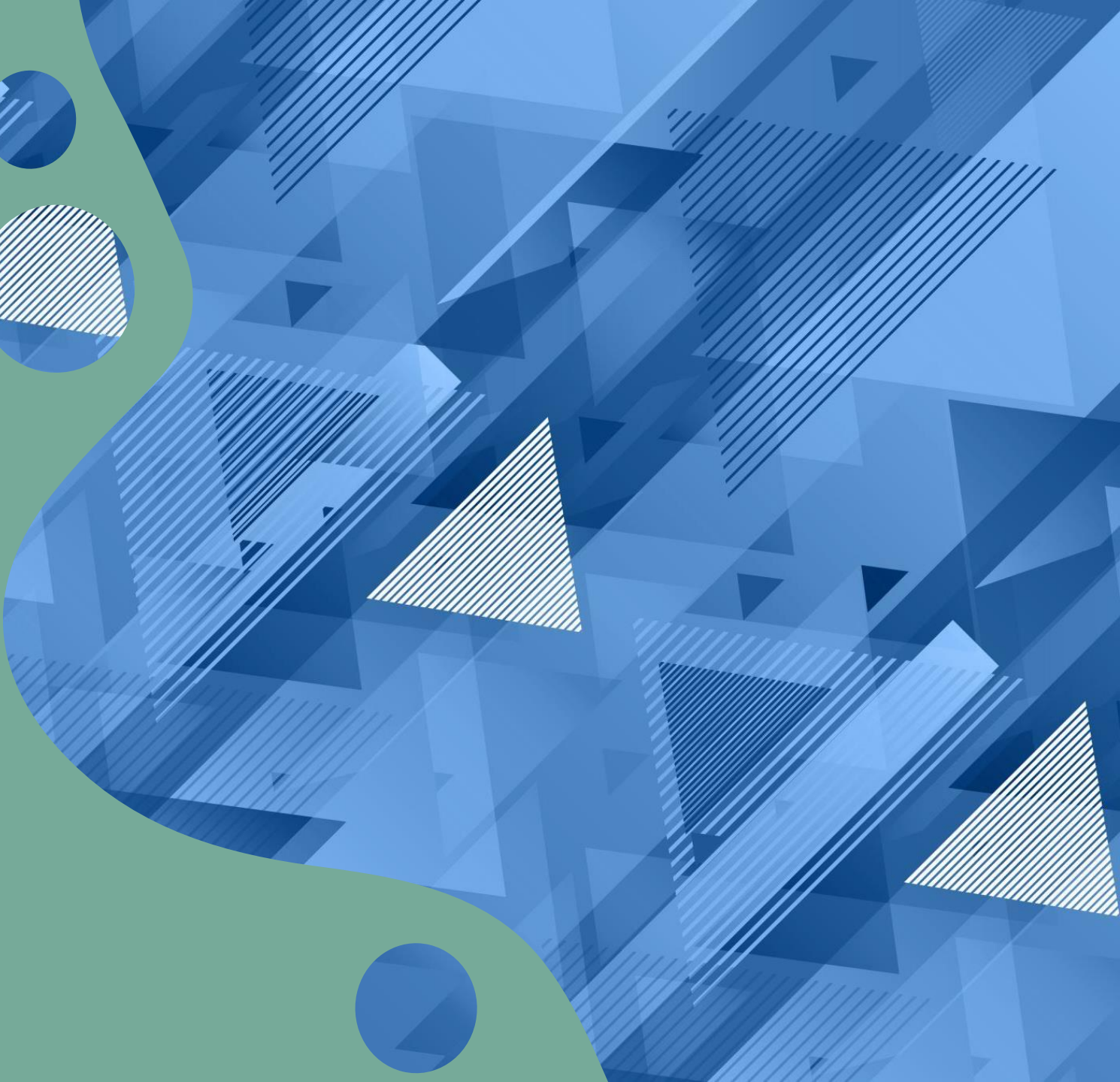
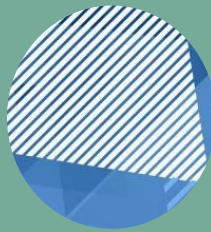


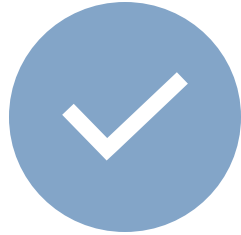
# Maths at Raglan



# Agenda



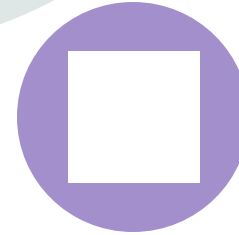
MATHS AT RAGLAN



TIMES TABLES



HOW CAN WE  
SUPPORT TIMES  
TABLES LEARNING



APPLICATION OF  
TIMES TABLES



OTHER  
SUPPORTING  
MATERIALS

# Maths at Raglan



**Continuous provision of maths learning in EYFS**



**Daily maths lessons that follow a clear structure in KS1 and KS2**



**Concrete, Pictorial, Abstract approach**



**Progression of skills through a spiral curriculum**

# Times Tables at Raglan

## National Curriculum Expectations

Expectations for times tables for each year group:	
Year 1	Count in multiples of 2, 5 and 10. Recall and use all doubles to 10 and corresponding halves.
Year 2	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.
Year 3	Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.
Year 4	Recall and use multiplication and division facts for multiplication tables up to 12x12.
Year 5	Revision of all times tables and division facts up to 12x12.
Year 6	Revision of all times tables and division facts up to 12x12.

## Raglan Overview

<b>EYFS</b>	Children to be exposed to counting in 2s, 5s and 10s when ready
<b>Year 1</b>	Multiples of x2, x10, root facts, commutative and inverse
<b>Year 2</b>	Multiples of x5, x3, x4 root facts, commutative and inverse
<b>Year 3</b>	Multiples of x6, x7, x8, x9 root facts, commutative and inverse
<b>Year 4</b>	Multiples of x11, x12 root facts, commutative and inverse Doubles and halves of 20-50
<b>Year 5</b>	Multiplying single digit numbers by 10, 100 and 1000. Dividing up to 4 digit numbers by 10, 100, 1000. Related multiples of 10/100/1000. Squared numbers and square roots. Doubles and halves of 50 -100. Multiplying decimals.
<b>Year 6</b>	Cubed numbers and cube roots Revision of all skills and maths fluency

Why the difference?

It is never too early to start! At some point, due to the mastery nature of the curriculum, these skills **will** need to be applied

A multiplication table with columns 1-8 highlighted in different colors. A yellow arrow points from the top of column 7 down to the cell containing 42. A yellow arrow points from the left of row 6 to the cell containing 42. The table is partially obscured by white decorative cutouts.

0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	0	0	0	0	0
0	1	2	3	4	5	6	7	8	9
0	2	4	6	8	10	12	14	16	18
0	3	6	9	12	15	18	21	24	27
0	4	8	12	16	20	24	28	32	36
0	5	10	15	20	25	30	35	40	45
0	6	12	18	24	30	36	42	48	54
0	7	14	21	28	35	42	49	56	63
0	8	16	24	32	40	48	56	64	72
0	9	18	27	36	45	54	63	72	81
0	10	20	30	40	50	60	70	80	90
0	11	22	33	44	55	66	77	88	99
0	12	24	36	48	60	72	84	96	108

# How do we support learning tables

Not just a KS2 problem - Although many of the perceived more challenging tables and topics are taught in KS2, the foundations of the times tables are embedded in KS1.

CPA approach - show the concrete to pictorial to abstract in EYFS and KS1

Daily activities of times tables - this could be songs, games or activities

# EYFS – It is never too early!

Find the maths in the world - this is incredibly powerful for the children as they can begin to relate numbers to their own world, as well as understand real life uses.

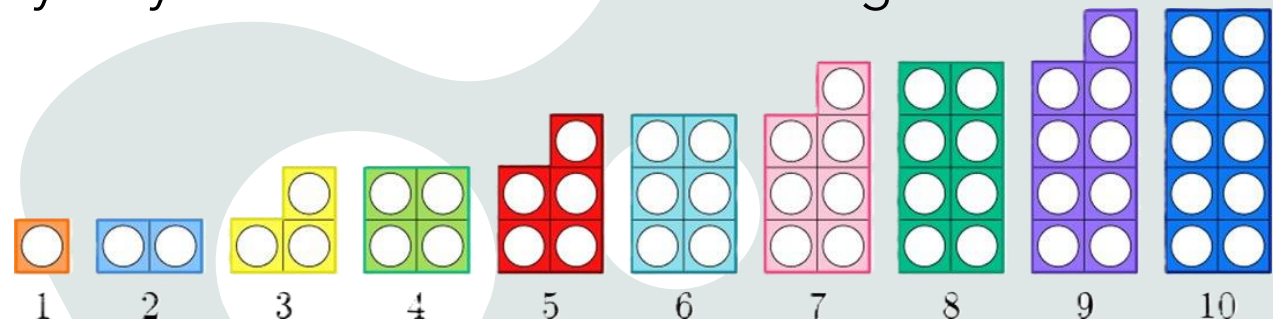
This could be:

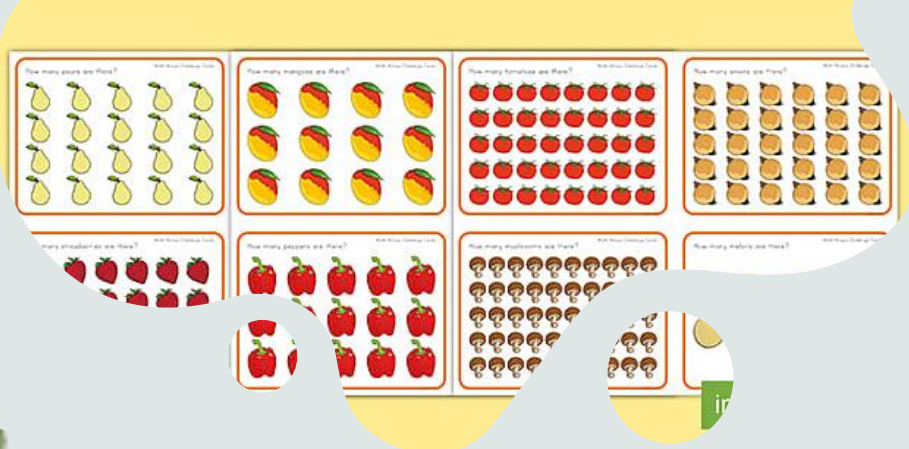
- Reading bus numbers
- Door numbers
- Money
- Counting objects at home
- Discussing number vocabulary - odd/even; more/less than; equal to; greater/less than etc.
- Counting in multiples and thinking about number bonds



# Manipulatives

- The practical maths apparatus that is used in classrooms such as multilink cubes, Dienes, counters and bead strings. They are equipment that children can pick up and manipulate and which can help children to understand the relationship between numbers and the number system
- They are objects which can be manipulated in real life. You can grab them with your hands. In maths, we use manipulatives as concrete objects that allow learners to be shown concepts or ideas in a hands-on format. Manipulatives can be made from almost any material
- The importance of these has been known for a long time: Jean Piaget's (1951) work which suggested that children aged seven to ten years old work in primarily concrete ways and that the abstract notions of mathematics may only be accessible to them through embodiment in practical resources.





# Times tables and manipulatives

Double sided counters

Tens Frames

Numicon

Bead strings

Arrays





# Hands on time

Use objects to solve multiplication and division problems

## Task 1

Use two different manipulatives to represent the calculations  $6 \times 4 =$  and  $15 \div 3 =$

## Task 2

Use manipulatives to represent the first 3 square numbers

## Task 3

Use the manipulatives to solve this problem:

The Ratio of **red** to **yellow** pens in a box is 5:4. There are 20 **yellow** pens in the box. How many red pens are there in 3 boxes?

# Year 4 – times tables check

The multiplication tables check (MTC) is statutory for all year 4 pupils registered at state-funded maintained schools, special schools or academies, including free schools, in England.

## **What the DfE say:**

The purpose of the MTC is to determine whether pupils can recall their times tables fluently, which is essential for future success in mathematics.

It will help schools to identify pupils who have not yet mastered their times tables, so that additional support can be provided.

# Have a go!

I know that some of you would have tried this the last time we spoke about times tables

Scan the QR code

Or

Go to: [urbrainy.com/mtc](https://urbrainy.com/mtc)

Click: Launch MTC

You will have 6 seconds per question...

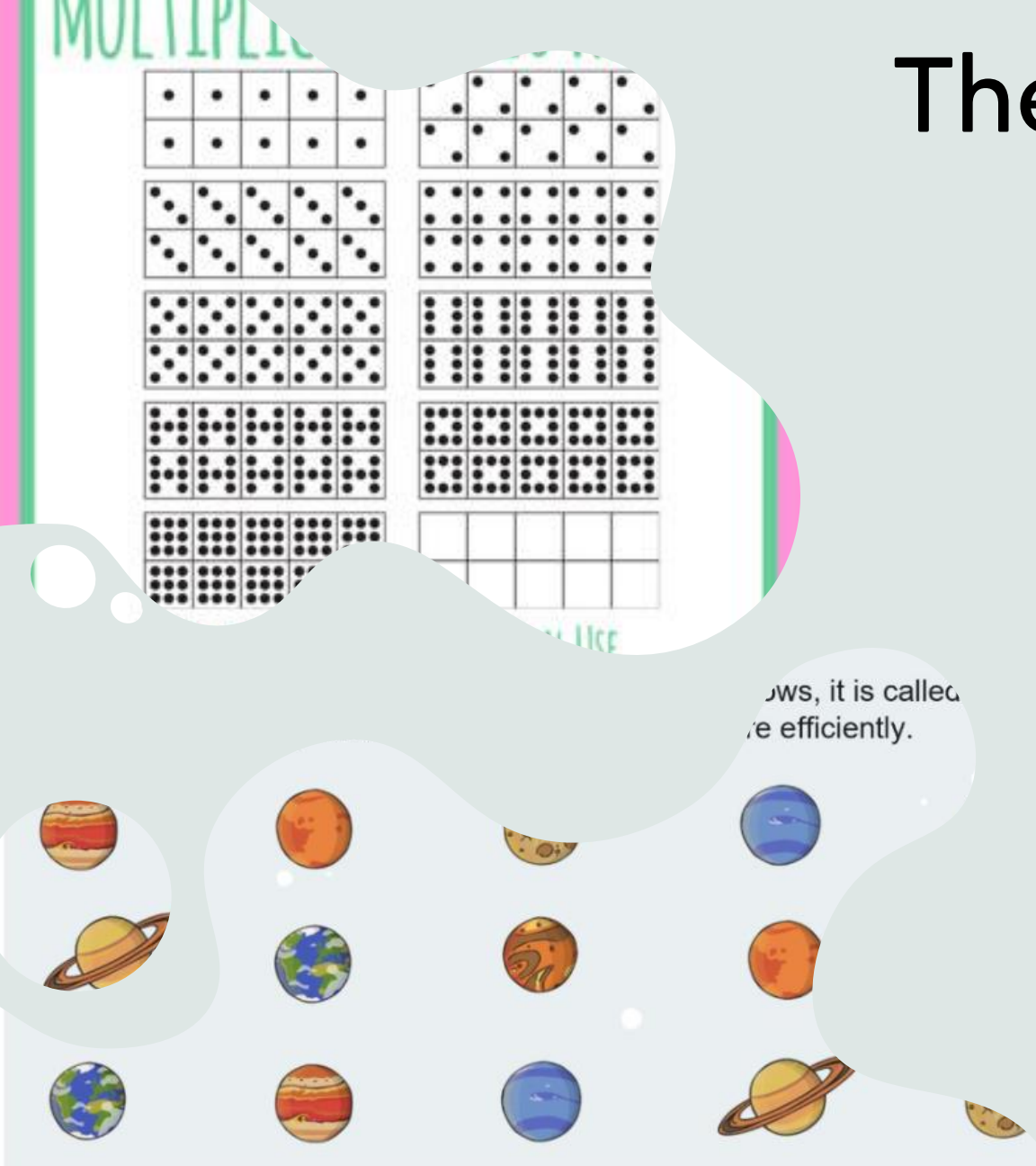


# The importance of related division facts

Essential for problem solving and mastery style questions

Arrays and tens frames are fantastic way of teaching division facts

This can be done at home



The above array provides a visual representation of 15, or 5 groups of 3, or 3 groups of 5.

These can be used to help reinforce division facts

# Factors and Multiples

**Factor** - A factor of a number is any whole number that divides into exactly. Prime numbers only have two numbers (1 and itself), other numbers can have many factors.

**Multiple** - A multiple of a number is the result of multiplying that number with another whole number

**Common Factor** - A number that divides exactly into two or more other numbers

e.g

Factors of 15 are 1, 3, 5, 15

Factors of 40 are 1, 2, 4, 5, 8, 10, 20, 40

Common Factors are 1 and 5

**Common Multiple** - A number that is a multiple of two or more other numbers

e.g

Multiples of 2 include 2, 4, 6, 8, 10, 12

Multiples of 3 include 3, 6, 9, 12, 15


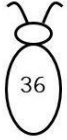
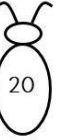

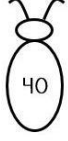
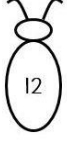
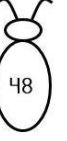
Common Multiples are 6 and 12

Name: \_\_\_\_\_

## Factor Bugs

Bronze

Complete the following factor bugs by finding the matching factors..

 24	 36	 20	
	 40	 12	 48

# Factors and Multiples

**This is a game for two players.**

The first player chooses a positive even number that is less than 50, and crosses it out on the grid.

The second player chooses a number to cross out. The number must be a factor or multiple of the first number.

Players continue to take it in turns to cross out numbers, at each stage choosing a number that is a factor or multiple of the number just crossed out by the other player.

**The first person who is unable to cross out a number loses.**

Play a few times to get a feel for the game.

**Do you have any winning strategies?**

		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



# Promote the vocabulary

Throughout the mastery journey, children will encounter technical vocabulary, and it is essential that they understand it.

## Game Time!

### Headbanz - Maths Edition

#### Possible question Stems..

Am I a **prime number**?

Am I a **square number**?

Am I a **factor** of..

Can I be **shared equally**...

Am I a **multiple of**...

#### multiplication



- lots of
- times
- multiply
- groups of
- product
- multiplied by
- multiple of
- repeated addition
- array

What is... lots of...?  
What is the product of... and... ?  
What is... times... ?  
What is... group of... ?  
What is... multiplied by... ?

#### division



- divide
- divided by
- divided into
- share
- share equally
- equal groups of

What is... divided by...?  
What is... shared by...?  
How many groups of... are in...?



# Times tables games

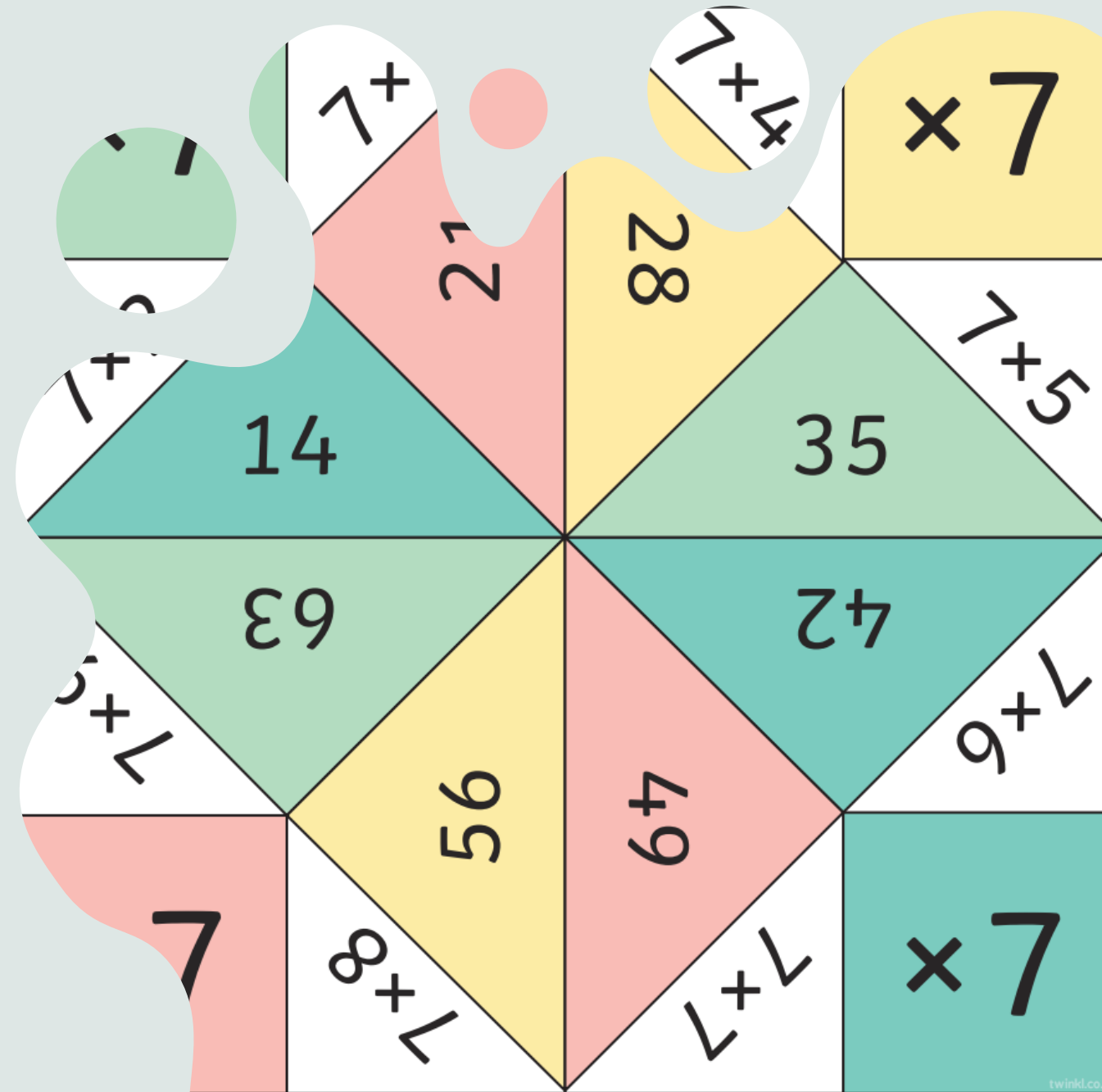
Purpose - practical recall in game format

Benefits - Encourages quick recall, instant feedback, competition, differentiation

On your table is a range of activities than can be found online or made at home.

## Challenge

Can you create your own times table game with the equipment on you table?



Strategies to support

## Times Tables songs

Reinforce memorisation through music

Engages auditory learners

Makes memorisation fun

Children already do this in class



**COMING  
SOON**

# Interactive digital tools

Use technology to practice multiplication and division (as well as other mathematical skills)

The main benefit is the instant engagement and feedback that is offered

Times Tables Rockstars is going to be massive

Check your curriculum news letter for other helpful websites for times table games.



Mathletics



purple  
mash

# Wrap up

**We are the role models for the children in their mathematical journey.**

If we say it is hard, they will believe us

If we say that it is boring, they will believe us

If we say that we don't like it, they won't.

How many of us would openly admit to a colleague or friends that we aren't good at writing or reading, but are happy to say, 'I've never been good at maths'?