

THE FLUENCY PROJECT



Facts
A Mathematical '~~Vacc~~-ination' (to counteract loss of fluency)



RESOURCE PACK

REVISUALISING
2021

Welcome - this resource is free for everyone in today's session.

It contains sample material from all the resources in The Fluency Project. Feel free to try them out at school, or even to create your own.

Andrew Jeffrey, April 2021

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The Leitner Project

Maths Mats

Building Tables with Reasoning

We Love Maths

Facts of The Week

**Alternatively, the complete resources are all available from
www.andrewjeffrey.co.uk/fluency-project**

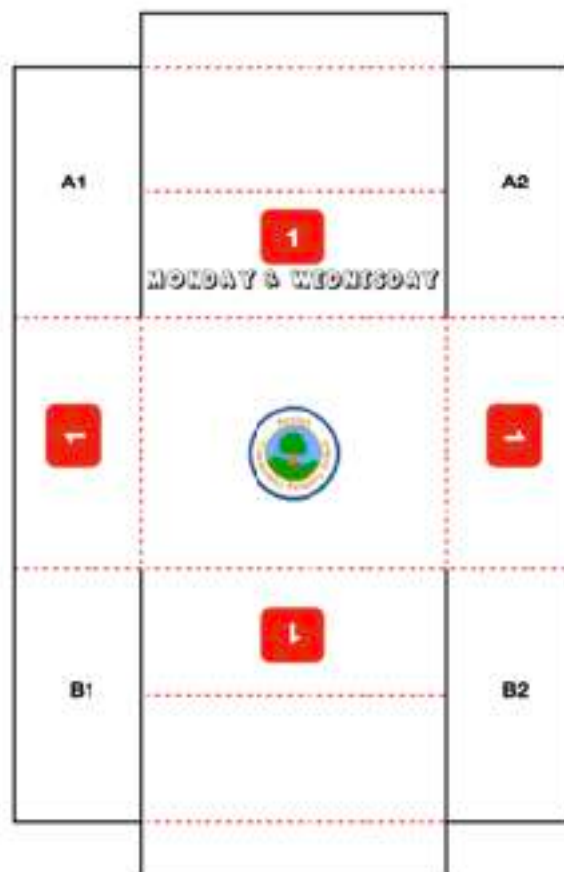
Remember to use your code!

Sample 1: The Leitner System



2×2	4	2×6	12
2×3	6	2×7	14
2×4	8	2×8	16
2×5	10	2×9	20

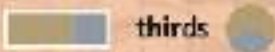
$1+1$	2	$5+1$	6
$2+1$	3	$6+1$	7
$3+1$	4	$7+1$	8
$4+1$	5	$8+1$	9



Sample 2: Maths Mats

These work best when printed on A3, placed on top of a second (blank) A3 sheet and then laminated.

This means that children can write on them as a whiteboard, and use the back for tests, etc.



thirds

Year 2 Maths

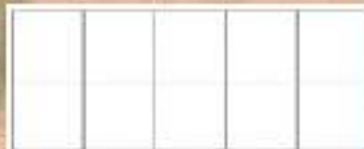
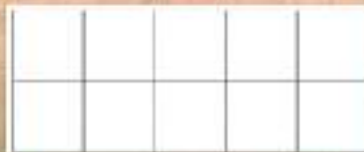


fifths

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

Hundred Square

01	02	03	04	05	06	07	08	09	100
01	02	03	04	05	06	07	08	09	00
71	72	73	74	75	76	77	78	79	80
01	02	03	04	05	06	07	08	09	70
01	02	03	04	05	06	07	08	09	60
41	42	43	44	45	46	47	48	49	50
31	32	33	34	35	36	37	38	39	40
21	22	23	24	25	26	27	28	29	30
11	12	13	14	15	16	17	18	19	20
1	2	3	4	5	6	7	8	9	00



Array Maker



Part Part Part Whole



Tens	Ones

Skip Counting: 2s, 5s, 10s

0	2	4	6	8	10	12	14	16	18	20	22	24
---	---	---	---	---	----	----	----	----	----	----	----	----

0	5	10	15	20	25	30	35	40	45	50	55	60
---	---	----	----	----	----	----	----	----	----	----	----	----

0	10	20	30	40	50	60	70	80	90	100	110	120
---	----	----	----	----	----	----	----	----	----	-----	-----	-----



Year 5 Maths

0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
$\frac{1}{10}$	$\frac{2}{10}$	$\frac{3}{10}$	$\frac{4}{10}$	$\frac{5}{10}$	$\frac{6}{10}$	$\frac{7}{10}$	$\frac{8}{10}$	$\frac{9}{10}$	$\frac{10}{10}$

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	101	102	103	104	105	106	107	108
109	110	111	112	113	114	115	116	117	118	119	120

Focus on these tables (use a dog)

ones	tenths	hundredths

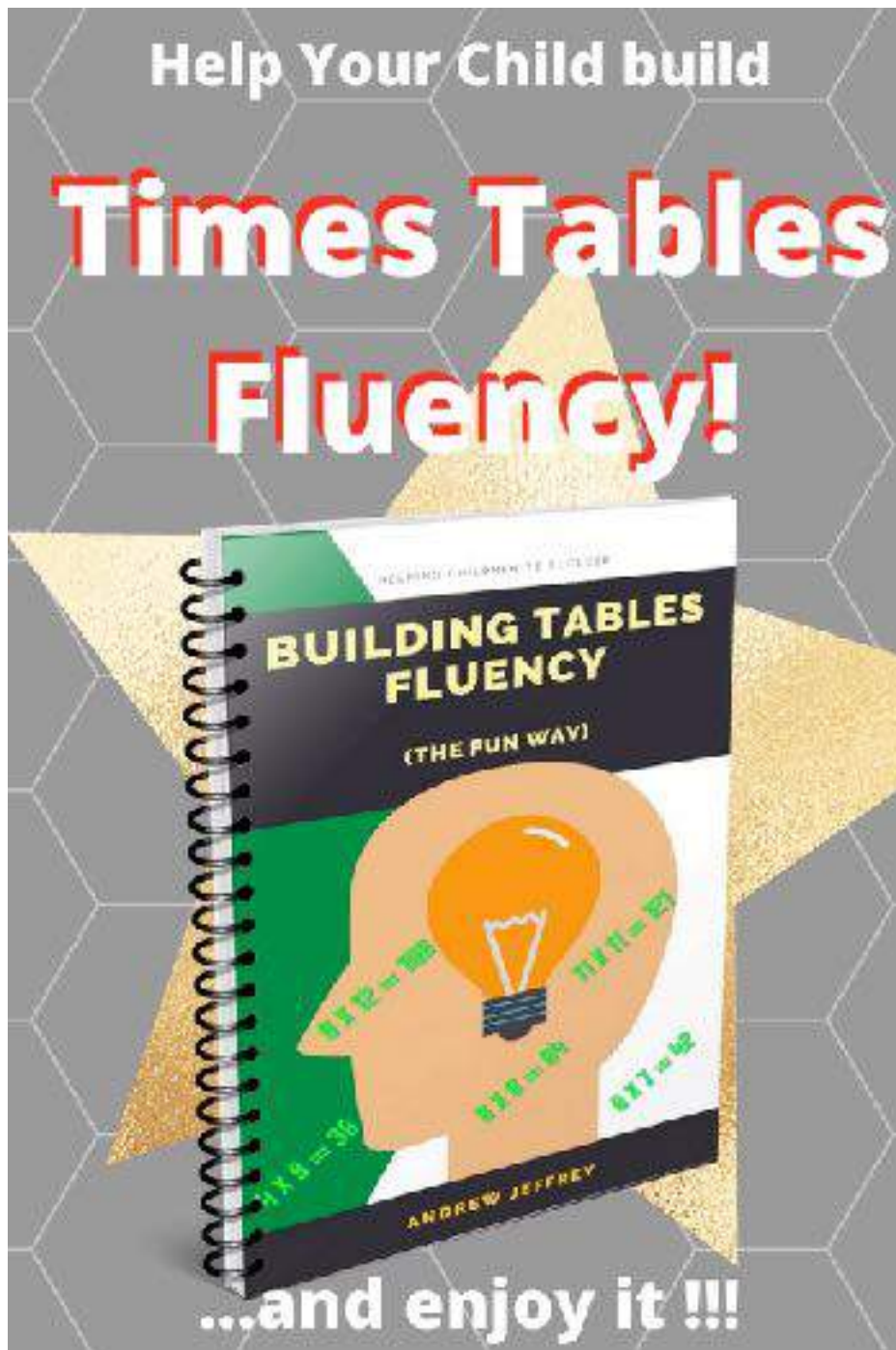
To find 3/5 of something divide by 5 to find ONE fifth. Then you can multiply by 3 to find the value of THREE of them.

3/5 of 20?
20 ÷ 5 = 4
4 × 3 = 12
so 3/5 of 20 = 12

$\frac{1}{4}$	$\frac{2}{4}$	$\frac{3}{4}$	$\frac{4}{4}$	Quarters
$\frac{1}{5}$	$\frac{2}{5}$	$\frac{3}{5}$	$\frac{4}{5}$	Fifths
$\frac{1}{10}$	$\frac{2}{10}$	$\frac{3}{10}$	$\frac{4}{10}$	Tenths

Form: Division Layout

Sample 3: Tables with Reasoning



2 5 10

4 5 6 7

A START HERE!

X	2	5	10
2			
5			
10			

B

X	2	5	10
10			
5			
2			

A START HERE!

X	4	5	6	7
4				
5				
6				
7				

B

X	4	5	6	7
7				
5				
6				
4				

C

X	5	2	10
10			
2			
5			

D CHALLENGE!

X			
	25		
			4

C

X	5	4	7	6
7				
4				
6				
5				

D CHALLENGE!

X			
		24	
	42		35
	30		

Mystery Grids

Place the list of numbers into the circles to make a correct multiplication grid, and complete the grid. Each number must be used exactly once (unless it appears twice in the list, and then you *must* use it twice.)

A START HERE!

X	7	8	9	10	11	12
7						
8						
9						
10						
11						
12						

B

X	7	8	9	10	11	12
8						
10						
12						
9						
11						
7						

C

X	9	8	11	7	12	10
8						
12						
9						
10						
7						
11						

D CHALLENGE!

X				
	80	72		
				84
			96	
				77
	81			

X	○	○	○	○
○		10		
○				8
○	12			32
○		14		

Numbers: 1,2,3,4,5,6,7,8

X	○	○	○	○
○				10
○			72	
○			84	
○		72		12

Numbers: 2,3,5,6,8,8,9,12

X	○	○	○	○
○	10		20	
○				
○			12	
○	8	20		

Numbers: 2,3,4,4,5,5,10,10

X	○	○	○	○
○	20			
○				42
○	12			
○		90		70

Numbers: 3,4,5,6,7,8,9,10

Sample 5: Facts of The Week


These are shown in every classroom, and in various places around the school, including the school gates.

This helps to involve parents and carers in the project.



MAD. MATHS FACTS OF THE WEEK


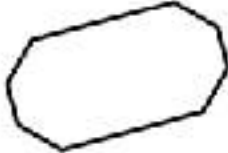
Dates: _____

B onds	L anguage	T ables
$13+7 = 20$ (so $7+13=20$ $20-7=13$ $20-13=7$) 	DIFFERENCE: The gap between two amounts, found by subtraction.	$9 \times 7 = 63$ (so $7 \times 9 = 63$ $63 \div 7 = 9$ $63 \div 9 = 7$)



MAD. MATHS FACTS OF THE WEEK


Dates: _____

B onds	L anguage	T ables
$8+1 = 9$ (so $1+8=9$ $9-1=8$ $9-8=1$) 	Octagon  2-D 8 vertices 8 sides	$8 \times 4 = 32$ (so $4 \times 8 = 32$ $32 \div 8 = 4$ $32 \div 4 = 8$)



MAD. MATHS FACTS OF THE WEEK

Dates: _____



B onds	L anguage	T ables
$14+6 = 20$ (so $6+14=20$ $20-6=14$ $20-14=6$) 	MONTHS with 31 days: January March May July August October December	$8 \times 7 = 56$ (so $7 \times 8 = 56$ $56 \div 7 = 8$ $56 \div 8 = 7$)

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MAD. MATHS FACTS OF THE WEEK

Dates: _____

B onds	L anguage	T ables
$1+3 = 4$ (so $3+1=4$ $4-1=3$ $4-3=1$) 	TIME:  Quarter past	$3 \times 6 = 18$ (so $6 \times 3 = 18$ $18 \div 3 = 6$ $18 \div 6 = 3$)

Sample 4: We Love Maths



1 Roll Two Dice

Take 2 dice and roll the dice.
You score points for correctly saying a number sentence about what the two numbers add up to (e.g. 'Two plus 1 equal 3').
We use score 4 bonus points if you can write out the difference! (For example, 'Two minus 1 equal 1').
You will be playing this subtraction version in Year 2.
Each has 11 rows.

Initials & Date

5 Pac-Man – right angle Fun

A right angle is an amount of turn equal to a quarter of a full revolution.
Your child needs to go practice recognising right angles as they are in many parts of his or her understanding of shapes. He using requires a small bit of construction, but the results make it worthwhile. It isn't a simple piece of text that only says why there should be a method. Finally, we ourselves operate all the cards to end up with a Puffin shape.
Your child can decorate the shape with eyes if they wish, or instead with any colour as all the games and you have separate and try to find 5 different examples of right-angles, which means any angle that Pac-Man can eat (which is, it must fit back in 90°) of his jaws with no gaps.
Each time you play try to find different examples of right angles in your town.

Initials & Date

3 TV Countdown!

Have a set of blank cards or slips of paper (see over) consisting of three 1s, three 2s, three 3s, and an 10, up to three 10s. Have a second set with ones, 20, some 10s, some 7s, and some 100s.
Plus the cards up and ask your child to select, unseen, any 6 small numbers (from set one) and any one large number (from set 2).
Now roll a dice 3 times to generate a 3-digit number.
They have to combine their cards using addition, subtraction, multiplication and division to get as close as possible to the 3-digit number (each card may be used only once). There is no need to stop on a 10 - second time loss, and they should get praise and credit for getting close, even if they cannot get there exactly.

What You Will Need
Countdown cards (see back of book)
A die

Date	Child's comments	Parent's comments

Mastering Times Tables and Number Bonds

The **Leitner System for learning information** is certainly not new. It hails from the 1970s, but since then it has been proven to be effective time and time again.

The principle is simple. Test yourself daily using a simple system of boxes and flashcards, in which the information that is hardest to recall gets tested more often. The very act of recall has been shown to be more effective than simply re-reading the original information.

Although the cards provided in this set are for multiplication tables, the system will work for other things. I have friends who learnt dozens of Bible verses, chemical elements, and so on, using a similar system.. Many people have used this idea to memorise the order of an entire shuffled pack of cards.

So how does it work?

It works because the game makes your brain recall the facts it cannot remember more often than the facts it already knows. They stay in box 1 and get looked at every day!

The basic version of the game works like this. First choose the cards you wish to work with. Your pack includes two sets for you to choose from - multiplication tables and number bonds, as well as a blank page for you to design your own set of cards. Now make up the three boxes using the instructions on the following page.

Put all the cards into box A. You are ready to start. So: on **Monday**, take cards from **box 1**, one at a time, and read the front.

If you can *instantly* recall the answer on the back, place the card into **box 2**. If you cannot, or you hesitate for ever a second, replace the cards in **box 1**. Once you have done all the cards, you will now have some in **box 1** and some in **box 2**.

On Tuesday, start by looking at the cards that are in **box 2**. This time, whenever you get one right *instantly*, place it into **box 3**. If you cannot, return it to **box 1**. Then, go through **box 1** and do as you did on Monday. This means that the facts of which you are less certain get *more* practice and will become secure much faster. On Tuesday afternoon do the same; start with **box 2**, and then **box 1**.

On Wednesday, repeat Monday's instructions (i.e. just use **box 1**). **On Thursday**, you repeat Tuesday (i.e. **box 2** then **box 1**). **On Friday** you test yourself with **box 3**, then **box 2**, then **box 1**. The only difference on Friday is that if you get it right, it stays in **box 3**, otherwise it should be placed back in **box 2**.

If you prefer, you can play twice a day, once in the morning and once in the afternoon. Good luck- I can guarantee this will massively improve your ability to recall key facts!

Andrew Jeffrey, January 2021

How to Prepare Your Boxes.

Step 1: You will need: a pair of scissors, and a printout of each box as shown here.



Step 2: Cut out the box by cutting carefully along all the black lines. Then crease along all the red dotted lines.



Step 3: Turn over the box and start to fold along the dotted lines.



Step 4: Continue to fold into a box shape as shown. Flaps A1 and A2 overlap, as do flaps B1 and B2.



Step 5: To secure the box, fold the flaps down and inside the box. You can glue them down if you wish. Follow these steps for all three boxes.



Congratulations - your boxes are ready!

There are also video instructions showing how to make the boxes and how to use the cards.

These can be found by visiting andrewjeffrey.co.uk and clicking on '**Fluency Project**' near the top.

From the drop-down menu, select '**Leitner System**' and watch the short instructional videos.