KIRFS at Pound Hill Junior School

Aims of this video

- To gain an understanding of the National Maths curriculum and expectations.
- To get an insight into what it means to be fluent and why fluency is important.
- To gain an understanding of KIRFs at Pound Hill
- Respond to Parent Feedback
- To take away some ideas to support your children at home



Feedback

“I like that KIRFs help children build confidence with essential maths facts through regular practice. They make it easier to recall key information quickly, which supports learning more challenging maths topics. I also like that the practice is short and focused, making it manageable and easy to fit into the daily routine.

The KIRFs are a useful way of helping children develop confidence and fluency in essential maths skills. One possible improvement would be to provide a wider range of examples or activities to make the practice more engaging and varied. It would also be helpful to include some guidance for parents on how best to support children with KIRFs at home.”



What is Fluency?

Fluency is the "quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations of mathematics." (NCETM, 2017)

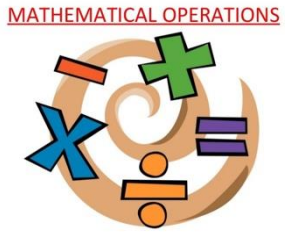
The national curriculum for mathematics aims to ensure that all pupils:

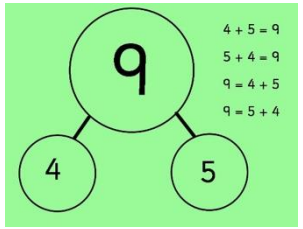
- Become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately

- Can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.



Fluency – focus at home







Recall

- 4 Operations
- Times tables
- Number Facts & Arithmetic skills
- Weekly homework
- KIRFs





- **‘Real Life’ Maths**

- Money (& decimals)



- - Telling the time, days of the week, calendars, train/bus timetables
- -Measurements- cooking, art projects
- -’Magnitude’ of number- how many people attend a football match? Would you really use 300kg of sugar or 300g?



APPLICATION – FOCUS AT SCHOOL

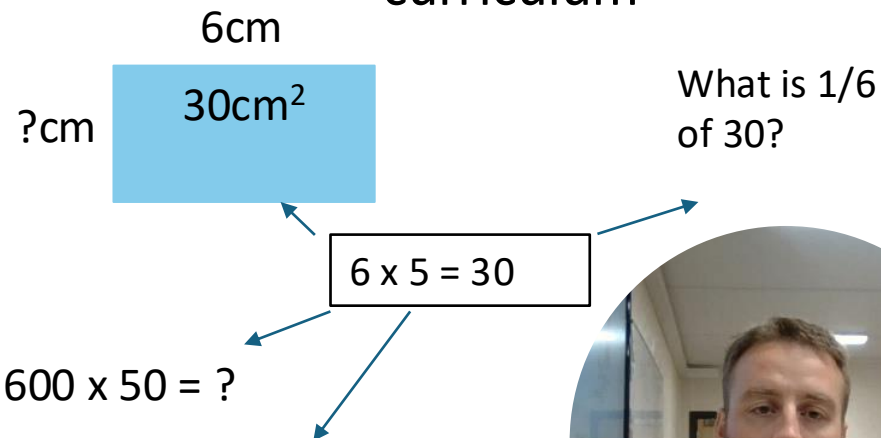
Reasoning & Problem Solving

Context & Cross curricular

Broadening and Deepening

Variation

Understanding other areas of the curriculum





What are KIRFs?

- **Key Instant Recall Facts** or KIRFs are those “pieces” of mathematical knowledge that we expect children to know off-by-heart.

- They need to be constantly practised and rehearsed at home as well as school - in order for children to be able to recall them quickly, confidently and accurately.



Year 3 Autumn 1 KIRF – Number Bonds for 11–20

What should my child know?

Recall the required number bonds and related subtraction facts quickly and accurately.

Examples

- 13 + 7 = 20
- 12 + 8 = 20
- 15 + 5 = 20
- 20 - 6 = 14

12 + 8 = 20

Why is this important?

These facts support mental calculation, written methods and efficient problem solving.

Ways to practise at home

- Practise for one minute little and often.
- Use flashcards or write missing-number questions.
- Ask quick-fire questions in the car or at dinner.
- Challenge your child to beat their previous score.

Success criteria

- ✓ I can answer quickly without counting or lengthy working out.
- ✓ I can solve missing-number questions mentally.
- ✓ I can explain how I know my answer.

1-Minute Challenge

Can you answer these in under one minute?

13 + ___ = 20
___ + 8 = 20
15 + ___ = 20
20 - 6 = ___
20 - 13 = ___
11 + ___ = 20

- One or two per half term
- USUALLY link to termly maths learning
- These are new- open to feedback.



	Year 3	Year 4	Year 5	Year 6
Autumn 1	• Number bonds for numbers 11 to 20 and related subtraction facts • 10× multiplication and division facts	• Number bonds to 100 • 6×, 9x multiplication and division facts	• Recall all multiplication and division facts to 12×12 • Factor pairs of numbers to 100	• Recall all multiplication facts automatically • Common factors and multiples
Autumn 2	• 5×, 10× multiplication and division facts • Count forwards and backwards in 5s and 10s	• 7× multiplication and division facts • Multiply and divide by 10 and 100 mentally	• Multiply and divide by 10, 100 and 1000 • Double and halve efficiently	• Prime numbers to 100 • Square numbers to 15^2
Spring 1	• 2×, 4x, 8x multiplication and division facts	• 11× & 12x multiplication and division facts • Common metric conversions	• Fraction, decimal and percentage equivalents	• Fraction, decimal and percentage equivalents • Common percentage facts
Spring 2	• Recall fractions equivalents • Recall Measurement equivalents	• Secure recall of all tables to 12×12	• Metric conversions in both directions • Square numbers to 12^2	• Convert between common units fluently • Multiply and divide decimals by 10, 100 and 1000 mentally
Summer 1	• 3× & 6x multiplication and division facts • Double numbers to 20 & Halve even numbers to 40	• Fraction and decimal equivalents	• Decimal multiplication facts	Revision of: • All multiplication and division facts to 12×12 • Number bonds to 20 and 100 • Common fraction, decimal and percentage equivalents • Key metric conversions • Square numbers to 1 • Cube numbers to 10 • Common factors, m primes • Multiplying and div and 1000 mentally
Summer 2	• Know all UK coins and notes • Tell the time to the nearest 5 minutes	• Fractions of 100: • Recall all multiplication facts to 12×12 within 3 seconds	• Cube numbers to 10^3 • Recall all Year 5 KIRFs automatically	



What does research say?



- Learning key facts ‘by heart’ enables children to concentrate on the calculation which helps them to develop calculation strategies.

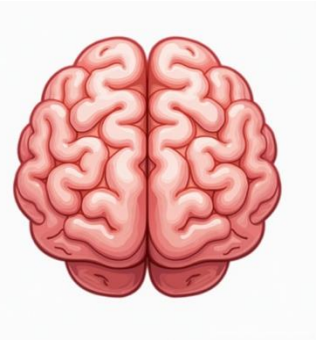
- Using and applying strategies to work out answers helps children to acquire and so remember more facts.

- Fluency - This frees up working memory. We can hold between 3 and 7 ideas in their short term/working memory at once but we have an infinite capacity in our long term memory.

- By committing facts and knowledge about numbers to memory it has the potential to improve the short term memory and reduce cognitive overload. Efficiency allows children not to be bogged down in too many steps.



What if my child already knows the KIRF for that half term?



- Speed- increase recall speed
- Pressure- head to head
- Related facts

‘Don’t practise until you get it right….

Practise until you can’t get it wrong’



Related Facts



‘If I know….. then I also know…’

- 3 + 4 = 7
- 3 tens + 4 tens = 7 tens
- 3 million + 4 million = 7 million
- 3 cats + 4 cats = 7 cats
- £3 + £4 = £7
- $\frac{3}{9} + \frac{4}{9} = \frac{7}{9}$
- 3 tenths + 4 tenths = 7 tenths (0.3 + 0.4 = 0.7)
- 3 groups of 7 + 4 groups of 7 = 7 = 3 X 4 + 4 X 7 =



How best to support children with KIRFs at home

Make maths a part of daily routine- little and often

- Talk, talk, talk
- Check the KIRFs sheets for some suggested ideas
- Create mini tests
- Create some games or prompt cards
- TimeTable Rock Stars/Numbots (logins will be sent home).
- Linked to weekly homework
- White Rose 1 minute app – download and use for free
- Maths Zoo Worksheet generator – free to use
- Numberblocks
- “If you know this then what else do you also know?”

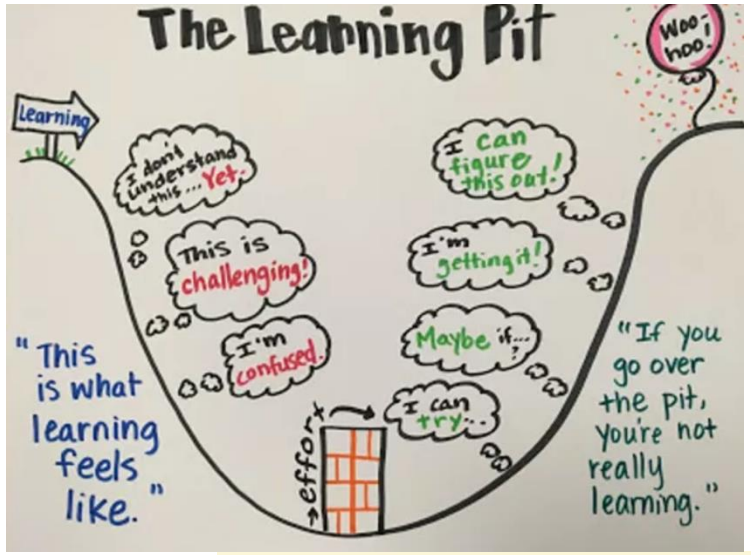
Please do use the feedback form to let us know any ideas you have that have worked!

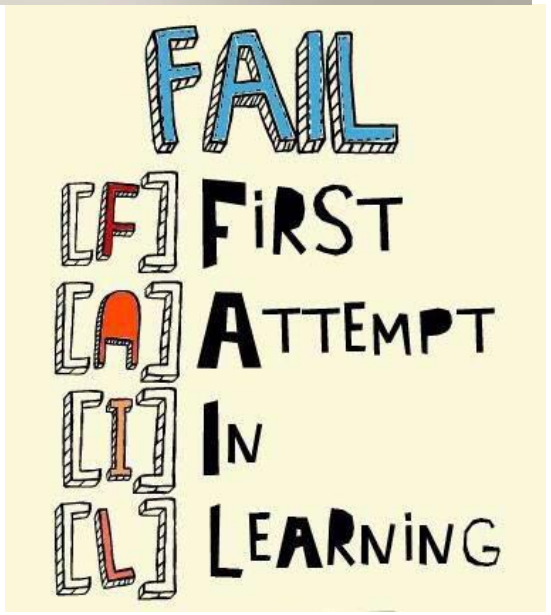


How to build confidence and support children

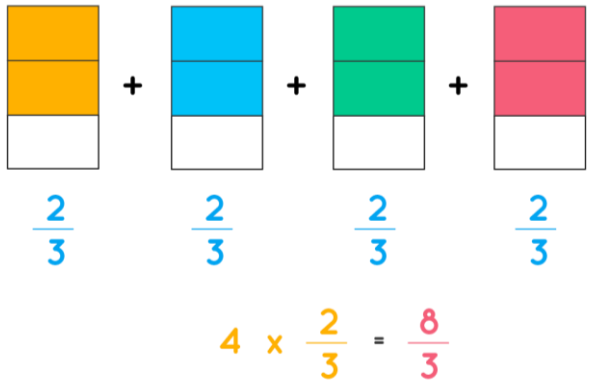
Growth Mindset

- ‘I can’t do this.. **yet**’
- ‘I’m stuck… **for now’**
- **Learning attitudes**
- Take a **risk,** you might get it right
- Be **resilient**
- Keep **persisting -** ‘Don’t practice until you get it right, practice until you can’t get it wrong’
- Can you think of an **original** way of tackling this?
- If you make a mistake, can you **reflect** on it?
- Let’s **collaborate** & work on this together





Provide a visual



Check the understanding of the Language

Use the Stem Sentence and Language Progression documents for this

Don’t be afraid to make mistakes too!



Children’s ideas…

- My next step

- I will share these on the website




THANKS
FOR WATCHING

