Curriculum Recovery - Maths: Year
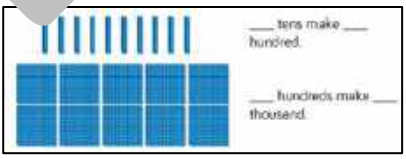## An Overview of Objectives

The purpose of this framework is to support a recovery curriculum as children move through the planned learning 2020/2... .... have prioritised other elements as key learning as per their own planning and assessment. The planning framework consists of three 2-week modules which tac... ...onsolidation of ....jectives and move towards introducing Year 4 objectives.
*Blue text is taken from the **Guidance for teaching mathematics** DfE and deeme... ....e a core concep... ...he 'ready to progress criteria'*

Objectives: Taken from Year 3 PoS (Consolidation/Revision/Recap)	...r 4 O...ives (May be in... ...gaps in Year 3)
Number and Place Value • Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less th... given number • Recognise the place value of each digit in a three-digit number (hundreds, te... ones) • Compare and order numbers up to 1000 • Identify, represent and estimate numbers using different rep... • Read and write numbers up to 1000 in numerals and in words • Solve number problems and practical problems involving these ide... ➤ 3NPV–1 Know that 10 tens are equivalent to 1 hundred... ...100 is 10 tim... ... size of 10; apply this to identify and work out how many ...th... ...in other th... digit multiples of 10. ➤ 3NPV–2 Recognise the place value of each... ...n three-digi... ...mbers, a... ...pose and decompose three-digit numbers us... ...ndard and non-s... ...ard p... ➤ 3NPV–3 Reason about the location of a... ...ree digit number in... ...th... ...nbe... system, including identifying the previou... ... next multiple of 100... ... ➤ 3NPV–4 Divide 100 into 2, 4, 5 and 10 equa... ...ales/n... ...r lines marked in multiples of 100 with 2, 4, 5 and 10...	**...er and P... Value** • Count... ...ultiples of ... ...d 1000 • ....ore or less t... ...given number • ...ckwards through zero to include negative numbers • Rec... ...e the place value of each digit in a four-digit number (thousands, hundreds, tens, a... ...es) • ...der and ...pare numbers beyond 1000 • ...ify, repr...ent and estimate numbers using different representations • Rou... ...y number to the nearest 10, 100 or 1000 • Solve ...mber and practical problems that involve all of the above and with increasingly large positive numbers • ...ead 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. ➤ 4NPV–1 Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100. ➤ 4NPV–2 Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and nonstandard partitioning. ➤ 4NPV–3 Reason about the location of any four digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each. ➤ 4NPV–4 Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts.

Number: Addition and Subtraction

- Add and subtract numbers mentally, including:
- a three-digit number and ones
- a three-digit number and tens
- a three-digit number and hundreds
- Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction
- Estimate the answer to a calculation and use inverse operations to check answers
- Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

➢ 3AS–1 Calculate complements to 100.
➢ 3AS–2 Add and subtract up to three-digit numbers using columnar methods.
➢ 3AS–3 Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part–part–whole structure. Understand and use the commutative property of addition, and understand the related property for subtraction.

Number: Addition and Subtraction

- 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
➢ 4NF–3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100)

Key Vocabulary:	Key Vocabulary:

hundreds	integer(s)		factor pairs
one hundred and one	decimal(s)	round	distributive
one hundred and two	remainder	rounding	associative
one hundred and three etc. up to one thousand	language of addition and subtraction	Roman numerals to 100 'C'	derive
multiple(s)	Equal, equal to, equivalence	negative	remainder
inverse operations	equivalent, total,	operation	
		factor	

Objectives (taken from Year 3 PoS)	Suggested Learning Activities	Link to resources
Module 1		

Objectives (taken from Year 3 PoS)

- Count from 0 in **multiples** of 4, 8, 50 and 100; find 10 or 100 more or less than a given number
- Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)
- Compare and order numbers up to 1000
- Identify, represent and estimate numbers using different representations
- Read and write numbers up to 1000 in numerals and in words

- 3NPV–3 Reason about the location of any three digit number in the linear number system, including identifying

Suggested Learning Activities

- Ensure counting is an integral part of every day daily routines
- Use your counting stick/number lines to secure forwards and backwards counting from different starting points
- Use Target Boards to practise 10 more, 10 less, 100 more, 100 less etc (Extend to Y4 objectives if appropriate e.g. 1000 more/less)
- Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts
- identify and work out how many 10s there are in each three digit multiples of 10. Understanding that 100 is 10 times the size of 10
- All children to partitions 3 digit numbers in standard and non standard ways e.g. 324 = 300 + 20 + 4 but could also be 300 + 10 +14
- Use number tracks and missing boxes to identify multiples of 100 – using measures where appropriate e.g.

  previous multiple of 100 | 600 | ? | 700 | multiple of 100

- Step counting puzzles
- Play games such as. 'I'm thinking of a number e.g. It's a multiple of 4, the sum of my digits is 12 etc. What's my number? (See Basic Skills document)
- Explore patterns in 100 square
- Apply to any money counting in 4p
- Use Place Value grids to practise 10 more, 100 less
- Complete number sequences, identifying the pattern and explaining what is happening. Create your own e.g. _ 8 _ 24_ _ _   514 ___ ___ (What do you notice? Are we increasing or decreasing? Will 203 ever be in your sequence? Why? Why not? Convince me.)
- Order numbers using apparatus such as base 10 - which is the biggest/smallest, has the largest number of 10s etc?

Link to resources

Insert a digit into each box so that the numbers are in order from smallest to largest.

[ ]6   [ ]32   3[ ]1   [ ]66   [ ]5

____ tens make ____ hundred.

____ hundreds make ____ thousand.

Skip counting resources:
https://www.schoolimprovementliverpool.co.uk/maths-multiplication-resource

www.Londonsouthwestmathshub.co.uk for examples as below

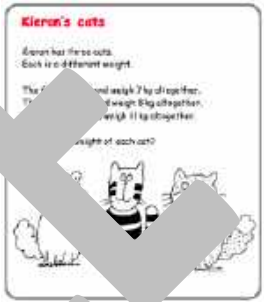https://nrich.maths.org/6554?utm_source=primary-map
Coded 100 square
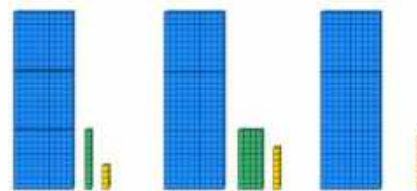
Use Mathsbot to support this

- Extend this to order price tags in £s. Parcel weights in g.
- Provide as many opportunities as possible for children to explain choices and reasoning e.g. How can you turn 240 into 2... you could add 5 tens, or 70 ones or 6 tens a...
- Simple rounding game in pairs using ...ed die... ...d 1 re... a point each time a 1,2,3,4,10 is rolled ...ey are th... ...nding ... team Child 2 receives a point ...ch time ...3.9 is ro... ...s they ar... the rounding up team.
- Play bingo using words and ... ...iving clu... multiplication facts etc.

- Solve number problems and practical problems involving these ideas.

- Consider real life contexts e.g. Have an enterprise day/charity day – make and label items. Order objects and prices. Sort prices from highest to lowest. Or consider a sports day and compare dista... times, points scored into hoops etc.
- In PE lessons, set up 4 teams. Give each child a post it note with a number 1-9 on. Each team has 4 hoops Th,H,T,0. You call a number, the first team to make the number by standing in t... rect hoop is the winner.

  - Investigations (MCforMA)
  - Real Life problems
  - Estimation
  - Comparison -

Provide e.g. of this exploring 3 ...mbers – ...n M... HUB etc

SIL problem solving document

...ich.maths.org/13272?utm_source=primary-map – ...enting numbers and making them 10 times bigger
Steve Wyborney Estimation Station
https://stevewyborney.com/2018/11/esti-mysteries-estimation-meets-math-mysteries/

Language and Vocabulary focus:

Pupils need to experience what 100 items looks like

Making a unit of 1 hundred out of 10 units of ... example u... 10 bu... f 10 straw... make 100, or using ten 10-value place-value counters.
10 tens is equal to 100

Figure 1: ten 10-value place-value counters in ...s frame

Pupils must then be able to work how many tens there are in other three-digit multiplies of 10
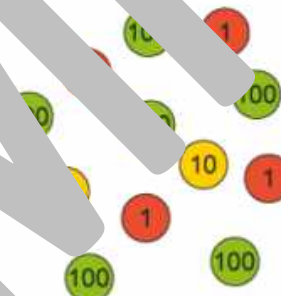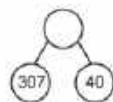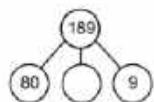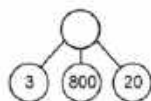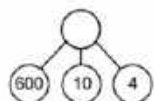

Figure 2: eighteen 10-value place-value counters in 2 tens frames

3NPV–1 Know that 10 tens are **equivalent** to 1 hundred, and that 100 is 10 **times the size of 10**

- What number is represented by these counters?
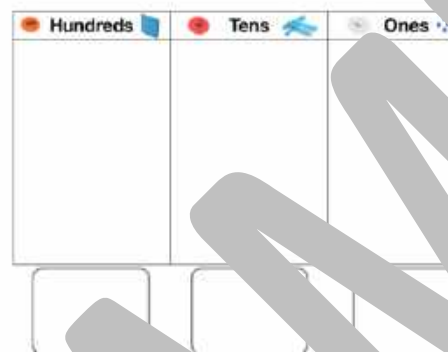- What number is represented by this expression? 1+ 10 + 10+ 100+ 100+ 1

Complete these models

- There are 365 days in a year. If it rain... ...year, ...ow many days does it not rain?
- A bamboo plant was 4m tall. Then it grew... ...How... ...is the bamboo plant now? Express your answer in centimetres.
- In the school library there are 25 books on the trolley and... ...boo... ...n the shelves. How many books are there altogether?
- Francesco had 165 marbles. Then he gave 65 marbles to h... ...nd. How many marbles does Francesco have now?

Objectives (taken from Year 3 PoS and Year 4 where appropriate)	Suggested Learning Activities	Link to resources
Module 2 • 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 ➤ 4NPV–1 follows on from what children learnt in year 3 about the relationship between the units of 10 and 100. ➤ Pupils need to experience: what 1,000 items looks like making a unit of 1 thousand out of 10 units of 100, for example using 10 bundles of 100 straws to make 1,000, or using ten 100-value place-value counters	• Continue as above with appropriate multiples • Make 3 and 4 digit numbers using Base 10, PV counters • Skip counting puzzles for x6, x7, x9 • Practice recall of tables – use multiplication grid and look for patterns and connections • Introduce negative numbers using real life application • Looking at vertical and horizontal number lines, movements cross zero	https://www.schoolimprovementliverpool.co.uk/lets-talk-maths Can you draw a fish at –35 m? Can you draw a seagull at 20 m above sea level? What would the position of your fish and the seagull be if each of the intervals on the lighthouse represented 7 m? NCETM Mastery materials I know that 5 less than 10 is 5. What is 5 less than 7? What is 5 less than 4? What is 5 less than 1?

As above for Year 3 but using appropriate year 4 objectives.

Four-digit Targets

Age 7 to 11 ★

You have two sets of the digits from 0 to 9.

0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9

The idea is to arrange these digits in the five boxes to make four-digit numbers as close to the target number as possible.
You may use each digit once only.

largest odd number

largest even number

largest multiple of 1

smallest multiple of 5

number closest to 5000

https://nrich.maths.org/6342?utm_source=primary-map
https://nrich.maths.org/10426 Rounding investigation
https://www.schoolimprovementliverpool.co.uk/lets-talk-maths

...'d happen if......questions.' I added another 1000, I added 10 tens... Hide... reveal... My number has an odd number of thousands, and even number of ... and 2 tens in it. When rounded to the nearest 100, my number is 1... What could I be?

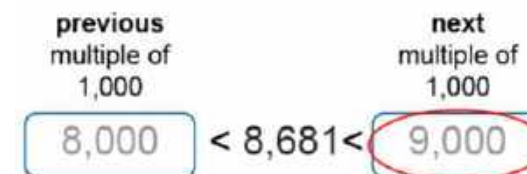- Link to ... ments and to PE, Geography with rivers, mountains etc

Language and Vocabulary Focus:

Pupils should be able to explain that numbers such as 1,800 and 3,000 are **multiples** of 100, because they are each equal to a whole number of hundreds. They should be able to identify multiples of 100 based on the fact that they have zeros in both the tens and ones places. As well as understanding 100 and other four-digit multiples of 100 in terms of **grouping and repeated addition,** pupils should be able to describe these numbers in terms of scaling by 10.

1,000s	100s	10s	1s
			●
		●	
	●		
●			

ten times the size · ten times the size · ten times th...
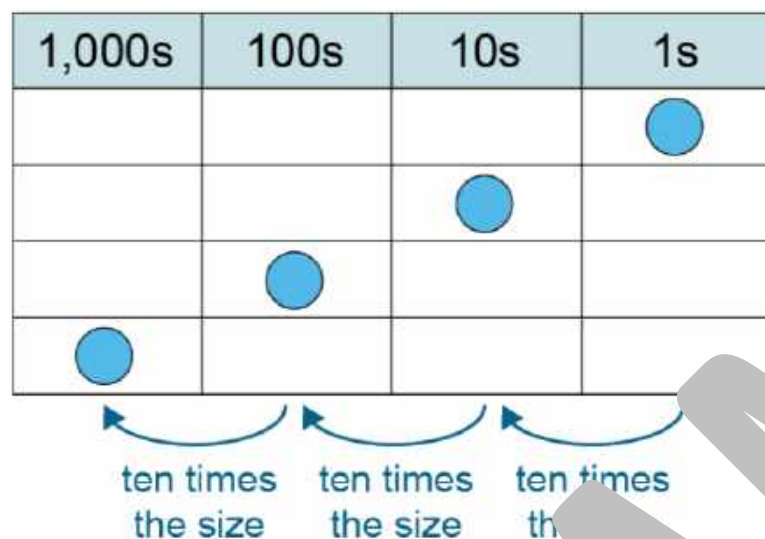
Assessment Questions:

4NPV–1 Example assessment questions

- How many 100g servings of rice are there in a 2,500g bag?
- One large desk costs a school £100. ... large desk cost?
- My school field is 100m long. How many ... run ... gth to run 3km?
- My cup contains 100 ml of fizzy drink. The bottle contains ... times ... much. How many millilitres are there in the bottle?
- A rhino mother weighs about 1,000kg. She weighs about 1 ... es as much as her baby. What is the approximate weight of the baby rhino?
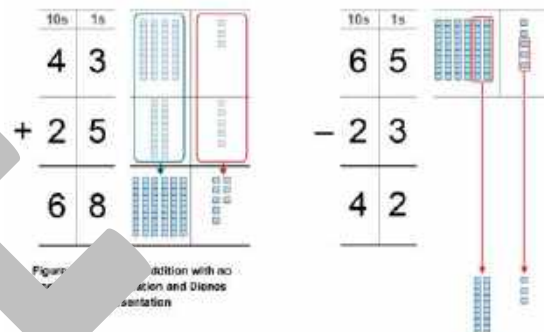- Circle the lengths that could be made using 1 metre (100 ... cks. 3,100cm 8,000cm 1,005cm 6,600cm 7,090cm 1,000cm

Objectives (taken from Year 3 PoS and Year 4 PoS)	Suggested Learning Activities	Link to resources
Module 3 • Add and subtract numbers mentally, including: • a three-digit number and ones • a three-digit number and tens • a three-digit number and hundreds	Informal AfL: Play the actions game – show the chil... ...ne calculations – ask them to put hands on their he... ...ey would do it mentally, wave in the air, if they would make ...ing, hands on the desk for a formal written method. The following is a list of strategies to re...sit:	 https://www.topmarks.co.uk/maths-games/7-11-years/mental-maths
• Add and subtract numbe... three digits, using formal wr... of columnar addition and subtraction • Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction whe... appropriate (YEAR 4) •	Written methods supported with calculation mats and ...paratus • ...git addition/4 digit no crossing the boundary , then crossing • 3 / 4 digit subtraction no decomposition • 3 / 4 digit subtraction with decomposition	 https://www.youtube.com/watch?v=sjmEjSQAuRA

- 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

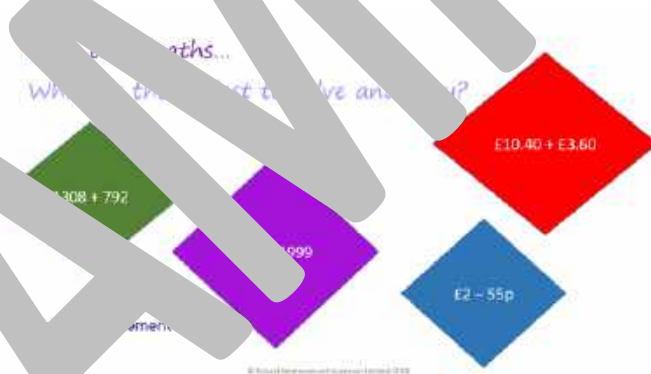'Which place-value chart correctly shows three hund and five plus forty?'

100s	10s	1s
3	0	5
	40	

100s	10s	
3		
	0	

Figure 21: columnar subtraction with no exchange: calculation and Dienes representation

- Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

E10.40 + E3.60

308 + 792

.999

E2 – 55p

...into real life contexts where possible. See above.

121	16
9	73

Find a partner and a 0-9 dice.

Game 1: Each of you draw an addition grid like this:

				+					=

Take turns to throw the dice or use

Virtual Dice http://www.bgfl.org/bgfl/custom/resources_ftp/client_ftp/ks1/maths/dice/index.htm

After each throw of the dice, you each decide which of your cells to put that number in.

Throw the 8 times each until all the cells are full.

Who ever is the closest to 1000 wins

1. Take 3 or 4 playing cards (1-9) – lay them out in 2 rows. Beneath them use rods/base ten/place value counters to lay out the calculation.

Using the calculation mats we can regroup physically. Alongside partner scribes using the expanded columnar. Then, move the cards so that you can make the biggest total. Where will you place your highest numbers? Play with a friend. Add your biggest and smallest totals together. Encourage exchanging 10 ones for 1 ten.

Language Focus:

"3 ones plus 5 ones is equal to 8 ones." "4 tens plus 2 tens is equal to 6 tens." "5 ones minus 3 ones is equal to 2 ones." "6 tens minus 2 tens is equal to 4 tens." "1000 is 10 times the size of 100." "1,800 is 10 times the size of 180.

Assessment Questions:

Assessment guidance: For pupils to have met criterion 3NF–1:
Pupils need to be able to:

- add and subtract within and across 10 without counting forwards or backwards in ones on their fingers, on a number line or in their heads.
- automatically recall the facts within 10, and be able to mentally apply strategies for calculation across 10, with accuracy and speed.

Which of these are correct complements to 100 and which have an extra 10? Tick the correct column.
Explain your answers.

	Incorrect bond to 100 (extra 10)	Explanation
28 + 72		
51 + 49		
45		
84 +		
39 + 71		

Fill in the missing numbers. 65 + 100 = ?   100 - 29 = ?   12   1   83 = ?

- A dressmaker had 1m of ribbon. Then she used 22cm of it. How many centimetres of ribbon does she have left?
- A toy shop sells ping-pong balls for 65p each. If I pay with a pound to pay for a ping-pong ball, how much change will I get, in pence?
- Mr Jones has 100 stickers. 47 of them are gold and the rest are silver. How many are silver?
- A football stadium can hold 6,430 people. So far 4,000 tickets have been sold for a match. How many tickets are left?
- On a field trip, the children need to walk 200m. So far they have walked 2km. How much further do they have to walk?
- Mr. Davis has 2 cats. One cat weighs 3,200g. The other cat weighs 3kg. The basket weighs 2kg. How much does the basket weigh with both cats inside it?