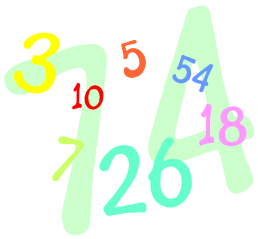
Heatherside Infant School



Termly Expectations for Maths at Key Stage 1

Year 1 and 2 Mastery of Mathematics

Mastery of the curriculum requires that all pupils:

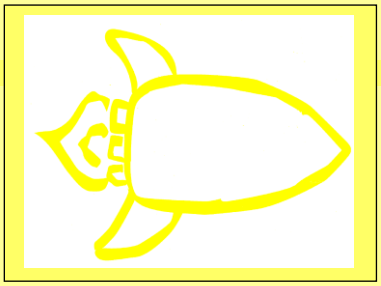
. use mathematical concepts, facts and procedures appropriately, flexibly and fluently;
• recall key number facts with speed and accuracy and use them to calculate and work out unknown facts;
• have sufficient depth of knowledge and understanding to reason and explain mathematical concepts and procedures and use them to solve a variety of problems.

A pupil really understands a mathematical concept, idea or technique if he or she can:

• describe it in his or her own words;
• represent it in a variety of ways (e.g. using concrete materials, pictures and symbols)
• explain it to someone else;
• make up his or her own examples (and non-examples) of it;
• see connections between it and other facts or ideas;
• recognise it in new situations and contexts;
• make use of it in various ways, including in new situations.

Document created July 2018

Yellow (expected Autumn Year 1)



Number and Place Value

Count forwards in ones to 30.
Count backwards in ones from 30.
Read & order numbers to 30.
Write numbers to 30.

Read and say the multiples of ten e.g. 50, 10, 40, 90, 70, 100, 20
Count up in tens e.g. 0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100

Show numbers up to 20 using cubes, counters, objects, Numicon, Tens and Ones.
Say or show what the digit 1 is worth in the numbers 10, 11, 12, 13, 14, 15, 16, 17, 18, 19.

Say and show one more than any number to 20.
Say and show one less than any number to 20.

I am beginning to estimate *amounts up to 10.*

Addition (+) and Subtraction (-)

Partition numbers for 10 in different ways e.g. 6 + 4, 7 + 3, 8 + 2, 9 + 1, 5 + 5, 7 + 2 + 1, 4 + 4 + 2.

Partition numbers to 10 in different ways e.g.
partition 6 into 5 + 1, 4 + 2, 3 + 3,
partition 7 into 6 + 1, 5 + 2, 4 + 3,
partition 8 into 7 + 1, 6 + 2, 5 + 3, 4 + 4,
partition 9 into 8 + 1, 7 + 2, 6 + 3, 5 + 4,

Begin to recall some simple number facts e.g. 3 + 2, 6 + 4, 3 + 3, 5 + 1, 7 + 2, etc (mentally within 10).

Solve addition (+) problems using objects (within 20) – I can write my answers down (sometimes make errors).
Use a number line (with pictures) for addition (+) by **counting on** (sometimes make errors).

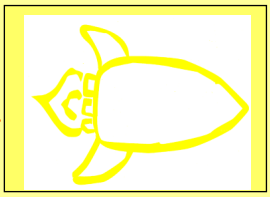
Solve subtraction (-) problems using objects (within 20) – I can write my answers down (sometimes make errors).
Use a number line (with pictures) for subtraction (-) by **counting back** (sometimes make errors).

Double quantities of objects – double 1, 2, 3, 4, 5, 6, 7, 8, 9 10

I am beginning to…
Read *some number words to 20 e.g. one, two, three, four, five, six, seven, eight, nine, ten, eleven, twelve, thirteen, fourteen, fifteen, sixteen, seventeen, eighteen, nineteen, twenty*

Yellow (expected Autumn & Spring Year 1)

Measures (continue into Spring Term)



Money

Name coins & notes e.g. 1p, 2p, 5p, 10p, 20p, 50p, £1, £2 coins, £5, £10, £20, £50 notes.
Know the value of the coins.

Length

Compare lengths use the words **long/short, longer/shorter** correctly.
Compare heights use the words **tall/short, taller/shorter** correctly.

Estimate lengths/heights using non-standard measures.
Compare lengths/heights using non-standard measures.
Measure lengths/heights using non-standard measures.
Check lengths/heights using non-standard measures.

Mass

Compare mass or weight use the words **heavy/light, heavier than, lighter than** correctly.

Estimate mass/weight using non-standard measures.
Compare mass/weight using non-standard measures.
Measure mass/weight using non-standard measures.
Check mass/weight using non-standard measures.

Capacity

Compare **capacity/volume** use the words **full/empty/half full, more than, less than** correctly.

Estimate capacity using non-standard measures.
Compare capacity using non-standard measures.
Measure capacity using non-standard measures.
Check capacity using non-standard measures.

Time

Compare time use the words **quicker, slower, earlier, later** correctly.
Sequence events in order.
Use the words **before, after, next, first, today, yesterday, tomorrow, morning, afternoon & evening days, weeks, months** and **years** correctly.

Name the **days of the week** e.g. Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday.

Name the **months** e.g. January, February, March, April, May, June, July, August, September, October, November, December.

Fractions

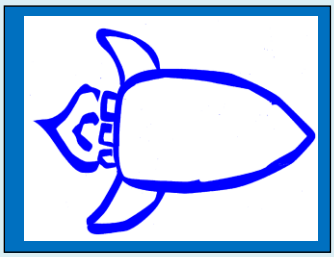
Use correctly the words **"half"** when measuring e.g. **"half full" "half empty", "half a metre", "half as big"**

Geometry (Spring Term)

Name 2D shapes e.g. rectangles, squares, circles, triangles, (in different orientations & sizes).
Name 3D shapes e.g. cuboids, cubes, cylinders, pyramids & spheres (in different orientations & sizes).

I am beginning to…
Know that hexagons, pentagons, triangles can be different shapes (irregular).
Describe shapes & *their* ***properties*** *using the words* ***vertices, sides, edges, faces.***

Blue (expected Spring Year 1) **(See Yellow for this term's measures, fractions, geometry)**



Number and Place Value

Count forwards in ones to 50.
Count backwards in ones from 50.
Read & order numbers to 50.
Write numbers to 50.

Say and show one more than any number to 50.
Say and show one less than any number to 50.

Show numbers up to 50 using Numicon/ Tens and Ones.
Say and show what the digits are worth in two-digit numbers to 50 e.g. 20, 31, 42, 13, 27, 18, 39 etc

I can estimate amounts up to 10.

Addition and Subtraction

Know by heart many of the addition **bonds for 10** e.g. 10 + 0, 9 + 1, 8 + 2, 7 + 3, 6 + 4, 5 + 5
Know by heart many of the subtraction **bonds from 10** e.g. 10 - 0, 10 - 1, 10 – 2 etc

Explore and **know some** of the addition and subtraction **bonds for values up to 10**

6 = 6 + 0, 5 + 1, 4 + 2, 3 + 3, 6 – 1 , 6 – 2, 7 - 3 etc.
7 = 7 + 0, 6 + 1, 5 + 2, 4 + 3, 7 – 1 , 7 – 2, 7 - 3 etc.
8 = 8 + 0, 7 + 1, 6 + 2, 5 + 3, 4 + 4, 8 – 1 , 8 – 2, 8 - 3 etc.
9 = 9 + 0, 8 + 1, 7 + 2, 6 + 3, 5 + 4, 9 – 1 , 9 – 2, 9 - 3 etc.

Use a number line** (structured) for **addition** (+) by **counting on.
Use a number line** (structured) for subtraction (-) by **counting back.

*Use **+**, **-** and **=** symbols correctly.*

Know by heart double 1, 2, 3, 4, 5,
Explore double 6, 7, 8, 9, 10

Multiplication and Division

Count forward in multiples of 2 (odd & even numbers). Recognise patterns.
Count forward in multiples of 5. Recognise patterns.
Count forward in multiples of 10. Recognise patterns.

I am beginning to…
***Estimate** amounts up to 20.*

***Say what is ten more than any multiple of 10.** I can explain which digit changes and why.*
***Say what is ten less than any multiple of 10.** I can explain which digit changes and why.*

Know that if 7 + 3 = 10, then 3 + 7 = 10, 10 – 7 = 3 and 10 – 3 = 7 (family of four)

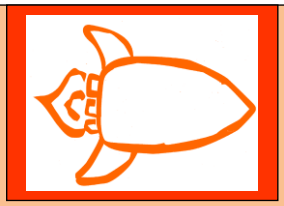
Know that addition can be done in any order** (commutativity) but **subtraction cannot.

***Solve addition (+)** and **subtraction (-) problems** within 30.*

***Add** using **jumps of ten** and **one** using a structured number line/ resources (Numicon/Dienes).*
***Subtract** using **jumps of ten** and **one** using a structured number line/ resources (Numicon/Dienes).*

***Make** and **describe patterns** (including number patterns).*
***Continue patterns** (including number patterns). Use the ordinal numbers 1st, 2nd, 3rd, 4th, 5th etc.*

***Solve problems** involving grouping quantities. **Record solutions** using pictures.*
***Solve problems** involving sharing small quantities. **Record solutions** using pictures.*



Orange (Year 1 A.R.E.)

Number and Place Value

Count forwards in ones to 100. I can start from any number.
Count backwards in ones from 100. I can start from any number.
Read & order numbers to 100.
Compare numbers to 100 using the words **'equal to' 'more than', 'less than,' 'fewer', 'most' and 'least'.**
Write numbers to 100.

Say and show one more than any number to 100.
Say and show one less than any number to 100.

Say what is ten more than any multiple of 10. *I can explain which digit changes and why.*
Say what is ten less than any multiple of 10. *I can explain which digit changes and why.*

Read number **words** to 20 e.g. one, two, three, four, five, six, seven, eight, nine, ten, eleven, twelve, thirteen, fourteen, fifteen, sixteen, seventeen, eighteen, nineteen, twenty.

Show numbers up to 100 using Numicon/ Tens and Ones.

Find numbers up to 100 on a number line.

Addition and Subtraction

Correctly use +, - and = signs.
Know by heart double 6, 7, 8, 9, 10 (double 7, 8, 9 can take longer to recall)

Know by heart most of the addition **bonds for 10** e.g. 10 + 0, 9 + 1, 8 + 2, 7 + 3, 6 + 4, 5 + 5
Know by heart most of the subtraction **bonds from 10** e.g. 10 - 0, 10 - 1, 10 – 2 etc.

Know by heart many of the addition and subtraction **bonds for values up to 10…**

6 = 6 + 0, 5 + 1, 4 + 2, 3 + 3,	6 – 1 , 6 – 2, 7 - 3 etc.
7 = 7 + 0, 6 + 1, 5 + 2, 4 + 3,	7 – 1 , 7 – 2, 7 - 3 etc.
8 = 8 + 0, 7 + 1, 6 + 2, 5 + 3, 4 + 4,	8 – 1 , 8 – 2, 8 - 3 etc.
9 = 9 + 0, 8 + 1, 7 + 2, 6 + 3, 5 + 4,	9 – 1 , 9 – 2, 9 - 3 etc.

Add 1-digit and **2-digit** numbers to 20 (including 0) e.g. 8 + 5 = 13, 12 + 6 = 18, 17 + 0 = 17
Subtract 1-digit and **2-digit** numbers to 20 (including 0) e.g. 8 – 5 = 3, 12 – 4 = 8, 14 – 0 = 14

Solve Addition (+) problems using objects and pictures.
Solve Subtraction (-) problems using objects and pictures.
Solve missing number problems e.g. 7 = □ - 9

Multiplication and Division

Count forward in 2s (up to 20).
Count forward in 5s (up to 50).
Count forward in 10s (up to 100).

Solve multiplication problems (grouping) using objects, pictures and arrays (with support).
Solve multiplication problems using **repeated addition.**

Solve division problems (sharing) using objects, pictures (with support).

I am beginning to…
Write some number **words** to 20 e.g. one, two, three, four, five, six, seven, eight, nine, ten, eleven, twelve, thirteen, fourteen, fifteen, sixteen, seventeen, eighteen, nineteen, twenty.

Say what is ten more than any *two digit number. I can explain which digit changes and why.*

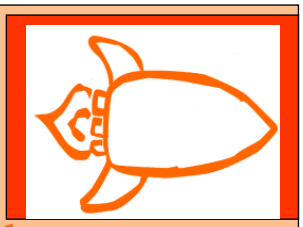
Say what is ten less than any *two digit number. I can explain which digit changes and why.*

Add (+) using **jumps of ten** and **one** using a structured number line.
Subtract (-) using **jumps of ten** and **one** using a structured number line.

Count back in 2s *(from 20).*
Count back in 5s *(from 50).*
Count back in 10s *(from 100).*
Understand x as repeated +, using resources and pictures (including arrays)

Use doubling to solve problems.

Orange (Year 1 A.R.E.)



Measures

Money

Name coins & notes e.g. 1p, 2p, 5p, 10p, 20p, 50p, £1, £2 coins, £5, £10, £20, £50 notes
Know the value of the coins and notes.

Length

Compare lengths/heights use the words **long/short, longer/shorter, tall/short, taller/shorter** correctly.
Measure lengths/heights using standard measures.
Solve practical problems for length/height.

Mass

Compare mass or weight use the words **heavy/light, heavier than, lighter than correctly.**
Measure mass/weight using standard measures.
Solve practical problems for mass/weight.

Capacity

Compare capacity/volume use the words **full/empty/half full, more than, less than** correctly.
Measure capacity using standard measures.
Solve practical problems for capacity.

Time

Sequence events using language. e.g. before, after, next, today, etc.
Recognise & use language relating to **days of the week, weeks, months** and **years** (see yellow rocket).
Tell O'clock times (and **draw the hands** on a **clock face.**)
Tell half past times (and **draw the hands** on a **clock face.**)
Solve practical problems for time.

Fractions

Use shapes/pictures/objects to name: half ($\frac{1}{2}$) as 1 of 2 equal parts, quarter ($\frac{1}{4}$) as 1 of 4 equal parts.
Use quantities (objects) to name: half ($\frac{1}{2}$) as 1 of 2 equal parts, quarter ($\frac{1}{4}$) as 1 of 4 equal parts

Geometry (shape)

Name common 2d and **3d shapes** (see yellow rocket).
Describe position, direction and **movement including whole, 1/2, 1/4** and **3/4 turns.**

I am beginning to…
Record *lengths/ heights using standard measures.*

Record mass/weight *using standard measures.*

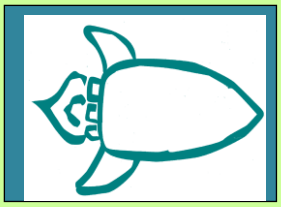
Record capacity *using standard measures.*

Record halves and quarters as $\frac{1}{2}$ and $\frac{1}{4}$
See that dividing/sharing by 2 means half.

*Relate '**clockwise**' to the clock face*

*Use vocabulary such as **left, right, top, bottom, above, between, near to** etc.*

Turquoise (expected Autumn Year 2)



Number and Place Value

Read, Write & order numbers to 100.

Compare numbers to 100 using the words **'greater than', 'less than,' 'fewer than', 'equals'.**

Say and show *what the digits are worth in any two-digit number to 100 e.g. 40, 86, 79, 12 etc.*
Say and show *what is* ***ten more*** *than any two-digit number.*
Say and show *what is* ***ten less*** *than any two-digit number.*

Partition a two-digit number into tens and ones to demonstrate an understanding of place value, though they may use structured resources (Dienes) to support them.

Estimate values within a range (e.g. less than 10, below 30, above 50, more than 100 etc.).

Addition and Subtraction

Use Dienes/ Numicon to solve addition (+) problems.
Use Dienes/ Numicon to solve subtraction (-) problems.

Recall at least four of the six number bonds for 10 and reason about associated facts e.g. 6 + 4 = 10 , therefore 4 + 6 = 10 and 10 – 6 = 4.

Recall many of the addition and subtraction facts for values up to 10 to solve problems.

6 = 6 + 0, 5 + 1, 4 + 2, 3 + 3, 6 – 1 , 6 – 2, 7 - 3 etc.
7 = 7 + 0, 6 + 1, 5 + 2, 4 + 3, 7 – 1 , 7 – 2, 7 - 3 etc.
8 = 8 + 0, 7 + 1, 6 + 2, 5 + 3, 4 + 4, 8 – 1 , 8 – 2, 8 - 3 etc.
9 = 9 + 0, 8 + 1, 7 + 2, 6 + 3, 5 + 4, 9 - 1 , 9 - 2, 9 - 3 etc.

Explore the addition and subtraction **bonds for values for and up to 20** e.g.
12 = 12 + 0, 11 + 1, 10 + 2, 9 + 3, 8 + 4, 7 + 5, 6 + 6 etc 12 - 0, 12 - 1, 12 – 2 etc.
17 = 17 + 0, 16 + 1, 15 + 2, 14 + 3, 13 + 4, 12 + 5, 11 + 6 etc 17 - 0, 17 - 1, 17 – 2 etc.

Add two-digit numbers and ones, where no regrouping is required, explaining their method verbally, in pictures or using apparatus e.g. 23 + 5.

Add two-digit numbers and tens, where no regrouping is required, explaining their method verbally, in pictures or using apparatus e.g. 46 + 20.

Subtract two-digit numbers and ones, where no regrouping is required, explaining their method verbally, in pictures or using apparatus e.g. 16 – 5.

Subtract two-digit numbers and tens, where no regrouping is required, explaining their method verbally, in pictures or using apparatus e.g. 88 – 30.

Begin to add 2-digit numbers jumping in steps of ten & one using a number line (empty) to support mental strategies.

Multiplication and Division

Count forward in 2s (up to 20).
Count forward in 5s (up to 50).
Count forward in 10s (up to 100).
Count back *in* ***2s*** *(from 20).*
Count back *in* ***5s*** *(from 50).*
Count back *in* ***10s*** *(from 100).*

Recognise the **pattern** of numbers in the **2, 5** and **10 times tables.**
Understand repeated addition and use to solve multiplication problems.
Solve multiplication problems by counting in 2s, 5s and 10s.
Solve multiplication problems involving **grouping** using practical apparatus (cubes/ counters) and pictures.

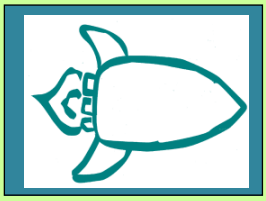
Solve problems involving **sharing** using practical apparatus (cubes/ counters) and pictures.

I am beginning to…
Write number **words** to 20 and multiples of ten to one hundred in **words.**

Explore *the relationship between addition and subtraction (family of 4).*

Use the ***inverse operation*** *as a checking strategy. E.g. I know 15 – 7 = 8 because 7 + 8 = 15. I also know that 18 – 12 can't equal 4 because 12 + 4 doesn't equal 18.*

Turquoise (expected Autumn Year 2)



Money
Know the value of different coins

Measures (See Spring Term for other measures)

Length (same as A.R.E.)
Compare lengths using >, < and =
Order lengths.
Estimate length/height using **m/cm.**
Measure length/height using **m/cm.**

Time (can be covered in the Spring Term)
Compare intervals of time.
Sequence intervals of time.
Tell and **write** the **¼ past times** (and draw the hands on a clock face to show this.)
Tell and **write** the **¼ to times** (and draw the hands on a clock face to show this.)

Fractions
Solve problems involving **halves (½)** and **quarters (¼) of shape.**
Solve problems involving **halves (½)** and **quarters (¼) of quantities.**

Know ½ (half) as **sharing/dividing/grouping** something into **2 equal parts.**
Know ¼ (quarter) as **sharing/dividing/grouping** something into **4 equal parts.**

Use pictures and resources to support my understanding of fractions.

Geometry (shape) (can continue into Spring Term)
Compare and **sort 2D shapes.**
Name a range of **2D shapes e.g. square, triangle, circle** (including **irregular shapes - hexagons, pentagons, octagons)**
Describe the properties of 2D shapes – including number of sides & lines of symmetry.

Compare and **sort 3D shapes.**
Name a range of **3D shapes – cubes, cuboids, spheres, cylinders, pyramids, prisms.**
Describe the properties of 3D shapes – including number of edges, vertices and faces.

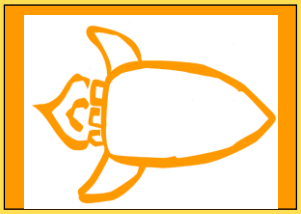
Order mathematical **objects in patterns** and **sequences.** Correctly use the ordinal numbers first, second, third, fourth etc.

Statistics (data handling) (can continue into Spring Term)
Make simple pictograms.
Make simple tally charts.
Make simple block diagrams.
Make simple tables.

Ask and answer simple questions by…
counting the number of objects in each category,
sorting the categories by quantity,
totalling,
comparing categorical data.

I am beginning to…
Place fractions (half, quarter) on a number line (knowing they are numbers and can be worth more than one).

Gold (expected Spring Year 2)



Number and Place Value

Use <, > and = symbols to compare numbers.

Write numbers to at least 100.

Write most number **words** to at least 100 e.g. zero, eight, nineteen, fifty three etc.

Estimate values within a range (between multiples of ten).

Addition and Subtraction

Know by heart all of the addition **bonds for 10** e.g. 10 + 0, 9 + 1, 8 + 2, 7 + 3, 6 + 4, 5 + 5
Know by heart all of the subtraction **bonds from 10** e.g. 10 - 0, 10 - 1, 10 – 2 etc.

Recall most addition (+) facts to 10 to solve problems.
Recall most subtraction (-) facts to 10 to solve problems.

Recall some addition (+) facts for/to 20 to solve problems e.g. 9 + 7 = 16, 16 – 7 = 9.
Recall some subtraction (-) facts for/to 20 to solve problems e.g. 7 + 4 = 11, 11 – 4 = 7.

Explore facts (+ and -) to 100. E.g. 40 + 60 = 100, 100 – 70 = 30.

Use a **number line (empty)** to **add 2-digit numbers,** using **jumps** of **ten & one** (confidently).
Use a **number line (empty)** to **subtract 2-digit numbers,** using **jumps** of **ten & one** (confidently).

Mentally add multiples of ten using knowledge of addition facts for 10.
Mentally subtract multiples of ten using knowledge of subtraction facts for 10.

Use a **number line (empty)** to **add 2-digit numbers,** using **jumps** of **multiples of ten & one.**
Use a **number line (empty)** to **subtract 2-digit numbers,** using **jumps** of **multiples of ten & one.**

Multiplication and Division

Solve multiplication problems involving **grouping** using practical apparatus and pictures.

Solve multiplication problems involving **counting in** steps of **2, 5** and **10.**

Say the **2 times table.**
Say the **5 times table.**
Say the **10 times table.**

Use the **x** symbol to **solve multiplication problems.**

Use arrays to explore the relationship between multiplication & division.

Solve division problems involving **sharing** (or grouping in context) using practical apparatus and pictures.

Use the ÷ symbol.

Understand that **multiplication can be done in any order** (commutative) but **division cannot.**

I am beginning to…

Use a **number line (empty)** to **bridge through ten** when **adding.** E.g. 9 + 8 = , 26 + 8 =, 37 + 16 = , 57 + 35 =

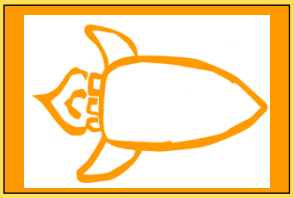
Use a **number line (empty)** to **bridge through ten** when **subtracting.** E.g. 13 - 8 = , 21 - 17 =, 54 - 36 =

***Check** my **subtractions** by adding the answer to the number I've taken away (inverse strategy).*

***Solve missing number problems,** involving **2-digit numbers** e.g. 23 + ? = 30, 28 = ? + 10, 27 - ? = 7, 15 = 20 - ?*

Use learnt number facts to **solve problems** and **investigations.**

Gold (expected Spring Year 2)



Measures

Money (same as A.R.E.)

Use coins to find **different ways** to **make** a **certain amount (ARE).**
Use symbols for **pounds (£)** and **pence (p).**
Combine amounts to make a particular value.
Solve problems practically involving + of **money.**
Solve problems practically involving - of **money**, including giving change.

Mass (same as A.R.E.)

Compare and **order mass. Record** the **results** using **>, <** and **=**
Estimate mass using **g/kg.**
Measure mass using **g/kg.**

Temperature (same as A.R.E.)

Use standard units **(°C)** to **estimate temperature.**
Use standard units **(°C)** to **measure temperature.**

Fractions

Use fractions when measuring ($\frac{1}{4}$ full, $\frac{1}{2}$ as long, $\frac{1}{2}$ the mass, half past, quarter past, quarter to etc.)
Understand $\frac{3}{4}$ as a **non-unit fraction.**
Solve problems involving **fractions** of **shapes** using practical resources and making links to division.
Solve problems involving **fractions** of **quantities** using practical resources and making links to division.

Geometry (shape) (Continue into Summer Term/ some A.R.E.)

Identify 2-D shapes on the surface of **3-D shapes e.g.** a **circle** on a **cylinder** and a **triangle** on a **pyramid.**

Compare and **sort common 2-D shapes, recognising** and **describing** their **properties.**
Compare and **sort common 3-D shapes, recognising** and **describing** their **properties.**

Describe position, direction and **movement** (above, below, behind, in front, between, forward, backward, sideways, left, right, up, down).

Investigate rotation or "turn" (angle as a movement). **$\frac{1}{2}$, $\frac{1}{4}$** and **$\frac{3}{4}$ turns** (clockwise and anti-clockwise)

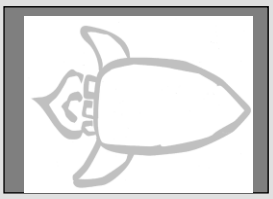
Statistics (data handling) (same as A.R.E.)

Use and **apply topic-related information** (data) - **answer questions** from **graphs** and **charts.**

I am beginning to…
Place known fractions on a number line ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$).

***Explore** the concept of **equivalence** - e.g. 2/4 is equal to $\frac{1}{2}$.*

Silver (Year 2 A.R.E.)



Number and Place Value

Count in 10s forward and **back from any number.**
Count in 2s forward and **back from any number.**
Count in 5s forward and **back from 0/50.**
Count in 3s (number line for support) forward and **back.**

Use <, > and = symbols to compare numbers.
Recognise the **value of each digit in 2-digit numbers** and **know 0 as a placeholder.**
Show numbers up to 100 using Numicon/ Tens and Ones.
Find numbers up to 100 on a number line.

Write numbers to 100.

Write number **words** to 100 e.g. one hundred, eighty, seventeen, fifty six, thirty four, sixty one etc.

Partition any two-digit number into different combinations of tens and ones, explaining their thinking verbally, in pictures or using apparatus *e.g. 34 = 30 + 4, 34 = 20 + 14, 34 = 10 + 24*

Addition and Subtraction

Recall all addition bonds to and within 10 and use these to **reason with** and **calculate bonds to and within 20** e.g. If 7 + 3 = 10, then 17 + 3 = 20.

Recall all subtraction bonds to and within 10 and use these to **reason with** and **calculate bonds to and within 20,** recognising other associated additive relationships e.g. If 7 – 3 = 4, then 17 – 3 = 14; leading to if 14 + 3 = 17, then 3 + 14 = 17, 17 – 14 = 3 and 17 – 3 = 14.

Derive and **use related facts to 100 e.g. I know 3 + 7 = 10 so 30 + 70 = 100,**
10 – 4 = 6 so 100 – 40 = 60

Show that **addition of 2 numbers can be done in any order (commutative)** and **subtraction cannot.**

Solve Addition problems including TU+U, TU+T, TU+TU, U+U+U using objects, pictures, number lines, place value and **mental recall** of number facts.

Solve Subtraction problems including TU-U, TU-T, TU-TU, U-U-U using objects, pictures, number lines, place value and **mental recall** of number facts.

Add any 2 two-digit numbers using an efficient strategy, explaining their method verbally, in pictures or using apparatus e.g. 48 + 35.

Subtract any 2 two-digit numbers using an efficient strategy, explaining their method verbally, in pictures or using apparatus e.g. 72 – 17.
Check my **subtractions** by adding the answer to the number I've taken away (**inverse strategy**).

Solve missing number problems, using **number facts** and the **inverse strategy** e.g. 23 + ? = 30, 28 = ? + 10, 27 - ? = 7, 15 = 20 - ?

Multiplication and Division

Read scales (number line or graph) in divisions of ones, twos, fives and tens
Recall multiplication facts for the **2, 5** and **10 times tables and use to solve problems.**

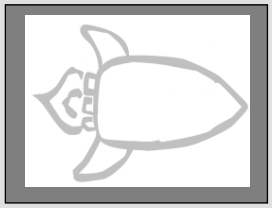
Recall division facts for the **2, 5** and **10 times tables and use to solve problems.**

Solve problems involving **x** using **resources, arrays, repeated addition, mental methods** and **facts.**
Solve problems involving ÷ using **resources, arrays, repeated subtraction, mental methods, x** and ÷ **facts.**

Solve problems involving **odd** and **even numbers.**

I am beginning to…
Use partitioning to solve addition and subtraction problems *(use of efficient strategies e.g. adjusting).*

Silver (Year 2 A.R.E.)



Measures

Mass (see Spring Term)

Money (see Spring Term)

Use different coins to make the same amount

Length (see Autumn Term)

Compare lengths using >, < and =
Order lengths.
Estimate length/height using **m/cm.**
Measure length/height using **m/cm.**

Draw lines and **shapes** using a **ruler.**

Capacity

Compare capacities using >, < and =
Order capacities.
Estimate capacity using **litres/ml.**
Measure capacity using **litres/ml.**

Time

read the time on a clock to the nearest 15 minutes
Compare intervals of time.
Sequence intervals of time.
Know the **number of minutes** in an **hour** and **hours in a day.**
Tell and **write** the **¼ past times** (and draw the hands on a clock face to show this.)
Tell and **write** the **¼ to times** (and draw the hands on a clock face to show this.)

Fractions

Identify 1/4, 1/3 , 1/2 , 2/4, 3/4, of a number or shape, and know that all parts must be equal parts of the whole.
Write fraction calculations e.g. ½ of 6 = 3.
Recognise the **equivalence** of **2/4** and **½**.
Count in fractions to 10 e.g. 1, 1 ½, 2, 2 ½...
Find, Name and Write fractions **1/3, ¼, 2/4** and ¾ of a length, shape or quantity.

Geometry (shape)

Name and describe properties of 2-D and 3-D shapes, including number of sides, vertices, edges, faces and lines of symmetry.

Draw lines and **shapes** using a **ruler.**

Identify 2-D shapes on the surface of **3-D shapes e.g.** a **circle** on a **cylinder** and a **triangle** on a **pyramid.**

Compare and **sort common 2-D shapes, recognising** and **describing** their **properties** including **number of sides, line symmetry in a vertical line.**

Compare and **sort common 3-D shapes, recognising** and **describing** their **properties** including the **number of edges, vertices** and **faces.**

Relate **rotation** to **right angles** for **¼, ½ & ¾ turns** (use of programmable toys).
Understand clockwise and **anti-clockwise.**

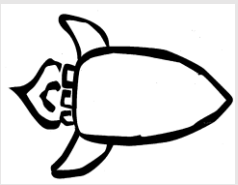
Order and **arrange** combinations of mathematical objects/shapes **in patterns** and **sequences.**

Use mathematical vocabulary to **describe position, direction** and **movement** including **movement** in a **straight line.**

Statistics (data handling) (see Spring Term)

I am beginning to…
Tell and **write** the **time** to **5 min past/to** the **hour.**

Year 2 MASTERY (ARE)



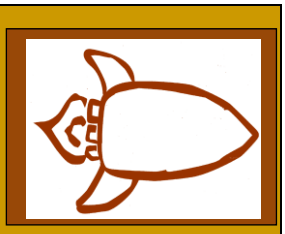
Mastery of the curriculum requires that all pupils:

. use mathematical concepts, facts and procedures appropriately, flexibly and fluently;
- recall key number facts with speed and accuracy and use them to calculate and work out unknown facts;
- have sufficient depth of knowledge and understanding to reason and explain mathematical concepts and procedures and use them to solve a variety of problems.

A pupil really understands a mathematical concept, idea or technique if he or she can:

- describe it in his or her own words;
- represent it in a variety of ways (e.g. using concrete materials, pictures and symbols)
- explain it to someone else;
- make up his or her own examples (and non-examples) of it;
- see connections between it and other facts or ideas;
- recognise it in new situations and contexts;
- make use of it in various ways, including in new situations.

Year 2 MASTERY WITH GREATER DEPTH



Developing mastery with greater depth is characterised by pupils' ability to:

- solve problems of greater complexity (i.e. where the approach is not immediately obvious), demonstrating creativity and imagination;
- independently explore and investigate mathematical contexts and structures, communicate results clearly and systematically explain and generalise the mathematics.

Addition and Subtraction

The pupil can reason about numbers and relationships to solve more complex problems and explain their thinking e.g. 29 + 17 = 15 + 4 + □, 14 + ? - 3 = 17; 14 + Δ = 15 + 27

'together Jack and Sam have £14. Jack has £2 more than Sam. How much money does Sam have? etc.

Pupil can reason that the sum of 3 odd numbers will always be odd.

Multiplication and Division

The pupil can recall and use multiplication and division facts for 2, 5 and 10 and make deductions outside known multiplication facts (e.g. a pupil knows that multiples of 5 have one digit of 0 or 5 and uses this to reason that 18 × 5 cannot be 92 as it is not a multiple of 5).

The pupil can solve word problems that involve more than one step (e.g. which has the most biscuits, 4 packets of biscuits with 5 in each packet or 3 packets of biscuits with 10 in each packet?).

Time

The pupil can read the time on the clock to the nearest 5 minutes (analogue).

Measures

The pupil can read scales (number line or graph) in divisions of ones, twos, fives and tens in a practical situation where not all numbers on the scale are given and estimate points in between.

Geometry (shape)

The pupil can describe similarities and differences of shape properties e.g. finds 2 different 2-D shapes that only have one line of symmetry; that a cube and a cuboid have the same number of edges, faces and vertices but can describe what is different about them.