try to do it if you only have two 1's and two 2's (one digit between the 1's and two digits between the 2's). **Can it be done?**

| 1 | 1 | 2 | 2 |

3) It is possible to add two 4's and then arrange all the numbers as in part **(1)** but now with four digits between the two 4's.

| 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 |

4) If you try to add two 5's (as below) it is **impossible** to arrange them in a 'sandwich'!

| 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 |
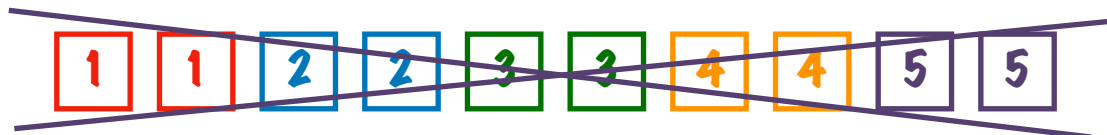
It's also **impossible** to do if you also add two 6's.

| 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 | 6 | 6 |
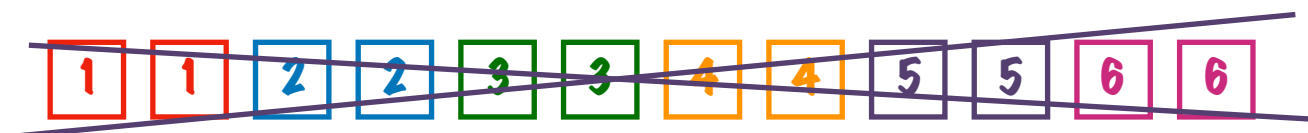
However, it can be done when you add two 7's!
Can you manage it?

| 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 |

| 5 | 5 | 6 | 6 | 7 | 7 |
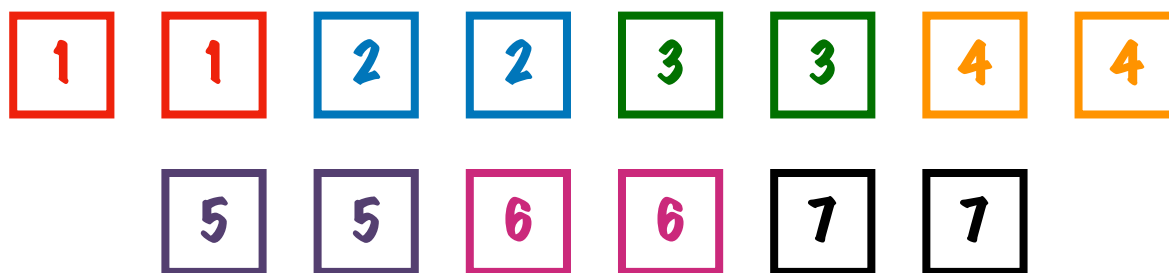
5) There is more than one way of doing this – try to find at least two arrangements that work with all seven digits.

Square Tangram

The first task is to make a square using four pieces of the same colour.

It will fit in the smallest square outline in the middle of the sheet.
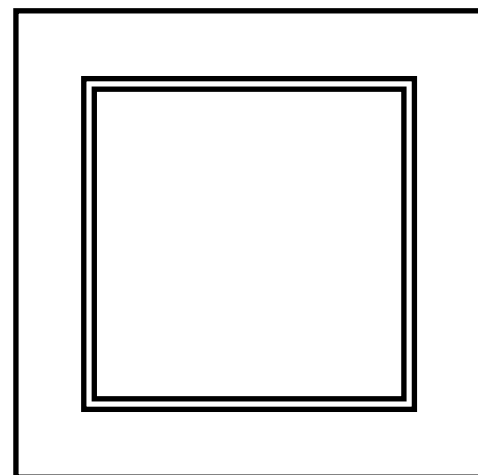
Now try making a square using five pieces of the same colour.

It will fit in the middle square outline (only slightly larger than the smallest square outline).

The final challenge is to make a square using all 10 pieces.

It will fill the largest square outline on the sheet.

Square Tangram
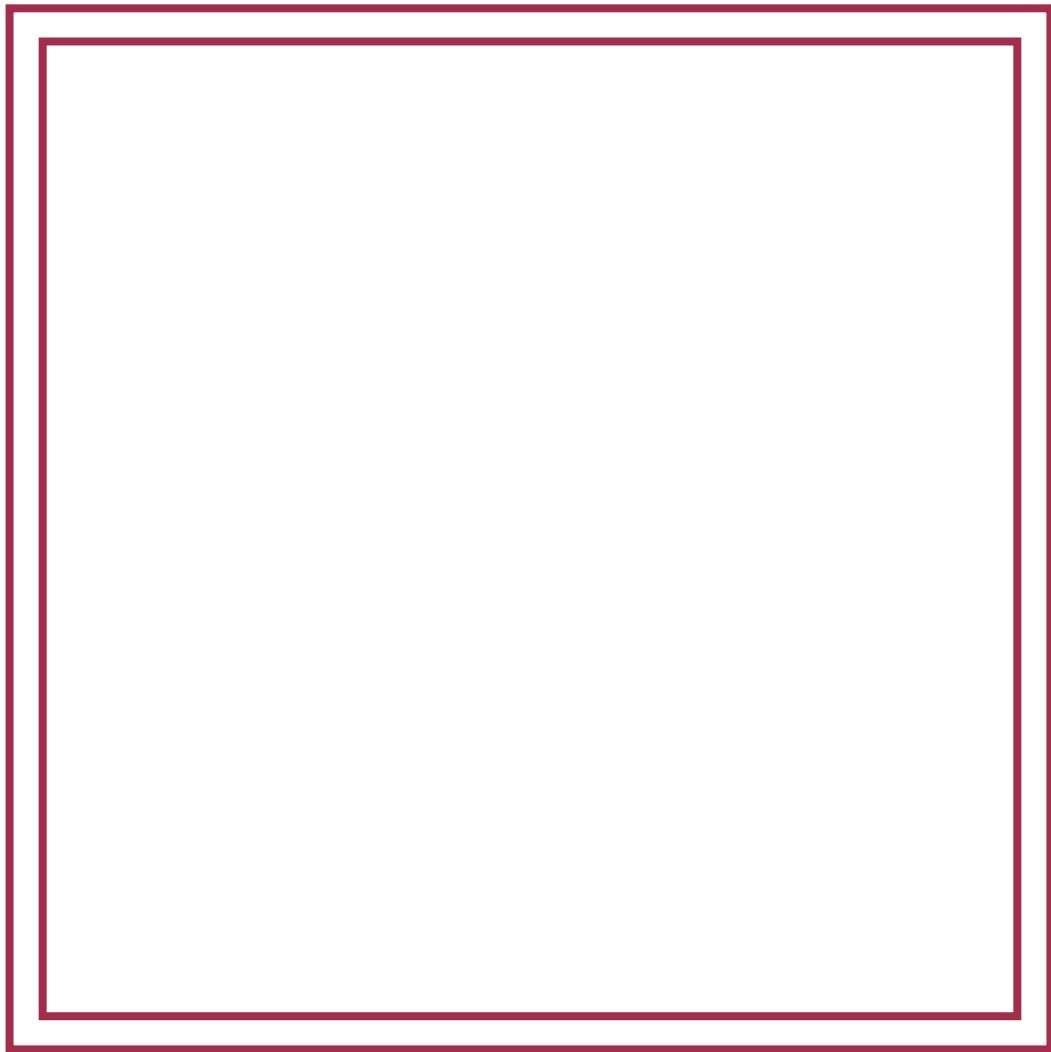
Sticky Numbers

Look at the following line of numbers:
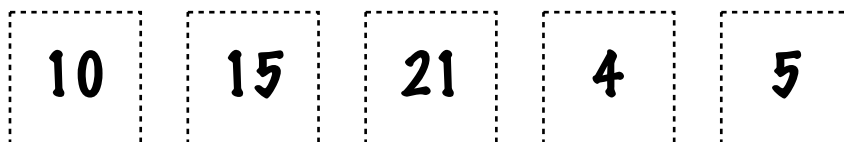
| 10 | 15 | 21 | 4 | 5 |

They are arranged so that each pair of adjacent numbers adds up to a square number:

$$10 + 15 = 25$$
$$15 + 21 = 36$$
$$21 + 4 = 25$$
$$4 + 5 = 9$$

Your Task

Try to arrange the numbers 1 to 17 in a line so that every adjacent pair adds up to a square number.

Can you arrange them in more than one way? If not, can you explain why your solution is the only one?

Activity

30

Take 3 from 5

Choose any five positive whole numbers.

1 13 10
5 18
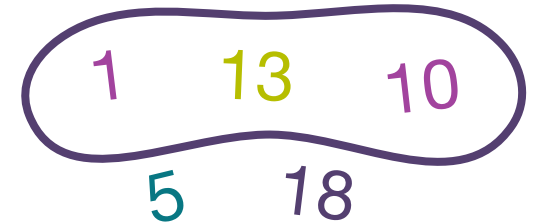
Now find three of the numbers which, then you add them up, make a multiple of 3.
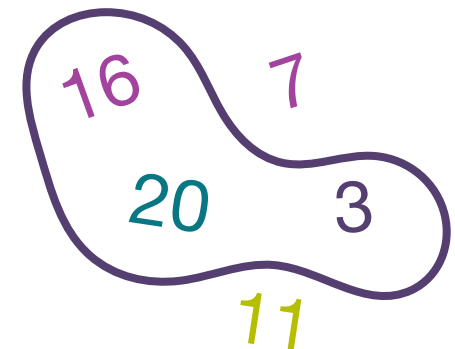
Will any set of five always include three numbers that will add up to a multiple of 3?

16 7
20 3
11

Teacups
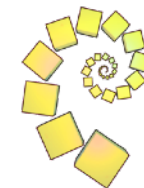
Arrange the cups and saucers into the four by four grid so that:

- Every **row** has only one cup of each colour and one saucer of each colour.

- Every **column** has is only one cup of each colour and one saucer of each colour.

AND

Put each cup on top of a saucer so that there are no repeated combinations.

For example, you could have a blue cup on a blue saucer, a red cup on a blue saucer, a blue cup on a red saucer, etc…

Teacups
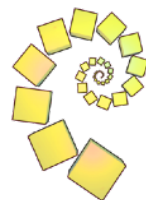
Teddy Bear Line-Up

To Start

Line up all 16 teddy bears so that there are:

- four greens next to each other,
- then four yellows next to each other,
- then four blues next to each other,
- and finally four reds next to each other.

The Challenge

Swap the position of two bears, then do the same again and again until no two bears of the same colour are next to each other.
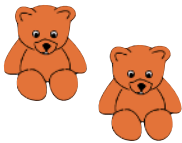
The Big Question

What's the smallest number of swaps you need to complete the challenge?

Teddy Town 1

In Teddy Town, there are:

2 blue teddies	2 yellow teddies
2 blue houses	2 yellow houses

Can you put each teddy into a house so that all four combinations are different from each other?
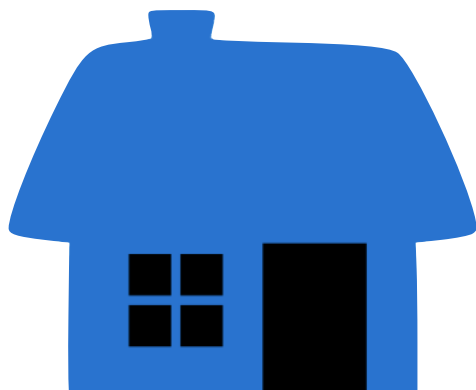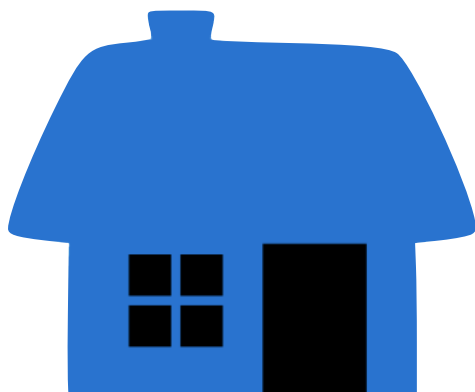
Teddy Town 2
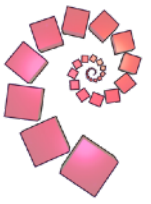
Teddy town has grown and there are now **three** different colours of teddies and houses: red, yellow and blue.

In Teddy Town there are now 9 teddies and 9 houses:
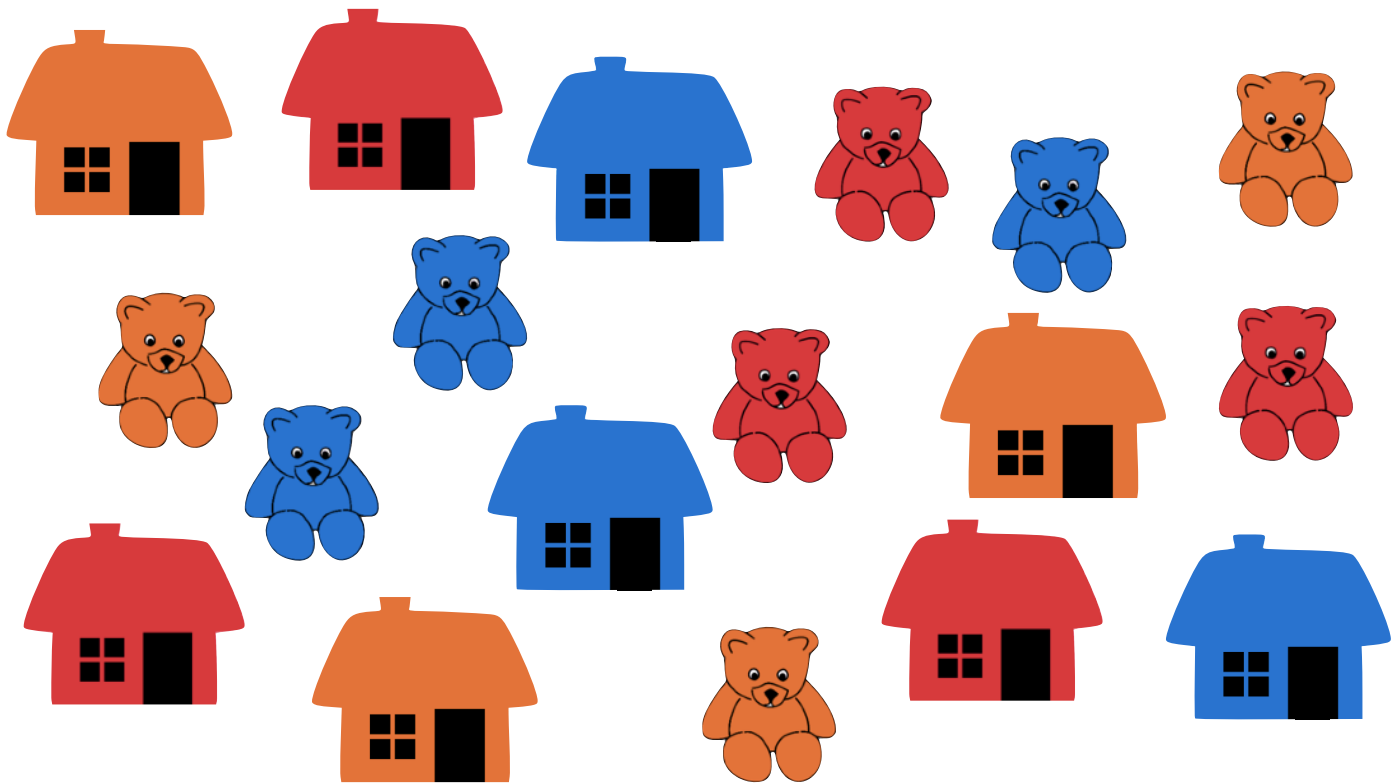
Can you make nine different combinations of teddies in houses?

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Activity
34
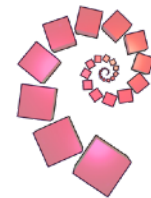
Teddy Town 3

To the right is a small map of Teddy Town, where the streets are very special.

If you walk along any street in any direction all the houses are a different colour and the teddies living in the houses are different colours too.
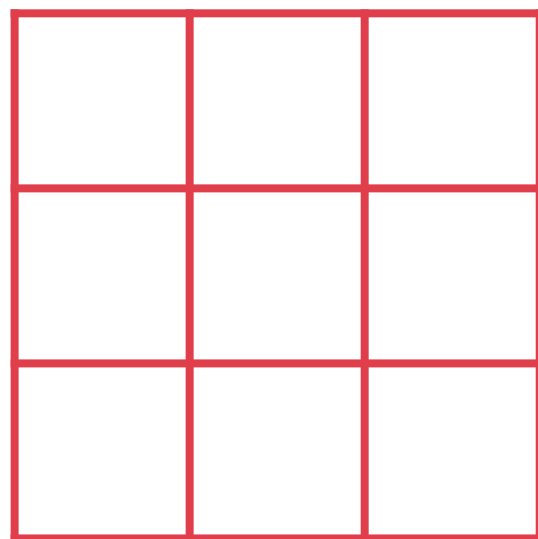
In other words, each row and column on the grid must have different coloured houses and different coloured teddies.

Can you arrange the nine different combinations you've found on the large map?
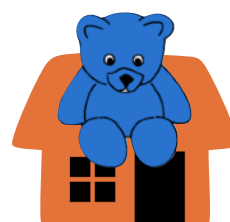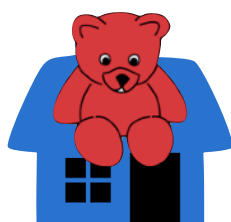
Teddy Town 4

Activity
34
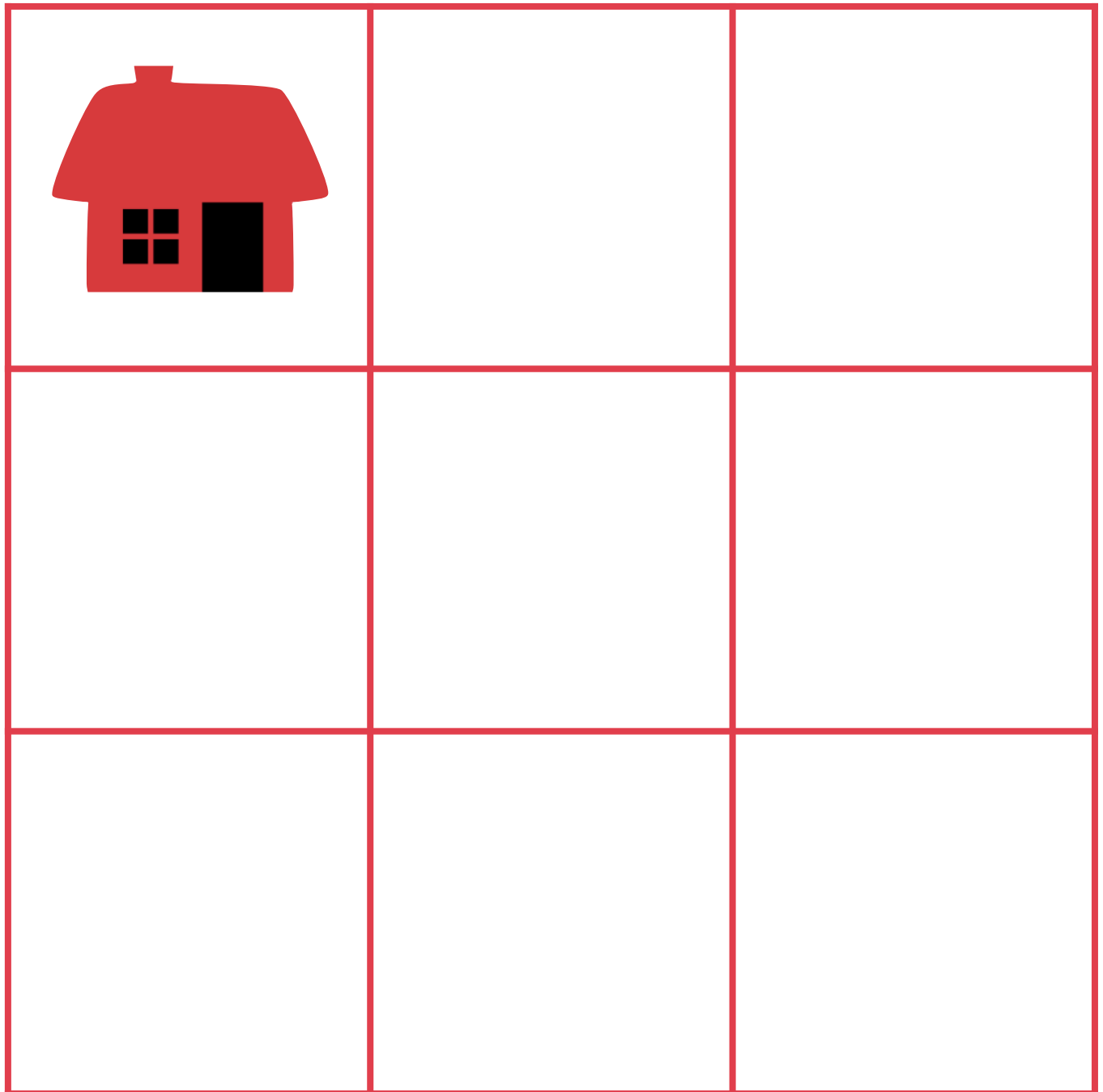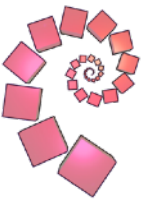
The Tower of Hanoi
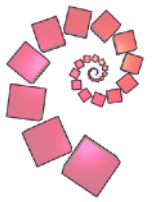
This is a very old puzzle from Asia which is sometimes called "The Tower of Brahma".
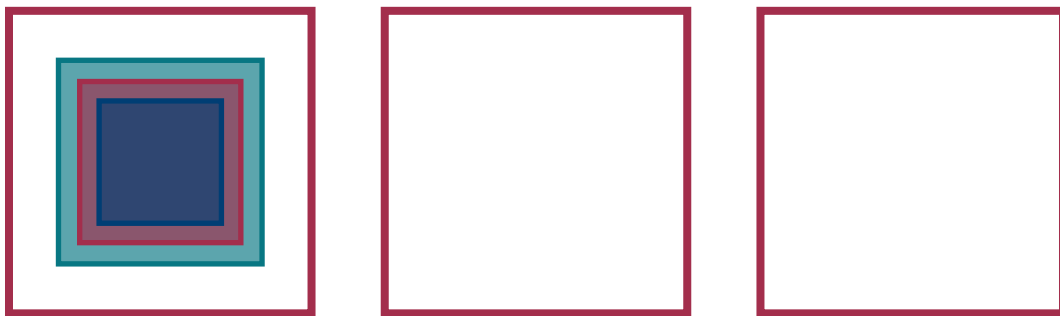
To Start

Put the three smallest pieces in the left square with the largest on the bottom and the smallest on the top.

The Aim

Move all three pieces to the right area.

The Rules

- You can only move one piece at a time.

- You may not place a larger piece on top of a smaller piece.

What is the smallest number of moves with which you can move all the pieces?

Now try starting with 4 pieces on the left, then with 5 and so on…
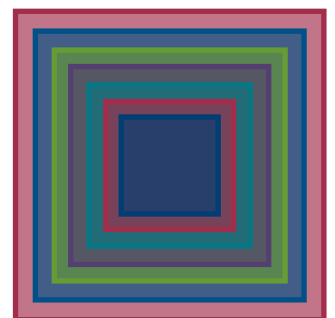
The Tower of Hanoi
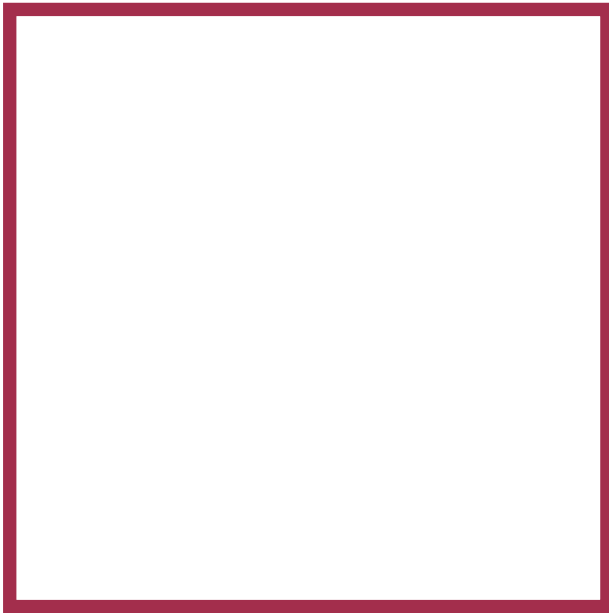
Start with all the pieces in this space.
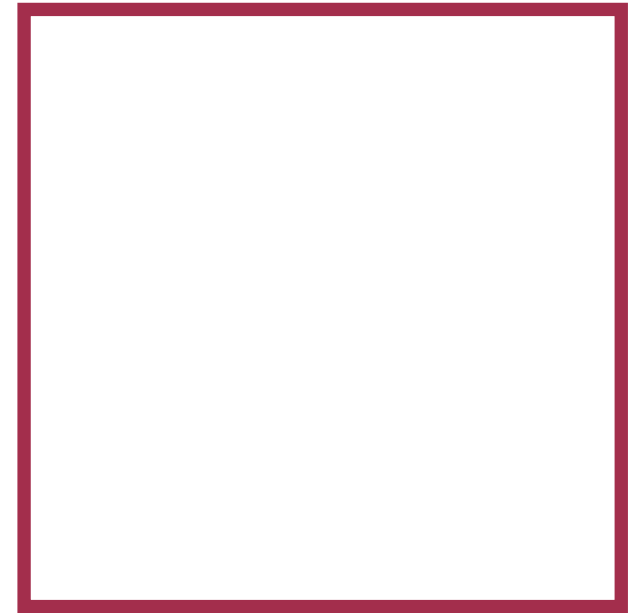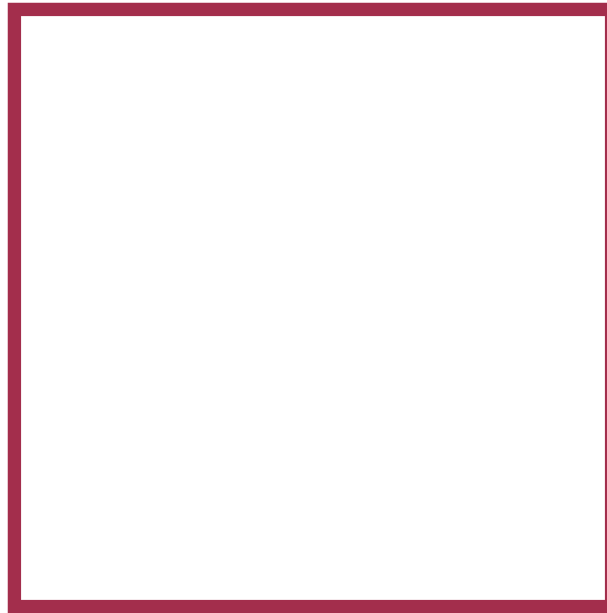
Finish with all the pieces in this space.

Activity
35

Two and Two

How many solutions can you find to the two sums below?

Each of the different letters stands for a different number.

$$
\begin{array}{c}
\boxed{O}\boxed{N}\boxed{E} \\
+\boxed{O}\boxed{N}\boxed{E} \\
\hline
\boxed{T}\boxed{W}\boxed{O} \\
\hline
\end{array}
$$

$$
\begin{array}{c}
\boxed{T}\boxed{W}\boxed{O} \\
+\boxed{T}\boxed{W}\boxed{O} \\
\hline
\boxed{F}\boxed{O}\boxed{U}\boxed{R} \\
\hline
\end{array}
$$

Two Stones

This game is for two players. Each player plays with two counters of the same colour.

To Start

Place two stones at the top and two at the bottom as shown on the right.
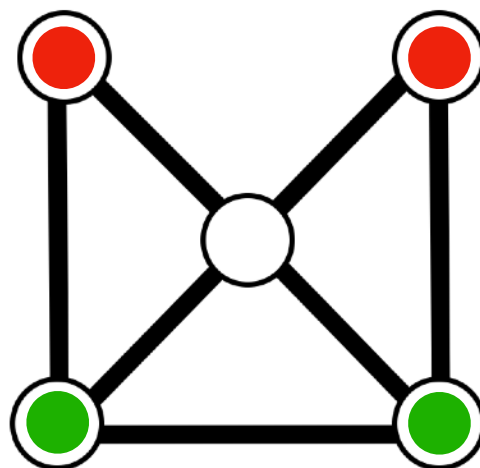
To Play

Players take turns at sliding one stone along a line to an empty spot. (So the first move will always be to the middle).

To Win

You have to block the other player so that they cannot move.

Next Game

At the start of each game the players should swap positions.

In China this game is known as **Pong hau k'i** and in Korea it is called **Ou-moul-ko-no**.

Two Stones

Activity
37
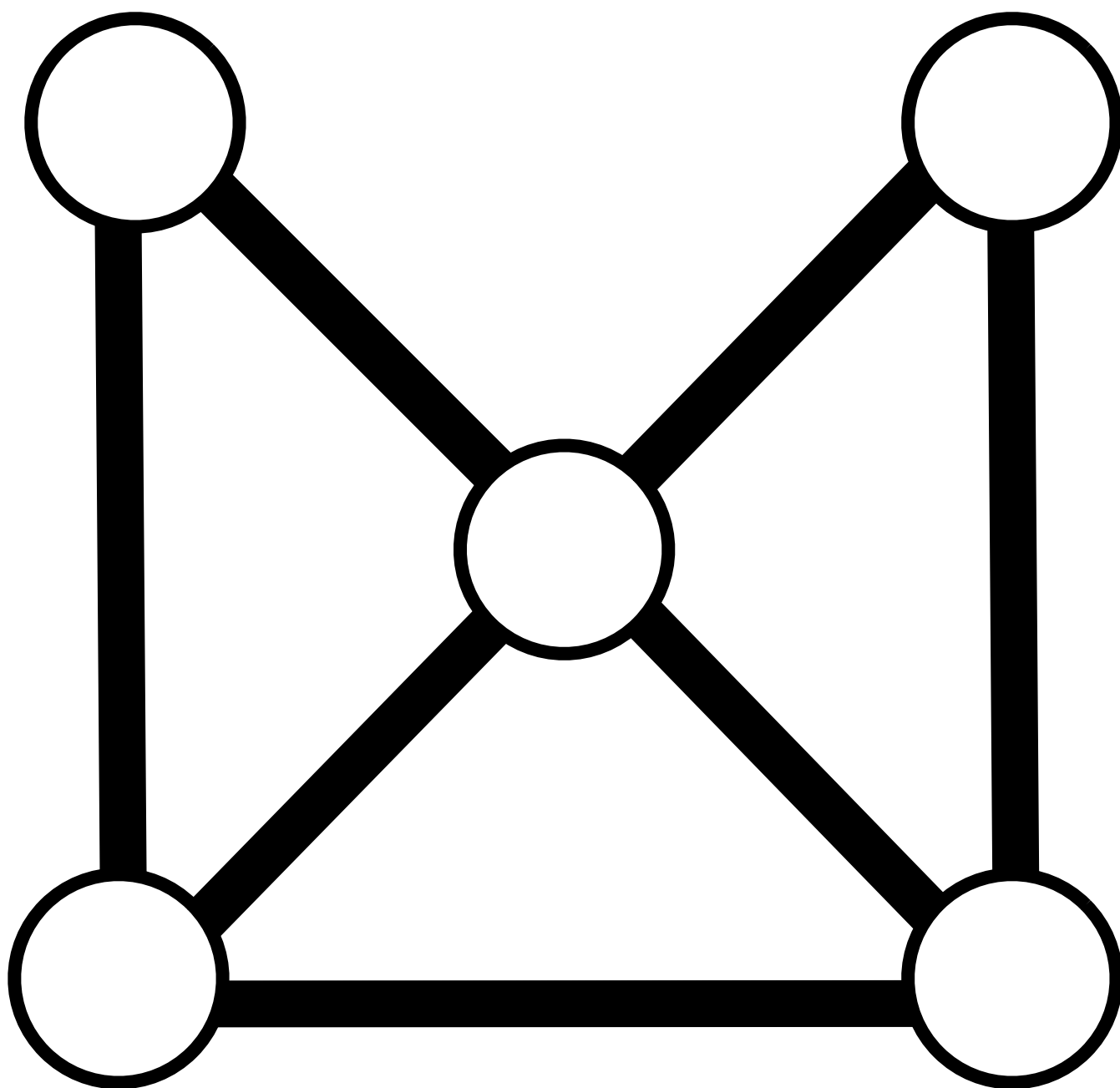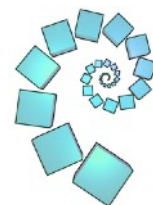
Two Digit Targets

Arrange the digits 0-9 in the five boxes below to make two-digit numbers as close to the targets as possible. You can use each digit once only.

a) Largest even number

b) Largest odd number

c) Smallest odd number

d) Largest multiple of 5

e) Number closest to 50

For a challenge, use all your answers in the sum:

a + b - c + d + (difference between e and 50)

What is the highest total you can make?
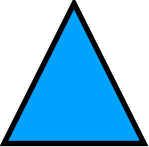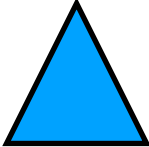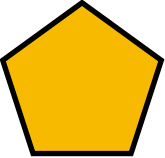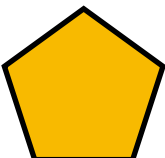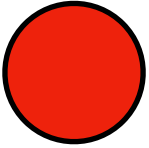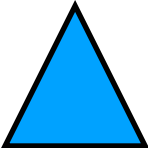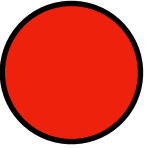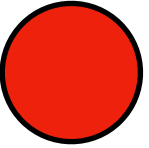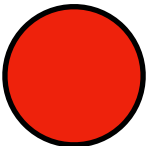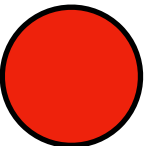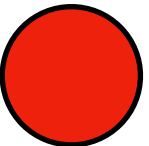
What's it Worth?
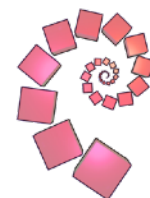
Each symbol has a numerical value.

The total for the symbols is written at the end of each row and column.

Can you find the missing total that should go where the question mark has been put?

Who's Who? 1

We can represent a group of friends by drawing a graph.

Each node (circle) represents a person.

An edge (line) joins two nodes if and only if those two people are friends.

Below is a graph showing a group of friends.

Can you work out who's who using the clues?
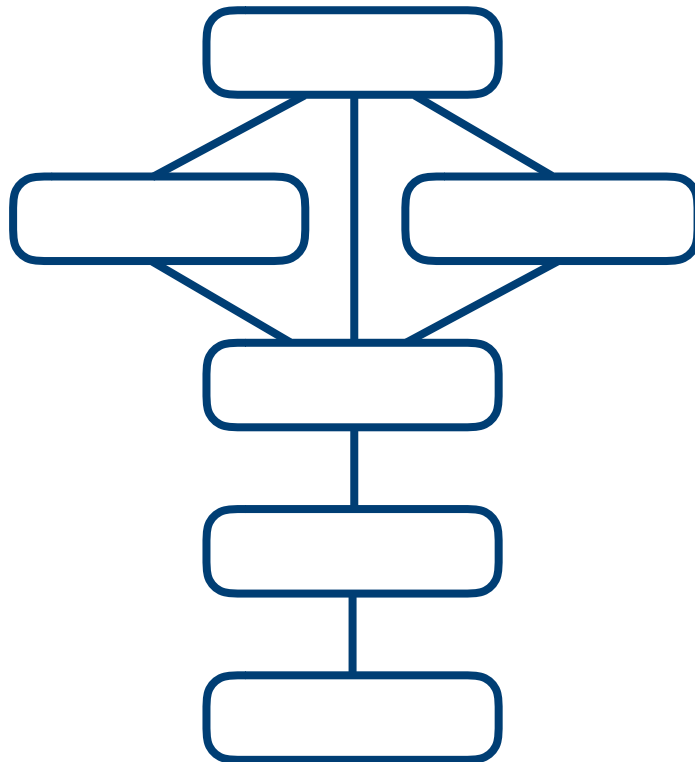
1. Alan has 3 friends, Barney, Charlie, and Daniel.

2. Barney and Ed are both friends with Charlie.

3. Ed is Frank's only friend.

Who's Who? 2

Here is a second network of friends.

Again, **use the clues below to figure out who's who**.
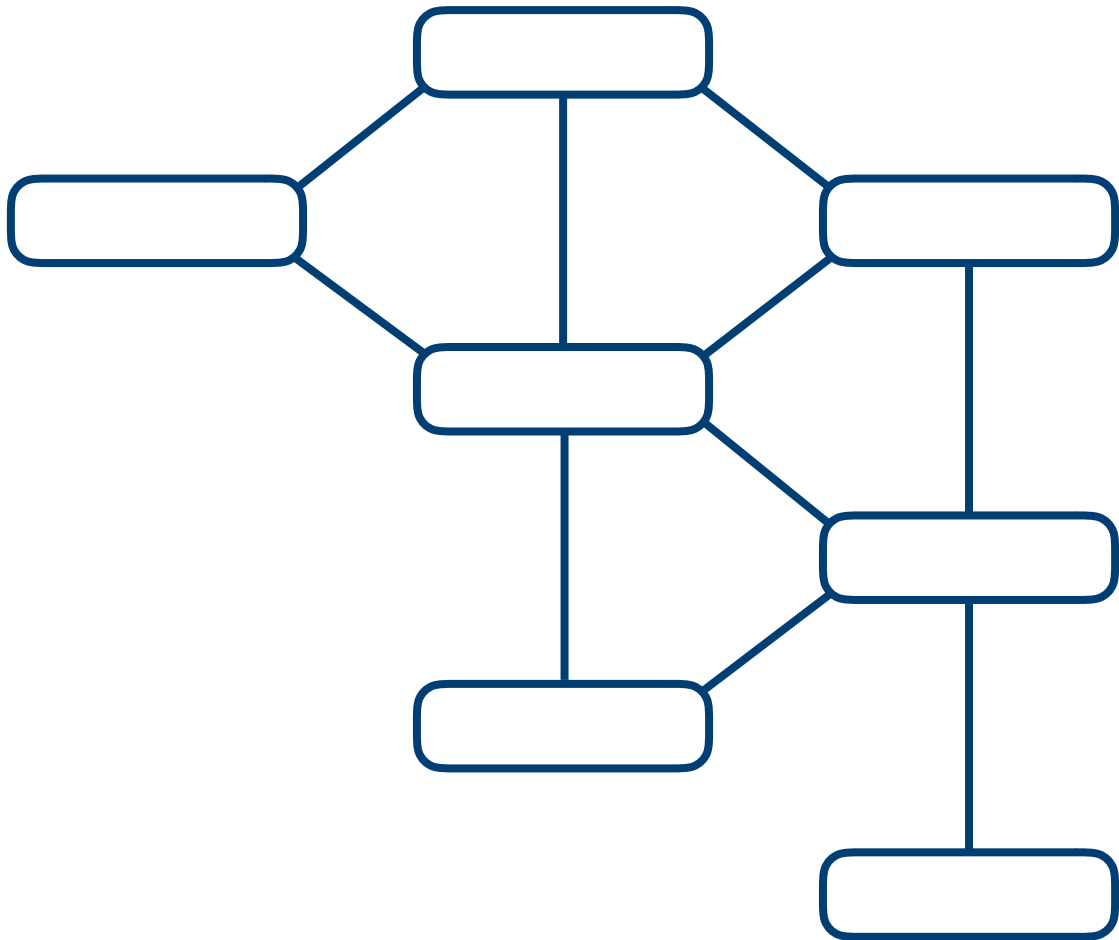
1. Bella and Ciara are friends
2. Emily and Ciara are not friends
3. Bella is Fiona's only friend
4. Anna has more friends than anyone else
5. Daphne has three friends
6. Gill and Daphne are not friends
7. Emily has two friends

nrich.maths.org/mathsfair

Activity
40

4 DOM

Version 1

Print and cut out the 4 dominoes below:
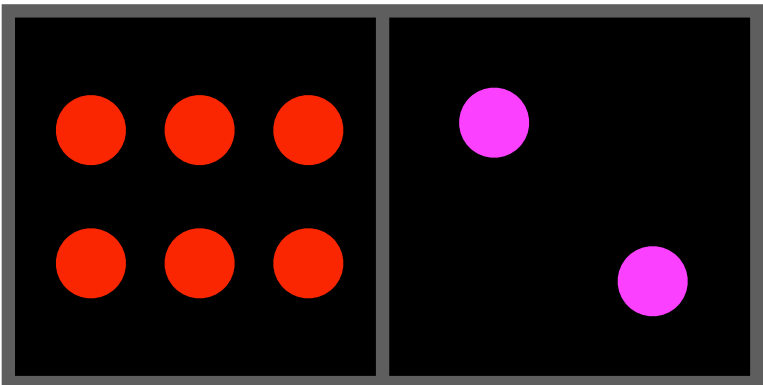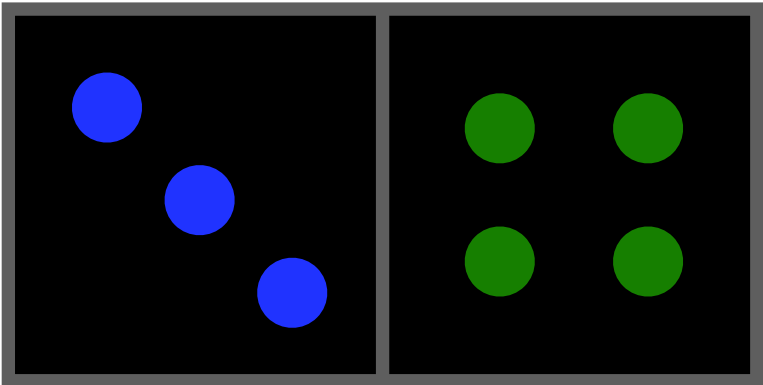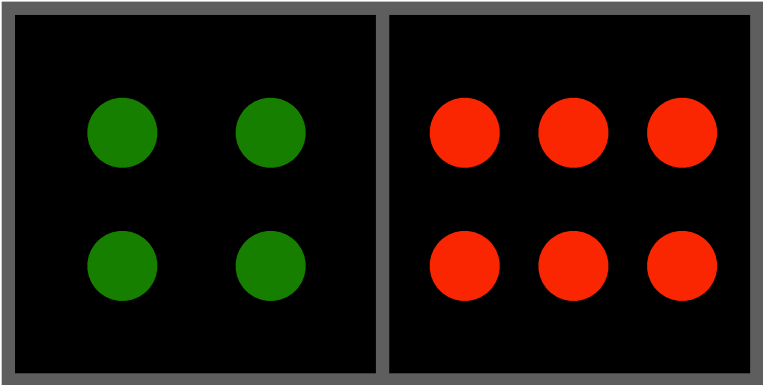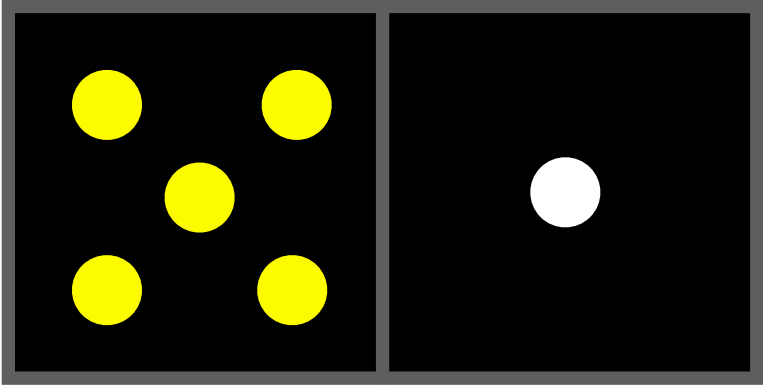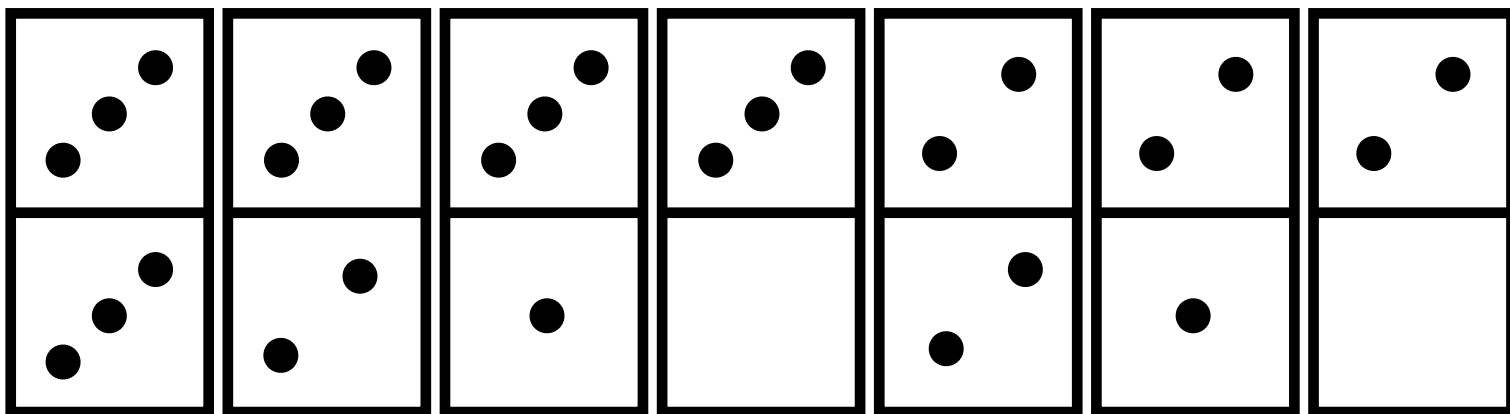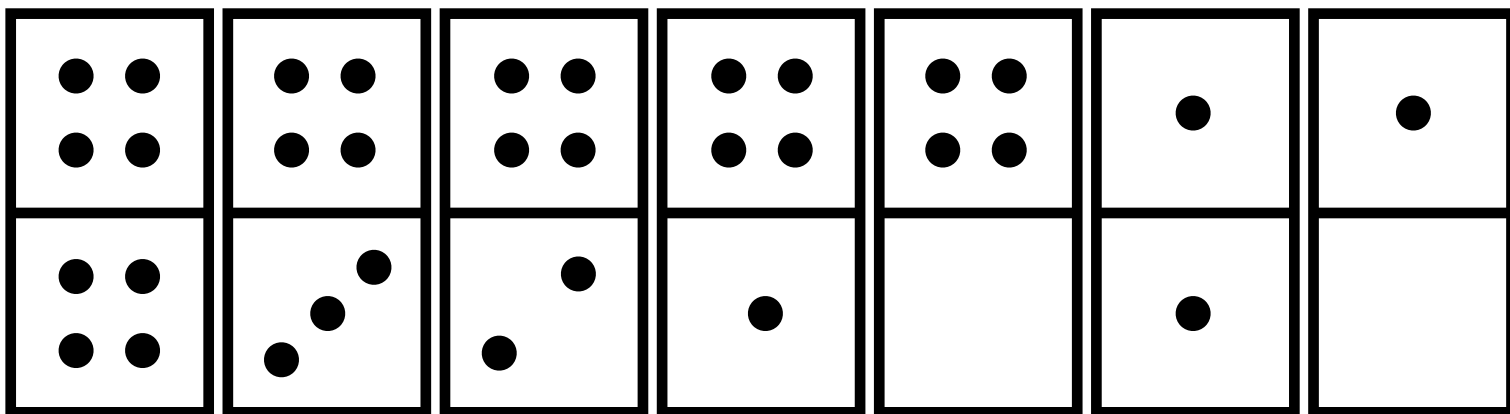
4 DOM

Version 2

Print and cut out the 4 dominoes below:
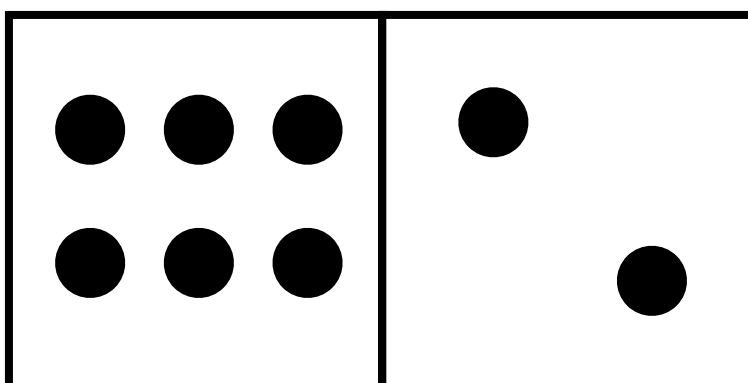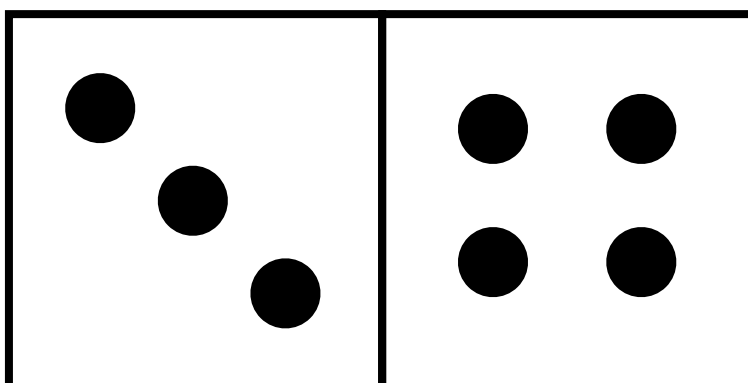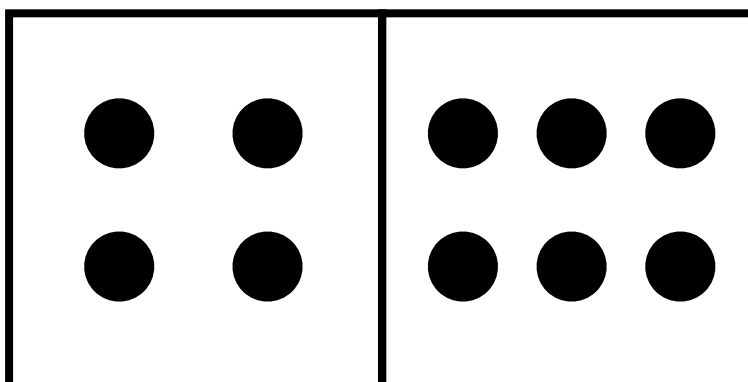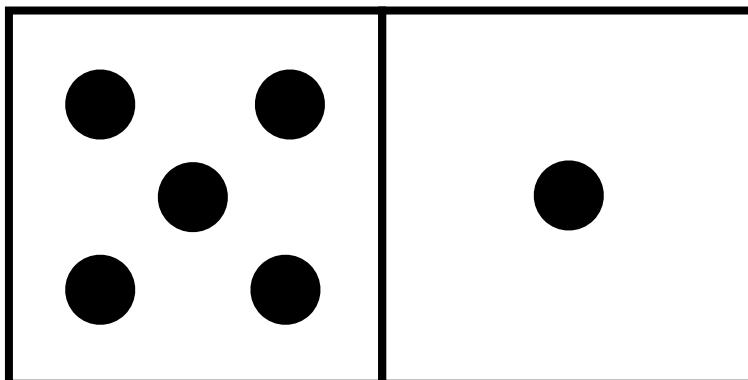
You can record your different answers on this sheet.

Dicey Operations

Player 1

$$\begin{array}{r} \square\square\square \\ + \square\square\square \\ + \square\square\square \\ \hline \end{array}$$

Player 2

$$\begin{array}{r} \square\square\square \\ + \square\square\square \\ + \square\square\square \\ \hline \end{array}$$

Player 1

$$\begin{array}{r} \square\square\square \\ + \square\square\square \\ + \square\square\square \\ \hline \end{array}$$

Player 2

$$\begin{array}{r} \square\square\square \\ + \square\square\square \\ + \square\square\square \\ \hline \end{array}$$

Player 1

$$\begin{array}{r} \square\square\square \\ + \square\square\square \\ + \square\square\square \\ \hline \end{array}$$

Player 2

$$\begin{array}{r} \square\square\square \\ + \square\square\square \\ + \square\square\square \\ \hline \end{array}$$

Player 1

$$\begin{array}{r} \square\square\square \\ + \square\square\square \\ + \square\square\square \\ \hline \end{array}$$

Player 2

$$\begin{array}{r} \square\square\square \\ + \square\square\square \\ + \square\square\square \\ \hline \end{array}$$

Player 1

$$\begin{array}{r} \square\square\square \\ + \square\square\square \\ + \square\square\square \\ \hline \end{array}$$

Player 2

$$\begin{array}{r} \square\square\square \\ + \square\square\square \\ + \square\square\square \\ \hline \end{array}$$

Player 1

$$\begin{array}{r} \square\square\square \\ + \square\square\square \\ + \square\square\square \\ \hline \end{array}$$

Player 2

$$\begin{array}{r} \square\square\square \\ + \square\square\square \\ + \square\square\square \\ \hline \end{array}$$

Player 1

$$\begin{array}{r} \square\square\square \\ + \square\square\square \\ + \square\square\square \\ \hline \end{array}$$

Player 2

$$\begin{array}{r} \square\square\square \\ + \square\square\square \\ + \square\square\square \\ \hline \end{array}$$

Player 1

$$\begin{array}{r} \square\square\square \\ + \square\square\square \\ + \square\square\square \\ \hline \end{array}$$

Player 2

$$\begin{array}{r} \square\square\square \\ + \square\square\square \\ + \square\square\square \\ \hline \end{array}$$

Dicey Operations

Player 1

```
[  ][  ][  ]
+ [  ][  ][  ]
+ [  ][  ][  ]
_____
```

Player 2

```
[  ][  ][  ]
+ [  ][  ][  ]
+ [  ][  ][  ]
_____
```

Player 1

```
[  ][  ][  ]
+ [  ][  ][  ]
+ [  ][  ][  ]
_____
```

Player 2

```
[  ][  ][  ]
+ [  ][  ][  ]
+ [  ][  ][  ]
_____
```

Player 1

```
[  ][  ][  ]
+ [  ][  ][  ]
+ [  ][  ][  ]
_____
```

Player 2

```
[  ][  ][  ]
+ [  ][  ][  ]
+ [  ][  ][  ]
_____
```

Domino Square

Version 1

Print and cut out the 10 dominoes below:

Domino Square

Version 2

Print and cut out the 10 dominoes below:

Domino Tetrads

Version 1: Print and cut out the 28 dominoes below

Activity 9

Domino Tetrads

Version 2: Print and cut out the 28 dominoes below

Domino Windows

Version 1: Print and cut out the 28 dominoes below

Domino Windows

Version 2: Print and cut out the 28 dominoes below

Egg Tangram

Print and cut out the 9 pieces below:
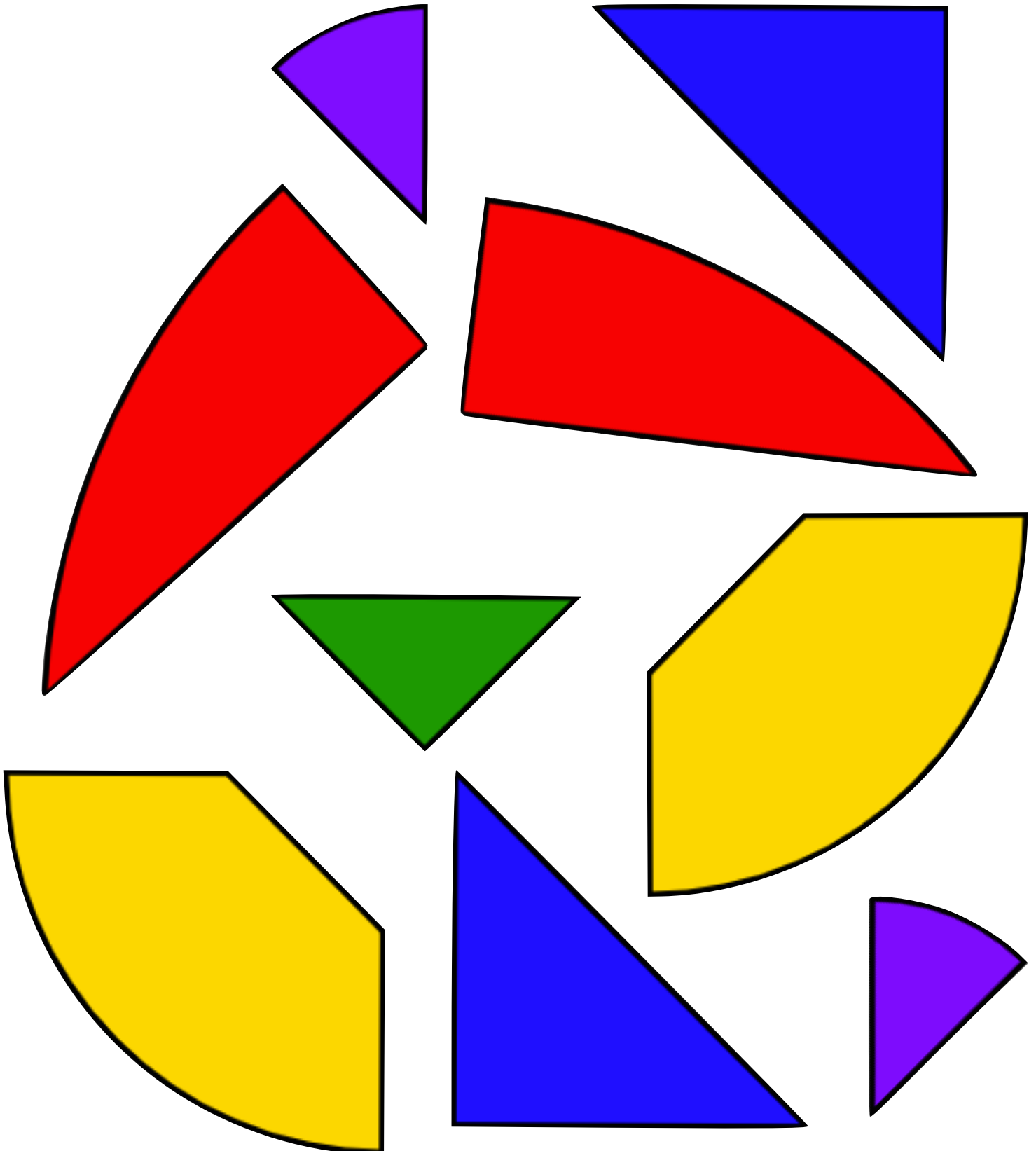
Factors and Multiples Game

Use one grid for each game you play.

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

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

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

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

Fifteen

Print and cut out the 9 digits below:

1	2	3
4	5	6
7	8	9
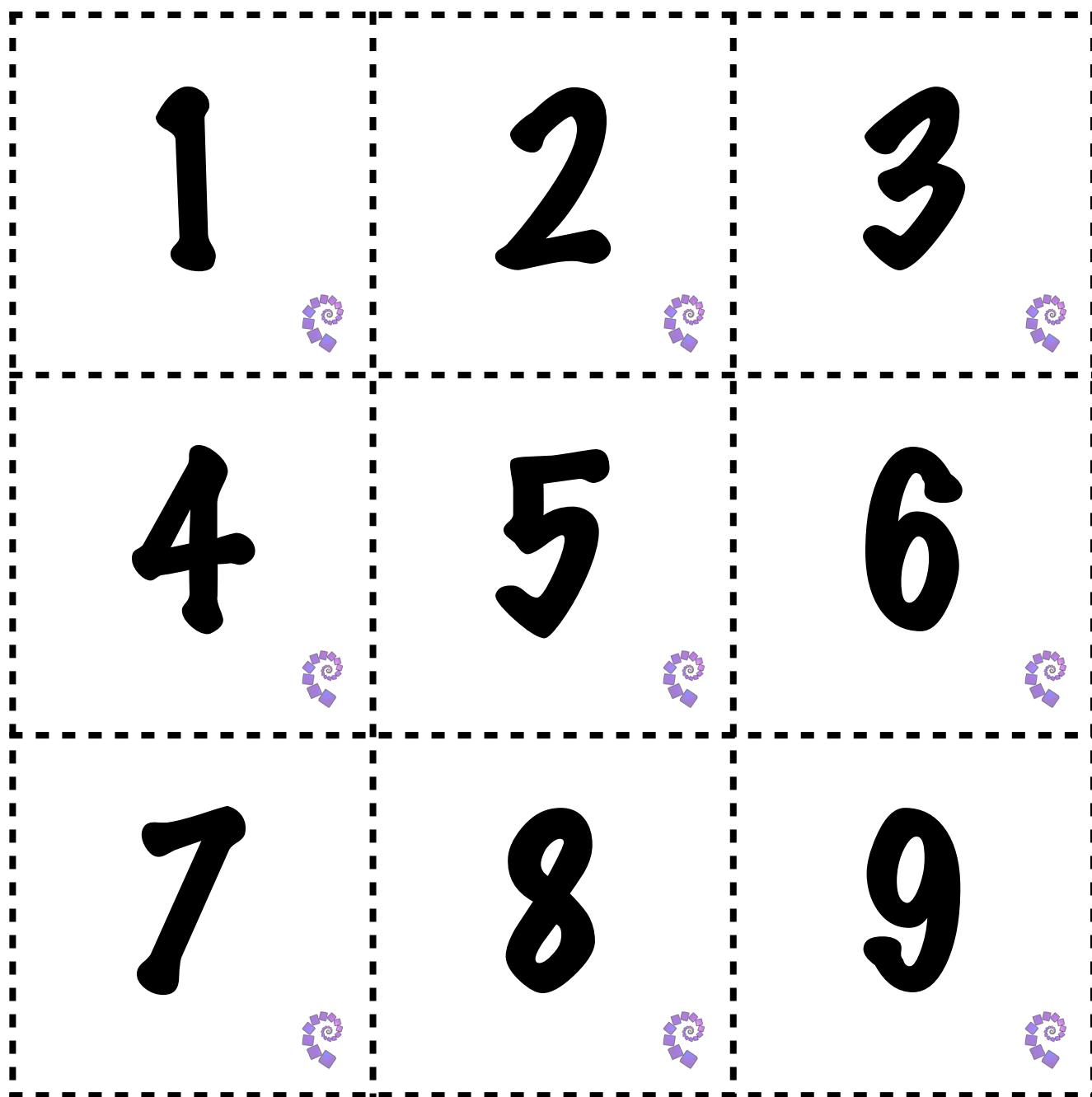
Gabriel's Problem

Print and cut out the 36 numbers below.

1	2	3
4	5	6
7	8	9

1	2	3
4	5	6
9	10	12

1	2	3
4	5	6
7	8	9

1	2	3
4	5	6
7	8	9

Make 37

Print and cut out the 40 numbers below

1	1	1	1	1
1	1	1	1	1
3	3	3	3	3
3	3	3	3	3
5	5	5	5	5
5	5	5	5	5
7	7	7	7	7
7	7	7	7	7

Mixed Up Socks

Print and cut out the socks below:
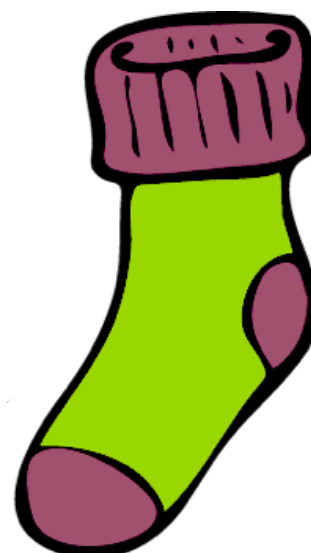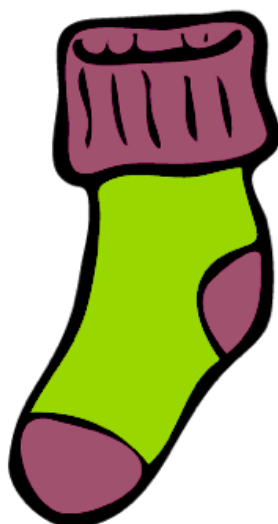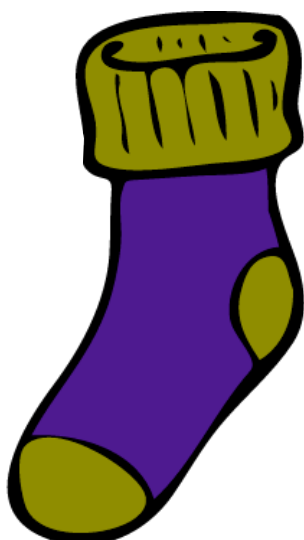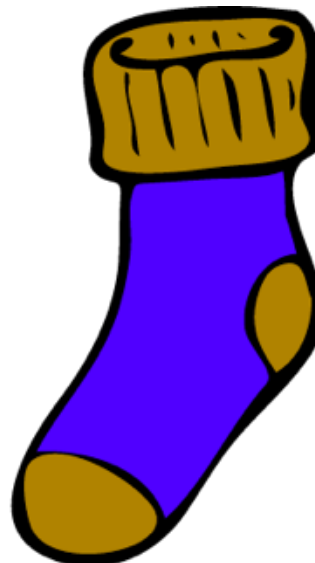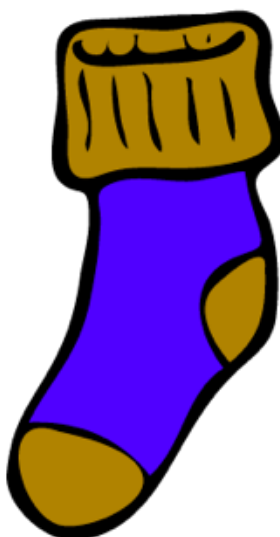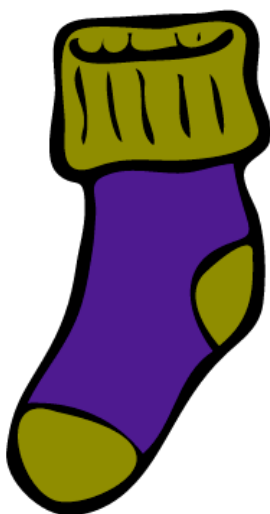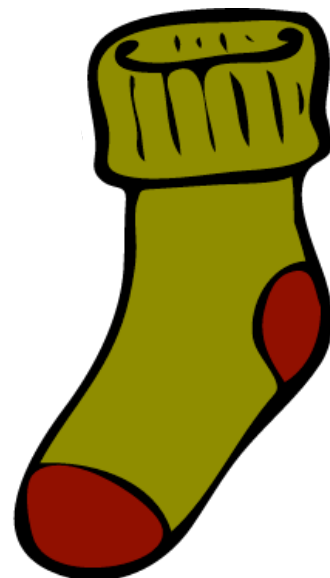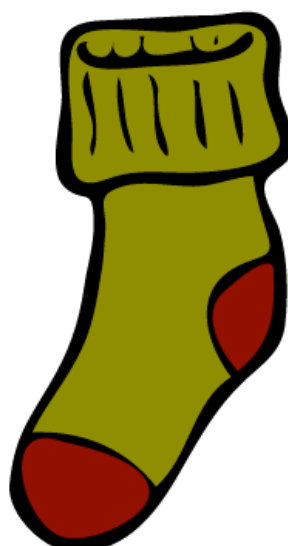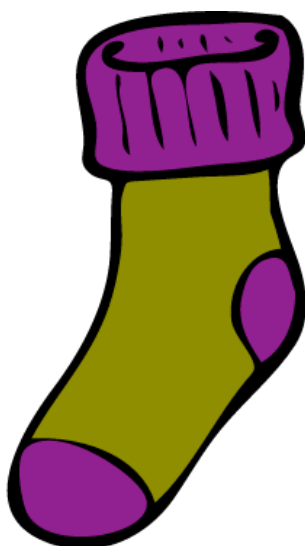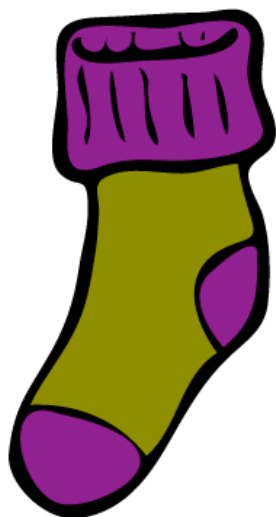
One Big Triangle

Print and cut out the nine triangles below.

Sandwiches
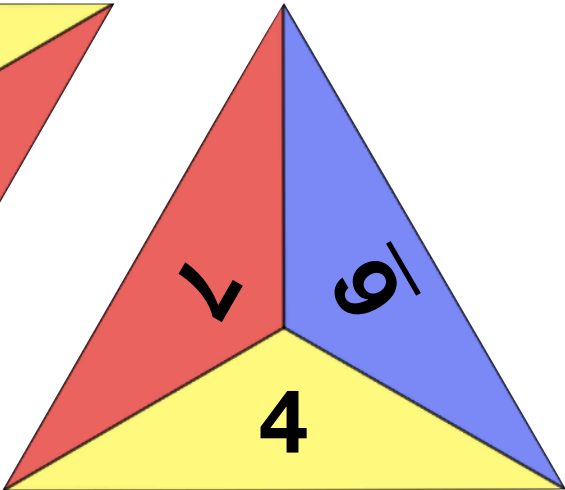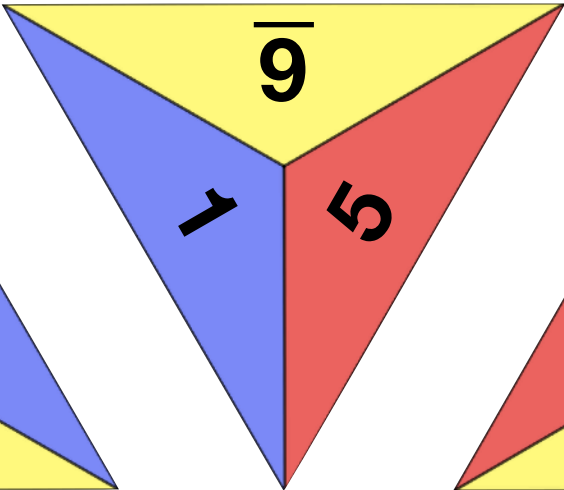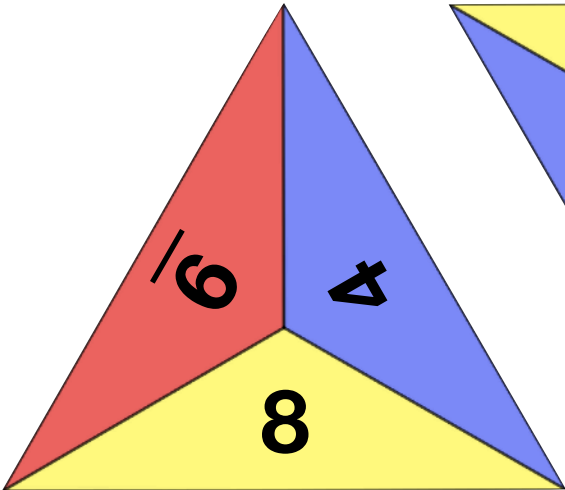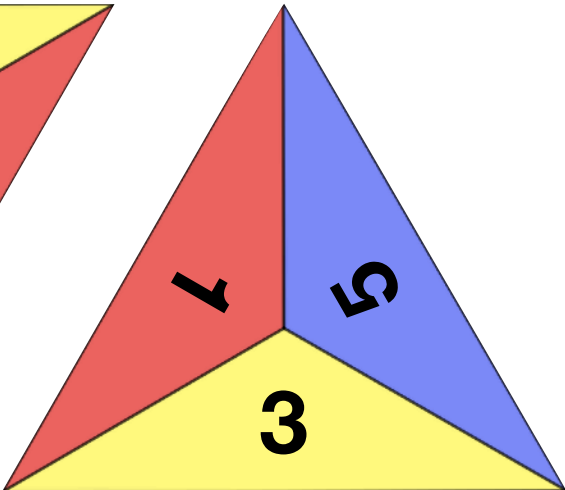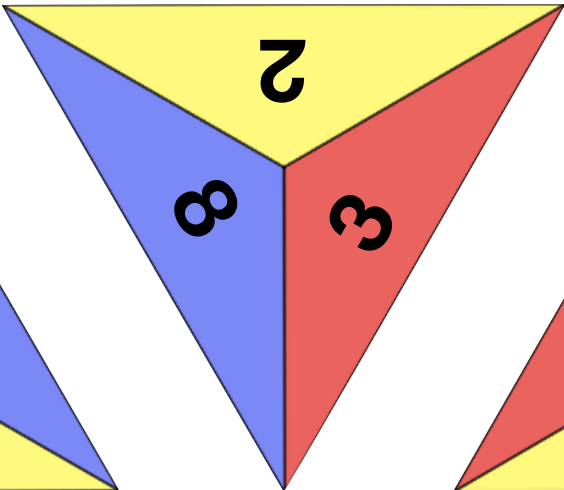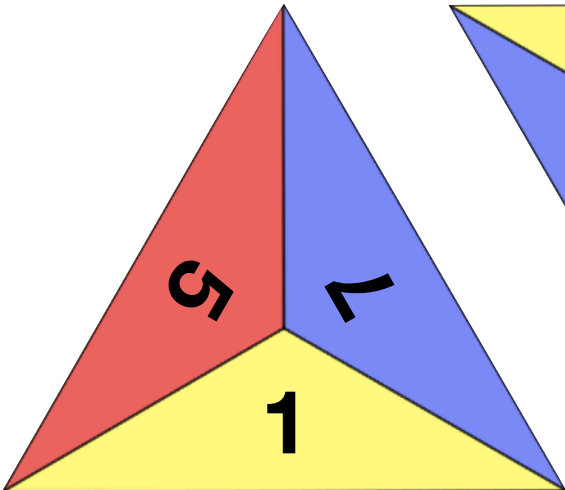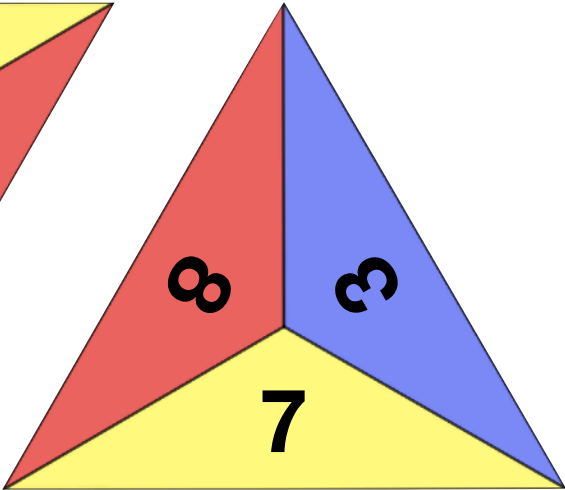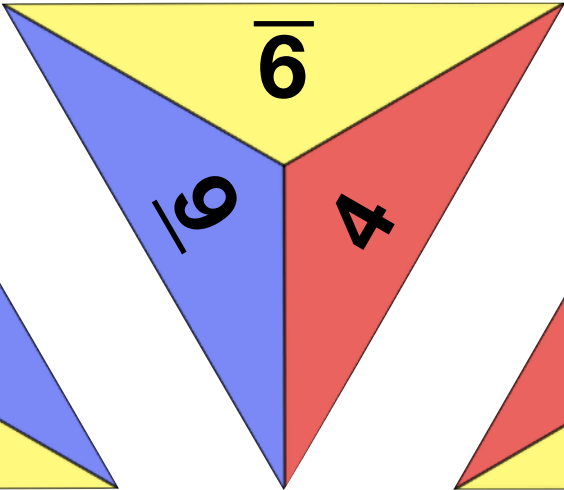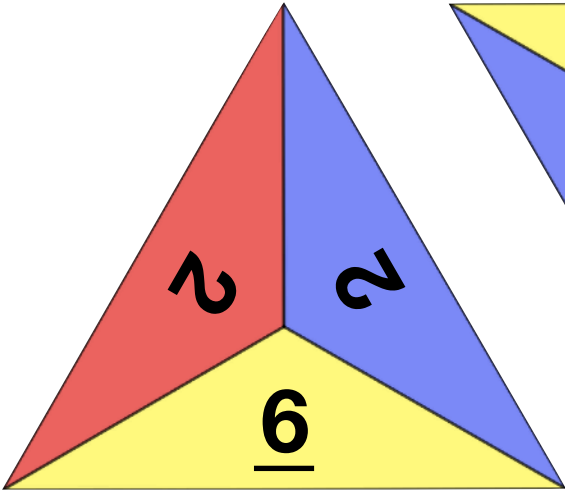
Print and cut out the 14 numbers below:

1	1	2
2	3	3
4	4	5
5	6	6
7	7	

Square Tangram

Print and cut out the 5 red tangram pieces on this page and the 5 blue tangram pieces on the next page.
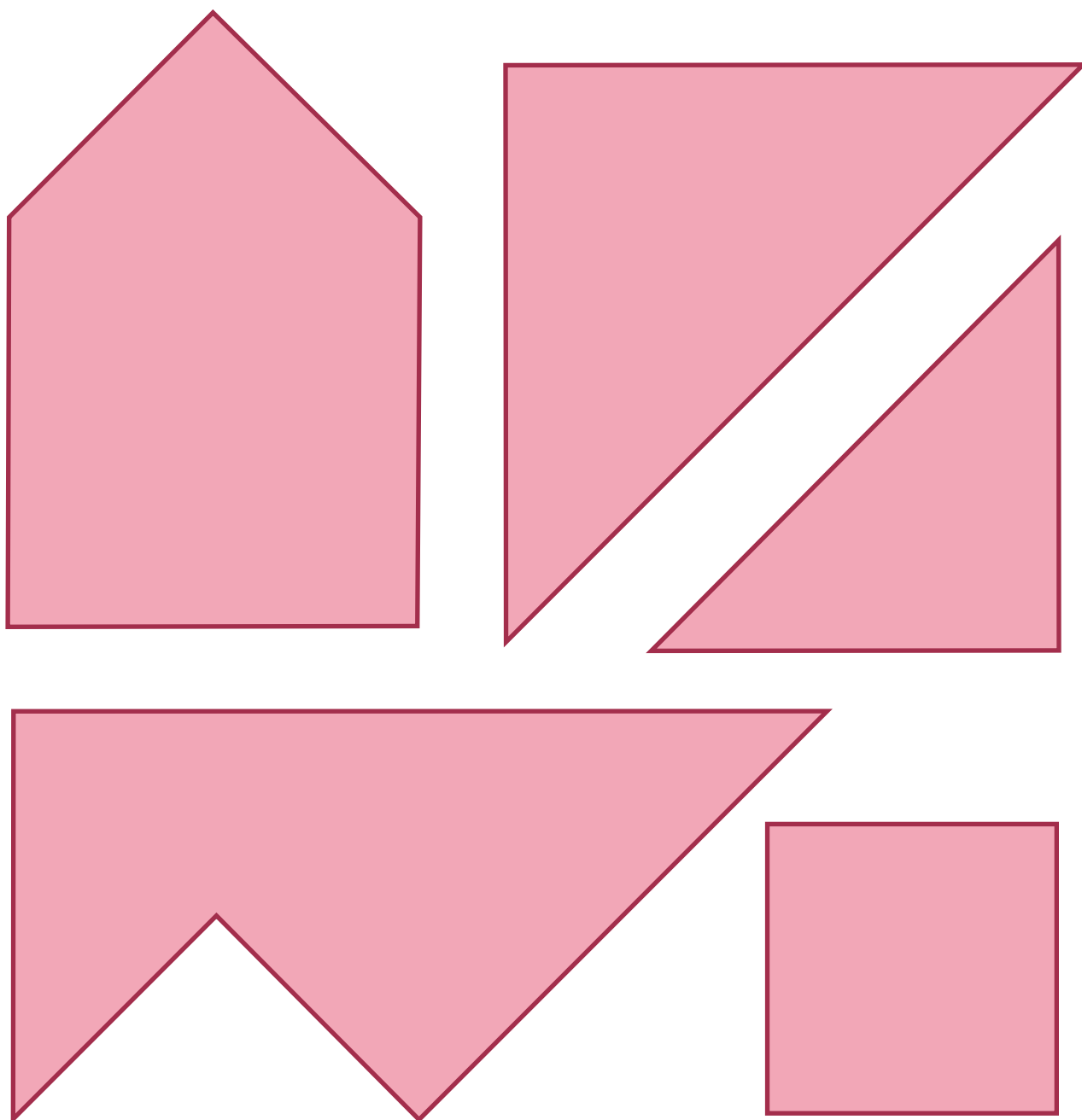
Square Tangram

Print and cut out the 5 blue tangram pieces on this page and the 5 red tangram pieces on the previous page.
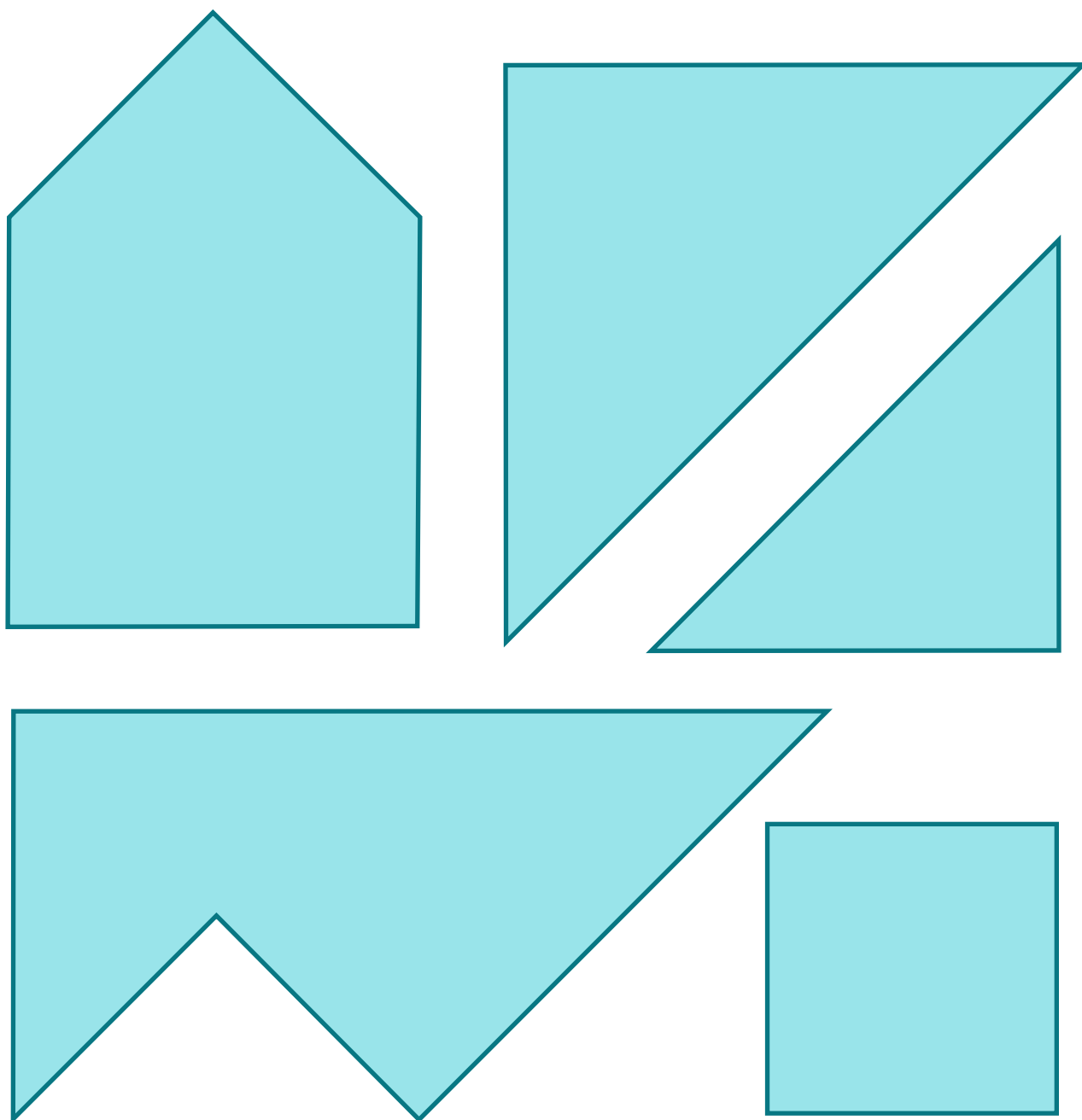
Sticky Numbers
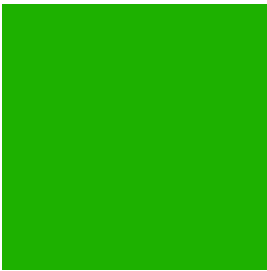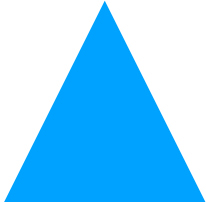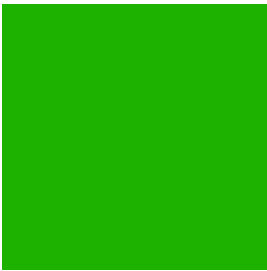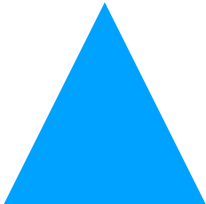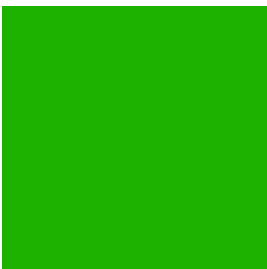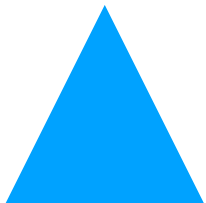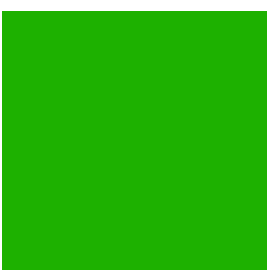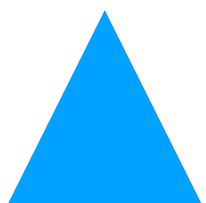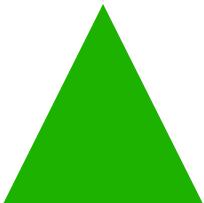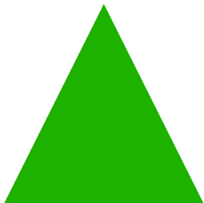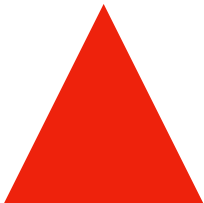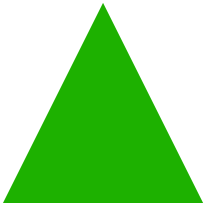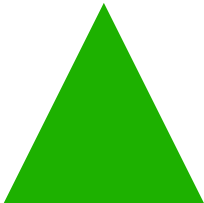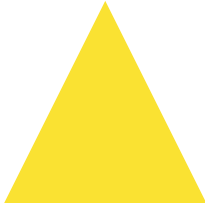
Print and cut out the 17 numbers below

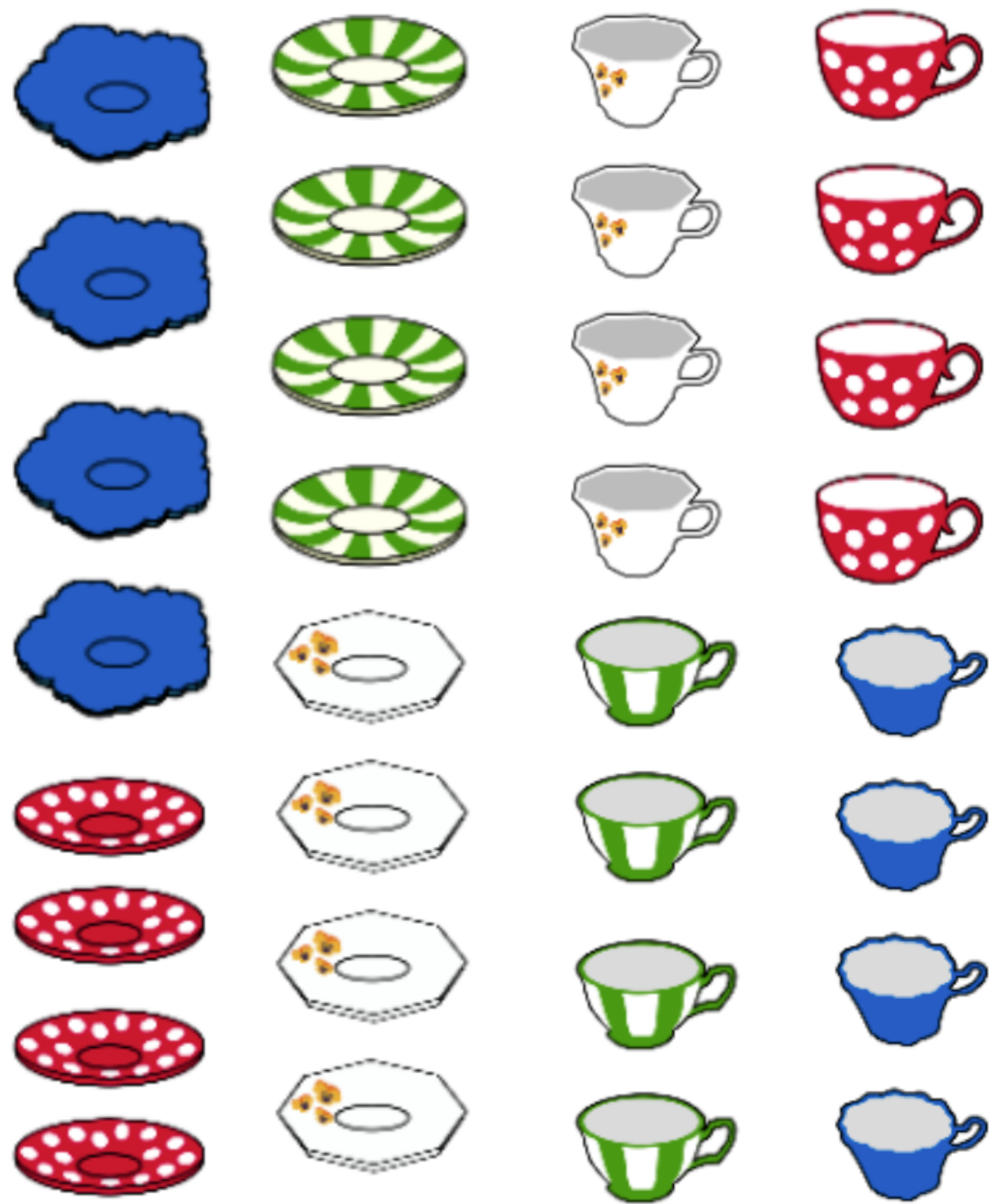|		
1	2	3
4	5	6
7	8	9
10	11	12
13	14	15
16	17	

Teacups

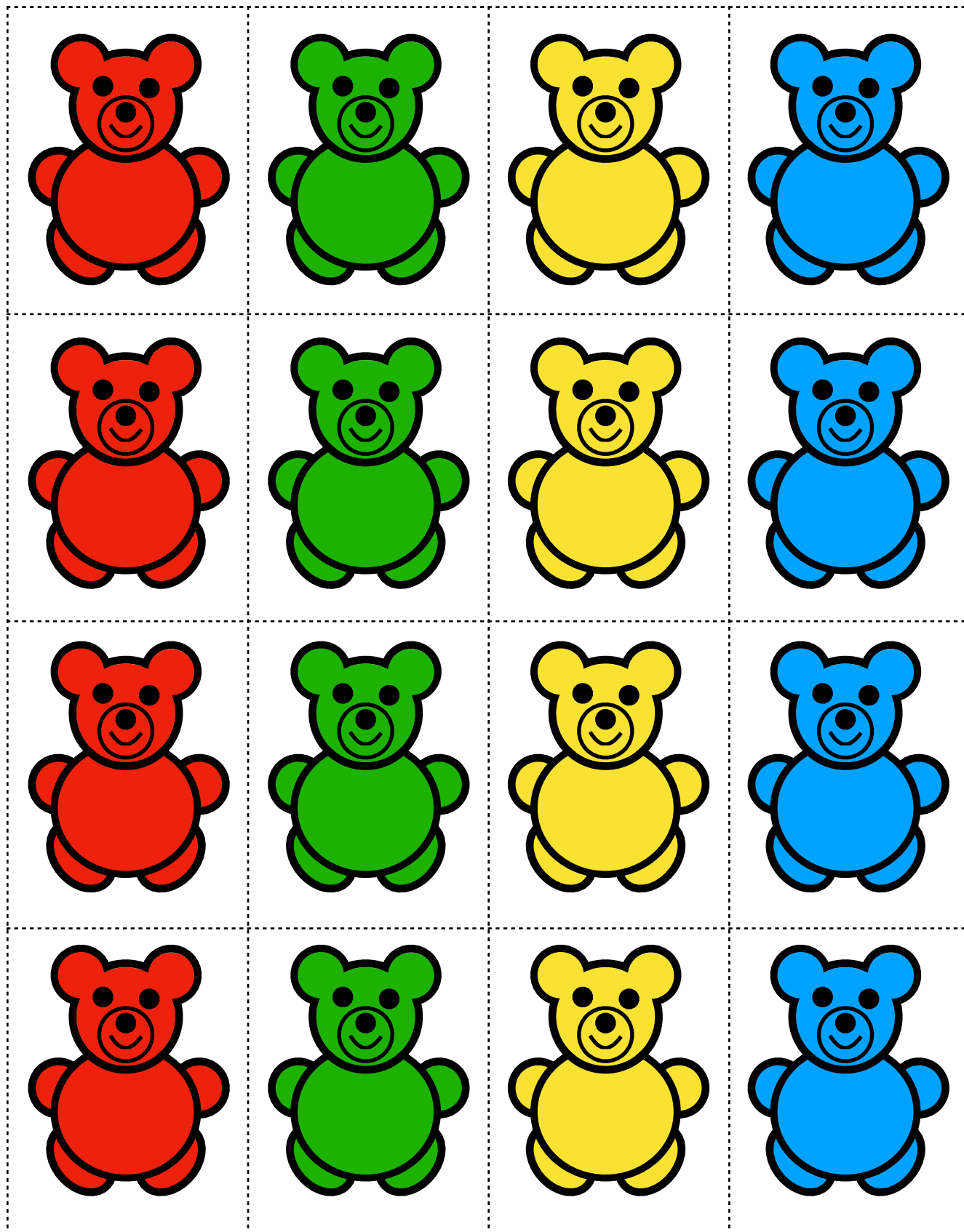**Version 1**: For those with less time for cutting out.

Teacups

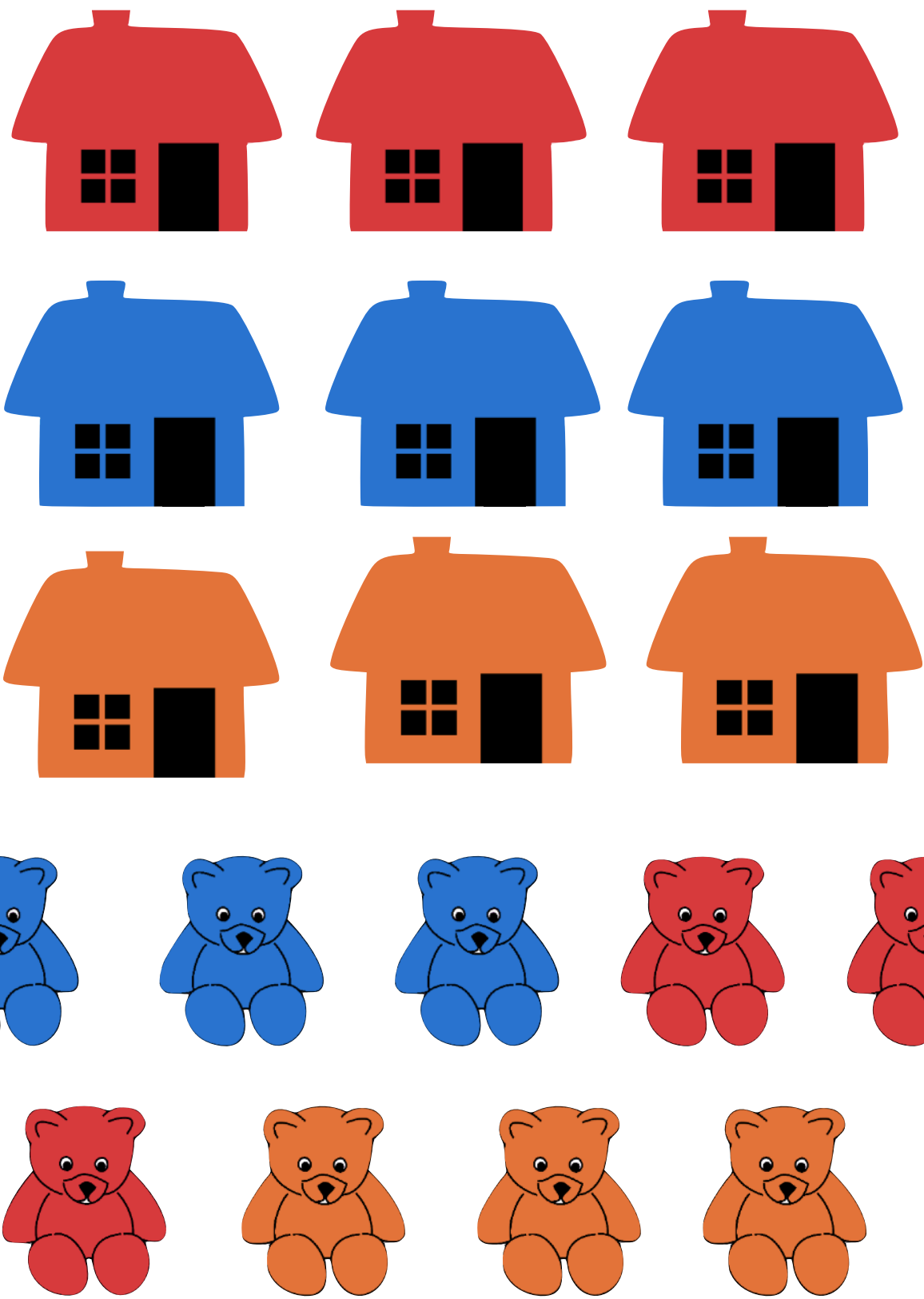**Version 2**: For those with a little more time for cutting out.

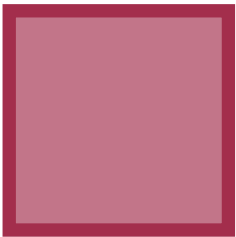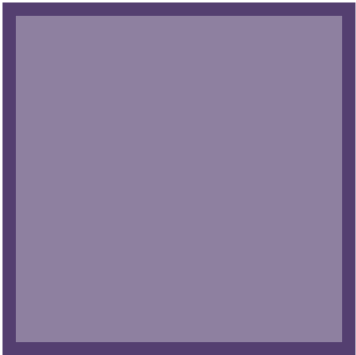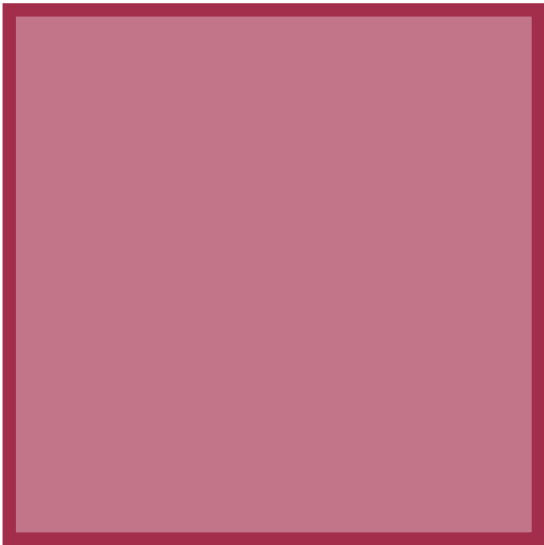# Teddy Bear Line-Up

Print and cut out the 16 teddy bears below:

Teddy Town

Print and cut out the houses and teddies below:

The Tower of Hanoi

Print and cut out all the 7 pieces below

Activity

38 | **Two Digit Targets**

Print and cut out the 10 digits below:

0	1	2	3
4	5	6	7
8	9		

Who's Who

Print and cut out the 13 names below:

Alan	Anna
Barney	Bella
Charlie	Ciara
Daniel	Daphne
Ed	Emily
Frank	Fiona
	Gill