

Hampshire Assessment Model Project Group (session 7)

Autumn Term 2017



Programme

9:00 Introductions

9:05 The journey so far

9:25 Principles through the lens of English and Maths

10:45 BREAK

11:00 What is 'sufficient'?

12:00 LUNCH

12:45 Developing middle leaders
SEND tracker

2:15 BREAK

2:30 Pupil Progress Meetings

3:10 What's next?



Ten Principles of the Hampshire Assessment Model



Developing practice

- Choose one or more of these areas to discuss with a colleague.
 - **Enrichment and extension for higher attaining pupils**
 - **Classroom approaches to mastery teaching and learning**
 - **Using formative day to day assessment**
 - **Using summative periodic assessment**
 - **Working with parents/pupils/governors etc to present information**
- Describe your school's journey in using the HAM principles in developing assessment in these areas in your school.



Solution-focused thinking

- What are the ongoing challenges that you have faced in your school regarding assessment and using HAM?
- Discuss strategies that could help to address these.



Session 1

Reviewing pupil work to consider whole school progress in the principles

ENGLISH AND HAM PRINCIPLES



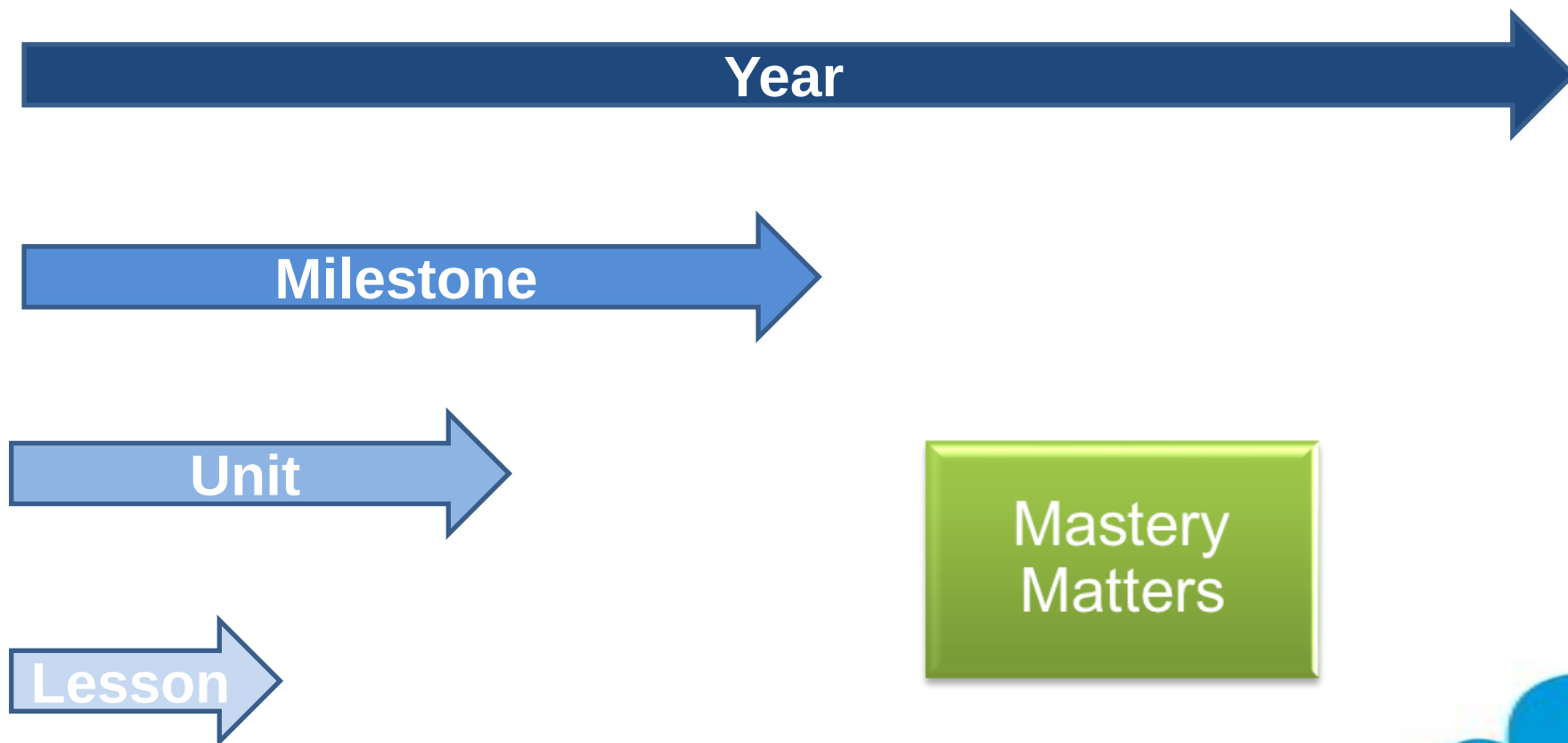
English NC Aims

fluency – clarity – accuracy - coherence

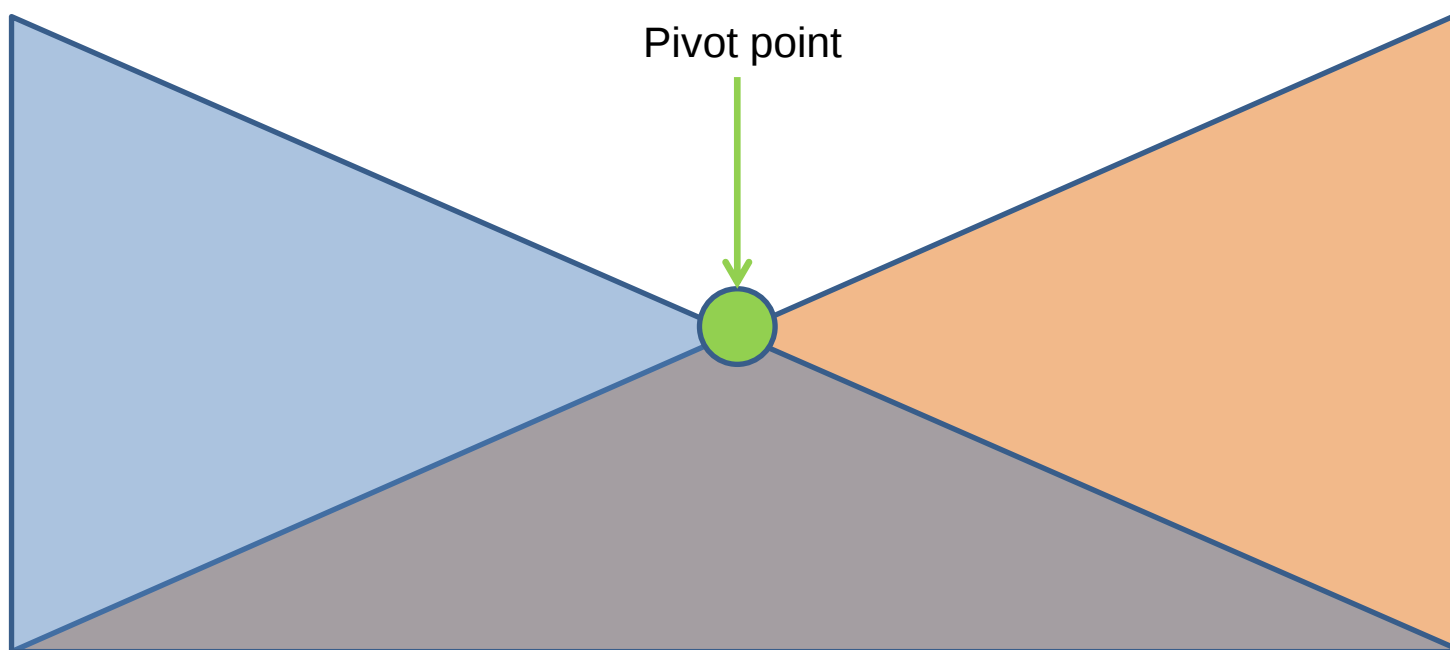
The national curriculum for English aims to ensure that all pupils:

- read easily, **fluently and with good understanding**
- develop the habit of reading widely and often, for both pleasure and information
- **acquire a wide vocabulary, an understanding of grammar and knowledge of linguistic conventions** for reading, writing and spoken language
- appreciate our rich and varied literary heritage
- **write clearly, accurately and coherently**, adapting their language and style in and for a range of contexts, purposes and audiences
- use discussion in order to learn; they should **be able to elaborate and explain clearly their understanding and ideas**
- are competent in the arts of speaking and listening, making formal presentations, demonstrating to others and participating in debate.

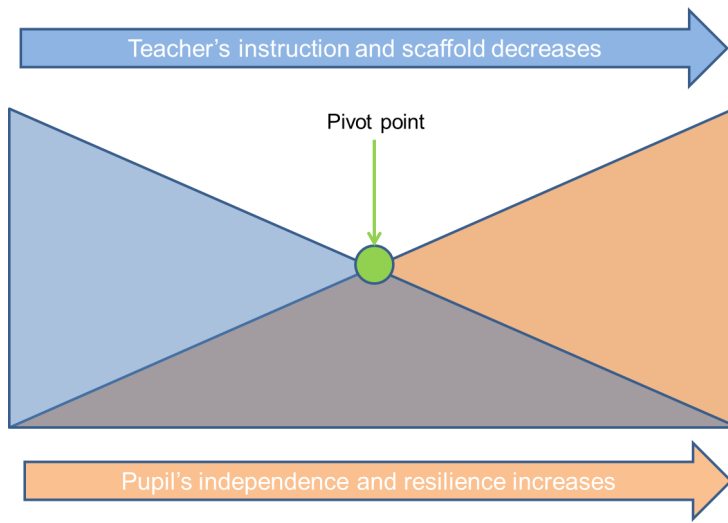
Planning for mastery over time



Teacher's instruction and scaffold decreases



Pupil's independence and resilience increases



Pace not
Race

The Pivot Point - the moment within a lesson/ unit / term/ year that a pupil demonstrates sufficient understanding for the teacher to adjust their teaching approach:

- shape of the lesson
- introduce challenge
- providing opportunity for the child to make choices



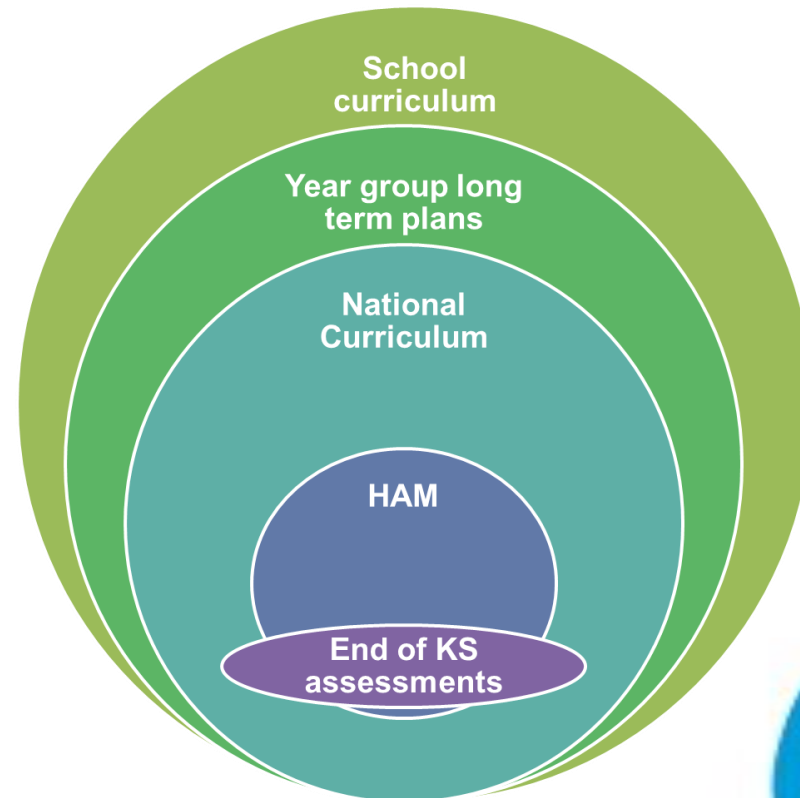
Planning for fluency, independence and resilience for all learners

Year



Mastery
Matters

Planning for progression
in writing skills and
behaviours



1) Agree principles of school curriculum:

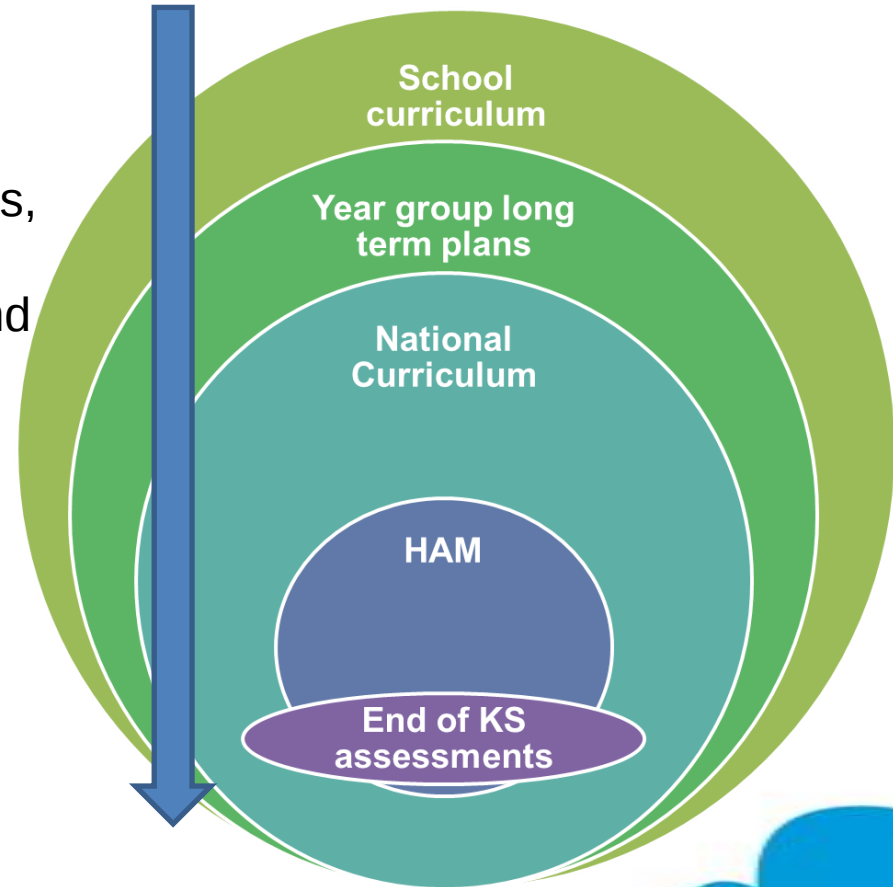
Progression across the school, breadth, depth, school context etc

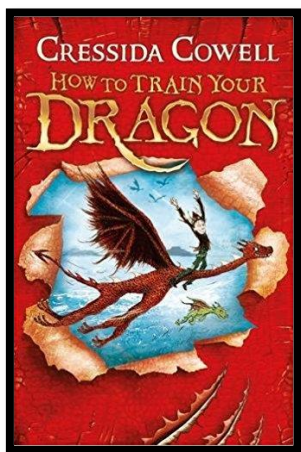
2) Year group LTP: range of engaging purposes and audiences, range of text drivers, planning for opportunities that increase in challenge linked to fluency, independence and resilience

3) National Curriculum: skills mapped for coverage and progression

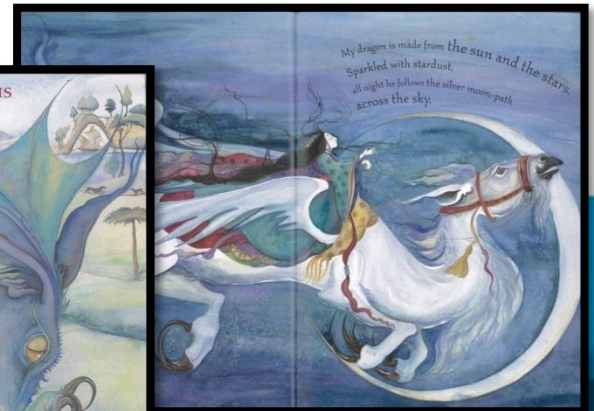
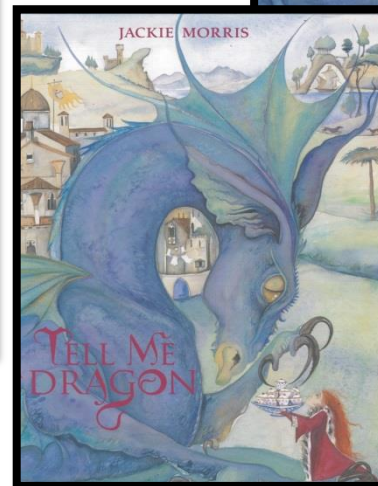
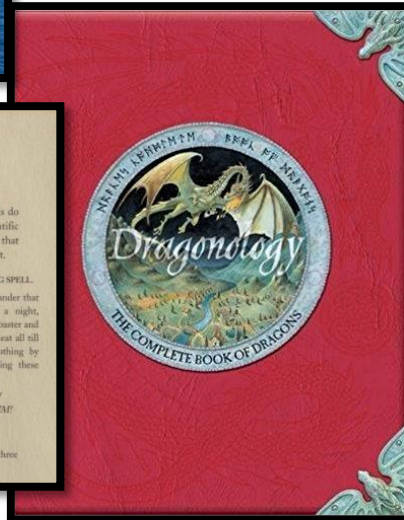
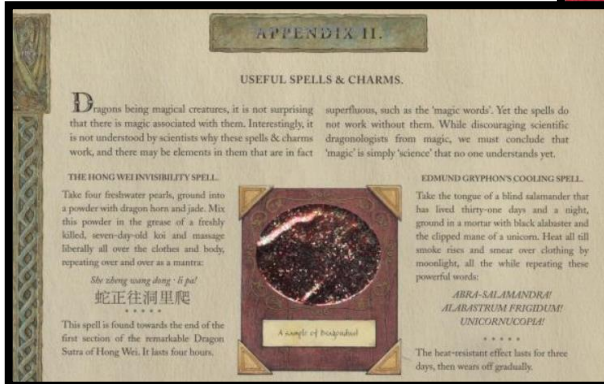
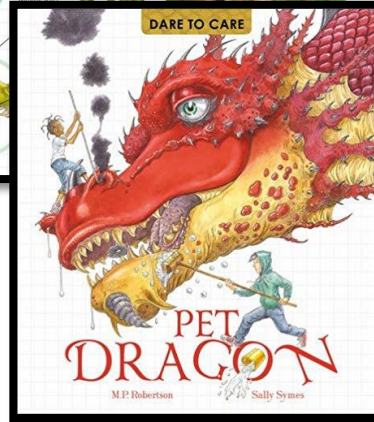
4) HAM: what to notice when, moving from apprentice to expert over time

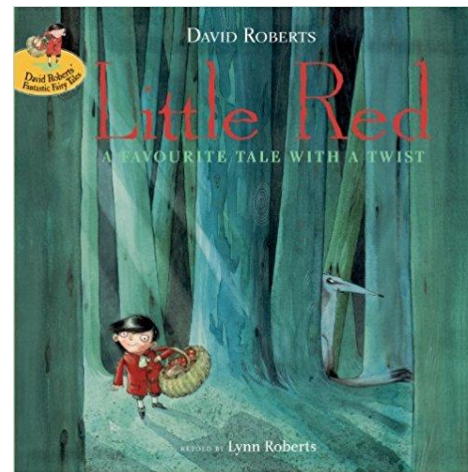
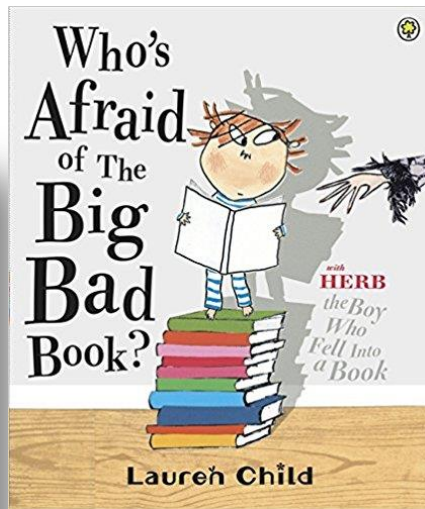
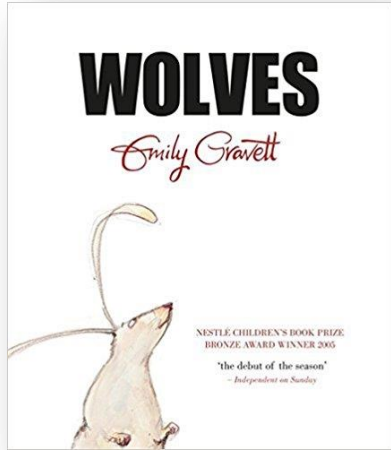
5) End of KS assessments: outcomes secured through all of the above





Rich curriculum
A range of literary drivers e.g. novels, picture books, film, poetry, nonfiction around a theme

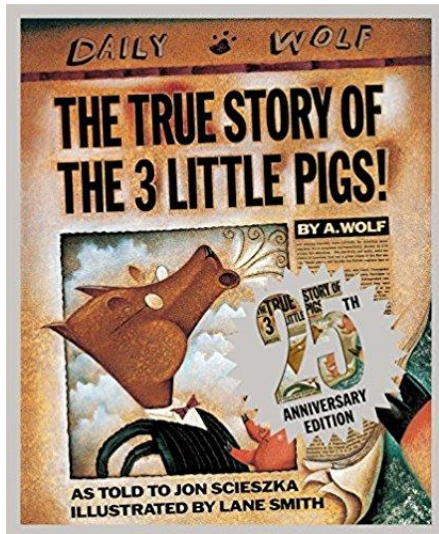




Pace not
Race

Rich curriculum

Are wolves always evil characters
in fairy tales?



Year 3	Autumn 1 <i>A Toys Tale</i>	Autumn 2 <i>Rotten Romans</i>	Spring 1 <i>Through the ages Stone</i>	Spring 2 <i>Through the ages Bronze, iron</i>	Summer 1 <i>Life is Peachy</i>	Summer 2 <i>Treasure Island</i>
Class text	<i>Indian in the Cupboard</i>	<i>Romans on Rampage</i> <i>Roman Myths</i>	Stone age boy The Stonehenge story The Whitestones Stories		<i>James and the Giant Peach</i>	<i>Kensukes Kingdom</i>
Writing Outcome	Narrative – tell the story of what’s happened to the toys (toy in trouble) Persuasion—why Toys R Us should buy the toy that they have made GD opps- Give children the choice of form: -poster -speech -letter -advert	Recount / Report - News reports Instruction writing Debate – role of the slave? Is it right to visit Pompeii? GD opps- Give children the choice of view point to write from Chd working beyond-Make them write from the side that they oppose	Diary writing – stone age boy GD opps-Write from different character’s viewpoint. Focus on informal language to different ages Instructions on how to wash a woolly mammoth	Non-chronological reports – Life through the ages. Boudicca poetry Narrative at the end of the half term.Story hook- Butser Farm GD opps- Give them the choice of what time period to write in Museum – write the information labels for artefacts.	Explanation - Guided tour of Bug hotel GD opps-choice of form: -audio -advert -estate agent brochure Descriptive writing – describe the aunts Non-Chronological report – design your own minibeast	Report – Pirate day GD opps-Choice of audience. -Newspaper -TV -Website Letter – Write a letter to mum/dad in a bottle Poetry-Pirates



Year

Writing Outcomes Purpose, Audience, Form	Narrative – Class version of dual narrative using different viewpoints (linked to pond) Instructions – What to do when you find a 'lost' animal for Mark the site manager Information – Animal Diary for the author Steve Parker	Poetry – night sky and shooting stars Diary – to describe the 'star fishing' Information – What is Diwali?	Recount – postcards / diary from Samson's Journey Report – news report on the events	Narrative – own version : focus on problem Information – advisory poster or a leaflet on how to have a healthy diet Explanation – the food chain	Narrative – own version: focus on resolution Information text – Q&A model using 'Could a penguin'	Poetry – using Quentin Blake texts as stimulus Explanation – modified transport Information text – Fact file on Quentin Blake
Sentence grammar and punctuation skills	Proof read to check for errors – make additions, revisions and correction to their writing					
	Sentence punctuation Coordination conjunctions Exclamatory sentence Command sentences Statements Expanded noun phrases	Subordinating conjunctions Questions / Statements / Exclamations Expanded noun phrases Past tense Present tense	Contractions Range of conjunctions Adverbials to link sentences and ideas -er and -est adjectives Past tense Expanded noun phrases	Commas in a list 4 types of sentence Range of conjunctions Past tense	Apostrophe for possession Suffixes – ful and -less 4 types of sentence Commas in a list	Suffixes –ment and – ness Apostrophe for possession Commas in a list

Planning for progression in writing skills and behaviours

Milestone 1 Teacher instructs

LO: Write a sentence beginning with the pronoun 'I'

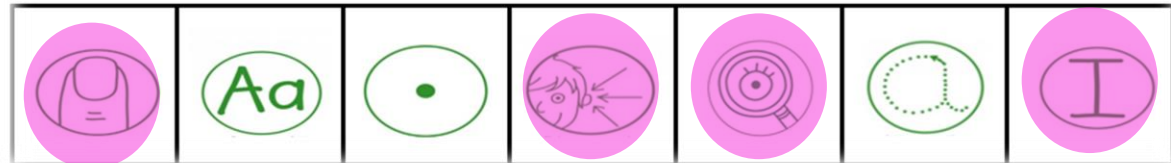


Secure
Learning
Pathways

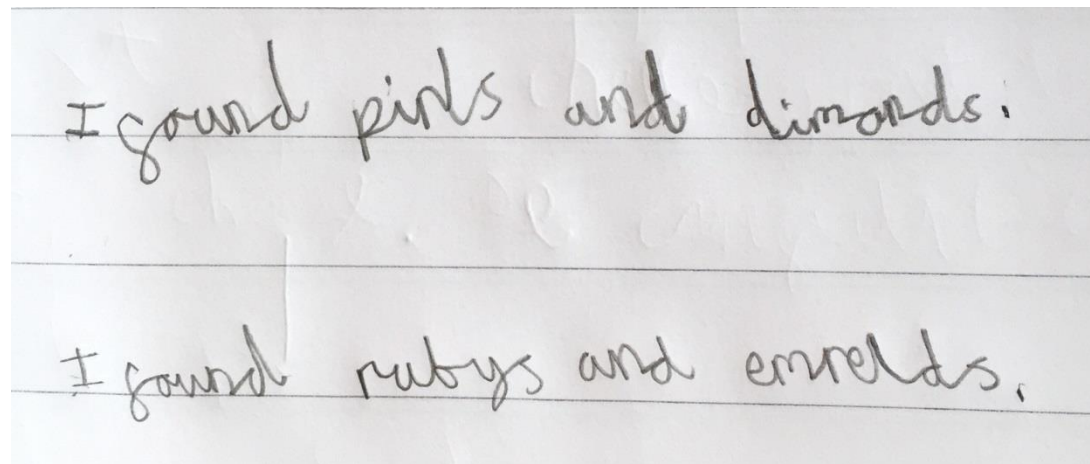
Milestone 2 Teacher guides

Year 1

**MUST
HAVE**



Milestone 3 Pupil independently applies



Planning for fluency, independence and resilience for all learners

Summative
Tracking

Milestone

Parallel texts
Planning for Mastery -experiencing the
same thing in different ways

DATA

Milestone

Data gap means a
curriculum gap

HAM Exemplification for Reading and Writing



Moderated
Expectations

“I am the change agent.”

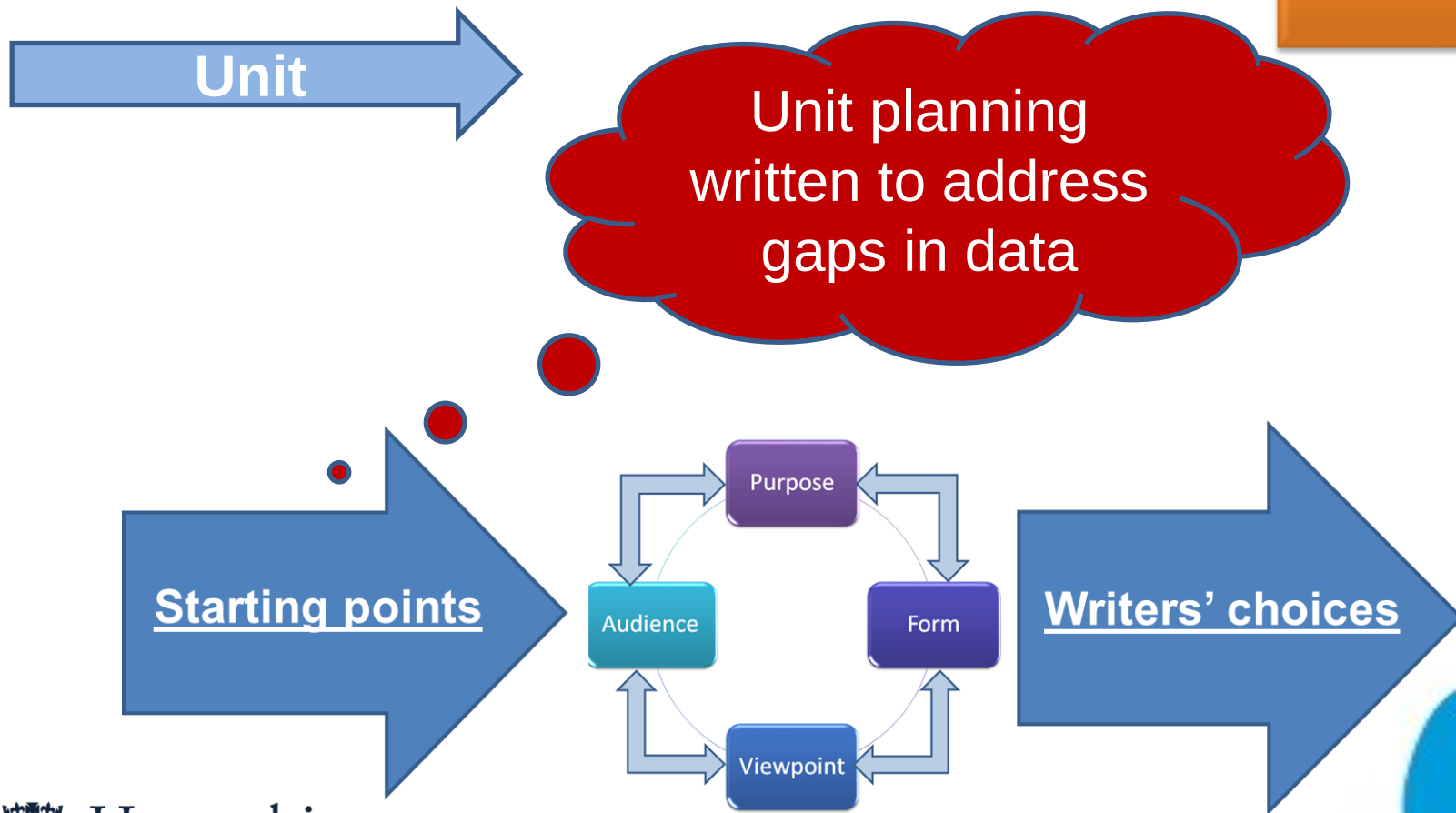
As teachers, we have the potential for tremendous agency – ***to make learning happen*** – if we’d only seize the chance to do so. Being a change agent means bearing witness to student learning, reflecting on it, and recognizing that student progress tells us something about ourselves. ***How will we ever know what students are truly capable of if we don’t get deeply involved in their learning lives?***

(Hattie, Fisher, Frey)

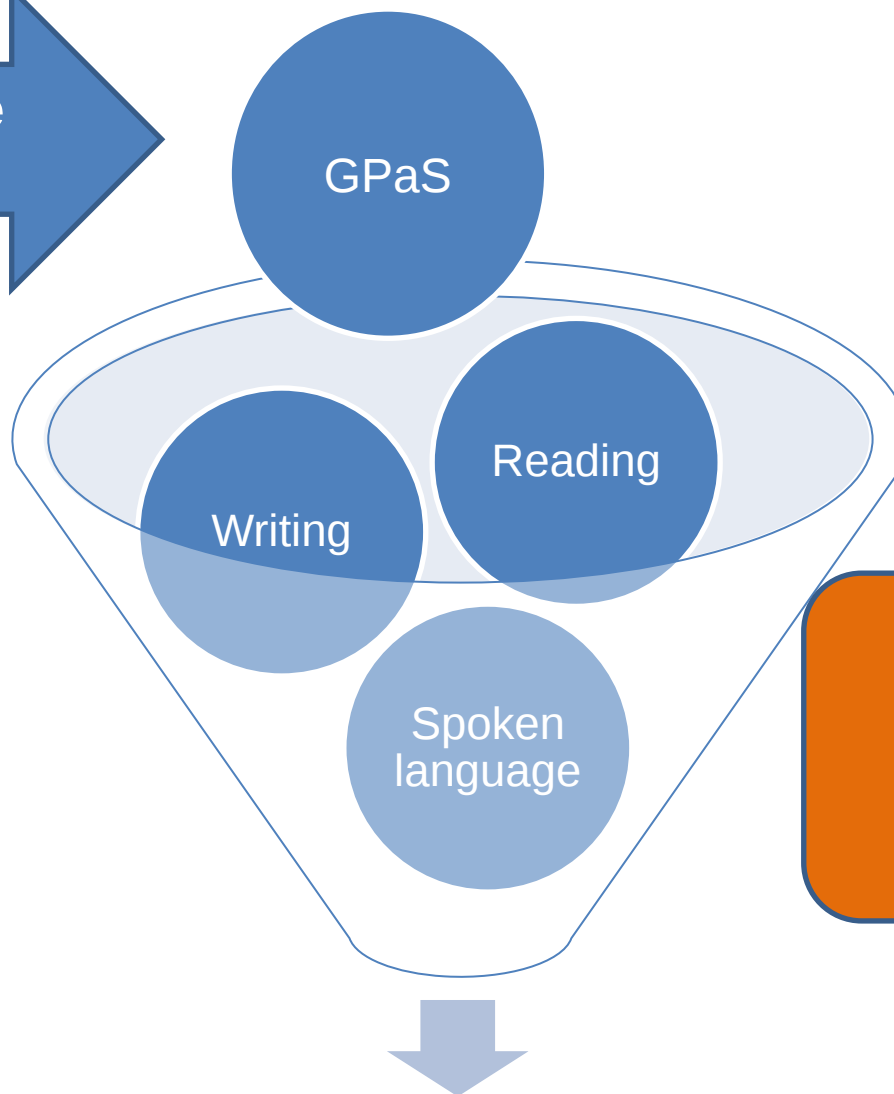


Planning for fluency, independence and resilience for all learners

Responsive
Teaching

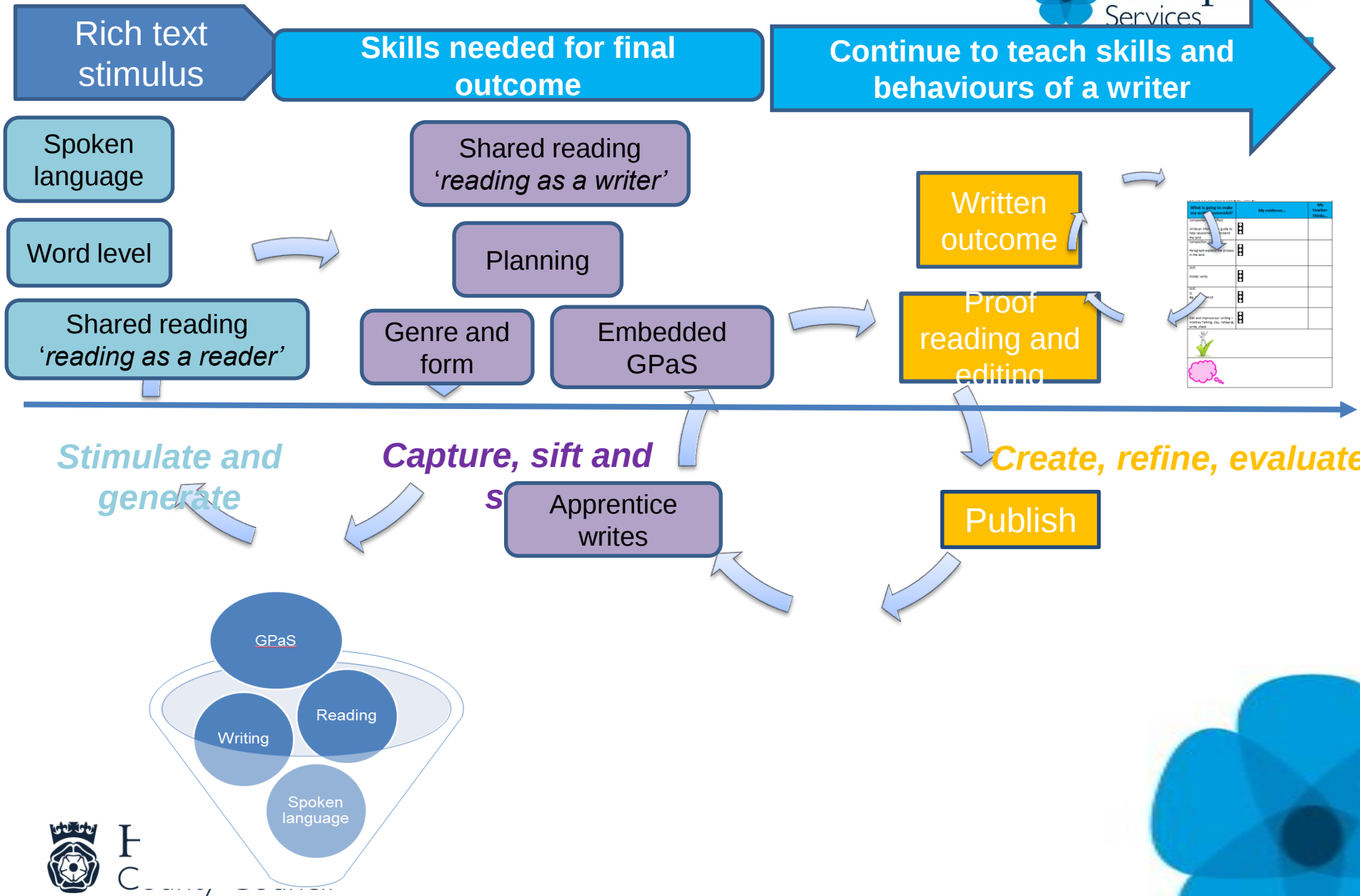


Texts act as the
drivers

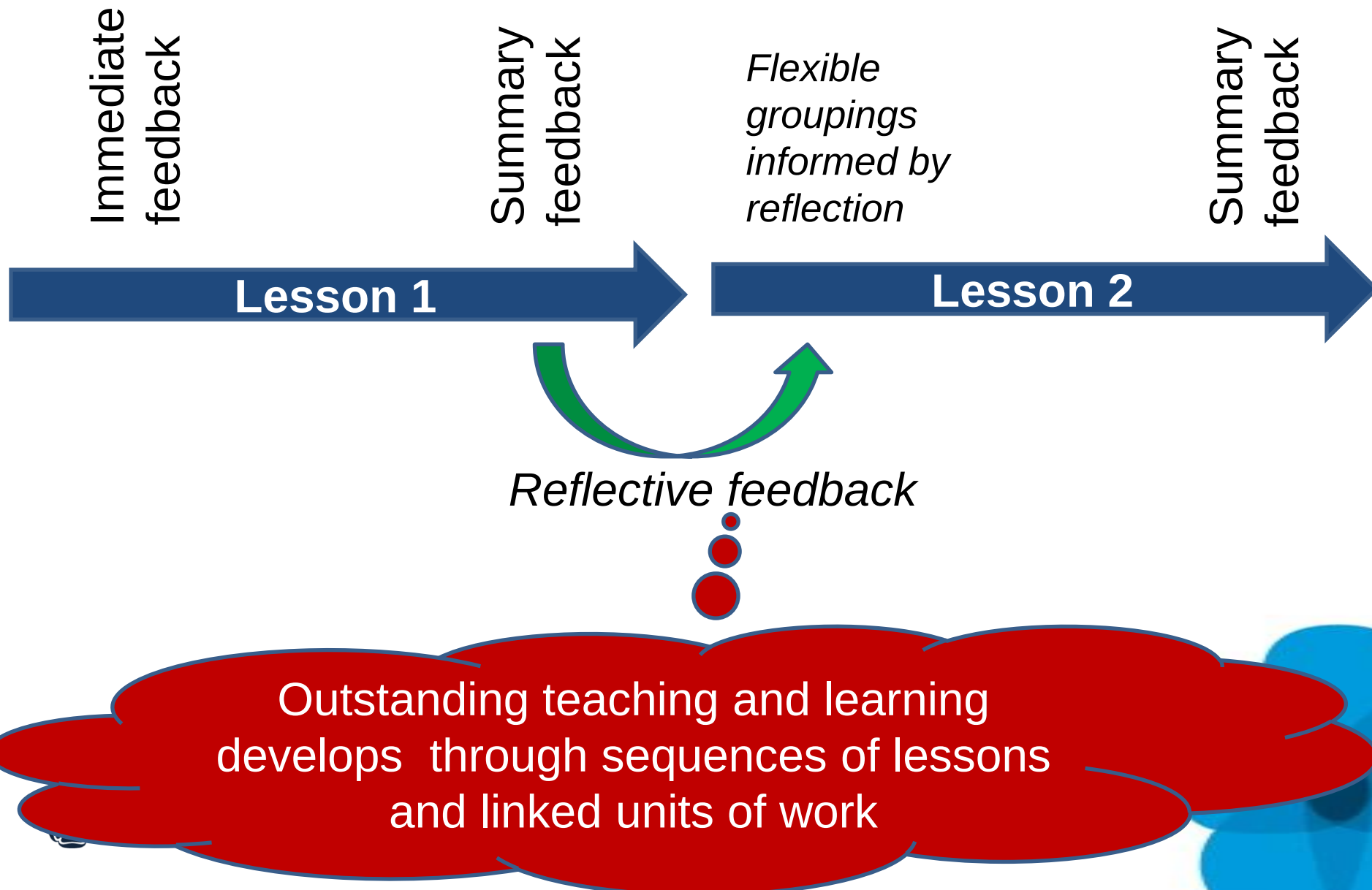


Parts are interlinked and merge
towards final outcomes

Planning a learning journey towards a clear outcome



Feedback informs the next lesson ...





LO: To make inferences about character feelings

Make sure you have read chapters 23 and 25

Bradley was called a monster. Pretend that you are Bradley.
What would he write in a diary that night?

LOUIS SACHAR



Dear diary,

Dear Diary,

Hey, Diary. It's Bradley, the one people call "monster". You know, I really hate everyone and they hate me ~~when~~ ^{when} Jeff left me behind but Carla isn't like that since she's always nice to me. I wonder if she's really nice or if she's just pretending to since she's the school counselor. Well, I really don't care, even if I care, it still would be really hard to tell since she's absolutely nice!!

Anyway, back to when ^{other} people call me a monster.

Maybe because it's just my personality and how I treated other people and if that's the case, then the reason people call me a monster because I probably am one. But Carla thinks there's good in everyone. So, earlier this morning, I thought that if I became good and if others realize that, they don't think that I am a monster anymore. So I pretended to be good the whole day. Even though everyone thinks I'm still a monster, I still need to be more nice. But surprisingly, it didn't work, and they even think that I hit Bradley, Jeff. I didn't do it.

✓ You carefully thought from Bradley's point of view.

Do you think he can change? Why?

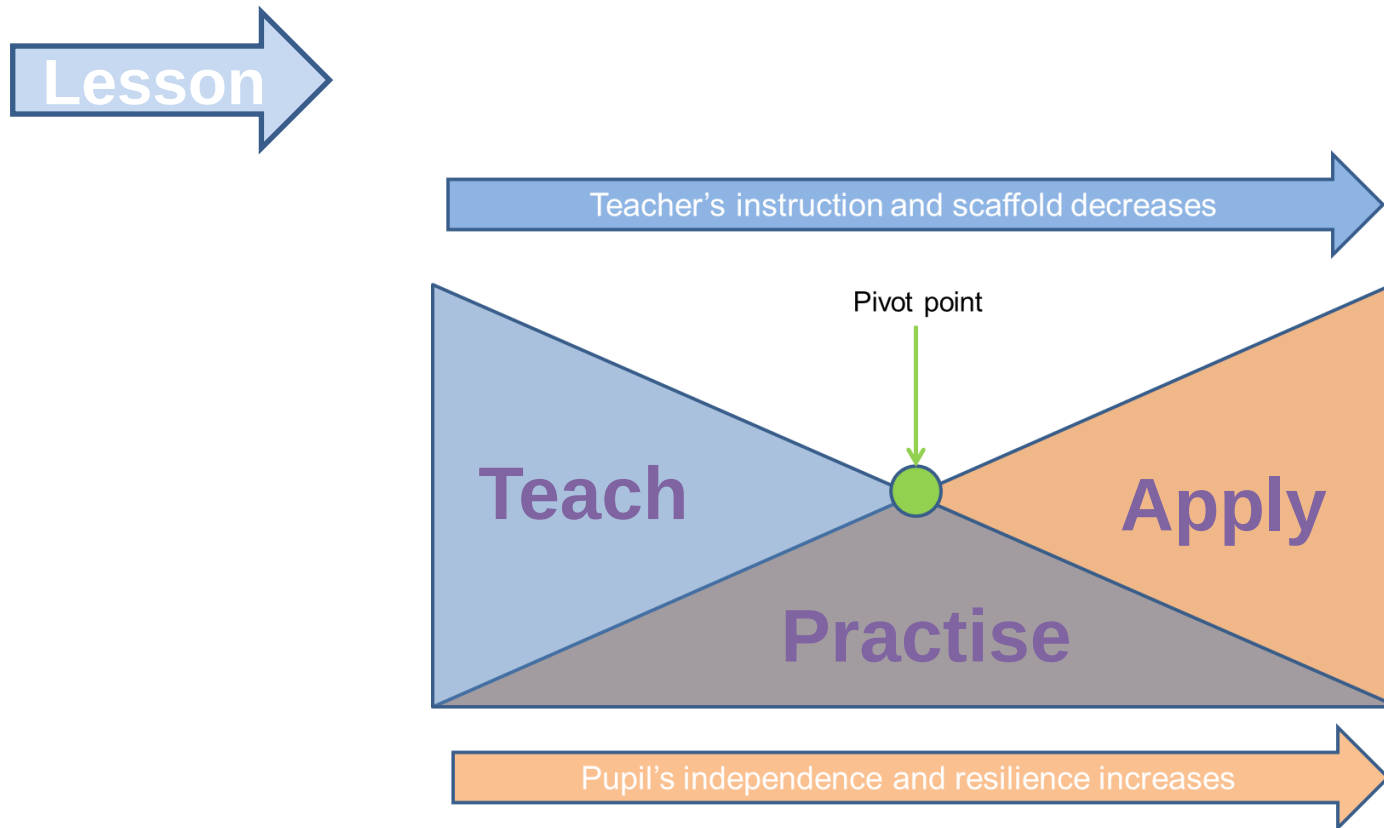
Yes, because on chapter 23 and 25, he was still being nice even they still call him a monster. Bradley's personality is like a monster, but a monster still can change as long as he tries.

Task

- Review books for evidence of agile feedback in reading and writing



Planning for fluency, independence and resilience for all learners



Session 1

Reviewing pupil work to consider whole school progress in the principles

MATHEMATICS AND HAM PRINCIPLES



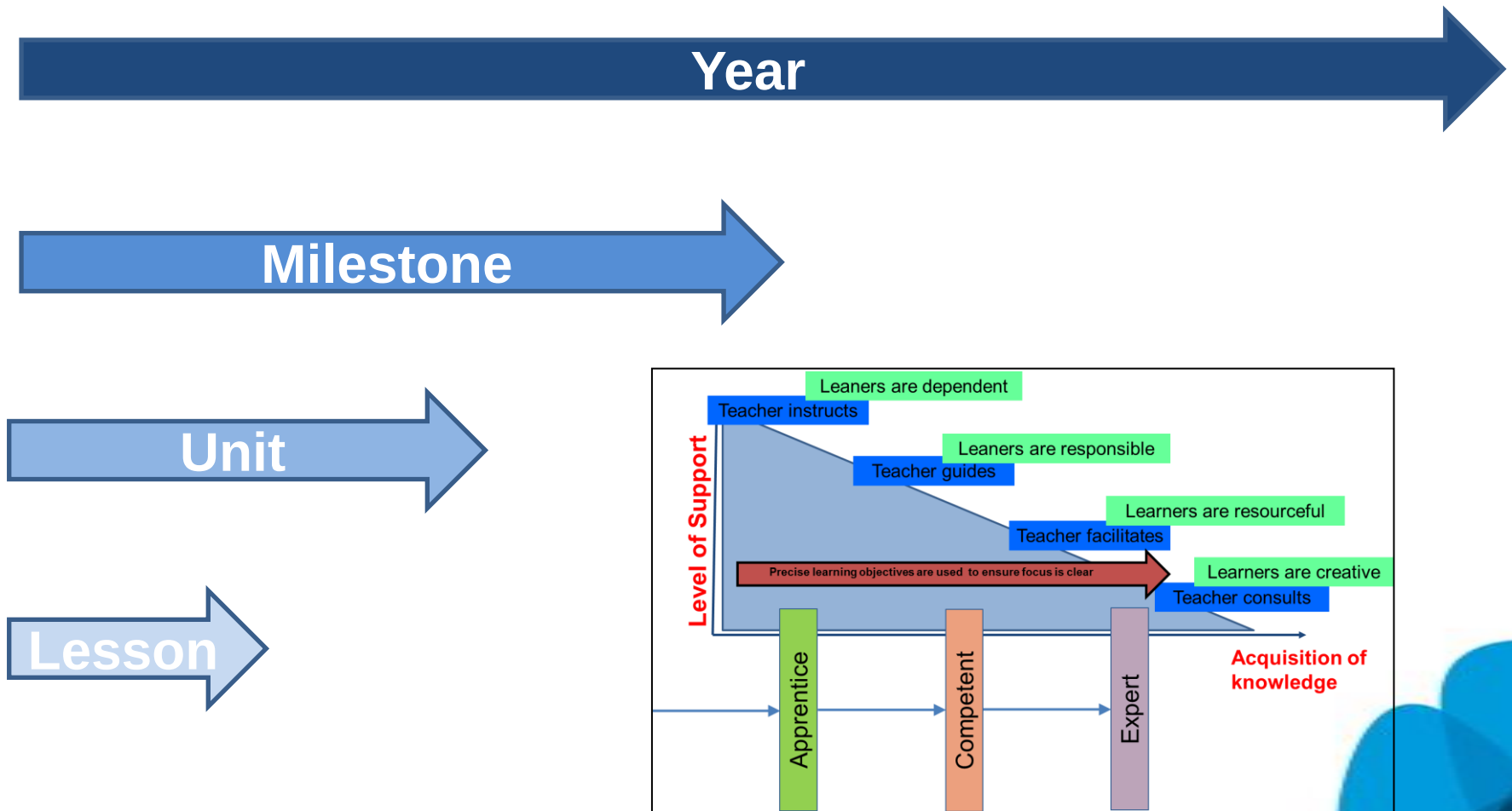
Ten Hampshire Assessment Model principles to challenge & refine



Principles of HAM and mathematics

- ✓ **Secure Learning Pathways**
 - ✓ **Equity & Enrichment**
 - ✓ **Pace not race**
-
- Long term maps identifying provision between milestones?
 - Medium term planning, combining domains in different combinations?
 - Aims of the curriculum developed through medium and day to day plans?
 - Problem solving and reasoning expectations for all pupils to 'sufficient mastery' on the journey to end of year expectations at the end of the year?
 - Models and images used to support conceptual understanding making links within and between domains?
 - **Transition units** support consolidation of fluency and some small steps towards new end of year expectations?

Planning for fluency, independence and resilience for all learners



Year	Number and place value	Addition and subtraction	Multiplication and division	Fractions	Measurement	Geometry		Statistics
						Properties of shape	Position and direction	
YEAR 4	Pupils should be taught to: - count in multiples of 6, 7, 9, 25 and 1000 - find 1000 more or less than a given number - count backwards through zero to include negative numbers - recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) - order and compare numbers beyond 1000 - identify, represent and estimate numbers using different representations - round any number to the nearest 10, 100 or 1000 - solve number and practical problems that involve all of the above and with increasingly large positive numbers - read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.	Pupils should be taught to: - add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate - estimate and use inverse operations to check answers to a calculation - solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	Pupils should be taught to: - recall multiplication and division facts for multiplication tables up to 12×12 - use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers - recognise and use factor pairs and <u>commutativity</u> in mental calculations - multiply two-digit and three-digit numbers by a one-digit number using formal written layout - solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	Pupils should be taught to: - recognise and show, using diagrams, families of common equivalent fractions - count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten. - solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number - add and subtract fractions with the same denominator - recognise and write decimal equivalents of any number of tenths or hundredths - recognise and write decimal equivalents to $\frac{1}{10}$; $\frac{1}{100}$; $\frac{1}{1000}$ - find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths - round decimals with one decimal place to the nearest whole number - compare numbers with the same number of decimal places up to two decimal places - solve simple measure and money problems involving fractions and decimals to two decimal places.	Pupils should be taught to: - Convert between different units of measure (e.g. kilometre to metre; hour to minute) - measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres - find the area of rectilinear shapes by counting squares - estimate, compare and calculate different measures, including money in pounds and pence - read, write and convert time between hours, minutes and seconds	Pupils should be taught to: - compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes - identify acute and obtuse angles and compare and order angles up to two right angles by size - identify lines of symmetry in 2-D shapes presented in different orientations - complete a simple symmetric figure with respect to a specified line of symmetry	Pupils should be taught to: - describe positions on a 2-D grid as coordinates in the first quadrant - describe movements between positions as translations of a given unit to the left/right and up/down - plot specified points and draw sides to complete a given polygon	Pupils should be taught to: - interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs - solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.
	<i>'Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems.'</i> NC 2014							

AUTUMN TERM 2016/17	September	Week 1	Number and Place Value
		Week 2	Number and Place Value
		Week 3	Addition and Subtraction
		Week 4	Addition and Subtraction
	October	Week 5	Addition and Subtraction
		Week 6	Measures
		Week 7	Measures
	HALF TERM		
	November	Week 8	Shape
		Week 9	Fractions
		Week 10	Multiplication and Division
		Week 11	Addition and Subtraction
	December	Week 1	Addition and Subtraction
		Week 2	Measures
		Week 3	Geometry

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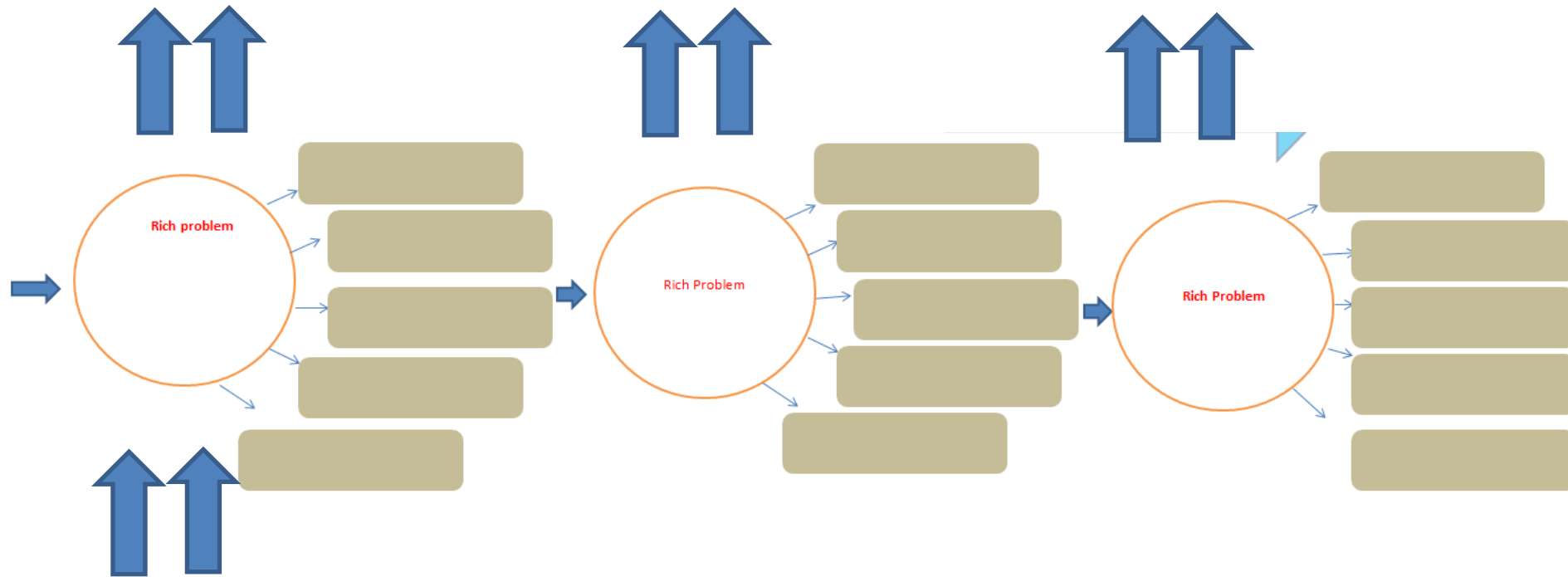
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n different orders to com

SPRING TERM 2016/17	January	Week 4	Number and Place Value
		Week 5	Number and Place Value
		Week 6	Adding and Subtracting
		Week 7	Adding and Subtracting
	February	Week 8	Measures
		Week 9	Fractions
		Week 10	Multiplication and Division
	HALF TERM		
	March	Week 1	Measures
		Week 2	Measures
		Week 3	Addition and Subtraction
		Week 4	Addition and Subtraction
		Week 5	Number and Place Value
	April	Week 6	Geometry (Shape)
		Week 7	Fractions

SUMMER TERM 2016/17	April	Week 8	Fractions
		Week 9	Number and Place Value
	May	Week 10	Multiplication and Division
		Week 11	Multiplication and Division
		Week 12	Geometry (position)
	HALF TERM		
	June		Number and place value
			addition and subtraction (bonds)
			addition and subtraction (mental strategies)
			Problem Solving (addition and subtraction - money)
			Problem Solving (addition and subtraction - time)

Number and Place Value
Number and Place Value
Addition and Subtraction
Addition and Subtraction
Addition and Subtraction
Measures
Measures
HALF TERM
Shape
Fractions
Multiplication and Division
Addition and Subtraction



- A unit of work may have different numbers of key tasks in the sequence...
- Additional problems/ more challenging versions for those pupils who 'get it'



Medium term plan

Year 5: autumn term November

Unit Addition and subtraction (inc fractions and decimals) in context of measures

Session	Focus	Challenge/ intervention/ support Groups/individuals LSA/ CT
1	Add/sub decimals (length)	
2	Dip & Pick card 2	
3		
4	Converting units: Km/m/cm Key fractions of lengths: $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{1}{5}$, $\frac{1}{10}$, $\frac{1}{100}$ and non-unit fractions. NCETM mastery Y4 comparison tasks	
5		
6	Money problem: 3 amounts	
7	Use of Y5 bar model card 11 for problem solving	
8		
9	Follow on: number facts to 1000, 10,000; adding 3 numbers (associative law), looking for complements and key facts/ related facts. Money and measure contexts	
10	Negative numbers: TTS card from tin	
11		
12	Decisions about mental strategy or paper and pencil methods linked to reasonableness of answer and related facts	
13		
14		
15		

Useful for mathematics managers to link data with provision:

- **Work scrutiny: sequences of lessons**
- **Domain coverage**

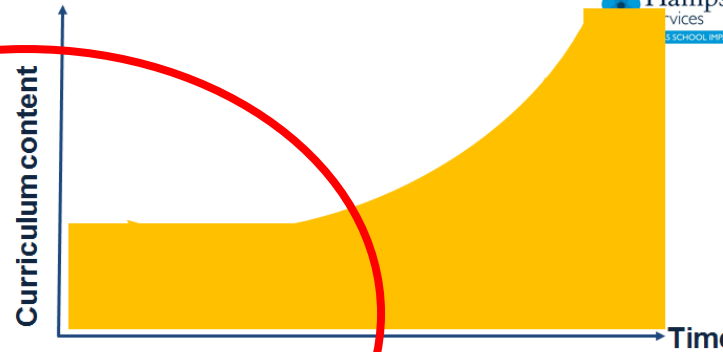
Useful for class teachers

- Easy reference to previous work
- Can be used again
- Developed collaboratively in PPA for next 2/3 weeks
- Short term planning individual

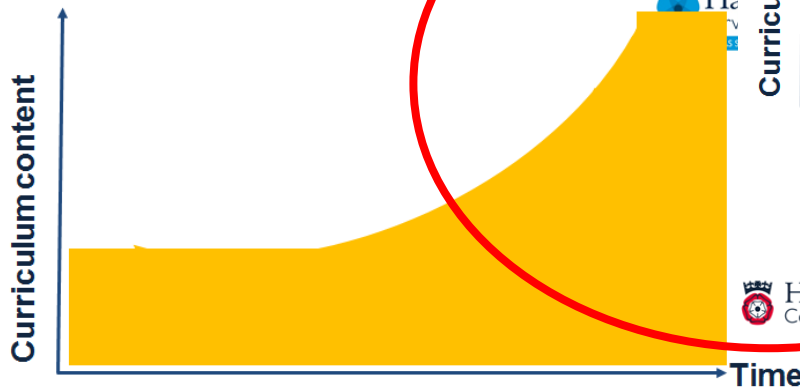


JC:First units from September

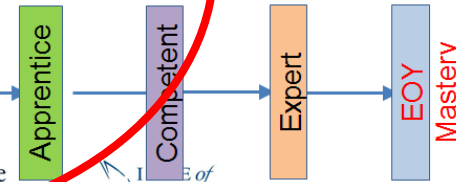
Learning over the year is not linear – think of a curve



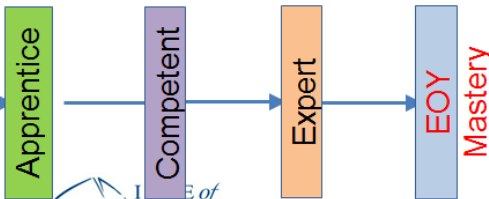
Learning over the year is not linear – think of a curve



Hampshire
County Council



Hampshire
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Eg Year 3



Eg Year 4

Pupils will need to revise (secure) prior learning and if securely on track *make a start on the next year's curriculum*

Principles of HAM and mathematics

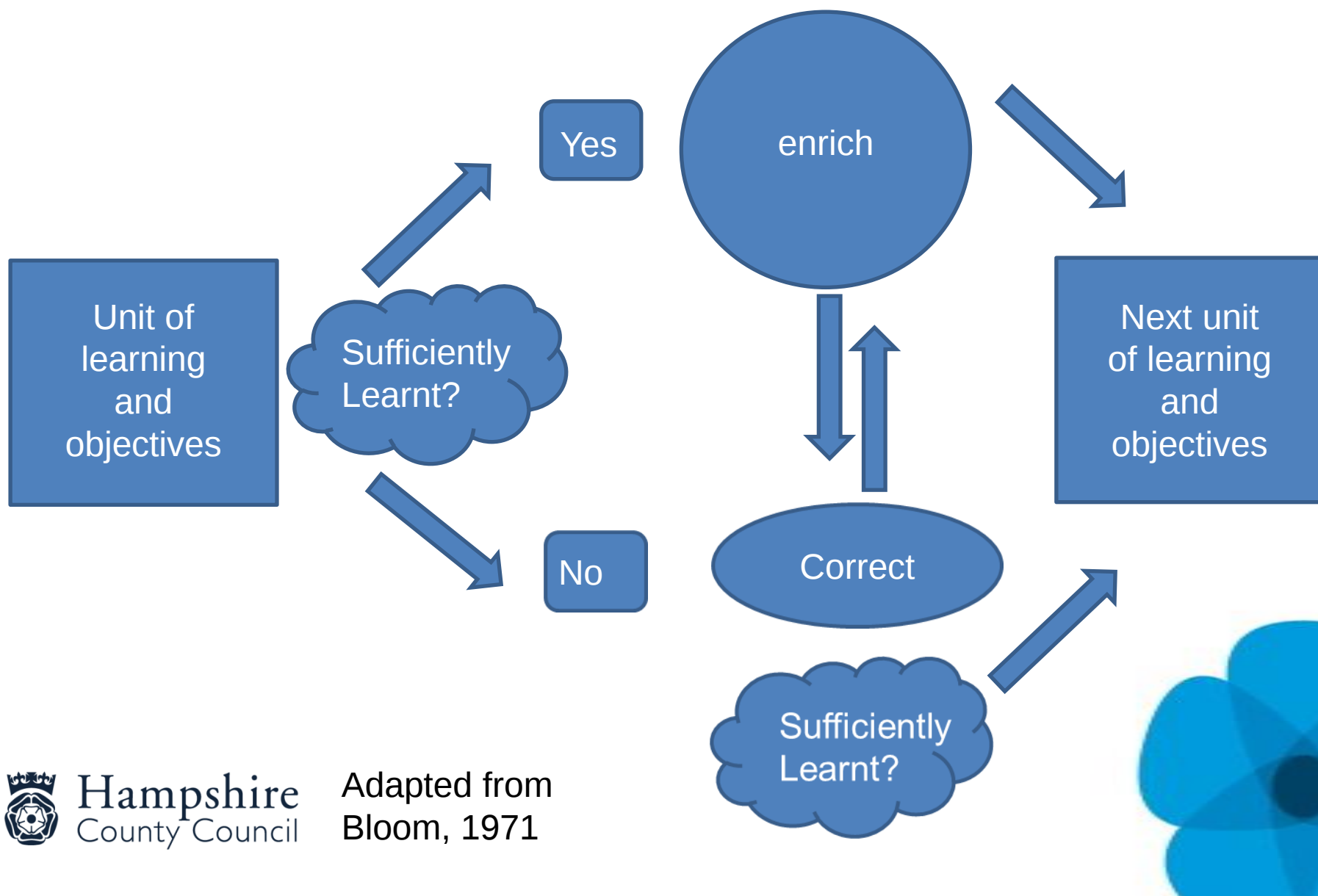
- ✓ (sufficient) Mastery matters
 - ✓ Responsive teaching
 - ✓ Agile feedback
 - ✓ Pace not race
-
- Teachers identify key tasks representing 'sufficient mastery' between milestones towards expected end of year attainment?
 - Teachers use and pupils experience: conceptual and procedural variation; and engage in intelligent practise?
 - Teachers structure sequences of lessons using the adapted Blooms working mastery model?
 - Teachers nurture exploratory talk with all pupils as a whole class, with groups and individuals?
 - All pupils use manipulatives supporting the move from concrete to abstract?
 - Working mentally is continuous focus and developed alongside written recording

2. Mathematics NC Aims

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.
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- 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.

A working model for “Masterly Learning”?



Teaching for Mastery (in Shanghai)

National Centre
for Excellence in the
Teaching of Mathematics

- The key principles are
 - **PROCEDURAL VARIATION** provides a process for **formation of concepts stage by stage**, in which pupils' experience in solving problems is manifested by **the richness of varying problems and the variety of transferring**.
 - **CONCEPTUAL VARIATION** provides pupils with **multiple perspectives and experiences of mathematical concepts**.
 - **INTELLIGENT PRACTICE**: when designing exercises, the teacher is advised **to avoid mechanical repetition** and to create an appropriate path for **practising the thinking process with increasing creativity**.
- c.f. Gu, Huang & Marton, 2004 and Lo, Chik & Pang, 2006

Intelligent practice

In designing tasks/ exercises for practice the teacher

‘is advised to avoid mechanical repetition and to create an appropriate path for practising the thinking process with increasing creativity’

Gu 1991



Intelligent Practice

What do you notice?

Is there a relationship between the calculations?

$500 + 400 =$	$523 + 400 =$	$523 + 28 =$
$400 + 500 =$	$423 + 500 =$	$423 + 28 =$
$300 + 600 =$	$323 + 600 =$	$323 + 28 =$
$200 + 700 =$	$223 + 700 =$	$223 + 28 =$
$100 + 800 =$	$123 + 800 =$	$123 + 48 =$

Complete these calculations. What do you notice?

$3 + 7 =$	$8 + 2 =$	$6 + 4 =$
$30 + 70 =$	$80 + 20 =$	$60 + 40 =$
$33 + 7 =$	$88 + 2 =$	$66 + 4 =$
$333 + 7 =$	$888 + 2 =$	$666 + 4 =$
$300 + 700 =$	$800 + 200 =$	$600 + 400 =$

What do you notice about the following calculations?

3×4	3×8
4×4	4×8
3×5	3×10



Rich Assessment tasks

The root of the word *'assessment'*
is from the Latin word *'assidere'*,
which means 'to sit beside'

Agile
Feedback



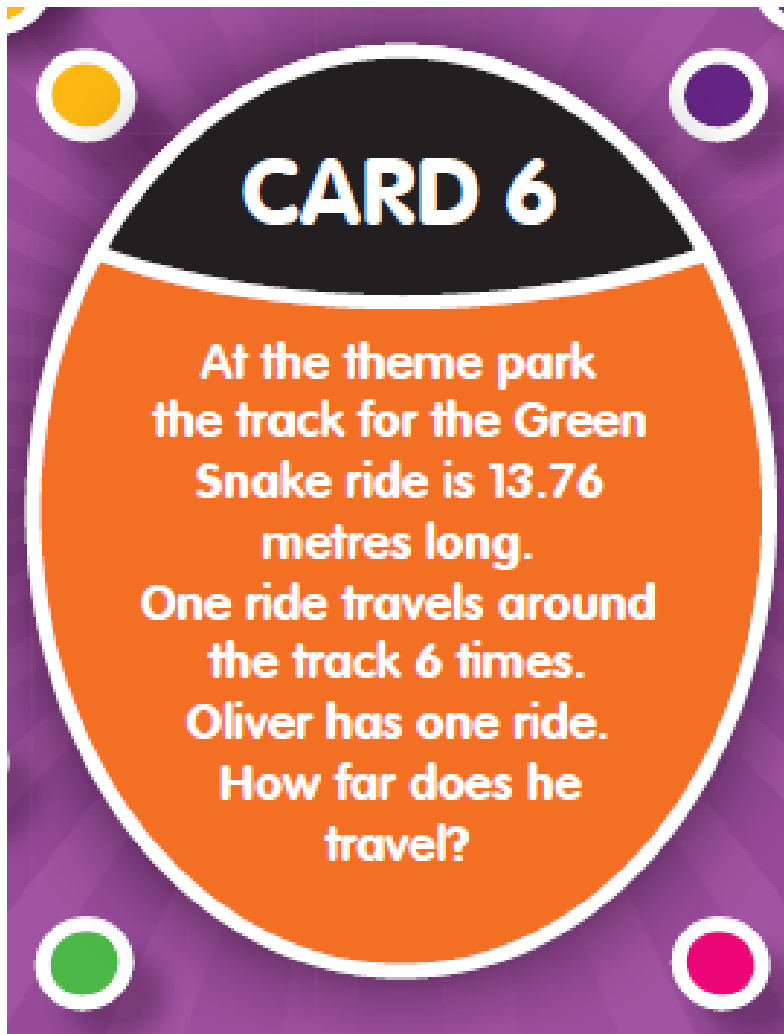
Exploratory Talk...

- ...in which partners engage critically but constructively with each other's ideas;
- **everyone participates**;
- tentative ideas are treated with respect;
- ideas may be challenged;
- challenges are justified, **reasons are given** and alternative ideas or understandings are offered;
- opinions are considered before decisions are made and **agreement is sought**.
- **reasoning is visible in the talk.**

(Mercer & Littleton, 2007; Dawes, Mercer & Wegerif, 2000)



A possible 'year 5' problem (could be adapted?)

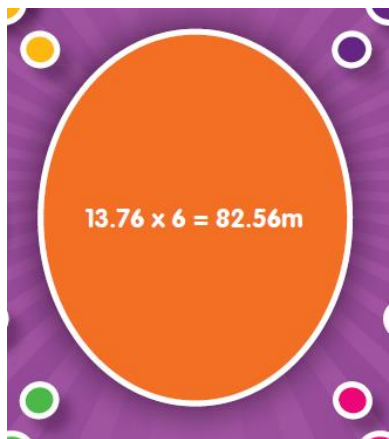


What mathematics is needed to solve this problem?

Which aspects would a year 5 pupil typically manage?

Which aspects are possible areas of difficulty for pupils?





Multiplication/ division

CPA approach

Procedural Variation

Conceptual Variation

‘Intelligent’ practice

Pictorial (supports concepts & mental)

- Could pupils draw a picture/ diagram of the problem that this calculation solves?
- Could pupils construct number lines to model the position of this decimal number?
- Could pupils use a bar model and number line to show this calculation?
- **PRACTISE** of any of this as needed

Concrete

(Supports concepts & mental)

- Do pupils know how long this is? Could they estimate it and show? Compare it to another length? Eg classroom width?
- Do pupils know where 13.76 is on a number line?
- Do pupils know how far away this number is to the next whole number?
- Could pupils model this decimal number with dienes or 100 square model?
- **PRACTISE** of any of this as needed

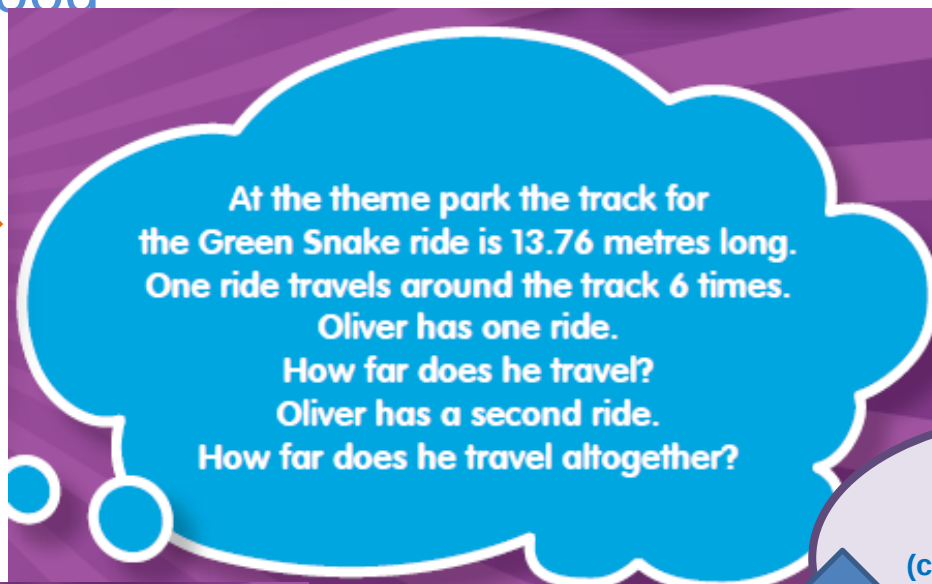
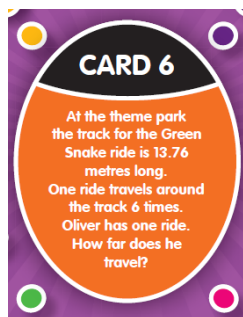
Deep understanding/
mastery

Abstract

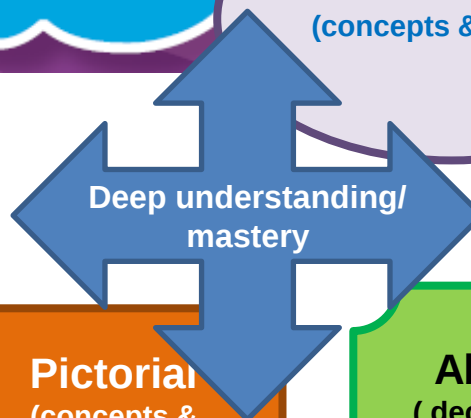
(decide mental /formal)

- Multiply the decimal number by 100 then divide the product by 100 (**PRACTISE**)
- Solve the calculation using a formal method (**PRACTISE**)
- Ignore the measurement unit until found the product
- Use this calculation as the starting point for other related facts using PV/ decimal numbers (**PRACTISE**)
- Understand this calculation is a ‘model’ for all solutions to similar problems and other numbers can be substituted
- Understanding the linked division calculations to any multiplication calculation (**PRACTISE**)

Prior experience of the first problem,
deeply understood

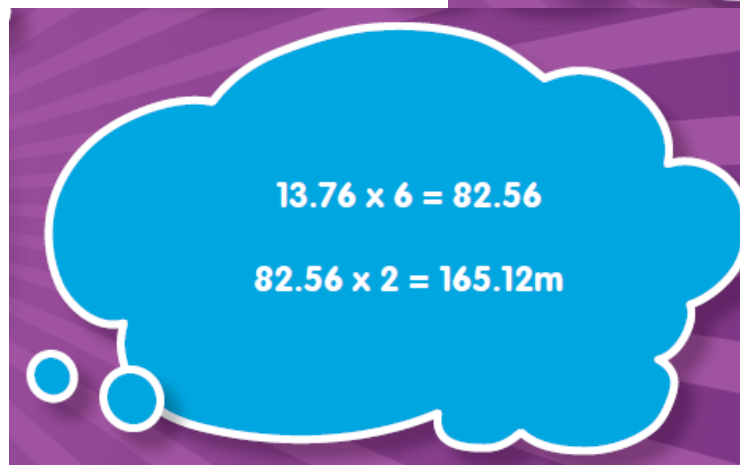


Concrete
(concepts & mental)

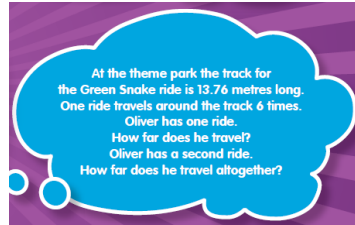
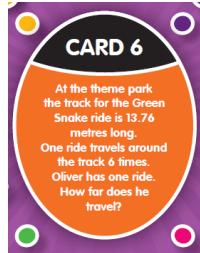


Pictorial
(concepts & mental)

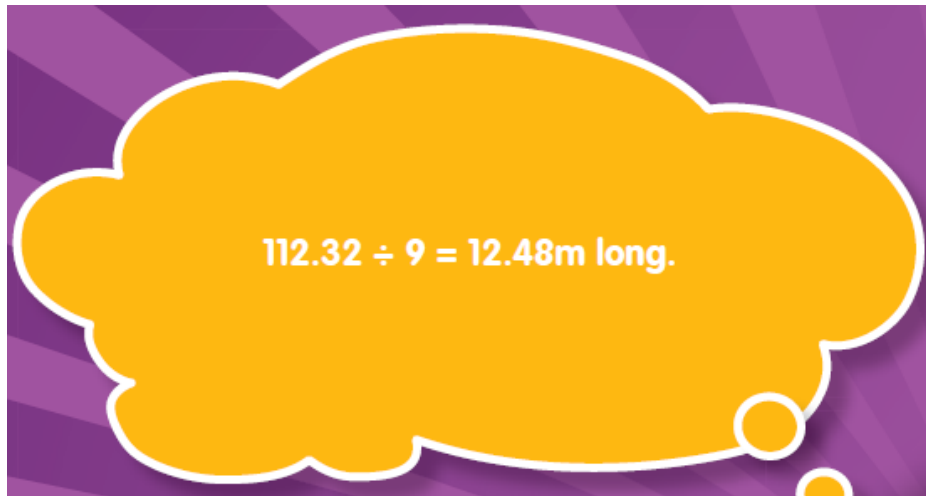
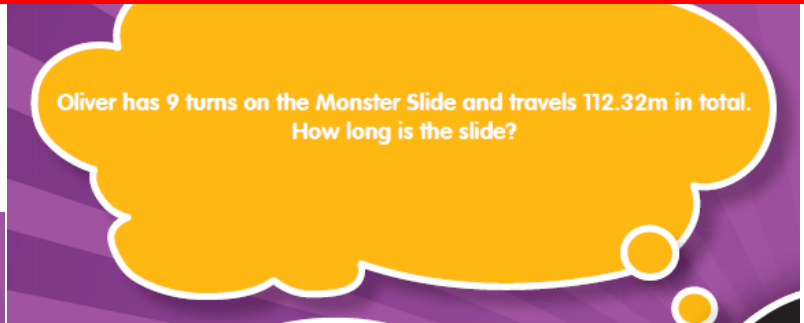
Abstract
(decide mental / formal)



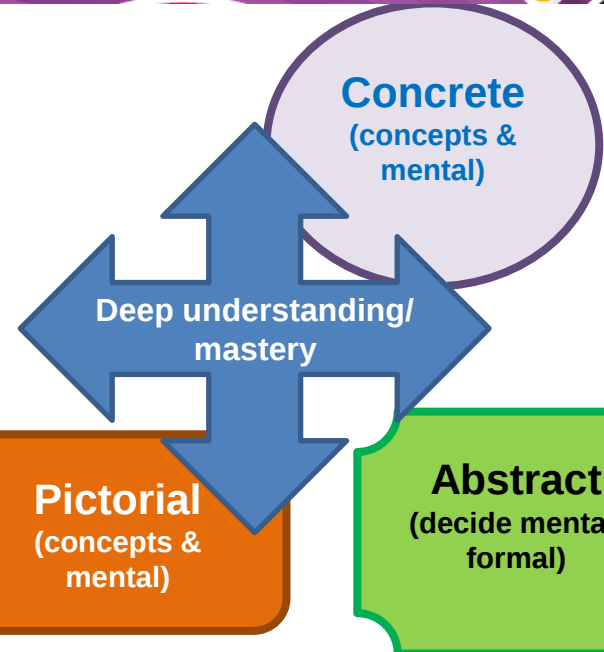
Prior experience of the first and second related problems, **deeply** understood

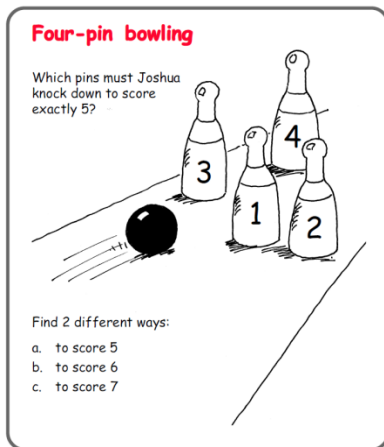


Choose problem option focusing on division to make the links between multiplication and division



What could you start to expect pupils to know/ use from previous experiences?





CPA approach

Procedural Variation

Conceptual Variation

'Intelligent' practice

Addition/ subtraction

Concrete

(Supports concepts & mental)

- Have pupils played a game of skittles?
- Can pupils count out objects to match each of the numbers?
- Can pupils use concrete objects to model each calculation/solution?
- Can they use a bead string, numicon to show the calculation as well as single counting objects?
- **PRACTISE** of any of this as needed

Deep understanding/
mastery

Pictorial (supports concepts & mental)

- Could pupils draw a picture of the problem for their solutions?
- Could pupils use a bar model and number line to show their calculation?
- **PRACTISE** of any of this as needed

Abstract

(decide mental /formal)

- Record solutions using a number sentence (**PRACTISE**)

There are 30 bananas
in a shop.

5 bananas are put in
each bag.

How many bags
can be filled?

Jonathan has 4 boxes
of marbles with 5 in
each box.

How many marbles are
there altogether?

A Fiveosaurus is a toy
dinosaur with 5 spikes.

Tommy's mum buys him
6 of them.

How many spikes
can he see?

A school decides to order
some new playground
equipment.

18 balls were delivered and
shared equally between
3 classes.

How many balls will
each class get?

Fireworks

Emma had some fireworks.
Some made 3 stars.
Some made 4 stars.



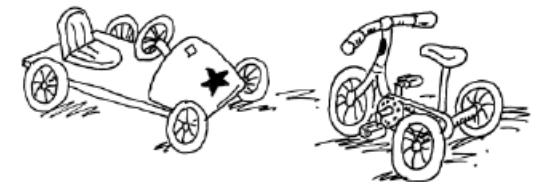
Altogether Emma's fireworks made 19 stars.
How many of them made 3 stars?
Find two different answers.

What if Emma's fireworks made 25 stars?
Find two different answers.



At the toy shop

The toy shop stocks tricycles and go-carts.
The tricycles have 3 wheels.
The go-carts have 5 wheels.



Suna counted the wheels.
He counted 37 altogether.

How many tricycles are there?
How many go-carts?

Find two ways to do it.

Opportunity

National curriculum is a great opportunity for higher attainers....

‘Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content.’ NC 2014



18. Enrichment

Pace not
Race

- The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, **decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress** to the next stage.
- Pupils who grasp concepts rapidly should be **challenged through being offered rich and sophisticated problems before any acceleration through new content.**
- Those who are not sufficiently fluent with earlier material should **consolidate their understanding, including through additional practice,** before moving on.



Key stage 1 Arithmetic Paper 2017

Q1-20

$6 - 4 = \boxed{}$

$90 - 80 = \boxed{}$

$\frac{1}{2} \text{ of } 14 = \boxed{}$

$99 + 1 = \boxed{}$

$43 - 5 = \boxed{}$

$2 \div 2 = \boxed{}$

$7 + 8 = \boxed{}$

$84 + 12 = \boxed{}$

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

$8 \times 3 = \boxed{}$

$22 + 7 = \boxed{}$

$3 + \boxed{} + 6 = 16$

$\boxed{} = 15 - 2$

$20 + \boxed{} = 70$

$5 \times 12 = \boxed{}$

$20 + 30 + 50 = \boxed{}$

$97 + 5 = \boxed{}$

$85 - 21 = \boxed{}$

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

$6 \times 2 = \boxed{}$

$47 + 50 = \boxed{}$

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

$92 - 60 = \boxed{}$

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Key stage 1 Arithmetic Paper 2017

Q21-25

$$52 + 29 = \boxed{}$$

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

$$91 - 48 = \boxed{}$$

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

$$80 \div 10 = \boxed{}$$

$$\boxed{} - 12 = 36$$

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

$$\frac{1}{3} \text{ of } 12 = \boxed{}$$

If this is the expectation by the end of key stage 1

How are pupils being supported in year 3, year 4 and year 5 towards end of key stage 2 expectation?



KS2 Arithmetic Paper 2017

Q1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18

$$40 + 1,000 =$$

$$\boxed{} = 4,500 + 600$$

$$\boxed{} - 100 = 1,059$$

$$707 + 1,818 =$$

$$8 \times 33 =$$

$$50 + (36 \div 6) =$$

$$4/6 + 3/6 =$$

$$72 \div 9 =$$

$$\frac{4}{6} \times \frac{3}{5} =$$

$$505 \div 1 =$$

$$167 \times 4 =$$

$$30 \times 40 =$$

$$345 - 60 =$$

$$4,912 - 824 =$$

$$581 \div 7 =$$

$$2.7 + 3.014 =$$

$$\frac{62}{100} - \frac{38}{100} =$$

$$0.04 \div 10 =$$



KS2 Arithmetic Paper 2017

Q19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36



Hampshire
Services

HIAS SCHOOL IMPROVEMENT

$$2,345 \times 1,000 =$$

1	7	7	1	4

$$37.8 - 14.671 =$$

$$\frac{1}{4} + \frac{1}{5} + \frac{1}{10} =$$

$$7\% \text{ of } 500 =$$

$$\frac{2}{6} - \frac{1}{8} =$$

$$9 - 3.45 =$$

$$\frac{4}{5} \div 4 =$$

$$0.9 \times 200 =$$

			4	7	8	1
x					2	3

$$\frac{5}{8} \div 2 =$$

$$15\% \times 1,000 =$$

$$\frac{3}{4} - \frac{3}{8} =$$

$$45\% \text{ of } 460 =$$

$$1\frac{1}{2} \times 57 =$$

			4	1	8
x				4	6

$$2\frac{1}{3} + \frac{5}{6} =$$

5	9	2	2	4	2



Hampshire
County Council



Coffee



Session 2

**What is sufficient ‘fluency, independence and resilience’ for
Milestone 1?**

‘CLOSE TO’ PUPILS



HAM concept of 'close to'

If pupils assessed as 'close to' sufficient understanding at that milestone then it was a promise that they would be supported to and could 'catch up and keep up' for next milestone



HAM concept of 'close to'

Do you have a clear understanding of what 'close to' means in your school?

Share definitions...



An issue: *we don't use 'Close to'*

Unlikely that pupils will fall into two distinct groups:

- Those who know and understand
- Those who don't

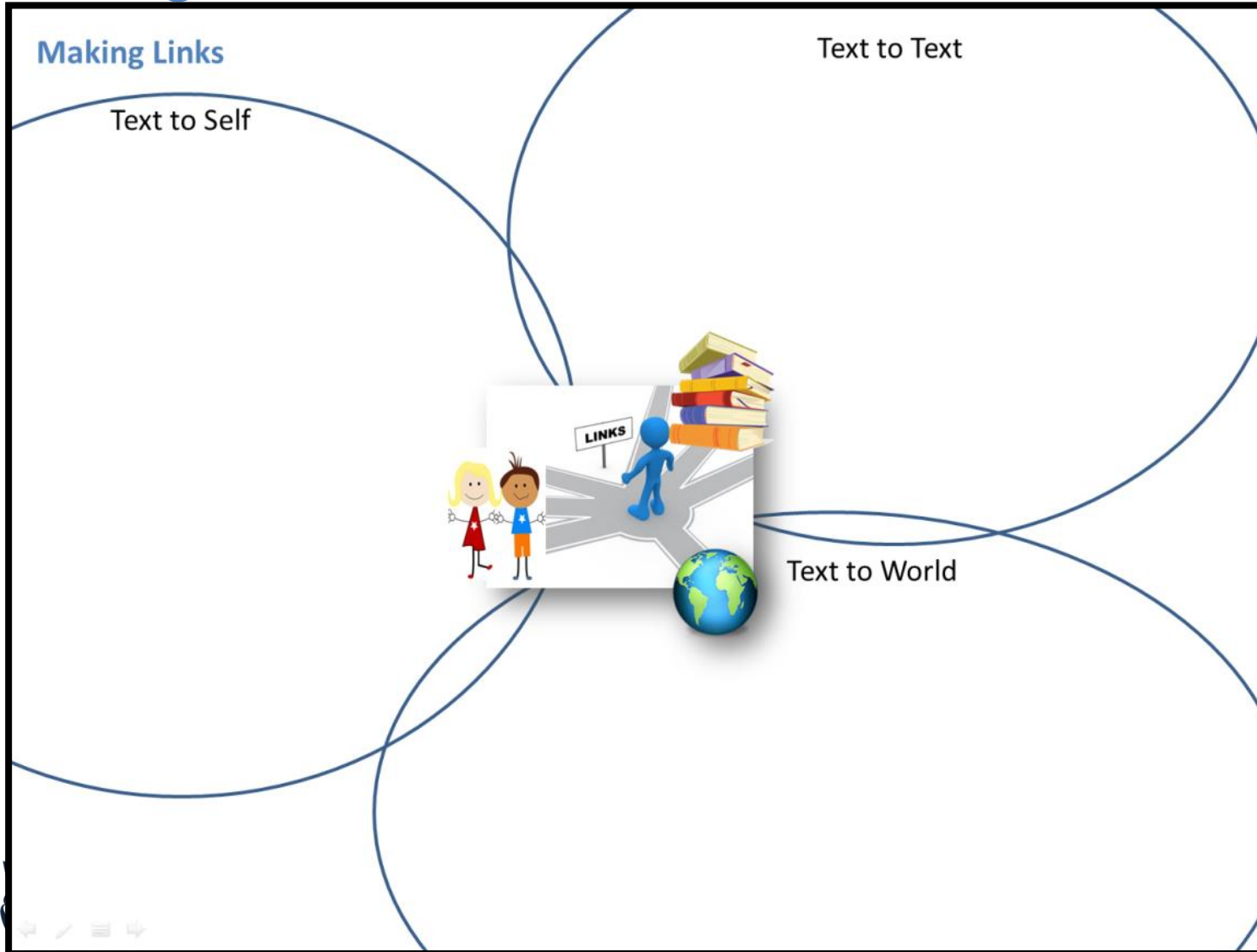
We need 'close to' as an assessment, otherwise we end up with

- too many pupils who are assessed as 'below' and aren't that far away or
- Too many pupils assessed as sufficiently secure when they are not!



Fluency involves

Making connections e.g. themes in reading



Fluency involves

Making connections

Reading as
a writer

Writing as a
reader

The starting point for becoming a good writer is to be a good reader. Writers acquire their technique by spotting, savoring, and reverse-engineering examples of good prose.

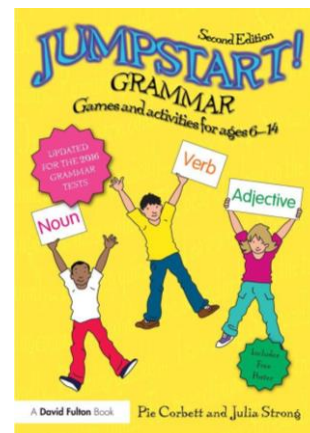
Steven Pinker

Drucker

Fluency involves

Making connections

*“Grammar is not really ‘knowledge’; rather it is a matter of grasping a ‘concept’. **Keep teaching simple and clear** with the focus on **gaining control** over words, sentence and the flow of writing... introduce and revisit aspects of writing on many **purposeful occasions** ... evaluation of **impact on the reader** of how sentences are constructed and words chosen... an **active process rather than relying on memory**.”*



Pie Corbett

Fluency involves

Talking about their work

Definition of discussion:

“a free exchange of information among students and/or between at least three participants that lasts longer than 30 seconds”

Applebee, Langer, Nystrand, and Gamoran

*‘The death of meaningful discussion about texts, ideas, and concepts is **especially unfortunate for students who are not making expected progress. Ironically, they are the ones who seem to profit most** from discussion, as measured by improved reading comprehension (Murphy Soter, Hennessey, & Alexander, 2009).’*



Mercer and Littleton's research showed that teachers whose children performed better on tests of reading comprehension had different classroom interactions than those teachers whose children performed less well.

- Their sequence of questions didn't simply test knowledge, but guided the development of understanding.
- They asked 'why' questions which allowed for reasoning and reflection.
- They encouraged pupils to talk through their thought processes.
- They encouraged pupils to give reasons for their views.
- They encouraged pupils to exchange and build upon each other's ideas.

(Mercer and Littleton, in Tennent, 2015)

Milestone 1

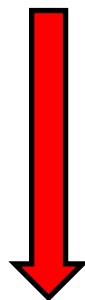
Pupils at milestone 1 who are 'securely on track to meet end of year expectations ***by the end of the year***

- should be showing fluency, resilience and independence with the expectations in the previous year's curriculum, applying their understanding to a range of problems
- then more equipped to show resilience in 'new learning'...fluency and independence following over time (apprentice, competent, expert)



Supporting 'close to' pupils towards appropriate fluency and independence

- How much support do you expect a 'close to' pupil to have?



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Intelligent Practice = Practice and Play

- **Explain:** Children identify and, crucially, explain why a grammar or punctuation choice has been made.
- **Change:** This could also be **Correct**. Children adapt a sentence, insert punctuation etc. to demonstrate understanding.
- **Create:** A more open-ended opportunity for children to apply the skill. Pictures related to your text driver could be used as a stimulus here.



Exploratory Talk...

- ...in which partners engage critically but constructively with each other's ideas;
- **everyone participates**;
- tentative ideas are treated with respect;
- ideas may be challenged;
- challenges are justified, **reasons are given** and alternative ideas or understandings are offered;
- opinions are considered before decisions are made and **agreement is sought**.
- **reasoning is visible in the talk.**

(Mercer & Littleton, 2007; Dawes, Mercer & Wegerif, 2000)



Practise and play

In designing tasks/ exercises for practice the teacher

‘is advised to avoid mechanical repetition and to create an appropriate path for practising the thinking process with increasing creativity’

Gu 1991



Supports and scaffolds

Linking back – thinking forwards



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HIAS SCHOOL IMPROVEMENT

- Interpreting the text

Prior learning/
starter activity/
key fact or skills?

Word banks

Question stems

Answer stems

Teacher modelling

Peer discussion

Parallel texts

Same/different?



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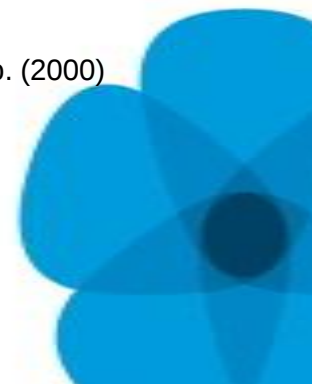
Fluency involves

As with much of mathematics, **the key to fluency is in making connections, and making them at the right time in a child's learning.**

Manipulatives

- **concrete to the abstract** including structured apparatus such as Dienes can be helpful for learning about meaning
- isn't in the manipulatives themselves – it has to be constructed by children over a period of time,
- through playing around with them and *connecting them directly to mental and recorded calculation.*

References: Dowker, A (1992); Heibert, J (1999); National Council of Teachers of Mathematics (2000); Russell, Susan Jo. (2000)



Fluency involves

Talking about their work

- the quality of the talk is important - not simply children sharing how they did a particular calculation,
- describing why and how it worked, and how their method is the same or different to those of others.
- gives children opportunities to use those higher-level skills of comparing, explaining and justifying. Russell says
‘The reason that one problem can be solved in multiple ways is that mathematics does not consist of isolated rules, but connected ideas. Being able to solve a problem in more than one way, therefore, reveals the ability and the predilection to make connections between and among mathematical areas and topics

References: Dowker, A (1992); Heibert, J (1999); National Council of Teachers of Mathematics (2000); Russell, Susan Jo. (2000)

Fluency involves

Consolidation in meaningful contexts

- By offering children practice in context we help them to make links between the types of situations that a particular strategy might suit.

Russell calls this **mathematical memory**, which is different from just memorising. She says that important mathematical procedures cannot be "forgotten over the summer" because they are based in a web of connected ideas about fundamental mathematical relationships.

References: Dowker, A (1992); Heibert, J (1999); National Council of Teachers of Mathematics (2000); Russell, Susan Jo. (2000)



Year 3

- Interpreting the text
- Steps in solution

Prior learning/
starter activity/
key fact or skills?

MULTIPLICATION & DIVISION

The local sweet shop sells 5 gumballs for 6p.

How many gumballs can I buy for 18p?

I want to buy 30 gumballs to share with my class.

How much will 30 gumballs cost me?

Sense of
number
and
reasonable
answer

Formal
notation

Models
and
images

Concrete
resources

Key
facts

What if 4
gumballs for
6p? How
many for 18p

Same/different?

What if 5
gumballs
for 8p?
How many
for 24p?

Milestone 1

Pupils at milestone 1 who are 'securely on track to meet end of year expectations ***by the end of the year***

-should be showing fluency, resilience and independence with the expectations in the previous year's curriculum, applying their understanding to a range of problems

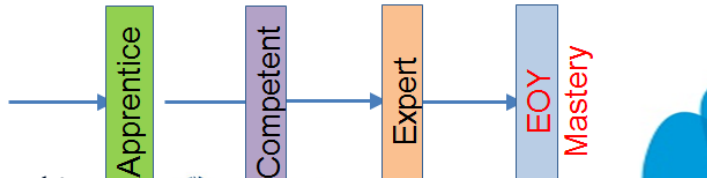
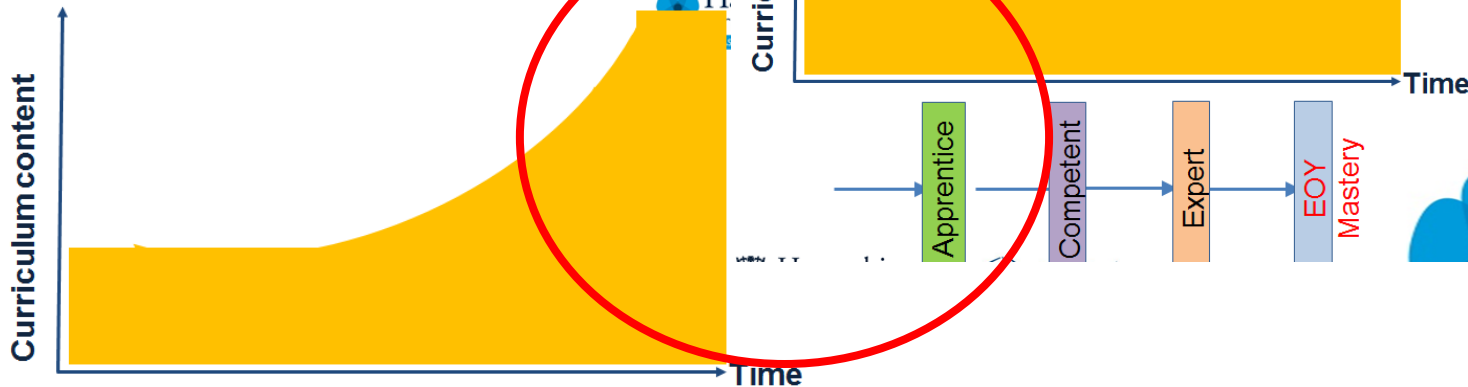
-then more equipped to show resilience in 'new learning'...fluency and independence following over time (apprentice, competent, expert)



First unit

Learning over the year is not linear – think of a curve

Learning over the year is not linear – think of a curve



Eg Year 4



Eg Year 5

Pupils will need to revise (secure) prior learning and if securely on track *make a start on the next year's curriculum*

Supporting 'close to' pupils towards appropriate fluency and independence

- Sorting problem solving starting points into 'easier' and 'harder'....

Focusing on degree of fluency in

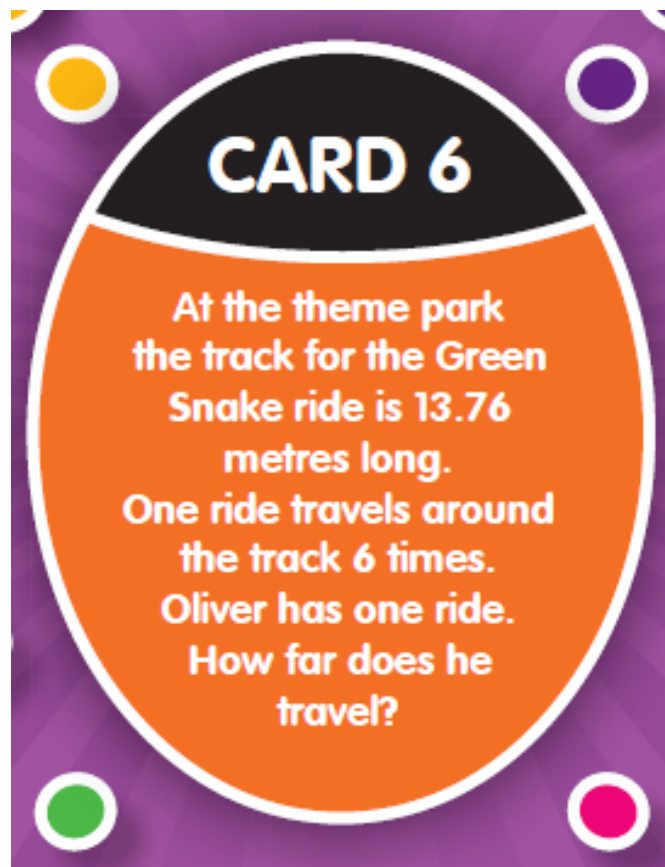
- independent explanations of solutions
- independent use of manipulatives
- understanding and use of models and images as a tool for thinking (not just a means of recording, copying the teacher)

Ensuring:

- sufficient 'practise' to build confidence reflecting on what is the 'same' and what is small difference
- a focus on the language (vocabulary and phrases) involved in the 'key task' as much as the mathematics



‘Close to’ pupils: is this about Reading? Writing? Mathematics?



If this text was part of a ‘reading’ lesson what might be the focus?

What strategies would be used to support comprehension?

If this text was part of a ‘writing’ lesson what might be the focus?

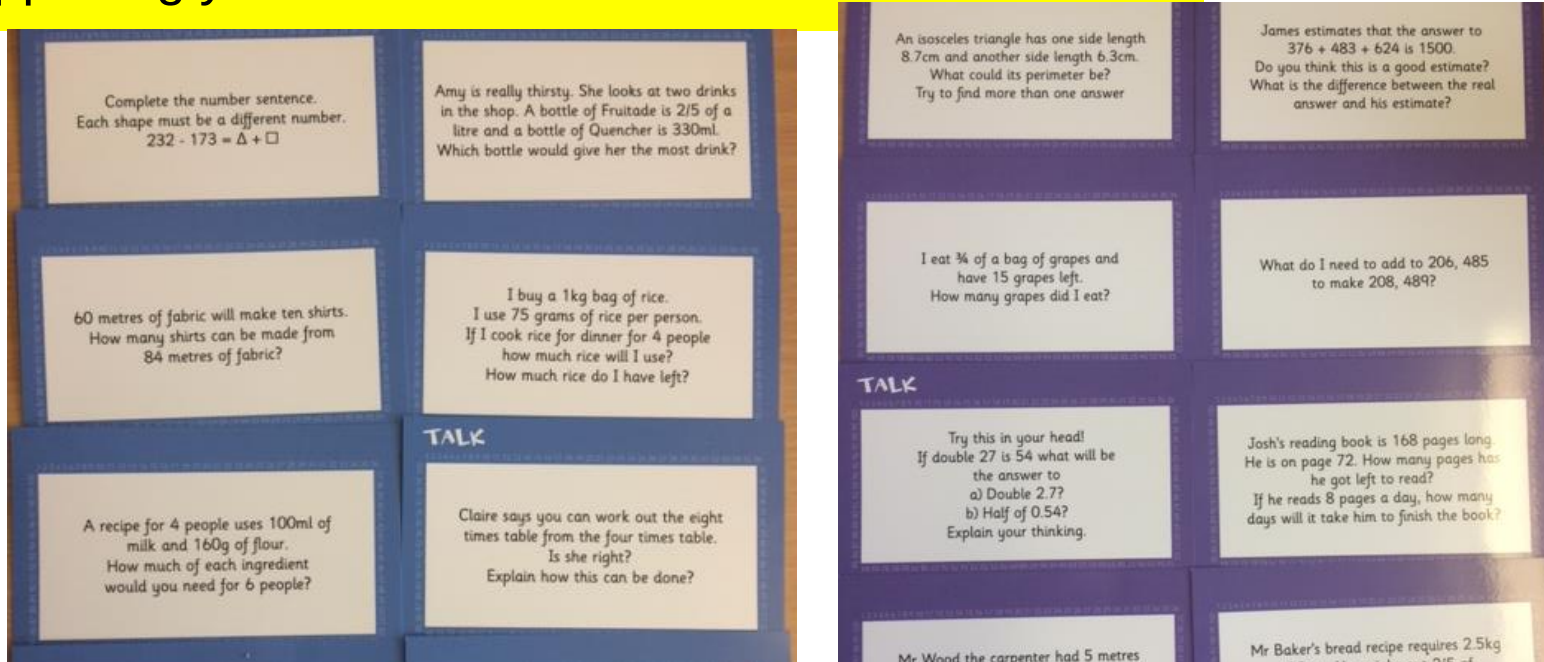
Form/ purpose- clarity, coherence of solution?

Speaking and listening

Strategies used in a maths lessons to support ‘Problem solving’?

Same?- how?
Different? - how?

Multiplication and division problems from a resource pack supporting year 4 and a resource pack supporting year 5...



The image shows two resource packs, one for Year 4 (left) and one for Year 5 (right). Each pack contains several cards with math problems. The Year 4 pack has a blue border and the Year 5 pack has a purple border. Both packs include a 'TALK' section on each card.

Year 4 Problems:

- Complete the number sentence. Each shape must be a different number. $232 - 173 = \Delta + \square$
- 60 metres of fabric will make ten shirts. How many shirts can be made from 84 metres of fabric?
- A recipe for 4 people uses 100ml of milk and 160g of flour. How much of each ingredient would you need for 6 people?
- Amy is really thirsty. She looks at two drinks in the shop. A bottle of Fruitade is $\frac{2}{5}$ of a litre and a bottle of Quencher is 330ml. Which bottle would give her the most drink?
- I buy a 1kg bag of rice. I use 75 grams of rice per person. If I cook rice for dinner for 4 people how much rice will I use? How much rice do I have left?
- Claire says you can work out the eight times table from the four times table. Is she right? Explain how this can be done?

Year 5 Problems:

- An isosceles triangle has one side length 8.7cm and another side length 6.3cm. What could its perimeter be? Try to find more than one answer
- James estimates that the answer to $376 + 483 + 624$ is 1500. Do you think this is a good estimate? What is the difference between the real answer and his estimate?
- I eat $\frac{3}{4}$ of a bag of grapes and have 15 grapes left. How many grapes did I eat?
- What do I need to add to 206, 485 to make 208, 489?
- Try this in your head! If double 27 is 54 what will be the answer to
a) Double 2.7?
b) Half of 0.54?
Explain your thinking.
- Josh's reading book is 168 pages long. He is on page 72. How many pages has he got left to read? If he reads 8 pages a day, how many days will it take him to finish the book?
- Mr Wood the carpenter had 5 metres
- Mr Baker's bread recipe requires 2.5kg

- Find and discuss any links between examples
- What makes one problem more challenging than another?
- Choose three problems that would make a good sequence...
- How would this sequence support a 'close to' year 4 pupil move towards a 'year 5' problem?
- What conceptual and procedural variation might help 'close to' pupils?
- How can pace be focused on learning not delivery?



Preparing to teach...

What previous knowledge and skills will pupils need to be able to tackle this problem?

Before this task, what might be a 'low threshold' version?

Which mathematical models and concrete resources will support conceptual understanding?

Which NC statements from which domains will be involved?

Preparing to teach.....

*A jug holds 1.5 litres of water. Rob drinks 0.75litres, Sam drinks 330ml and Tim drinks $\frac{1}{4}$ of a litre.
How much water is left in the jug?*

Probing questions

Possible misconceptions and or conceptual errors made previously

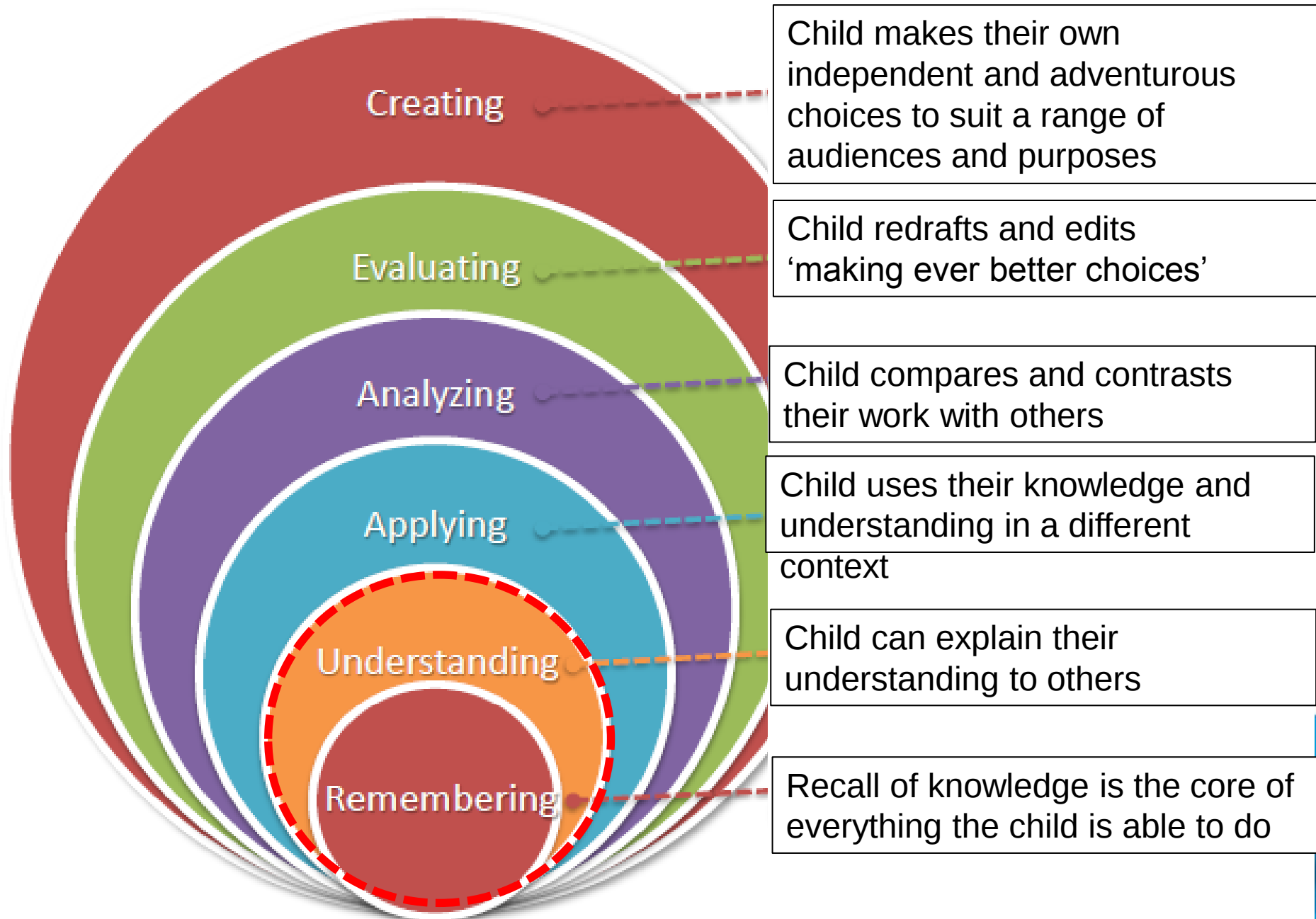
Which vocabulary will need to be modelled and or unpicked?

Variation for practise & consolidation and deepening learning

Teaching for Mastery (in Shanghai)

National Centre
for Excellence in the
Teaching of Mathematics

- The key principles are
 - **PROCEDURAL VARIATION** provides a process for **formation of concepts stage by stage**, in which pupils' experience in solving problems is manifested by **the richness of varying problems and the variety of transferring**.
 - **CONCEPTUAL VARIATION** provides pupils with **multiple perspectives and experiences of mathematical concepts**.
 - **INTELLIGENT PRACTICE**: when designing exercises, the teacher is advised **to avoid mechanical repetition** and to create an appropriate path for **practising the thinking process with increasing creativity**.
- c.f. Gu, Huang & Marton, 2004 and Lo, Chik & Pang, 2006



Bloom's Taxonomy

Key stage 1

Fundamental ideas of part/whole; equivalence; commutativity and inverse

NCETM Mastery booklets illustrate fundamental conceptual representations that need ongoing application through key stage 2



Y1: Addition and subtraction



Use the pattern to complete the number sentences.

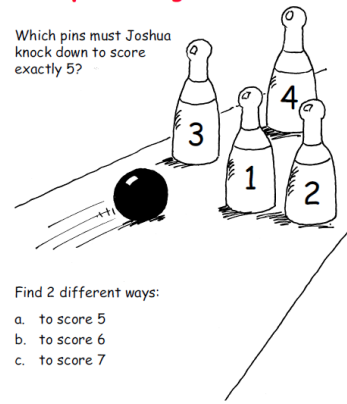
	$0 + 5 = 5$
	$1 + \square = 5$
	$2 + \square = 5$
	$3 + \square = 5$
	$4 + \square = 5$
	$5 + \square = 5$

Now do the same for rows of 6 counters, 7 counters, 8 counters, 9 counters and 10 counters.

Children should be able to recall all number bonds to and within 10. Exposing the structure of the mathematics supports this process. They should then apply this to number bonds to 20, so if $5+3=8$, $15+3=18$

Four-pin bowling

Which pins must Joshua knock down to score exactly 5?

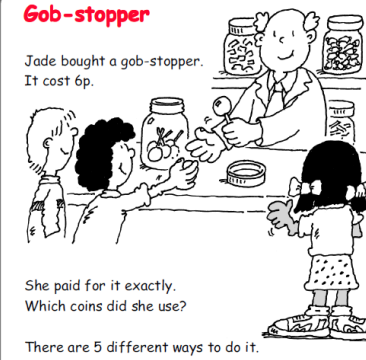


Find 2 different ways:

- to score 5
- to score 6
- to score 7

Gob-stopper

Jade bought a gob-stopper. It cost 6p.



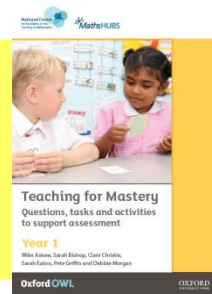
She paid for it exactly. Which coins did she use?

There are 5 different ways to do it. Find as many as you can.

What if the gob-stopper cost 7p?



Y1: Addition and subtraction



Complete:

$$3 + \square = 10$$

$$10 - \square = 3$$

$$13 + \square = 20$$

$$20 - \square = 13$$

$$\square + 5 = 10$$

$$10 - 5 = \square$$

$$15 + \square = 20$$

$$20 - \square = 15$$

$$\square + \square = 10$$

$$10 - \square = \square$$

$$16 + \square = 20$$

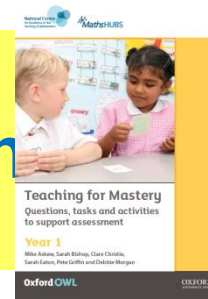
$$20 - \square = 16$$

What do you notice?

Children may 'know' number pairs totalling ten but are they able to use them to support other calculations? For example, when probed to say, 'If you know $3 + 7 = 10$, what else do you know?' They should reply with answers, such as $13 + 7 = 20$ or $4 + 7 = 11$



Year 1: Addition and subtraction



Hampshire
Services

HIAS SCHOOL IMPROVEMENT

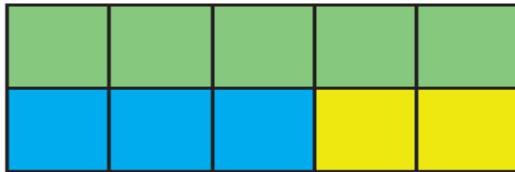
Can you see these number sentences in the picture below?

$$3 + 2 = 5$$

$$2 + 3 = 5$$

$$5 - 3 = 2$$

$$5 - 2 = 3$$



Builds imagery linked to bar models...

Now write the four number sentences for the picture below:



Number Facts: Year 1

Number and place value

Pupils should be taught to:

- count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
- count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens
- given a number, identify one more and one less

Addition and subtraction

Pupils should be taught to:

- read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs
- represent and use number bonds and related subtraction facts within 20
- add and subtract one-digit and two-digit numbers to 20, including zero
- solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 + \square = 9$

Fractions

Pupils should be taught to:

- recognise, find and name a half as one of two equal parts of an object, shape or quantity
- recognise, find and name a quarter as one of four equal parts of an object, shape or quantity

Measure

Pupils should be taught to:

- recognise and know the value of different denominations of coins and notes
- sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening
- recognise and use language relating to dates, including days of the week, weeks, months and years

Number Facts: Number and place value

- Know the sequence of counting in multiples of 2.
- Know the sequence of counting in multiples of 10.
- Know the sequence of counting in multiples of 5.
- Understand that

+ 1 = 'next number' on a number line

- 1 = 'number before' on a number line

Number Facts: Addition and subtraction

- Know the number bonds for all numbers to 5

For example:

$$4 + 0 = 4$$

$$4 - 0 = 4$$

$$3 + 1 = 4$$

$$4 - 1 = 3$$

$$2 + 2 = 4$$

$$4 - 2 = 2$$

$$1 + 3 = 4$$

$$4 - 3 = 1$$

$$0 + 4 = 4$$

$$4 - 4 = 0$$

- Know the number bonds for all numbers to 10 and the related subtraction facts.
- Know the number bonds for all numbers to 20 and the related subtraction facts.

For example

$$10 + 2 = 12$$

$$12 - 2 = 10$$

$$9 + 3 = 12$$

$$12 - 3 = 9$$

$$8 + 4 = 12$$

$$12 - 4 = 8$$

- To recognise that $10 + x =$ teen number

Number facts: Measure

- Say the days of the week in the correct order.
- Recognise coins such as 1p, 2p, 10p, 20p.
- Apply number bond knowledge to coins (1ps, 10ps) eg
 $10p + 1p = 11p$
 $10p + 2p = 12p$
 $10p + 3p = 13p$

Number Facts: Fractions

Understand that.....

$$\frac{1}{2} + \frac{1}{2} = 1 \text{ whole}$$

$$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 1 \text{ whole}$$



Year 1, Year 2, Year 3, Year 4 Number Facts and Year 5

Number Facts: Year 5

Multiplication and division

Pupils should be taught to:

- recall prime numbers up to 19
- multiply and divide numbers mentally drawing upon known facts
- multiply and divide whole numbers and those involving decimals by 10, 100 and 1000
- recognise and use square numbers

Number Facts: Multiplication and division

- To be able to find related facts from knowing the 12 x 12 multiplication and division facts.

For example:

$$12 \times 5 = 60 \quad 60 \div 5 = 12$$

$$1.2 \times 5 = 6.0 \quad 6 \div 5 = 1.2$$

$$5 \times 7 = 35 \quad 5 \times 0.7 = 3.5 \quad 5 \times 0.07 = 0.35$$

- Recognise all square numbers to 12 x 12.
- Recognise all prime numbers to 19

$$10,000 \div 2 = 5000$$

$$10,000 \div 4 = 2500$$

$$10,000 \div 5 = 2000$$

$$10,000 \div 10 = 1000$$

$$10,000 \div 100 = 100$$

Fractions

Pupils should be taught to:

- read and write decimal numbers as fractions (e.g. $0.71 = \frac{71}{100}$)
- recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
- recognise the per cent symbol (%) and understand that per cent relates to "number of parts per hundred", and write percentages as a fraction with denominator hundred, and as a decimal fraction

Number Facts: Fractions

- $1 \div 100 = \frac{1}{100} = 0.01$ $2 \div 100 = \frac{2}{100} = 0.02$
- $3 \div 100 = \frac{3}{100} = 0.03$ $4 \div 100 = \frac{4}{100} = 0.04$
- $5 \div 100 = \frac{5}{100} = 0.05$ $6 \div 100 = \frac{6}{100} = 0.06$
- $7 \div 100 = \frac{7}{100} = 0.07$ $8 \div 100 = \frac{8}{100} = 0.08$
- $9 \div 100 = \frac{9}{100} = 0.09$ $10 \div 100 = \frac{10}{100} = \frac{1}{10} = 0.1$
- $10\% = 0.1 = \frac{1}{10} = \frac{10}{100} = \frac{100}{1000}$
- $50\% = 0.5 = \frac{1}{2} = \frac{5}{10} = \frac{50}{100}$
- $25\% = 0.25 = \frac{1}{4} = \frac{4}{10} = \frac{40}{100}$
- $75\% = 0.75 = \frac{3}{4} = \frac{75}{100}$
- $20\% = 0.2 = \frac{1}{5} = \frac{2}{10} = \frac{20}{100}$
- $40\% = 0.4 = \frac{4}{10} = \frac{40}{100}$

Measurement

Pupils should be taught to:

- convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)
- understand and use equivalences between metric units and common imperial units such as inches, pounds and pints

Geometry

Pupils should be taught to identify:

- angles at a point and one whole turn (total 360°)
- angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°)
- other multiples of 90°

Number Facts: Measurement

- $1 \text{ mm} = \frac{1}{10} \text{ cm}$ $1 \text{ mm} = \frac{1}{1000} \text{ m}$
- $1 \text{ kg} = 2.20462 \text{ lbs}$
- $1 \text{ l} = 1.75975 \text{ pints}$
- $1 \text{ m} = 39.3701 \text{ inches}$

Number Facts: Geometry

- To know complements to 360° .
- Know complements to 180° .
- Recognise multiples of 90° .
- Know that the angles in a triangle total 180 degrees
- Know that the angles in a quadrilateral total 360 degrees
- Know that the angles of a straight line total 180 degrees
- $360 \div 4 = 90$ $\frac{1}{4}$ of $360 = 90$
- $360 \div 2 = 180$ $\frac{1}{2}$ of $360 = 180$
- $\frac{1}{3}$ of $360 = 120$

Y5: new learning in curriculum %

Krysia wanted to buy a coat that cost £80. She saw the coat on sale in one shop at $\frac{1}{5}$ off. She saw the same coat on sale in another shop at 25% off.

Which shop has the coat at a cheaper price?

Explain your reasoning.

At the beginning of year 5 introducing a few key % facts like $25\% = \frac{1}{4}$ ($50\% = \frac{1}{2}$) begins to build the concept of % with links to unit fractions that will deepen over time through the use of number lines, bar models, families of fractions ($\frac{1}{2}$; $\frac{1}{5}$; $\frac{1}{10}$; $\frac{1}{100}$) where the number of equal parts = 100

Unit fractions eg $\frac{1}{5}$ is year 3 curriculum

Think ahead...drip feed...

- read and write decimal numbers as fractions (e.g. $0.71 = \frac{71}{100}$)
- recognise the per cent symbol (%) and understand that per cent relates to “number of parts per hundred”, and write percentages as a fraction with denominator hundred, and as a decimal fraction
- solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those with a denominator of a multiple of 10 or 25.

I know that ... is equal to ...% because ...

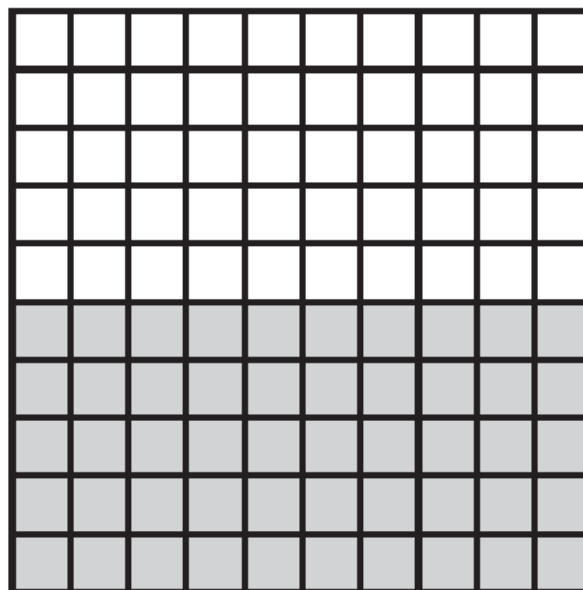
Writing percentages in different ways

This image clearly relates half, with the equivalent fraction $\frac{50}{100}$, to percentages, i.e. $\frac{50}{100}$ (or $\frac{1}{2}$) to 0.5 or 50%.

Therefore, one more hundredth will equal $\frac{51}{100}$ or 0.51 or 51%.

Securing knowledge of decimal and percentage equivalents will later support calculations and help children to use calculators to work with percentages even when there is no % key.

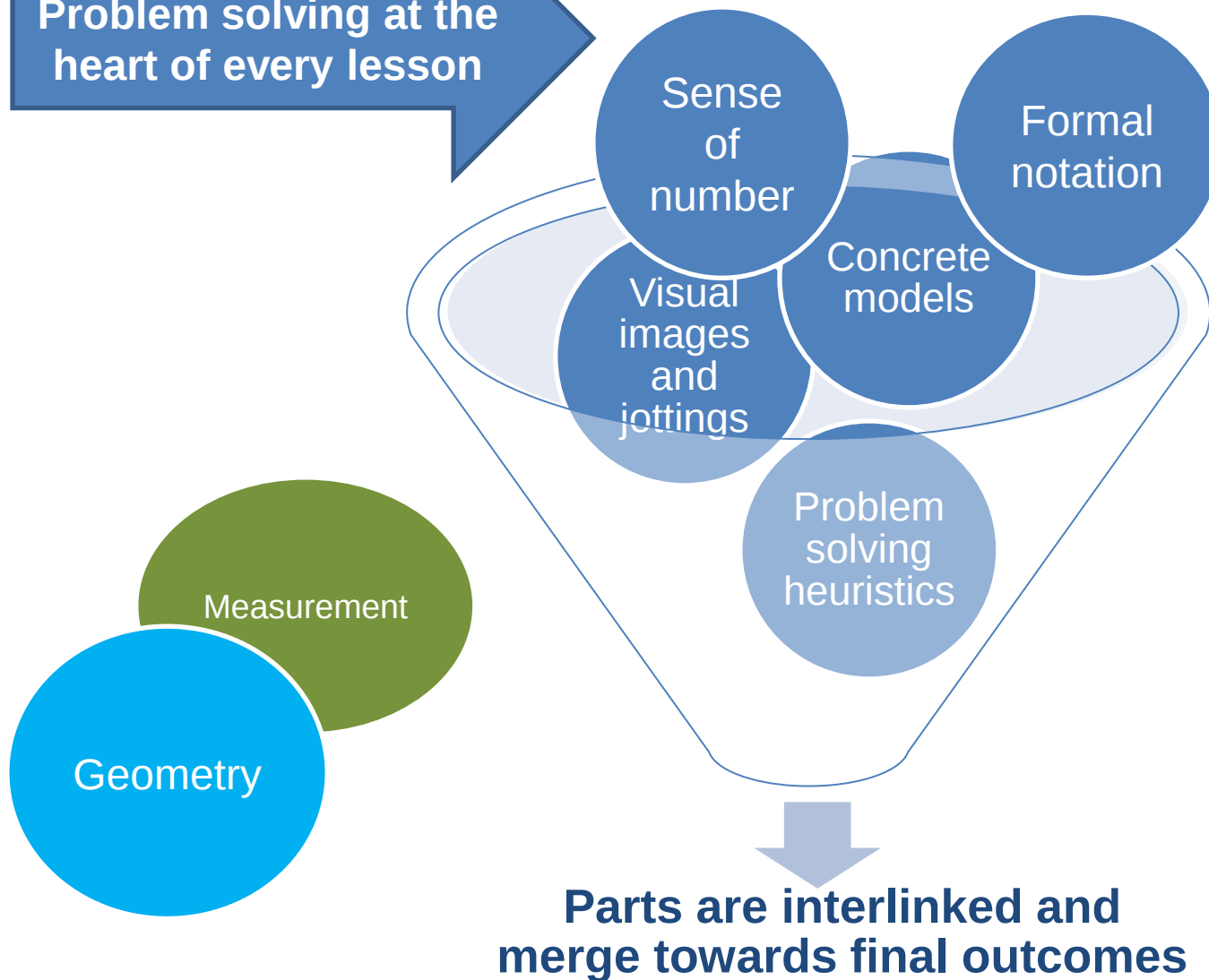
Reminding children that $\frac{51}{100}$ can be written as the division $51 \div 100$ will support here.



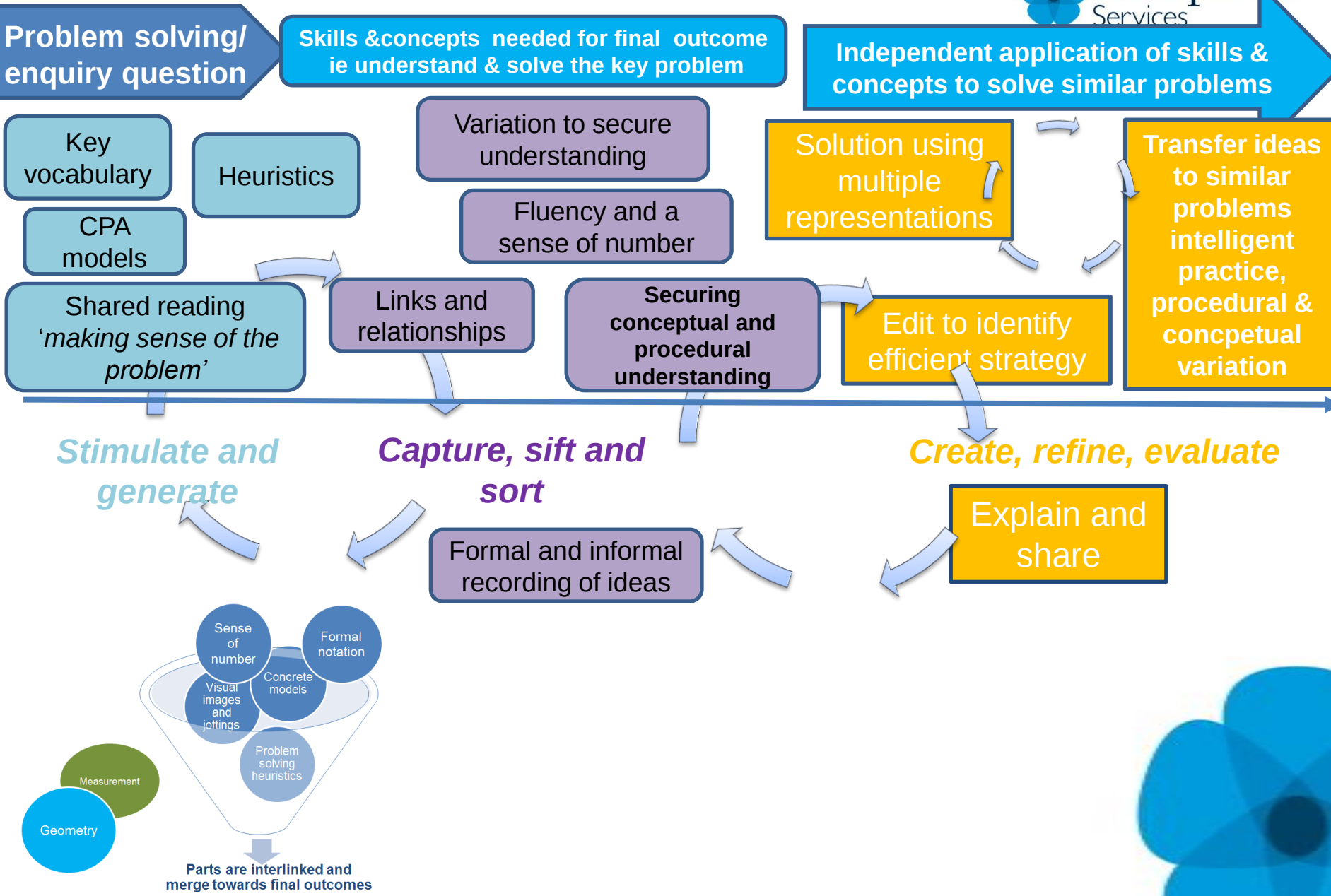
**%,
Fractions,
decimals**



Problem solving at the heart of every lesson



Planning a learning journey towards a clear outcome





Session 3

Involving all leaders in interpreting and acting on assessment and developing their colleagues' practice

THE ROLE OF MIDDLE LEADERS



Assessment is not just ...

- Data
- Numbers
- A stick and a carrot
- Useful for 'measuring' something

When middle leaders are developing this is frequently the focus when thinking about assessment.

How will they show IMPACT?



Ofsted Inspection Handbook

‘Assessment information is used to **plan appropriate teaching and learning strategies**, including identifying pupils who are falling behind in their learning or who need additional support, enabling pupils to make sufficient and sometimes more than sufficient progress and achieve well.’

‘... will consider the extent to which the school intervenes to provide support for improving pupils’ literacy, especially those pupils at risk of underachieving.’

‘Teachers **identify and support effectively** those pupils who start to fall behind and intervene quickly to help them improve their learning.’



Ten Principles of the Hampshire Assessment Model



Discuss

Helping teachers identify and plan appropriate teaching and learning strategies to support effectively, and lead to accelerated progress.

- What are the challenges faced by middle leaders in developing the assessment practice of their colleagues?
- What do they need to understand?
- What could senior leaders do to develop this understanding?



Are high level questions used to reveal what children do and don't understand?

Are children grouped appropriately e.g. according to 'Simple View of Reading'?

Are adults spending enough time modelling before children are expected to complete independently?

Are adults used for 'pre teaching'? e.g. vocabulary focus and/or context

**'Close to' → ARE
READING
Questions for leaders to ask**

Are children aware of the skills and strategies for reading as clearly as in writing?

What are the supporting resources to enable children to be successful?

Does planning break down NC statements into steps of learning?

Are techniques such as the slow writing process or paired writing used effectively?

CPD – are teachers shying away from teaching areas due to lack of subject knowledge?

Are 'non negotiables' in place and part of classroom ethos to use them?

Are adults spending enough time modelling in shared and guided sessions?

**'Close to' → ARE
WRITING
Questions for leaders to ask**

How often do teachers writing conference with children?
When and how is effective oral and written feedback given?

Do learning journeys demonstrate enough time on oral rehearsal, word and sentence level tasks i.e. building blocks for success?

Is there a relentless focus on the core concepts e.g. number, place value, calculation?

Are teachers linking work across domains, at the right pitch, as a context for the concept that's in focus?

Do they have appropriate recording strategies, fluency, reasoning and [problem solving?

**‘Close to’ → ARE
Questions for leaders to ask**

Is there an ongoing focus on the core concepts “outside” normal lessons when the focus is different e.g. geometry

Encourage children to describe / talk about what they are doing as evidence of their understanding?

Do teachers ensure that concrete apparatus and pictorial representations used all the time?

...and use pictorial representations alongside apparatus



Hampshire
County Council

Are all pupils expected to develop and demonstrate their reasoning by talking **and** writing, simply and coherently

Are pupils able to answer arithmetic questions fluently? (e.g. more questions than minutes)

Are interventions effectively focused?

‘Close to’ → ARE
Questions for leaders to ask

Is effective use being made of high quality published resources to ensure right pitch?

Is there an overt development of pupils' reasoning capabilities using “intelligent practice” (Variation theory?)

Are teachers making effective use of the NCTEM mastery tasks?



Hampshire
County Council

How are high level questions used to reveal what children do and don't understand?

How are children grouped appropriately e.g. according to 'Simple View of Reading'?

How are adults used for 'pre teaching'? e.g. vocabulary focus and/or context

**'Close to' → ARE
READING
Questions for leaders to ask**

How effectively do adults spend time modelling before children are expected to complete independently?

Are children aware of the skills and strategies for reading as clearly as in writing?
What difference does this make?

How effectively are supporting resources used to enable children to be successful?

Does planning break down NC statements into steps of learning?
How does this help children to learn?

How are techniques such as the slow writing process or paired writing used effectively?

CPD – are teachers shying away from teaching areas due to lack of subject knowledge?

Impact of CPD evident?

How effectively are 'non negotiables' used as part of classroom ethos?

**'Close to' → ARE
WRITING
Questions for leaders to ask**

How are adults spending time modelling in shared and guided sessions? Is it effective?

How often do teachers writing conference with children?
When and how is effective oral and written feedback given?
What is the impact?

Do learning journeys demonstrate enough time on oral rehearsal, word and sentence level tasks i.e. building blocks for success?
Impact?

Is there a relentless focus on the core concepts e.g. number, place value, calculation?

If not – why?

Do they have appropriate recording strategies, fluency, reasoning and [problem solving?

If not – why?

‘Close to’ → ARE **Questions for leaders to ask**

Are teachers linking work across domains, at the right pitch, as a context for the concept that’s in focus?

If not – why?

Is there an ongoing focus on the core concepts “outside” normal lessons when the focus is different e.g. geometry

How does encouraging children to describe / talk about what they are doing help evidence their understanding?

Impact of concrete apparatus and pictorial representations ?

...and use pictorial representations alongside apparatus



Hampshire
County Council

Are all pupils expected to develop and demonstrate their reasoning by talking **and** writing, simply and coherently
Evidence? Impact?

What evidence is there that are pupils able to answer arithmetic questions fluently? (e.g. more questions than minutes)

What effective use is being made of high quality published resources to ensure right pitch?

Are interventions effectively focused?
Impact?

**‘Close to’ → ARE
Questions for leaders to ask**

Is there an overt development of pupils’ reasoning capabilities using “intelligent practice” (Variation theory?)
Impact?

How are teachers making effective use of the NCTEM mastery tasks?



Task

- Review the sets of questions and improve
- Consider which of these are considered regularly in monitoring activities by middle leaders.
- Which activities undertaken by middle leaders are those most effective in helping to answer such questions?
- Which activities undertaken by middle leaders are those most effective in developing the practice of formative assessment for teachers?

YOU CAN'T
JUST TEACH ONE WAY.
IF KIDS AREN'T
LEARNING,
YOU'RE THE ONLY
ONE PAID TO TRY
SOMETHING DIFFERENT.
- JOHN HATTIE

#AdobeSpark



What CPD do teachers need to develop their practice?

Understanding what the whole school 'numbers' mean for them in their classroom.

Leaders, including middle leaders, may assume that teachers have translated whole school data into a meaningful context in their classrooms.

How do we make sure they have?

Subject knowledge that enables them to recognise and respond to the needs of the children.

Middle leaders need to be alert to the indications that teachers' subject knowledge is not secure enough to interpret the responses of children in the lesson. It is this that is a key indicator, it rarely demonstrates itself in the planning of lessons.

What CPD do teachers need to develop their practice?

A focus on children, their participation and their learning.

Leaders need to model this focus, demonstrate it in their conversations with teachers and illustrate it explicitly when they are in the classroom with them.

A range of teaching and learning strategies that can be employed to meet the specific needs of target children.

Much of the English and mathematics information shared at these meetings are strategies that can be shared with teachers. Teachers will need support in using these strategies and tailoring them to the specific needs in their classroom so that strategies don't just become a gimmick with the understanding as to why the strategy is effective being missed.

Be able to effectively use additional adults.

Ensure that when teachers are involved in CPD to develop teaching and learning that there is a clear focus on how to use other adults to add impact.

Leading on Learning – Planning CPD in your school

- Consider the five areas shared (coloured slides):
 - How are they covered in the CPD that you have planned over this term; next term and the summer?
 - Are there opportunities for your middle leaders to develop these areas in their colleagues' practice?
 - Are there aspects of these areas that need first to be developed in the middle leaders?



Supporting teachers' learning – what CPD works well?

- It has a direct relationship with what teachers are doing in their own classrooms.
- It involves observation and feedback, especially observing and learning from each other.
- It provides scope for participants to identify the focus of their development in the context of the school's priorities.
- It enables staff to be reflective and to focus on their contribution to children's learning and attainment.



Supporting teachers' learning – what CPD works well?

- focus on their contribution to children's learning and attainment.
- It provides opportunities to work with other colleagues and share practice.
- It includes regular professional discussion.
- It is sustained over time.
- It includes opportunities for independent study.
- It provides opportunities of the sharing of what has worked well.



Session 5

Ensuring best progress for those working 'below'

TRACKING PROGRESS OF SEND



The challenge...

The Rochford Review proposes some interim “pre-key stage 1 and 2 standards”. **However,**

“the interim solution is **only** to be used for statutory assessment for specified pupils at the end of the key stage. It is **not a curriculum** and should not be used to guide teaching” (p5)



The challenge for schools: create an approach to day to day (formative) assessment

“...which works for pupils with special education needs, some of whom may be following an alternative curriculum..”

“Any assessment methods and tools used should reflect this and support a personalised approach.”

*(Final report of the Commission on Assessment without levels, p16,
September 2015)*

Who are the target group?

‘Children who are making less than expected progress given their age and individual circumstances.

This can be characterised by **progress** which:

- Is significantly slower than that of their peers starting from the same baseline
- Fails to match or better the child’s previous rate of progress
- Fails to close the attainment gap between the child and their peers
- Widens the attainment gap’

(SEND Code of Practice p95, para 6.17)

Our working definition

- Children whose **‘learning difficulty or disability calls for special educational provision, namely provision different from or additional to that normally available to pupils of the same age’** (*SEN Code of Practice*)
- Children with profile of many domains below where they need to be, e.g. a profile of ‘not attained/below’ across significant domains in the Hampshire Model
- Children who will not have completed the relevant programme of study when they have reached the appropriate chronological age – (*Rochford Review*)



HAM – SEND tracker

- Personalised targets may be appropriate and drawn from previous year group curricular objectives in specific domains.
- The gaps between statutory curriculum objectives may need to be broken down further to establish an appropriate learning pattern.
(SEND planning tools: training sessions now running in English and Maths)
- A “beta” version to trial and test



HAM – SEND tracker data entry

NAME:	CLASS	Date of Entry to Current Year	DOB	Gender	FSM 6	LAC	Disadvantaged	EHCP	EAL	Service Child	Communication & Language	Cognition & Learning	Sensory	SEMH	Green Hat	Pink Scarf	SAT - Adapted (Year 2 and 6 only) - Reading
APPLE, Alfred	FISH	01/09/2016	01/01/2007	Male	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Free Text Field
BANANA, Ben	FISH	01/09/2016	16/01/2007	Male	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Free Text Field
CARROT, Chloe	CHIPS	01/09/2016	31/01/2007	Female	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Free Text Field
DATE, Deb	CHIPS	01/09/2016	15/02/2007	Male	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Free Text Field
Enchilada, Esme	FISH	01/12/2016	11/11/2011	Female	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Free Text Field
Fig, Fred	CHIPS	01/04/2017	02/05/2008	Male	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Free Text Field

- Contextual information about each pupil
- Used for individual and group reporting
- Data copied from Reading data sheet to Writing and/or Maths data sheets if chosen by user (column A/B)

Data entry at start of year and milestones

- On entry standards achieved against Apprentice/ Competent/ Expert
- Go back to whatever standard is best descriptor of achievement

Y1A	Y1C	Y1E	Y2A	Y2C	Y2E	Y3A	Y3C	Etc.
-----	-----	-----	-----	-----	-----	-----	-----	------

Word reading	Comp: Clarify	Comp: Monitor and summarise	Comp: Select and retrieve	Reason and explain	Themes and conventions	Inference	Language for effect
Y3E	Y2E	Y2E	Y2E	Y2E	Y2E	Y2E	Y2E
Y3E	Y2E	Y2E	Y2E	Y2E	Y2E	Y2E	Y2E
Y3E	Y2E	Y2E	Y2E	Y2E	Y2E	Y2E	Y2E
Y3E	Y2E	Y2E	Y2E	Y2E	Y2E	Y2E	Y2E
Y3E	Y2E	Y2E	Y2E	Y2E	Y2E	Y2E	Y2E
Y3E	Y2E	Y2E	Y2E	Y2E	Y2E	Y2E	Y2E

Milestone data collection

Summative assessments: teacher assessment	
Set End of Year Goal in each domain	
Record standard on entry: End of previous year	
Record Milestone 1	
Record Milestone 2	
Record Milestone 3	
Record End of Year achievement	

Summative assessments: test data	
Test Score - On Entry (standardised score)	
End of previous year	
Test Score - Milestone 1, 2, 3	
Test Score - End of Year	

HAM – SEND tracker

Reading Domains	On Entry	Milestone				Steps Made (from OE) to current Milestone	Steps Made (from OE) at EOY	Steps from Entry to EOY Goals	EOY Goals	Notes For Action
		1	2	3	EOY					
Word reading	Y1E	Y2C				2	N/A	6	Y3E	MILESTONE 1 NFA
Comp: Clarify	Y1E	Y3C				5	N/A	3	Y2E	
Comp: Monitor and summarise	Y1E	Y3E				6	N/A	3	Y2E	
Comp: Select and retrieve	Y1E	Y2A				1	N/A	3	Y2E	
Reason and explain	Y1E	Y2C				2	N/A	3	Y2E	
Themes and conventions	Y1E	Y3E				6	N/A	3	Y2E	
Inference	Y1E	Y3A				4	N/A	3	Y2E	
Language for effect	Y1E	Y3A				4	N/A	3	Y2E	

Progress is tracked through the year in steps achieved:

- From entry point to milestone
- Steps needed to achieve end of year goal
- At the EOY as a summative record
- NB there is no typical/ average or expected number of steps as this is dependent on the pupil. However the **expectations should be ambitious.**

HAM – SEND tracker

Gap Diminishing				End of Year Domain Analysis	At Secure ARE at EOY?	ARE Gap Diminished	EOY Goal met	Personalised Progress Made
Expected ARE (On Entry)	Expected ARE (EOY)	Steps Position On Entry	Steps Position End Of Year					
Y3E	Y4E	-6	N/A	Word reading	N/A	N/A	N/A	N/A
Y3E	Y4E	-6	N/A	Comp: Clarify	N/A	N/A	N/A	N/A
Y3E	Y4E	-6	N/A	Comp: Monitor and summarise	N/A	N/A	N/A	N/A
Y3E	Y4E	-6	N/A	Comp: Select and retrieve	N/A	N/A	N/A	N/A
Y3E	Y4E	-6	N/A	Reason and explain	N/A	N/A	N/A	N/A
Y3E	Y4E	-6	N/A	Themes and conventions	N/A	N/A	N/A	N/A
Y3E	Y4E	-6	N/A	Inference	N/A	N/A	N/A	N/A
Y3E	Y4E	-6	N/A	Language for effect	N/A	N/A	N/A	N/A

- At the end of the year the number of steps achieved may indicate that the gap to ARE is diminishing. Again, this may not be an appropriate expectation in every case.
- Four further summative “searchlights”** indicate annual progress in broad terms: **this data will be available in group reports for each cohort and school shortly.**

Feedback welcome

- Tracker – available on HAM resources section of the Leadership moodle – beta version for trial. Email Eric Halton if you have any feedback.

Training courses...

- ENGL1989 – An English planning tool to support pupils with SEND
- MATH0256 – A mathematics planning tool to support pupils with SEND



Pupils where ARE is not obtainable

- Small step curriculum
- Clarity around learning
- Lessen the cognitive load
- Slow down – teach less but teach it well, let them master their learning
- This means that what “Below” pupils do achieve they achieve more deeply by working through the learning hierarchy, over an appropriate time scale
- They may not learn everything but what they do learn they learn well



Coffee



Session 4

How to use them to meet the needs of children and teachers

PUPIL PROGRESS MEETINGS



What are pupil progress meetings?

- An opportunity to review formally the progress and provision for individual pupils on at least a termly basis
- An opportunity to celebrate what has worked well and contributed to good progress
- A key part of whole school improvement and identify pupils who have not made expected progress and are not on track to achieve end of Key Stage targets
- **They result in actions being planned at a whole school, class and individual pupil level to accelerate progress – a data gap is a curriculum gap**



What are pupil progress meetings?

- They support the leadership team in holding teachers to account for the progress their pupils make
- **The overarching purpose is to ensure that all aspects of provision are as effective as they can possibly be to maximise pupil progress throughout school.**



Pupil Progress Meetings (PPM)

- A forum for analysis and discussion of the factors that have supported progress and identify collaborative actions to overcome barriers to progress.
- An opportunity to answer questions posed by tracking and to make the tracking meaningful in terms of actions for learning.
- **What do yours look like? Discuss?**



Pupil Progress Meetings (PPM)

- Almost every schools has pupil progress review meetings. At their best, these:
 - are structured, professional conversations in which colleagues work together to address issues arising from pupil progress data and additional evidence
 - focus primarily on ensuring that teaching is of high quality and is differentiated appropriately and that pupils make progress in class
 - result in decisions to change the provision made for individuals and groups at risk of underachievement, to improve outcomes.



Making best use of Pupil Progress Meetings

- To make best use of the time available, it is important that everyone who attends the meeting is well prepared.
- In advance, review the data from tracking, provision maps and associated evidence
- Most of the meeting should be spent on deciding what needs to be done in response to the 'data' and what can be done to support pupils whose progress is a concern



Making best use of Pupil Progress Meetings

- There are two outcomes from Pupil Progress Meetings:
 1. Needs for the pupils
 2. Needs for the teachers
- These discussions are essential opportunities for leaders to establish if teachers have an accurate understanding of HAM.
- Do they know what sufficient independence, fluency and resilience looks like at each milestone?
- How are they moderating their judgements for those children that they assess to be securely on track or those who are close to being securely on track?

Task

- Work with a colleague from another school to create questions that could be used during the PPM to establish a teacher's understanding of HAM and how they are assessing the pupils.
- What other questions may be useful?
- What are some of the signs that teacher understanding is not secure? (common misconceptions)



Making best use of Pupil Progress Meetings

- Discussion should focus on **classroom teaching strategies and curriculum content** and reviewing strategies that have been successful and those that have not, considering alternative strategies and determining what training and support, if any, the teacher needs.
- Additional interventions for individuals or groups **should only be considered** when every effort has been made to address issues of progress by improving or modifying day-to-day teaching. However **close to** children will form part of the discussion, books will provide the evidence.
- If any additional provision is agreed, the meeting will need to decide: the nature of the intervention, who will deliver it, targets and timescales.



Suggested prompts for teachers to consider before the meeting and for discussion during the meetings

- What actions have taken place since the last meeting?
- What **impact** have these actions had on attainment and progress?
- What evidence is there to support the reported impact?
- Are the judgements supported by work in pupils' books?



Suggested prompts for teachers to consider before the meeting and for discussion during the meetings

- For the pupils who have made more than sufficient progress **what has made the difference?**
- For pupils who have not made enough progress, **what core barriers** are preventing them from moving on and **how can we intervene?**
- Which pupils do you feel now need intervention? How will this be organised and what will the planned programme include?
- Is there any additional support in terms of continuing professional development (CPD) you feel you need to help those pupils?



Effective assessment

It is crucial that in-school formative and summative assessment enables teachers to understand pupil performance on a continuing basis and to **identify the details** about pupils' knowledge and understanding of the topics, concepts or skills covered.



Analysing individual pupils

What pupil
information might
be needed?



MATHS: Solving problems & working across domains using:							
Number and Place value	Addition and subtraction	Multiplication and division	Fractions	Measurement	Geometry	NOTES FOR ACTION	INTERVENTION PROGRAMME
Below	Secure	Secure	Below	Secure	Secure		
Below	Below	Below	Below	Below	Below		
Below	Beyond	Secure	Secure	Secure	Beyond		
Below	Secure	Secure	Secure	Beyond	Beyond		
Beyond	Beyond	Beyond	Secure	Secure	Secure		
Beyond	Beyond	Beyond	Beyond	Secure	Secure		
Secure	Secure	Beyond	Secure	Secure	Secure		
Secure	Below	Secure	Below	Secure	Below		
Secure	Secure	Secure	Secure	Secure	Secure		
Secure	Secure	Secure	Secure	Secure	Secure		
Secure	Secure	Secure	Secure	Secure	Below		
Secure	Secure	Secure	Below	Secure	Below		

Red Arrow – why is this pupil below in all domains? SEND? External factors? Prioritise particular domains?

Green Arrow – possible anomalies – could you be below in NPV and beyond in others? Granular objective analysis?

Orange Arrow – what is the plan to accelerate progress in A+S, Fractions and Geometry?



Pupil Progress Meeting – record of actions

Name	Identified Need (not only R, W or M but what exactly within this!) Any pastoral need such as attendance? Support from home?	How will you achieve this?	What will success look like? What will the data show at each milestone?	Evaluation



Example... Mary (orange arrow)

Identified needs - Mathematics

- Rapid recall of addition and subtraction facts
- 7x 8x 12x tables.
- Multiply 2 digits x 1 digit
- Divide 2 digits by 1 digit explaining any remainders
- Finding fractions of numbers or quantity
- Add and subtract 2/3 digits
- Difficulty moving from partitioning to column methods for calculation
- Addition/subtraction of decimals
- Negative numbers in context, and calculate intervals across zero

Barriers

- poor attendance
- poorly developed speech, including a very limited vocabulary
- low aspirations in the home and few set routines
- limited experience of life beyond the immediate community.



Example... Mary (orange arrow)

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**These look
specific ...**

... but are they?

Barriers

- poor attendance
- poorly developed speech, including a very limited vocabulary
- low aspirations in the home and few set routines
- limited experience of life beyond the immediate community.



Example... Mary

Strategies?

- Sustained mental work each day for at least 10 to 15 minutes. (not always in mathematics lesson).
- Identify and rehearse the key facts, strategies and skills relevant to the class to overcome the barriers to moving to ARE
- Rehearse, learn and remember: key addition and subtraction facts, target x7, x8 and x12 tables.
- Multiply 2 digits x 1 digit, divide 2 digits by 1 digit explaining any remainders
- Pre-teaching and 1:1 support to move from partitioning to column methods for calculations
- Provide opportunities to stop, think visualize, rehearse before recording
- Ensure that relevant practical activities and concrete equipment to visualize, describe and represent what they are doing
- Encourage to look out for mistakes and also help to recognise that making mistakes is a necessary part of learning that everyone does.



Example... Mary

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Too much? What is the key thing next week? The week after?



Analysing domains

Are some domains more 'fragile'?

Group
teaching for
some



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Secure	Secure	Secure	Secure	Secure	Secure		
Secure	Secure	Secure	Secure	Secure	Below		
Secure	Secure	Secure	Below	Secure	Below		

Using all
available
information
Data rich



Targeted intervention
or small group



Pupil Progress Meeting – record of actions

Name	Identified Need (not only R, W or M but what exactly within this!) Any pastoral need such as attendance? Support from home?	How will you achieve this?	What will success look like? What will the data show at each milestone?	Evaluation
John Gary David (all below in maths – FDP domain)	identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places	Pre-teaching for any lesson focusing on decimals. Create decimal wall to establish a visual image of decimals for the group. Use PV counters for modelling decimal answers	Securely on track in Fractions domain at Feb milestone.	

Effective Interventions

Supporting pupils towards ARE for Milestone 2 by focusing on:

- Pre teaching
- Small steps
- Specific skills
- Using targeted accurate vocabulary to build confidence
- Learning in a context - practising afterwards to understand the purpose and when to apply.
- Having several goes at a problem or piece of work (not an over focus on 'right answers' as the main goal)
- Starting with models and images, with concrete resources.



What next?

- Proposing 4 half days – Jan, Mar, Jun, Oct
- Running in 8 venues (4 east, 4 west)
- Each session will have:
 - a general update
 - review of any new resources
 - what to focus on for each milestone
 - Theme – from a choice of 4 (which could be chosen for each session or could be repeated so that schools have at least two chances to attend themes that are most relevant to their own context.)

