Example Scheme of Work – MKSHK Year 4 Maths

Teacher		Prep	Year	4	No of pupils		Subject	Maths
Term						**No. of lessons**		5

About this Unit	**Strands:** Mental multiplication and division (MMD); Problem solving, reasoning and algebra (PRA); Fractions, ratio and proportion (FRP)
Summary	**Week summary:** Double 3-digit numbers and halve even 3-digit numbers; revise unit fractions; identify equivalent fractions; reduce a fraction to its simplest form; count in fractions (each fraction in its simplest form)

	Main Focus	**Starter**	**Teaching Summary**	**Task Descriptions**	**Outcomes**
1	**Lesson** Halve even 3-digit numbers	**ST 4.6.1** Use sets of 10s and 1s place-value cards. In pairs chn take a number from each pile (e.g. 40 and 6) and double it. They create a 2 digit number (46), combine their doubles and write e.g. Double 46 is 92. Rpt.	• Teaching: Write 243 or show using Place-value cards tool 4.6.1. Discuss how to double the number (e.g. double 200 + double 40 + double 3 = 486). Model doubling 200 and 43 (then add 400 and 86). Use jottings (show arrows to link numbers to their doubles, then the doubles recombining to make the final answer). • Rpt for 348 and 472. • Remind chn; If we know that double 472 is 944, then we also know that half 944 is 472. • Task: In pairs, chn write three numbers below 500 and one between 500 and 1000 (digits must be different and no zeros) and double them. • Teaching: Discuss and look at their jottings.	**Core: (T) PSR.C 4.6.1** In pairs, chn write a number less than 5 and take turns to write a doubles chain (4, 8, 16, 32…) up to 1000. Do they notice a pattern in the units digit? Rpt for another number. What do they notice? **Support: (T) PSR.S 4.6.1** In pairs, chn write a number less than 5 and take turns to write a doubles chain (4, 8, 16, 32…) up to 500. **Extend: (T) PSR.E 4.6.1** In pairs, chn write a number less than 5 and take turns to write a doubles chain (4, 8, 16…) up to 1000. Ask them to start with an odd, then an even number, then a multiple of 5. What do they notice?	Chn can: • double 3-digit numbers using partitioning. • spot, describe and predict patterns.
	Objectives: MMD.49 Double and halve 3-digit numbers by partitioning; **PRA.52** Describe, predict and explain patterns **Key Vocabulary:** digit; double; half; 3-digit number				

Physical Resources: calculators; whiteboards; **Photocopiables:** RS 22 Place-value cards (1); RS 23a Place-value cards (3); RS 23b Place-value cards (3); RS 24a Place-value cards (2); RS 24b Place-value cards (2); **Digital Resources:** Lesson: Year 4; Place-value cards tool 4.6.1					

2	**Lesson** Halve even 3-digit numbers	**ST 4.6.2** Use 100-square. Chn work in pairs to identify even numbers and their halves. Who is the first to circle five number and their halves.	• Teaching: Draw a function machine (or use Function machine tool 4.6.2). Write input 468, output 234. Rpt for 642 (321) and 456 (228). What is the function machine doing (halving)? • Model half of 642 (e.g. half of 600 + half of 40 + half of 2 = 234, or half of 600 + half of 42). • Model half of 684, using jottings (arrows link numbers to their halves, then the halves recombine to make the answer). • Task: Chn list the halves of the multiples of 100 up to 900 and the multiples of 10 up to 90. • Teaching: Discuss (we can check by doubling). • Model half of 724, 962 and 274 using jottings.	**Core:** Y4 TB1 p52 Linked Resources: Y4 TB1 Answers p50-57 **Support:** Y4 TB1 p51 Linked Resources: Y4 TB1 Answers p50-57 **Extend: (T) Gui 4.6.2** Chn try to find four 3-digit numbers that will halve twice to give a whole number. What do they notice? Chn create the longest halving chain starting with a 3-digit number and ending with an odd number.	Chn can: • halve even 3-digit numbers using partitioning.

Objectives: MMD.49 Double and halve 3-digit numbers by partitioning

Key Vocabulary: digit; double; half; 3-digit number

Physical Resources: coloured pencils; halves/doubles lists from 4.026; Y4 Textbook 1; **Photocopiables:** RS 22 Place-value cards (1); RS 23a Place-value cards (3); RS 23b Place-value cards (3); RS 24a Place-value cards (2); RS 24b Place-value cards (2); RS 134 100-square; Y4 TB1 Answers p50-57; **Digital Resources:** Function machine tool 4.6.2; Lesson: Year 4; Mastery Checkpoint 4.6.5

3	**Lesson** Revise concept of unit fractions	**ST 4.6.3** Write the multiples of 4, to 48. Remind chn how to find a quarter (divide by 4, or halve and halve again). In pairs, chn take turns to find 1/4 and 3/4 (multiply a 1/4 by 3) of the numbers on the board.	• Task: Provide strips of paper 42 cm long. In groups of 6, ask one child to fold their strip in half, another into thirds, another quarters, another sixths, another sevenths and another eighths. They label each section and join them to make a 'Fraction wall' to compare them. Show Screen 4.6.3b to demonstrate. • Teaching: Together compare each unit fractions and record, e.g. 1/6 > 1/7. • Each child shows a non-unit fraction, e.g. two-sevenths.	**Core:** Y4 TB1 p53 Linked Resources: Y4 TB1 Answers p50-57 **Support: (T) Gui 4.6.3** Together look at the fraction strips. Write two unit fractions. Chn compare them (Which one is smaller? Find a fraction between the two). Help chn record fractions equivalent to 1/2. **Extend:** Y4 TB1 p54 Linked Resources: Y4 TB1 Answers p50-57	Chn can: • compare unit fractions. • begin to see fractions equivalent to halves, thirds and quarters.

			• Task: In their groups they investigate and record fractions that match each other, e.g. 1/3 = 2/6. Can they find fractions equivalent to 1/2?		

Objectives: FRP.35 Compare fractions using number lines and fraction strips; **FRP.41** Understand unit and non-unit fractions with denominators ≤ 12; **FRP.45** Compare unit fractions using the denominator

Key Vocabulary: equivalent; fraction; half; halve; non-unit fraction; quarter; seventh; sixth; unit fraction; eighth

Physical Resources: a strip of paper measuring 42 cm long for each child; rulers; whiteboards; Y4 Textbook 1; **Photocopiables:** Y4 TB1 Answers p50-57; **Digital Resources:** Lesson: Year 4; Screen 4.6.3a; Screen 4.6.3b

| 4 | **Lesson** Identify equivalent fractions and reduce a fraction to its simplest form | **ST 4.6.4** Use the Fraction strips tool 4.6.4a to highlight 2/3. Chn say what is needed to make one whole (2/3 + 1/3 = 1). Chn have 5 minutes to write as many pairs (or trios) of fractions with a total of 1 as they can. | • Teaching: Show that 2/4 are equivalent to 1/2 on Fraction strips tool 4.6.4b.
• Task: Chn list as many fractions equivalent to 1/2 as they can in 2 minutes (using as big a denominator (bottom number) or numerator as they wish).
• Teaching: Discuss (we usually simplify fractions to the smallest denominator).
• Show a fraction equivalent to 1/4 (2/8). How many eighths are equivalent to 3/4? Explain 3/4 is 6/8 in its simplest form.
• Show that 4/6 is the same as 2/3 (numerator and denominator have been divided by 2).
• Discuss how many tenths are equivalent to 1/5, 2/5…
• Chn simplify; 6/10 and 8/12. | **Core: (T) Gui 4.6.4** In pairs chn work with Resource Sheet 149 Fraction strips: 1/2s, 1/3s, 1/4s, 1/5s, 1/6s, 1/8s, 1/10s to make a list of pairs of equivalent fractions. They can use a second copy of the sheet cut into strips to help. Revise all work covered using the fraction strips.
Core: Y4 TB1 p55
Linked Resources: Y4 TB1 Answers p50-57
Support: IP 4.6.4 Chn colour in equivalent areas of fractions in matching shapes on RS 150a Shapes with equivalent fractions and RS 150b Shapes with equivalent fractions (Answers), e.g. a square divided into 8 (4/8 are shaded) and a square divided into 2 (chn shade in one half).
Extend: Y4 TB1 p56
Linked Resources: Y4 TB1 Answers p50-57 | Chn can:
• identify equivalent fractions.
• reduce 1/4 s, 1/6 s, 1/8 s and 1/10 s to their simplest forms. |

Objectives: FRP.34 Begin to understand equivalence by placing fractions on a number line; **FRP.46** Develop an understanding of equivalence in fractions; 1/2s, 1/3s, 1/4s, 1/5s, 1/6s, 1/8s, 1/10s; **FRP.52** Identify the equivalent fraction for any given fraction; **FRP.54** Use equivalence to reduce fractions to their simplest form

Key Vocabulary: eighth; equivalent; fraction; half; halve; non-unit fraction; numerator; quarter; seventh; simplified fraction; sixth; unit fraction; denominator

Physical Resources: fraction strips from main teaching; ruler; whiteboards; Y4 Textbook 1; **Photocopiables:** RS 149 Fraction strips; RS 150a Shapes with equivalent fractions; RS 150b Shapes with equivalent fractions (Answers); Y4 TB1 Answers p50-57; **Digital Resources:** FE 4.6.4; Fraction strips tool 4.6.4a; Fraction strips tool 4.6.4b; Lesson: Year 4; Screen 4.6.4

5	**Lesson** Count in fractions expressing each fraction in its simplest form	**ST 4.6.5** Use a set of unit fraction cards. Hold up two cards. Chn decide which is larger. Rpt, building up speed. Then hold up one card. Can they write two fractions smaller (or larger), etc.	• Draw a line from 0 to 2 divided into quarters or show Fraction and decimal number line tool 4.6.5. • Label each quarter. Point and count along in quarters: one quarter… • Point to 2/4, write 1/2 beneath it. Chn suggest what we can write beneath 1 2/4? Count along the line again using half where appropriate. • Draw or show a line from 0 to 2 labelled in eighths. Count along it in eighths. Chn suggest where fractions can be simplified. Write these on the line. Count along the line again using all the simplified fractions. • Rub out the simplified fractions. Chn count again and try to remember the simplified versions.	**Core: GP.C 4.6.5** Chn answer all the questions on GP 4.6.5 'Counting on in fractions'. **Support: (T) Gui 4.6.5** Chn answer questions 1, 2 and 3 on GP 4.6.5 'Counting on in fractions'. Support chn where necessary. **Support: GP.S 4.6.5** Chn answer questions 1, 2 and 3 on GP 4.6.5 'Counting on in fractions'. **Extend: GP.E 4.6.5** Chn complete GP 4.6.5 'Counting on in fractions'.	Chn can: • count in steps of 1/4, 1/8, 1/6 and 1/10 reducing some fractions to their simplest form.
Objectives: FRP.28 Count in 1/4s beyond 1 to 10, saying equivalent fractions; **FRP.48** Count in fractions, including equivalents					
Key Vocabulary: eighth; equivalent; fraction; half; halve; non-unit fraction; numerator; quarter; seventh; simplified fraction; sixth; unit fraction; denominator					
Photocopiables: RS 151 Fraction cards 1/2 to 1/10; RS 152 Fraction number lines: quarters, thirds, tenths; **Digital Resources:** Fraction and decimal number line tool 4.6.5; Fraction strips tool 4.6.5; GP 4.6.5; Lesson: Year 4; Screen 4.6.5					

Supplementary Resources	**Suggested Homework**
Mastery Checkpoints • Mastery Checkpoint 4.6.5 Doubling and halving 3-digit numbers **Fluency Fitness** • FF 4.6a Missing numbers • FF 4.6b Word problems • FF 4.6c Sixty times **Speaking and Listening** • SL 4.6a Ordering fractions (Support) • SL 4.6b Ordering fractions (Core) • SL 4.6c Ordering fractions (Extend)	**Individual Practice Games** • Robot Revenge 4.6a • Robot Revenge 4.6b • Robot Revenge 4.6c