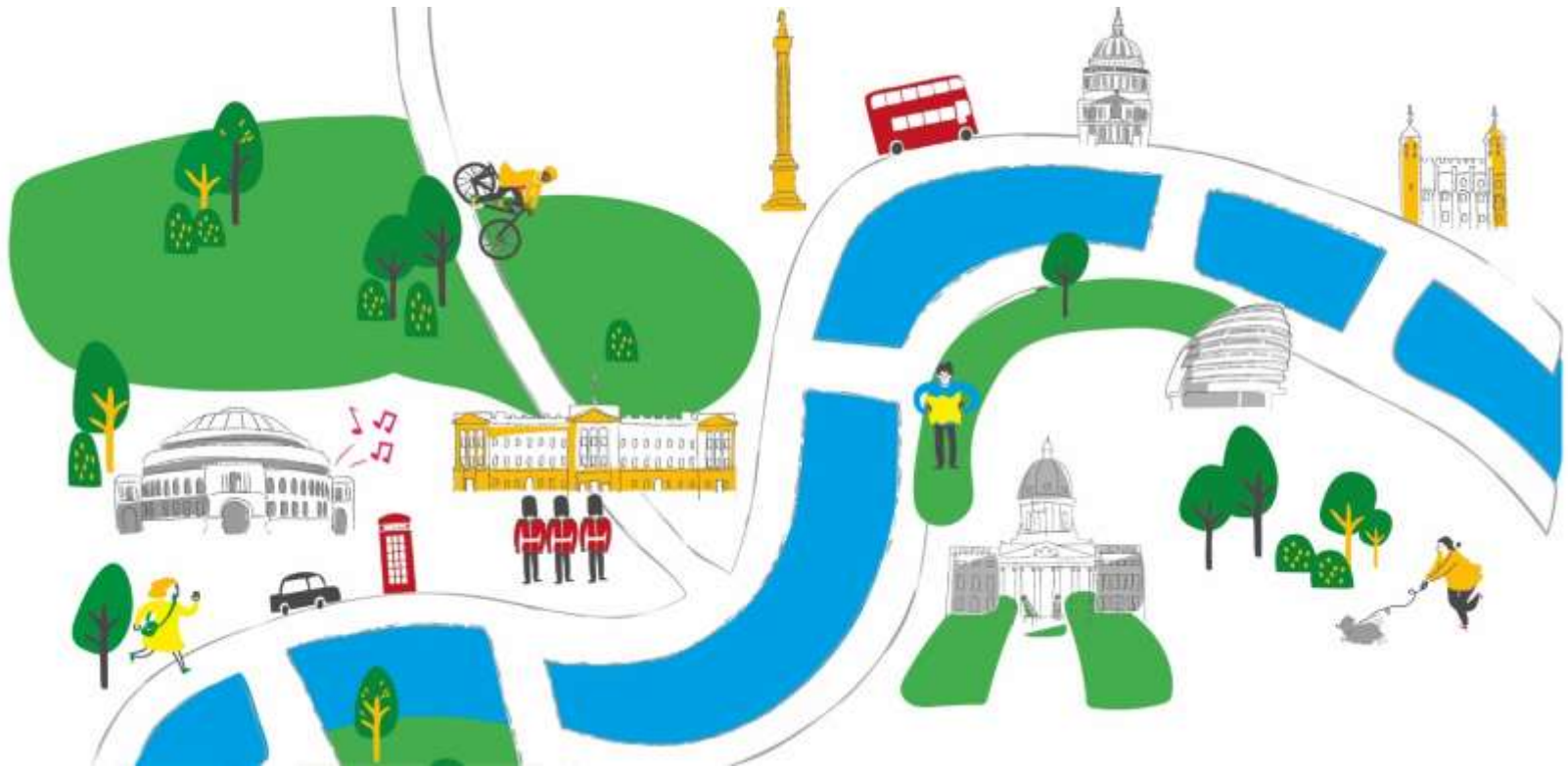


# COUNT ON US

## PRIMARY CHALLENGE 2022-23



PREPARING FOR THE PRIMARY CHALLENGE

# SESSION OUTLINE AND AIMS

## By the end of the session, you will:

- ✓ Understand the programme: its aims and expectations
- ✓ Understand the maths activities and how to use them
- ✓ Have considered when and how to practise in school
- ✓ Know how to prepare for the Heats
- ✓ Know how to access and use the COU Resource Area

## WHY TAKE PART?

- Confidence with mental maths, problem solving and collaborative working
- Whole class / year group / Key Stage engagement
- Form links with other schools, share experiences, resources and ideas

## FROM TODAY'S SESSION TO THE HEATS

- Stage 1** Training session
- Stage 2** In-school practice (the most important)  
Drop In support sessions
- Stage 3** In/inter-school tournaments
- Then:**
- Stage 4** The Count on Us Tournaments:  
Heats and FINAL

# WHAT DOES THE CHALLENGE INVOLVE?

## A SUMMARY:

- Focus on three key maths areas:
  - ✓ **Pattern and Problem solving (Dominoes, Pentominoes and T-Shapes)**
  - ✓ **Number (24® Game)**
  - ✓ **Code breaking (Finance theme bespoke activity)**
- Teamwork and individual maths challenges
  - Phase 1: Maths clubs, in-class activity
  - Phase 2: In school tournaments

# WHAT SUPPORT DO WE OFFER?

## THE COUNT ON US RESOURCE AREA

*password:* CLARKE1883

### 1. Teacher Guide

- ✓ Overview, outline of activities, requirements

### 2. Pupil Activity Book

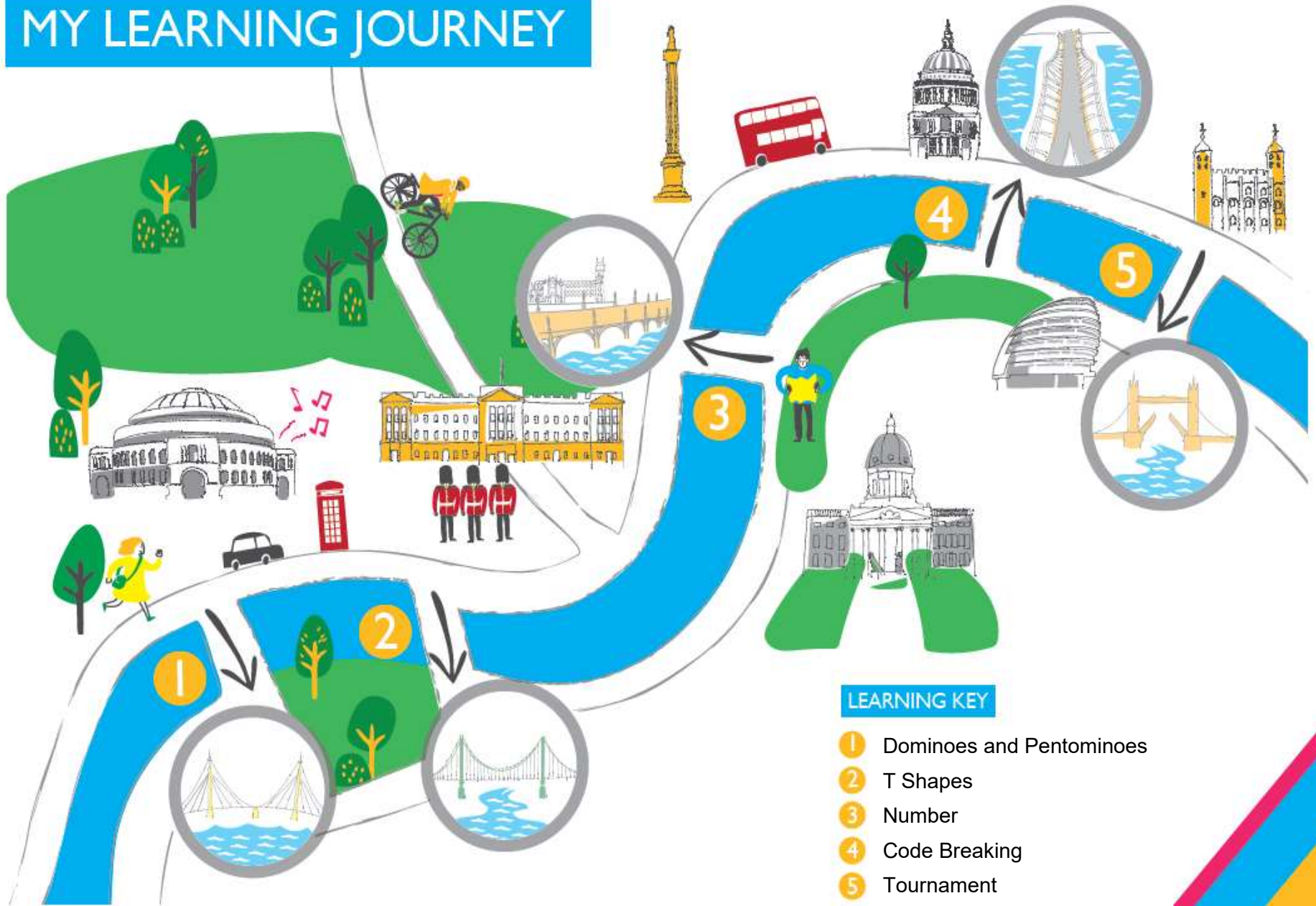
- ✓ Tasks to use in class or maths club
- ✓ Increasing levels of challenge with bonus activities
- ✓ Tips from teachers / pupils

### 3. In/inter-school Tournament Handbook (by March)

- ✓ How to set up an in-school Tournament

# COUNT ON US PRIMARY CHALLENGE PUPIL ACTIVITY BOOK

## MY LEARNING JOURNEY



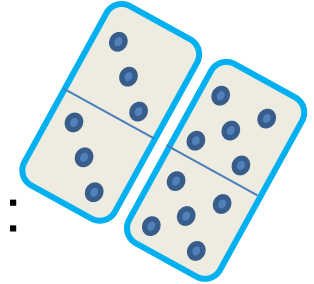
### LEARNING KEY

- 1 Dominoes and Pentominoes
- 2 T Shapes
- 3 Number
- 4 Code Breaking
- 5 Tournament

# Pattern & Problem Solving: *Dominoes target*

## ROUND 1: Dominoes

**The Task:** Arrange dominoes to match a grid. E.g.:



4	4	6	1
1	4	6	1
4	4	1	6
3	3	3	6
6	3	2	6

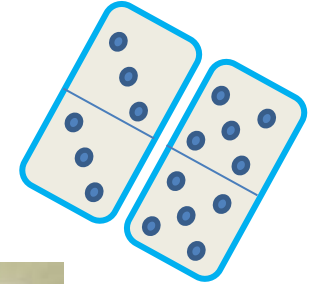


# Pattern & Problem Solving: *Dominoes target*

## ROUND 1: Dominoes

**The Task:** solution

<b>4</b>	<b>4</b>	<b>6</b>	<b>1</b>
<b>1</b>	<b>4</b>	<b>6</b>	<b>1</b>
<b>4</b>	<b>4</b>	<b>1</b>	<b>6</b>
<b>3</b>	<b>3</b>	<b>3</b>	<b>6</b>
<b>6</b>	<b>3</b>	<b>2</b>	<b>6</b>



## Pattern & Problem Solving: *getting started*

### ROUND 1: Dominoes

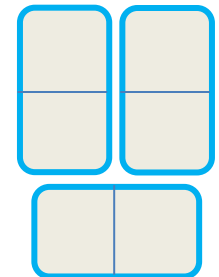
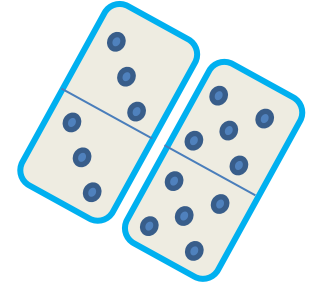
**The Task:** Arrange dominoes to match a grid

**Practising Dominoes:** *getting started - exploring*

- Find all dominoes with 3 dots on them.
- Find all dominoes that add up to 7.

**Practising Dominoes:** *more directed*

- Choose 4 dominoes and make a number pattern.
- Choose 3 dominoes and make a rectangle with each column adding up to 9.



# Pattern & Problem Solving: *getting better*

## ROUND 1: Dominoes

### Practising Dominoes: *getting better*

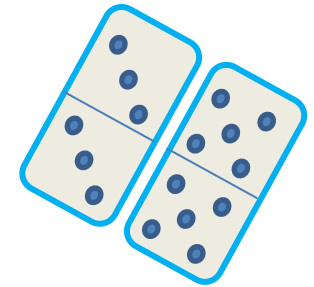
- Find all dominoes with only 2 and/or 6 dots.
- How many ways can you arrange them to make this grid:

2	6
2	6

### Practising Dominoes: *slightly harder*

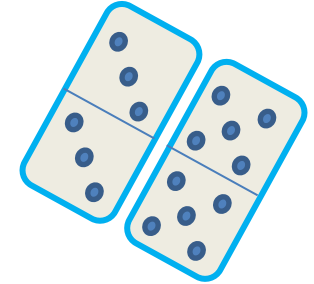
- Find all dominoes with only 1, 3 and/or 5 dots.
- How many ways can you arrange them to make this grid:

3	5
3	1



## Pattern & Problem Solving: *Pupil Activity Book*

### ROUND 1: Dominoes

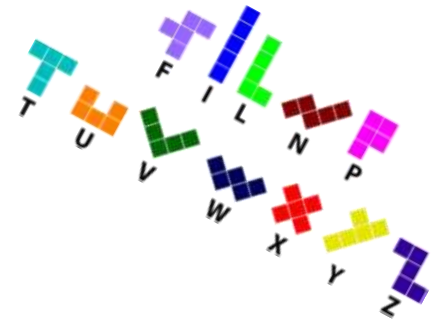


### Practising Dominoes:

- In groups, choose one of the grids from Task D3 in the Pupil Activity Book to complete
- Choose another grid from Task D3
- If you complete that, try one of the Task D4 grids

# Pattern & Problem Solving: *Pentominoes target*

## ROUND 1: Pentominoes



**The task:** Arrange some of the pieces to make a square, rectangle or letter.

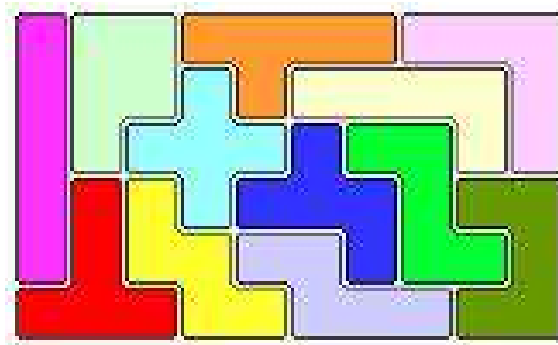
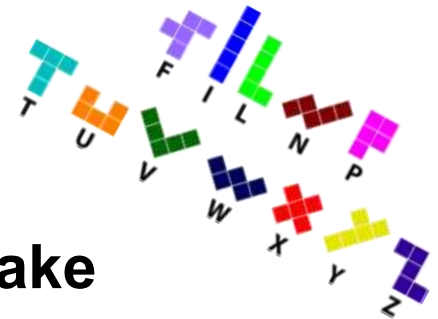
E.g. Make a 6 x 10 rectangle

# Pattern & Problem Solving: *Pentominoes solution*

## ROUND 1: Pentominoes

**The task:** Arrange some of the pieces to make a square, rectangle or letter.

E.g. Make a 6 x 10 rectangle

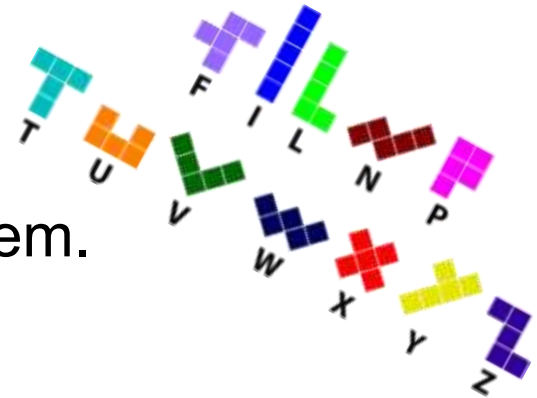


# Pattern & Problem Solving: *getting started*

## ROUND 1: Pentominoes

### 1. Developing familiarity

- Play with the pieces. Get used to them.
- Make any sized rectangle.
- Make a new rectangle using different pieces.
- Make any rectangle using only three pieces.
- How many different ways can you do this?
- What else could you do to get started?



## Pattern & Problem Solving: *getting better*

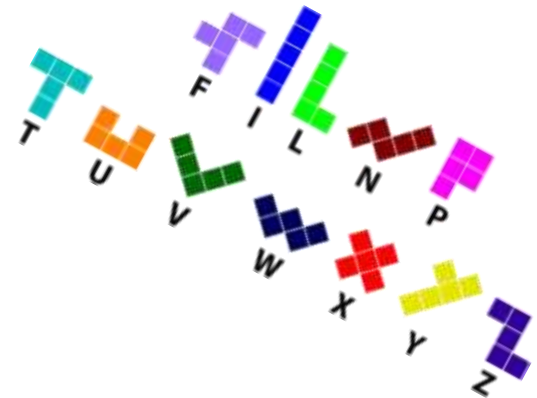
### ROUND 1: Pentominoes

#### 2. Understanding the pieces

- Make a 6 x 5 rectangle.

Write the letter names down.

- Use I, P, T, V, W to make another square or rectangle.
- What else could you do to get better?



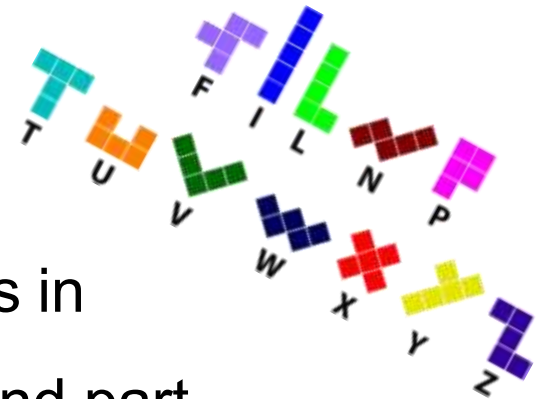


# Pattern & Problem Solving: *Pupil Activity Book*

## ROUND 1: Pentominoes

### 3. Practising Pentominoes:

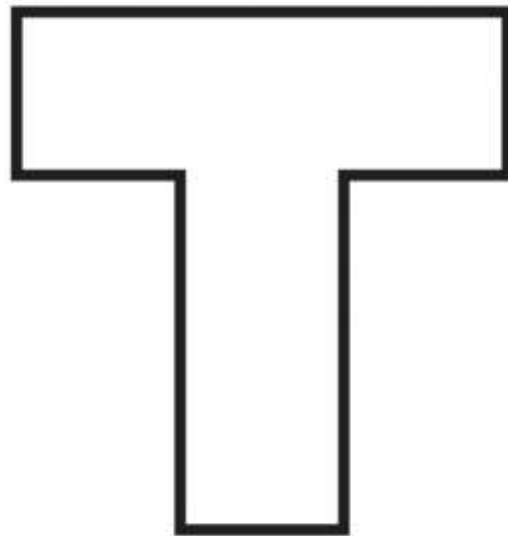
- In groups, choose one of the shapes in TASK P6 to make. Now do the second part.
- Look at TASK P8. Choose one of the doubles.
- If time, choose a BONUS TASK.



# Pattern & Problem Solving: *T-Shapes target*

## ROUND 1: T-Shapes

**The task:** Make a picture using all 4 T-Shape pieces



## Pattern & Problem Solving: *T-Shapes target*

### ROUND 1: T-Shapes

**The task:** Make a picture using all 4 T-Shape pieces

### IMPORTANT!

- Never show or tell pupils how to solve any puzzles.
- Being told how to solve them prevents pupils from learning for themselves and being able to solve puzzles on their own.
- Maths is a special 'aha' subject.



## Pattern & Problem Solving: *getting started*

### ROUND 1: T-Shapes

**The task:** Make a picture using all 4 T-Shape pieces

**Practising T-Shapes:** *getting started - exploring*

- Play with the shapes, getting used to the pieces.
- Find different pictures you can make from the pieces.

**Practising T-Shapes:** *more directed*

- Make a rectangle from two of the shapes.
- Choose two pieces. How many different shapes can you make?



## Pattern & Problem Solving: *Pupil Activity Book*

### ROUND 1 Part 2: T Shapes

#### 3. Using the Pupil Activity Book:

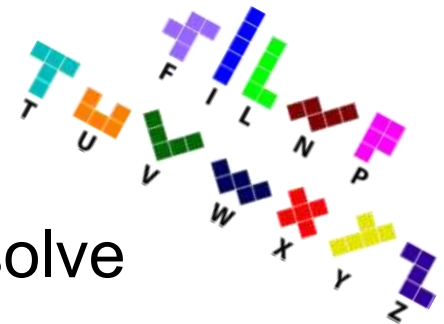
- In groups, choose one of the shapes in TASK 3 to make. Discuss as you do the task.
- Look at TASK 4. Choose one of the pictures and complete the timed task.
- If time, choose a BONUS TASK.



## Round 1: what does it look like in the Tournaments?

### Dominoes, Pentominoes and T-Shapes

#### Team activity

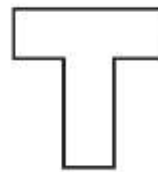


Part 1: Teams are shown 3 puzzles to solve

Part 2: Teams can solve bonus puzzles – 3 of each

Part 3: Teams can attempt Super Bonus puzzles

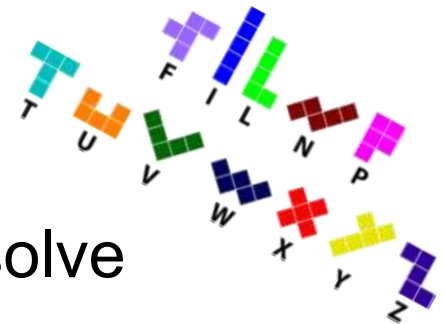
20 minutes total



## Round 1: what does it look like in the Tournaments?

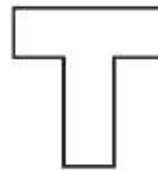
### Dominoes, Pentominoes and T-Shapes

#### Team activity



Part 1: Teams are shown 3 puzzles to solve

- One Domino, one Pentomino and one T-Shape puzzle
- Teams must complete all 3 puzzles, before moving to ...



R1: Dominoes, Pentominoes and T-Shapes.

Part 1

<b>6</b>	<b>6</b>	<b>4</b>	<b>4</b>
<b>2</b>	<b>3</b>	<b>6</b>	<b>6</b>
<b>3</b>	<b>3</b>	<b>3</b>	<b>6</b>
<b>3</b>		<b>1</b>	<b>1</b>

Make a 5 x 5 square. Record the pieces you use.

Make a new 5 x 5 square, with at least one piece changed.

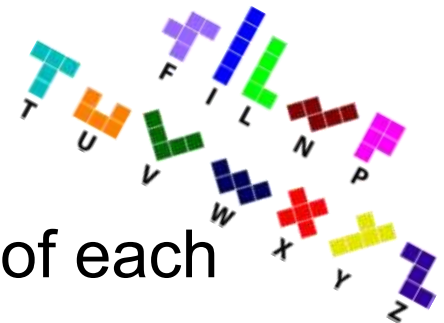




## Round 1: what does it look like in the Tournaments?

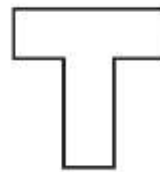
### Dominoes, Pentominoes and T-Shapes

#### Team activity



Part 2: Teams solve bonus puzzles – 3 of each

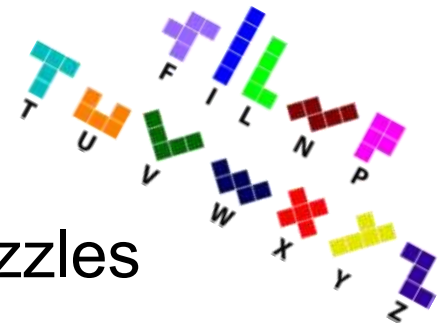
- Maximum 3 Domino, 3 Pentomino, 3 T-Shape puzzles
- Teams can use up to 3 exchange cards if stuck



## Round 1: what does it look like in the Tournaments?

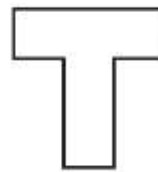
### Dominoes, Pentominoes and T-Shapes

#### Team activity



Part 3: Teams attempt Super Bonus puzzles

- Most challenging versions of each puzzle
- Max 1 of each kind



R1: Dominoes, Pentominoes and T-Shapes.

Part 1

<b>6</b>	<b>6</b>	<b>4</b>	<b>4</b>
<b>2</b>	<b>3</b>	<b>6</b>	<b>6</b>
<b>3</b>	<b>3</b>	<b>3</b>	<b>6</b>
<b>3</b>		<b>1</b>	<b>1</b>

Make a 5 x 5 square. Record the pieces you use.

Make a new 5 x 5 square, with at least one piece changed.



# NUMBER: Introduction to the 24® Game

## ROUND 2: NUMBER

### What is the 24 Game?

- Make the number 24
- Use all four numbers – once only
- Use any basic operation (add, subtract, multiply, divide)



**Warning!** Pupils will soon be quicker than you!

# NUMBER: Introduction to the 24® Game

## ROUND 2: NUMBER

### What is the 24 Game?

- Make the number 24
- Use all four numbers – once only
- Use any basic operation (add, subtract, multiply, divide)



**Warning!** Pupils will soon be quicker than you!

# NUMBER: Getting started with the 24<sup>®</sup> Game

## ROUND 2: NUMBER

### Practising the 24<sup>®</sup> Game: getting started

- How many ways can you make 24, using only two numbers?

E.g.:  $12 \times 2$ ,  $6 \times 4$  ...

- IMPORTANT: Why have I started with this activity?

# NUMBER: Getting started with the 24<sup>®</sup> Game

## ROUND 2: NUMBER

Practising the 24<sup>®</sup> Game: getting started

5 4 3 1

- Use all four numbers – once only
- Use any basic operation
- How many pairs can you find?

# NUMBER: Getting started with the 24® Game

## ROUND 2: NUMBER

Practising the 24® Game: getting started

5 4 3 1

- $20 + 4$        $\longrightarrow$        $5 \times 4 = 20$        $3 + 1 = 4$
- $8 \times 3$        $\longrightarrow$        $5 + 3 = 8$        $4 - 1 = 3$



# NUMBER: Getting better at the 24® Game

## ROUND 2: NUMBER

Practising the 24® Game: getting better

6 3 2 4

- How many pairs can you find to make 24?

# NUMBER: Getting better at the 24® Game

## ROUND 2: NUMBER

Practising the 24® Game: finding pairs

6 3 2 4

$18 + 6$	$\longrightarrow$	$6 \times 3 = 18$	$2 + 4 = 6$
$8 \times 3$	$\longrightarrow$	$2 \times 4 = 8$	$6 - 3 = 3$
$12 + 12$	$\longrightarrow$	$6 \times 2 = 12$	$3 \times 4 = 12$

# NUMBER: 24® Game in the Pupil Activity Book

## ROUND 2: NUMBER

### Using the Pupil Activity Book:

- In groups, do TASK 2.
- Then try TASK 3 with three 2 dot and two 3 dot cards.
- If time, choose a BONUS TASK.

# NUMBER: 24® Game in the Tournaments

## ROUND 2: 24® Game

**Moving around** Teams of three players: A, B, and C.  
A moves clockwise, B stays put, C moves anticlockwise.

**Claiming a card** Place hand flat on card. Referee decides.  
**NEW: player keeps hand on card.**  
Last stage announced first. Then full solution.

**Remove a card if...** Longer than 3 seconds to start claim  
Make a mistake  
Two players agree to pass (3 times/round)

**Scoring** Players keep cards won for that round.  
Points added up and scored at end of round  
(1 dot = 1 point etc)

## 24® Game: What next?

### ROUND 2: NUMBER

#### Practising the 24® Game: feedback and next steps

- Practice, practice, practice
- Give cards to pupils to play in own time
- Use 24 Game App (small charge)
- Other ideas...

# EXTRA OPPORTUNITIES

- BecomingX Education
- Les Mills BORN TO MOVE



# CODEBREAKING: The Task

## ROUND 3: CODE BREAKING

**The Task:** Decipher clues to solve a problem

E.g.: A great day out in London – but where?

Attraction 1: **Jhw idfh wr idfh zlwk vkdunv !**

Use shift (offset) **3**

# CODEBREAKING: The Task

## ROUND 3: CODE BREAKING

### The Task:

- Decode a message using a **Caesar** shift.
- Use this information to work out the solution to a problem eg: *How much does it cost for 1 adult and 2 children to go on the **London Eye**?*
- Team activity.
- Scoring: points awarded for each correct part of answer and additional points for final answer to problem.




# CODEBREAKING: Getting Started

## ROUND 3: CODE BREAKING

### Practising code breaking: the Caesar Cipher

Example using a **3** letter shift forward (offset)



Plain text	a	b	c	d	e	f	G	h	i	j
Cipher text	d	e	f	g	h	i	j	k	l	m

# CODEBREAKING: Getting Started

## ROUND 3: CODE BREAKING

### Practising code breaking: the Caesar Cipher

Example using a **3** letter shift forward (offset)

Fill in a **blank Caesar Cipher chart**.

Plain text	a	b	c	d	e	f	G	h	i	j
Cipher text	d	e	f	g	h	i	j	k	l	m

KDYH IXQ ZLWK FRGH

EUHDNLQJ

# CODEBREAKING: Getting Better!

## ROUND 3: CODE BREAKING

- Complete another code breaking chart for Shift (offset) **6**.
- Now have a go at this longer message.

Tkbkx zkrr euax vavory nuc zu  
yurbk g vaffrk. Oz'y znkox sgmoi  
susktz.

# CODEBREAKING: Getting Good!

## ROUND 3 CODE BREAKING

### Practising code breaking: the Caesar Cipher

Use [The Black Chamber](#)

Scroll down to '**Offset**' box and select shift – **eg 3**

- ✓ Type in word to encrypt (eg name of a pupil the class)
- ✓ Click '**Encipher plaintext**'

Getting started in class

- ✓ Give out blank code breaking charts.
- ✓ Give the Caesar Shift (offset). E.g. 3
- ✓ In pairs, fill in the chart.
- ✓ Give class an enciphered name.
- ✓ Who is this: **HGLWK FODUNH**

## CODEBREAKING: A Tournament example

### A Great Day Out! But where?

- Your mission is to find out which **four** London attractions to visit.
- The clues are hidden using a Caesar Cipher code.
- Then work out how much it will cost for an adult and one child to visit each of these four attractions.
- BONUS points: Put the four attractions in order starting with the most expensive.

# CODEBREAKING: An example activity

## Attraction 1:

Clue: J h w i d f h w r i d f h z l w k v k d u n v

## Shift 3

Plaintext	a	b	c	d	e	f	g	h	i	j	k	l	m
cipher text													
Plaintext	n	o	p	q	r	s	t	u	v	w	x	y	z
cipher text													

**Clue:**

**Attraction:**

# CODEBREAKING: An example activity

## Attraction 1:

Clue: J h w i d f h w r i d f h z l w k v k d u n v

## Shift 3

Plaintext	a	b	c	d	e	f	g	h	i	j	k	l	m
cipher text													
Plaintext	n	o	p	q	r	s	t	u	v	w	x	y	z
cipher text													

**Clue:** *Get face to face with sharks*

**Attraction:** *London Sealife*

# CODEBREAKING: An example activity

	adult	child	total	BONUS order
London Sea Life	£20.00	£15.00		
Buckingham Palace	£24.00	£13.50		
London Eye	£23.00	£16.25		
Madame Tussaud's	£31.00	£25.00		
Science Museum	£0.00	£0.00		
London Zoo	£24.30	£18.00		
Tower of London	£21.50	£9.70		
Churchill War Rooms	£18.90	£9.45		



# COUNT ON US RESOURCE AREA

## The COU Resource Area on MFL Website

- Password protected: **CLARKE1883**
- 4 sections:
  - Getting Started with Count on Us
  - Running Count on Us in School
  - Tournament Time
  - Extra Resources
- [How to find the Resource Area](#)

## THE CHALLENGE: WHAT NEXT?

**BONUS POINTS for your school: 5 points per task**

	<b>Task</b>	<b>Evidence</b>
1	Share activities with Y4/5 teachers.	Photo/notes from meeting.
2	Create Action Plan showing activities and timescale	Email Action Plan to COU by February 2023
3	Set up a maths club / practice time for at least 30 pupils.	Send photos to COU by February 2023
4	Use 24 Game as lesson starter for two weeks.	Send photos/video to COU by March 2023
5	Run in-school tournament in April.	Send photos/planning to COU by April 2023
6	Identify a pupil whose confidence and skill in maths has improved through engaging with Count on Us activities.	Send photos and paragraph to COU by February 2023.

## THE CHALLENGE: WHAT NEXT?

### What else is on the checklist?

- ❑ Assign a **lead person** for the COU Primary Challenge.
- ❑ **Practise** with all your pupils as much as possible!
- ❑ Arrange for lead **and** support person to attend the Heats.
- ❑ Complete and return all forms.
- ❑ Arrange transport and staff supervision to the Heats.

# COU PRIMARY CHALLENGE: KEY DATES

## KEY DATES

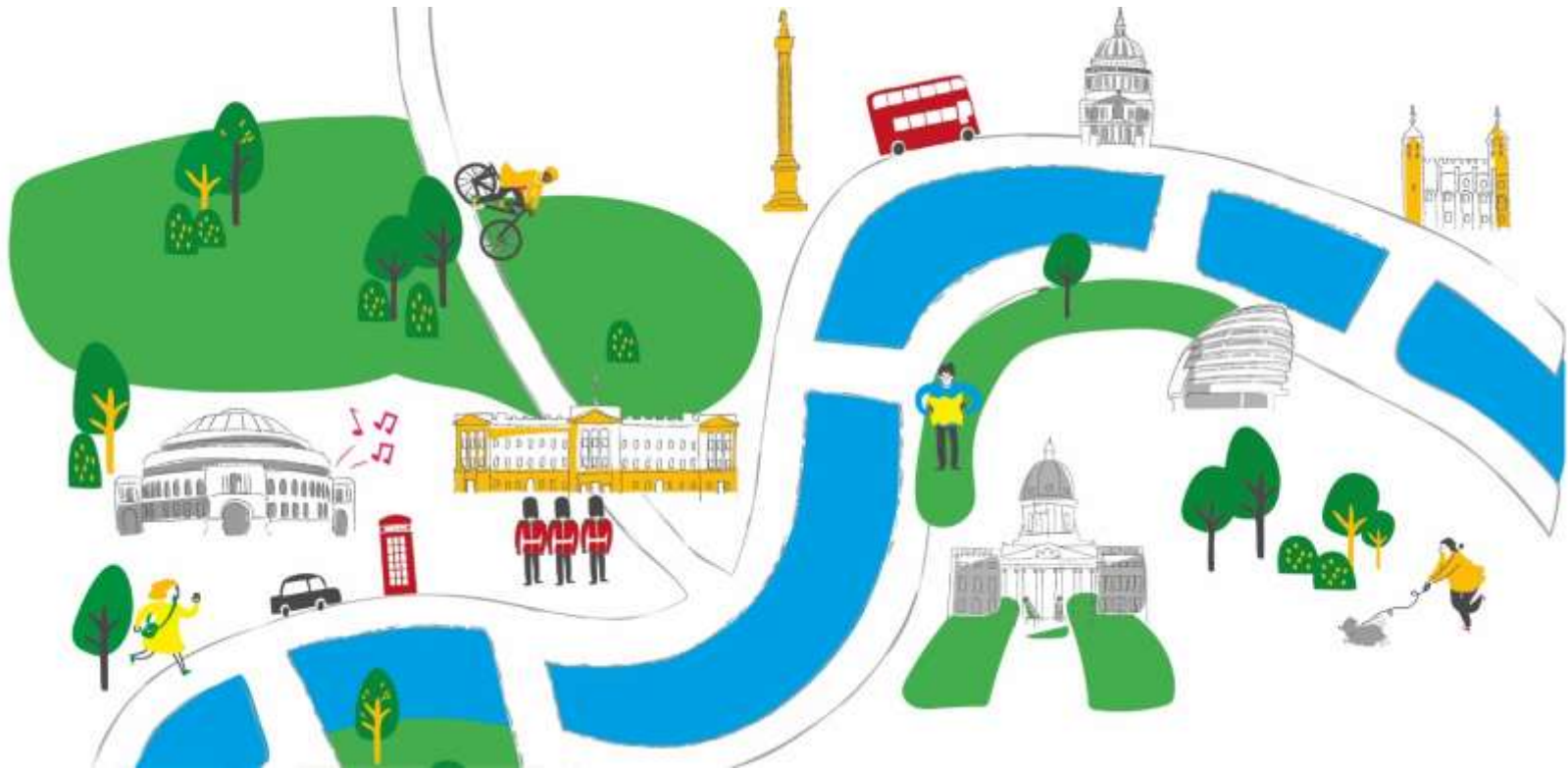
**Drop-in sessions:** Feb-May 2023

**HEATS:** Mid May 2023

**FINAL:** w/c 26th June 2023

# COUNT ON US

## PRIMARY CHALLENGE 2022-23



PREPARING FOR THE PRIMARY CHALLENGE

# COUNTING THE BENEFITS

Our overall aim is to encourage POSITIVE ATTITUDES towards maths.

## Improved:

- Self-belief & confidence
- Value
- Persistence
  
- Maths skills – performance, curriculum, catch up?
- Soft skills – teamwork, resilience, having fun!
  
- Profile of maths in and around your school?
- Benefits to teachers and other staff?

We love sharing your  
photos:  
#COUNTONUS  
@MAYORSFUND

# FEEDBACK

We would love to hear your feedback on today's training session! Please take a moment to scan the QR code below and fill in the form. It should only take a few minutes of your time. Thank you!

