

MARINA INTERNATIONAL SCHOOL

MATHEMATICS SCHEME OF WORK

YEAR 6 - TERM 1

WEEK	TOPIC	TOPIC DETAILS
1.1	Know what each digit represents in whole numbers up to a million. Know what each digit represents in 1 and 2 place decimal numbers.	<p>A place value: Is a place at which a digit is. For example, in the number: 34560, the place value of 5 is Hundred. . Point in turn to a number in each row and ask children to read the whole number (when you point to 2000, 300, 40, 4, 0.1 the students should respond two thousand, three hundred and forty four point one. Target questions: can you point out 2074? 480632?</p> <p>Understand that the place of a digit indicates its value. For example, In the number 46308, the value of 6 or what does the digit 6 represents is 6000.</p>
1.2	Round whole numbers to the nearest 10, 100 or 1000. Make and justify estimates and approximations of large numbers. Use the $<$, $>$ and $=$ signs correctly. Estimate where 4-digit numbers lie on an empty 0 – 10000 line.	<p>Teacher led: write some numbers between 400 and 1000. Ask students to round them to the nearest 10, 100 or 1000. Discuss the results. Design a true/false sheet with statements relating to rounding. Students work individually then in pairs to discuss their answers. Each pair can then join with another pair to discuss results.</p> <p>Pairs grouping. Each pair has 2 sets of 0 -9 digit cards, a set of $<$, $>$ cards (1 of each) and a base sheet between them</p> <p>The sign cards are shuffled and the top one is placed in the centre of the base board. Players shuffle their cards and take turns to turn over the top card and place it on the board.</p> <p>Each player can play 4 cards. The player who lays the last card looks at the numbers made either side of the sign. If the statement is true, that player scores 1 point. Play again and change who starts the game. Play 3 times. Who has most points?</p> <p>Use dice to generate 4 digit numbers. The single digits can be placed in any order. Estimate where to place the number on the empty number line. Once some numbers have been placed, does that help? What about if a number needs to be moved?</p>

WEEK	TOPIC	TOPIC DETAILS
1.3	Find factors of 2 digit numbers. Find some common multiples e.g. for 4 and 5.	<p>A factor is a whole number that divides into another number. For example 1, 2, 3, and 6 are the factors of 6.</p> <p>Each student needs a pegboard and 12 pegs. How many different ways can the pegs be arranged to form rows of equal lengths? How do you know you have them all? Record the different ways. (E.g. 2×6, 6×2, 3×4, 4×3, 1×12, 12×1). What does this tell you about the factors of 12?</p> <p>A multiple is a number that can be divided exactly by another number. For example multiples of 3 are: 3, 6, 9, 12</p> <p>Multiples that are common to two or more numbers are called common multiples. Multiples of 2 are, 2, 4, 6, 8, 10, 12, 14, 16, 18 and so on</p> <p>Multiples of 3 are 3, 6, 9, 12, 15, 18, and so on</p> <p>The common multiples of 2 and 3 are 6, 12, 18</p> <p>Find the common multiples of 4 and 6.</p> <p>Investigate other common multiples for other pairs of numbers.</p>
1.4	SHAPES AND MEASURE (THURSDAY AND FRIDAY) Select and use standard units of measure Read and write to 2 decimal places. Convert between two units of measurement, using decimals to three places Interpret readings on different scales, on a range of measuring instruments. Draw and measure lines to the nearest centimetre and millimetre.	<p>Solve 'story' problems involving length, weight, capacity and explain and record how the problem was solved. E.g. I traveled 24.24 km by car, 1.7 km by bus and 2000 m on foot. How far did I travel?</p> <p>Solve 'story' problems involving length, weight, capacity and explain and record how the problem was solved. E.g. There is 425 ml of milk in the small bottle. There are six and one quarter times as much in the big bottle. How much milk is in the big bottle? How much milk is there altogether?</p> <p>Read measuring scales , converting the unit to an equivalent metric unit.</p> <p>Build on work from the previous year. Measure lines, straight and curved, to the nearest centimetre and millimetre.</p> <p>Build on work from the previous year. Measure lines, straight and curved, to the nearest centimetre and millimetre.</p>

WEEK	TOPIC	TOPIC DETAILS
2.1	Recognise odd and even numbers and multiples of 5, 10, 25, 50 and 100 up to 1000. Make general statements about sums, differences and multiples of odd and even numbers.	<p>A whole class game.</p> <p>Number the students round the room. Call out instructions. 'Stand if your number is odd/even/ a multiple of 5/ and even number and also a multiple of 25.</p> <p>Gather information about the terms. Each student has their own paper with 3 concentric rings. Choose one of the terms and write that in the middle ring. In the next ring the student writes everything they know about that term. They then share the information with a partner. Anything they remember with a prompt from the partner, is written in the next ring.</p> <p>Any new learning from the next series of teaching is written outside the largest ring.</p>
2.2	Recognise prime numbers up to 20 and find all prime numbers less than 100.	<p>Revise the rule for prime numbers and using a number line or track, find the prime numbers up to 20.</p> <p>Using 100 square and revising the work on sieve of Erasmus, find all the prime numbers to 100.</p>
2.3	Multiply and divide any whole number from 1 to 10000 by 10, 100 or 1000 and explain the effect.	<p>Using a calculator, place any number in the display press the x button, put in 10 or 100 or 1000 Press = What happens? Try with different numbers. What happens? Do you think it will always happen? Why? Put a number into the display press divide then 10, 100 or 1000. What happens? Can you predict what the answer will be for any number and multiplying or dividing by 10, 100 or 10000? Check. Were you right?</p>
2.4	Recognise and understand the units for measuring time: seconds, minutes, hours, days, weeks, months, years, decades and centuries; convert one unit of time into another. Tell the time using digital and analogue clocks using the 24 hour clock system. Compare times on digital/analogue clocks.	<p>Provide examples of materials from real life to measure. Share answers. Were any different? Why? Use problem solving activities to estimate and check how many times can you .. ? Time races, getting ready for P.E.. Gather ideas from students</p> <p>problem solving activities to build on knowledge and understanding of time.</p> <p>Build on work from the previous year. Use problem solving activities to build on knowledge and understanding of time.</p>

WEEK	TOPIC	TOPIC DETAILS
3.1	Multiply pairs of multiples of 10, or multiples of 10 and 100.	Working in pairs: each pair needs a 10 x10 grid and a pack of number cards. Take turns to pick 2 cards, multiply the numbers together and write the answer in any square in the grid. Continue until all of the squares have been filled. Shuffle the pack of cards again and, in turn, take the 2 top cards. Multiply these numbers together, place a counter on that number on the grid (if it's there!) and put the cards to the bottom of the pack. The first player to complete a row of 4 in any direction is the winner.
3.2	Multiply near multiples of 10 by multiplying by the multiples of 10 and adjusting. Multiply by halving one number and doubling the other (35x16 with 70x8) Multiply 2, 3 or 4 digit numbers by a single digit number.	<p>Revise the rule for multiplying by 10. Investigate multiplying by 9, by multiplying by 10 and adjusting the answer E.g. 5×9. Do $5 \times 10 = 50$. But subtract $5 \times 1 = 5$. So $5 \times 9 = 45$</p> <p>Repeat with several examples of multiplication by 9. Use single, 2 or 3 digit numbers.</p> <p>What would we need to do if we needed to multiply by 8? Or 11? Or 12? Try several</p> <p>Whole class demonstration of the method.</p> <p>Individual practice.</p> <p>Students generate their own 2, 3 or 4 digit numbers with dice. The digits can be placed in any order.</p> <p>Throw the die for the number to multiply by.</p> <p>Change the dice to 7 – 12 for extension activities.</p>
3.3	Using techniques and skills in solving mathematical problems. Choose appropriate and efficient mental or written strategies to carry out a calculation, involving addition, subtraction, multiplication or division. Check addition with a different order when adding a long list of numbers; check when subtracting by using the inverse. Estimate and approximate when calculating.	<p>Use this as part of a lesson on calculating. Give reasons for strategies used. Do they always work? Share ideas and discuss.</p> <p>Use strategies within a lesson on calculating. Share ideas and strategies.</p> <p>Students work in pairs, sharing a piece of paper.</p> <p>Each picks a number card and records the number. They work together to estimate the result of adding, subtracting, multiplying and dividing those 2 numbers.</p> <p>Record the estimates. Do calculations on a calculator and compare the answers. Find the difference between the estimate and the actual answer.</p>

WEEK	TOPIC	TOPIC DETAILS
3.4	<p>Compare times on digital/analogue clocks. Read and use timetables using the 24 hour clock system. Calculate time intervals using digital and analogue times. Use a calendar to calculate time intervals in day, weeks or months</p> <p>Calculate time intervals in days, months or years. Measure and calculate the perimeter and area of rectilinear shapes. Estimate the area of an irregular shape by counting squares.</p>	<p>Build on work from the previous year. Use problem solving activities to build on knowledge and understanding of time.</p> <p>Build on work from the previous year. Use problem solving activities to build on knowledge and understanding of time.</p> <p>Use a bus or train timetable: What time does the 8.30 train/bus arrive at the fourth stop? What is the fastest train/bus? How do you know? How long is the journey?</p> <p>Use a calendar to work out which day of the week 26th October is, how many days and weeks until the 26th December?; the date of the second Monday in January until the same date in July? the number of days from 17th June to 14th August, and the number of weeks from 12th July to 28th November</p> <p>Begin to understand different times around the world using a world time chart.</p> <p>Know the formula for finding the area of a rectangle. Revise the formula for the perimeter of a rectangle. Work out and express in words a formula for finding the perimeter of a regular polygon. Test with examples.</p> <p>Use sets of irregular shapes on square paper. Estimate, then check. Record estimations and real area.</p>
4.1	<p>Divide 2 digit numbers by single digit numbers, including leaving a remainder.</p>	<p>Revise and consolidate understanding of division. Understand that division is the inverse of multiplication and use this to check answers.</p>
4.2	<p>Recognise and extend number sequences.</p>	<p>Count in steps of equal size: whole numbers, multiples, decimals, fractions, extend to negative numbers</p>
4.3	<p>Add 2 and 3 digit numbers with the same or different numbers of digits.</p>	<p>Use this as part of a lesson on calculating.</p>

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4.4	Calculate perimeter and area of simple compound shapes that can be split into rectangles. Classify different polygons and understand whether a 2D shape is a polygon or not.	<p>Revise work from the previous year. Select a variety of compound shapes. Discuss ways of splitting into rectangles and finding perimeters and area.</p> <p>Use, read and write the vocabulary from the previous year. Name and begin to classify different polygons. Begin to know properties such as diagonals of different polygons.</p>
5.1	Round whole numbers to the nearest 10, 100 or 1000. Make and justify estimates and approximations of large numbers. Use the <, > and = signs correctly. Estimate where 4-digit numbers lie on an empty 0 – 10000 line.	<p>Round any whole number to the nearest multiple of 10.</p> <p>Students give examples of numbers they would estimate to the nearest 10, 100 or 1000.</p> <p>Estimate and round from real life: The hairs on your head, the fingers in your class/school</p> <p>Round to the nearest 10, 100 or 1000 in measures: Your height in millimetres, the perimeter of the classroom in centimetres, the capacity of a jug in millilitres.</p> <p>Respond to oral or written questions: Which is greater? Which is longer? What number is half way between?</p> <p>Place numbers on a number line in ascending/descending order.</p> <p>Use < and > to represent the information on the number line</p> <p>Set problems: If $135.34 < * < 145.82$, what could * be? $34 * 26 + 8$ What's the missing symbol? $34 * 26 + 13$</p> <p>Estimate the position of a point on a number line where only the end values are marked. Explain how you made the decision.</p>
5.2	Recognise the historical origins of our number system and begin to understand how it developed.	Where do numbers come from? Make a timeline to show the history of the number system.
5.3	Know what each digit represents in 1 and 2 place decimal numbers.	<p>Respond to questions:</p> <p>Read these:</p> <p>Make:</p> <p>Write in figures:</p> <p>Put in your calculator display</p>

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5.4	Visualise and describe the properties of 3D shapes. Identify and describe properties of quadrilaterals and classify using parallel sides, equal sides, equal angles.	<p>Revise use of vocabulary. Visualise 3D shapes from 2D drawings. Describe a 3D shape when only the name has been given. Describe a 3D shape to another person. Play Shape Hunt.</p> <p>Students devise their own shape games. Name, describe and begin to classify quadrilaterals using criteria such as equal angles, equal sides, lines of symmetry ... Discuss the best way to display the classification. Give reasons. Is there more than one way of classifying? Give reasons. What other criteria could be used?</p>
6.1	ACROSS THE BOARD TEST	REVISION WEEK FOR ACROSS THE BOARD TEST
7.1	Multiply and divide decimals by 10 or 100 (answers up to two decimal places for division. Order numbers with up to two decimal places (including different numbers of places). Round a number with two decimal places to the nearest tenth or to the nearest whole number.	<p>Show understanding of multiplying and dividing a whole number by 10 or 100.(Digits move to the left - x or to the right - division) Understand that multiplying by 10 and then by 10 again is equivalent to multiplying by 100.Observe and comment on the effect of multiplying or dividing by 10 or 100 using a calculator (using the constant function).</p>
7.2	Recall addition and subtraction facts for numbers to 20 and pairs of one-place decimals with a total of 1, e.g. $0.4 + 0.6$. Derive quickly pairs of one-place decimals totalling 10, e.g. 7.8 and 2.2, and two-place decimals totalling 1, e.g. $0.78 + 0.22$. Double quickly any two-digit number, e.g. 78, 7.8, 0.78 and derive the corresponding halves.	<p>Use knowledge and understanding of place value. Respond to oral or written questions. Use knowledge and understanding of place value.</p> <p>Use knowledge and understanding of addition/subtraction and place value</p> <p>Use knowledge and understanding of addition/subtraction and place value</p>

WEEK	TOPIC	TOPIC DETAILS
7.3	Add 2 and 3 digit numbers with the same or different numbers of digits	<p>Understand that halving is the inverse of doubling. Understand that halving is the same as dividing by 2 and doubling is the same as multiplying by 2.</p> <p>Use informal written methods to support record or explain calculations. Discuss, explain and compare methods.</p> <p>Where calculations are set out in columns understand that each units column should be in line, each tens column should be in line</p> <p>Standard written methods Develop an efficient standard method that can be applied generally.</p> <p>Extend method to at least 4 digits.</p> <p>Extend to decimals</p>
7.4	MID TERM BREAK	MID TERM BREAK
8.1	Add or subtract numbers with the same and different numbers of decimal places, including amounts of money.	<p>Know that decimal points should line up under each other whether adding decimal fractions or money</p> <p>Informal written methods: Use a paper and pencil method to support, record or explain calculations. Discuss, compare and explain methods.</p> <p>Standard written methods: Continue to develop and efficient standard method that can be applied generally.</p>
8.2	Choose appropriate and efficient mental or written strategies to carry out a calculation, involving addition, subtraction, multiplication or division. Check addition with a different order when adding a long list of numbers; check when subtracting by using the inverse. Estimate and approximate when calculating.	<p>Make and justify decisions Explain calculations that have been done mentally. Discuss strategies Develop the use of conventional notation and vocabulary to record explanation. Compare strategies and ways of recording.</p> <p>Understand that numbers can be put in any order for addition but not for subtraction. Add in reverse order. Explore inverses for subtraction.</p> <p>Estimate the position of a point on an undivided line where only the end values are shown of a whole number or decimal marked by an arrow.</p>
8.3	Order and compare positive numbers to one million, and negative integers to an appropriate level.	<p>Put numbers in order; ascending/descending. Use knowledge and understanding of place value. Respond to oral or written questions</p>

WEEK	TOPIC	TOPIC DETAILS
8.4	Recognise and make 2D representations of 3D shapes including nets. Open out 3D shapes to see their nets. Make 2D representations of the nets. Use different 3D shapes, draw the net, and open the shape. Compare the 2 nets. Check that the sum of the angles in a triangle is 180 degrees.	<p>Open out 3D shapes to see their nets. Make 2D representations of the nets. Use different 3D shapes, draw the net, and open the shape. Compare the 2 nets.</p> <p>Revise work done on triangles the previous year. Use practical equipment to measure and check the internal angles of the different types of triangle.</p>
9.1	Find the difference between a positive and negative integer, and between two negative integers in a context such as temperature or on a number line. Use logical reasoning to explore and solve number problems and mathematical puzzles. Deduce new information from existing information to solve problems	<p>Put integers in order.</p> <p>Explore equations where 1 or 2 of the values are unknown: $? + ? = 13$. Make a table of possible values of ?</p> <p>Continue to use numbers in the context of temperature.</p> <p>Make and justify decisions</p> <p>Explain calculations that have been done mentally.</p> <p>Discuss strategies</p> <p>Use a selection of puzzles and problems.</p> <p>Use all types of problems:</p> <p>Word problems, logic puzzles, diagram and visual problems, finding all possibilities and finding rules and describing patterns</p> <p>Use ideas from students.</p>
9.2	Find factors of 2 digit numbers. Find some common multiples e.g. for 4 and 5.	<p>Find all pairs of factors for any 2 digit number: pairs of factors for 28 are</p> <p>1 and 28</p> <p>2 and 14</p> <p>4 and 7</p>
9.3	Add/subtract a near multiple of 10, 100 or 1000, or a near whole unit of money, and adjust, e.g. $3127 + 4998$; $5678 - 1996$.	<p>Use knowledge of tables facts.</p> <p>Understand the term 'common multiple' as being a number that is a multiple of two or more numbers.</p> <p>Use knowledge and understanding of place value and number facts.</p> <p>Set in practical and real life examples</p> <p>Continue to add/subtract 9, 19, 29, or 11. 21. 31 by adding/subtracting 10, 20, 30 and adjusting by 1.</p> <p>Add/subtract 0.9, 1.9, 2.9 or 1.1, 2.1, 3.1 by adding and subtracting 1, 2, 3, Then adjusting by 0.1.</p>

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9.4	<p>Read and plot co-ordinates in all four quadrants. Predict where a polygon will be after one reflection, where the sides of the shape are not parallel or perpendicular to the mirror line; after one translation or after a rotation through 90 degrees about one of its vertices.</p>	<p>Use, read and write the vocabulary from the previous year. Read and plot points using co-ordinates beyond the first quadrants. Respond to questions: draw a polygon with each vertex lying in the first quadrant. Plot it's reflection in the y-axis and name the co-ordinates of the reflected shape.</p> <p>Sketch the reflection of simple shapes in a mirror line touching at one point. Sketch the reflection of a simple shape in two mirror lines at right angles. Sketch the position of a simple shape after it has been translated, using grid paper.</p>
10.1	<p>Multiply pairs of multiples of 10 or multiples of 10 and 100. Multiply near multiples of 10 by multiplying by the multiples of 10 and adjusting. Multiply by halving one number and doubling the other (35x16 with 70x8). Know what each digit represents in whole numbers up to a million.</p>	<p>Understand that x by 10 moves the digits one place to the left and that x by 100 moves the digits 2 places to the left. Develop strategies of how to find what you don't now from what you already do know.</p> <p>Informal written methods Use paper and pencil methods to support record or explain calculations Discuss, explain and compare methods. Respond to questions: What does the digit 6 in 39675 represent? Read these: 3914730; 402974 Make: 486924 Write in figures: Five hundred and eighty two thousand ,five hundred and forty three Put in your calculator display: thirteen thousand nine hundred and forty two.</p> <p>Know that when multiplying by 1 the number stays the same. When multiplying by a multiple of 10 the digits move to the left and when dividing by a multiple of 10 the digits to move to the right. Understand that multiplying by 10 and then by 10 again is equivalent to multiplying by 100 and that multiplying by 10, then 10 again, then 10 again is equivalent to multiplying by 1000..Observe and comment on the effect of multiplying or dividing by 10 or 100 using a calculator (using the constant function).</p>

WEEK	TOPIC	TOPIC DETAILS
10.2	Know and apply tests of divisibility by 2, 4, 5, 10, 25 and 100.	Recognise that a whole number is divisible by 2 if the answer is even, by 4 if the last 2 digits are divisible by 4, by 5 if the number ends in 5 or 0, by 10 if the number ends in 0, by 25 if the last 2 digits are divisible by 25 (or the last 2 digits are 00, 25, 50, 75) and by 100 if the answer ends in 00. Use in practical problems.
10.3	Divide 2 digit numbers by single digit numbers, including leaving a remainder.	Revise and consolidate understanding of division. Understand that division is the inverse of multiplication and use this to check answers.
10.4	Select and use standard units of measure Read and write to 2 decimal places Convert between two units of measurement, using decimals to three places. Interpret readings on different scales, on a range of measuring instruments. Draw and measure lines to the nearest centimetre and millimetre.	Revise and know the relationship between units. Use knowledge and understanding of decimals to three places. E.g. Convert a larger metric unit from a larger to a smaller Write 250 grams in kilograms (0.25 kg) Write 500 millilitres in litres (0.5 litres) Write 1.8 litres in millilitres (1800 ml) Convert a smaller unit to a larger Write 25 grams in kg (0.25) Write 600 ml in litres (0,6 litres) Write 7 centimetres in metres (0.07 metres). Read measuring scales, converting the unit to an equivalent imperial unit. Read metric and imperial units from measuring scales that show both: Approx. how many gallons are there in 20 litres? Approx. how many litres are there in 7 gallons? Record estimated and measured lengths, weights or capacities in decimal form. Measure prepared lines (including curved). Draw lines of particular lengths
11.1	ACROSS THE BOARD TEST	REVISION WEEK FOR ACROSS THE BOARD TEST

WEEK	TOPIC	TOPIC DETAILS
12.1	Divide three-digit numbers by single-digit numbers, including those leaving a remainder and divide three-digit numbers by two-digit numbers (no remainder) including sums of money. Estimate and approximate when calculating.	Standard written methods Continue to develop an efficient standard method that can be applied generally.. Where calculations are set out in columns, know that units should line up under units, tens under tens
12.2	Using understanding and strategies in solving problems Explain why they chose a particular method to perform a calculation and show working	Informal written methods Use pencil and paper methods to support record and explain calculations. Discuss, explain and compare methods. Standard written methods Continue to develop an efficient standard method that can applied generally. Where calculations are set out in columns, know that units should line up under units, tens under tens Estimate the position of a point on an undivided line where only the end values are shown of a whole number or decimal marked by an arrow. Use questions. What method did you use? Why did you choose that one? Would you change it another time/ Why not? Is your answer reasonable? How do you know?

WEEK	TOPIC	TOPIC DETAILS
12.3	Recognise and extend number sequences. Recognise odd and even numbers and multiples of 5, 10, 25, 50 and 100 up to 1000. Make general statements about sums, differences and multiples of odd and even numbers.	<p>Count in steps of equal size: whole numbers, multiples, decimals, fractions, extend to negative numbers.</p> <p>Recognise that if a number is divisible by 2, (ends in 0, 2, 4, 6, 8) that number is even. Encourage looking for patterns in multiples Use knowledge and understanding of tables facts.</p> <p>Revise and consolidate previous work on odd and even numbers. Explore that the sum of: 2 or more even numbers is even. an even number of odd numbers is even. an odd number of odd numbers is odd. Explore that the difference between: 2 even numbers is even 2 odd numbers is even 1 odd and 1 even number is even Explore that the product of 2 or more even numbers is even 2 odd numbers is odd 1 odd and 1 even number is even. Make general statements.</p>
12.4	Recognise and understand the units for measuring time: seconds, minutes, hours, days, weeks, months, years, decades and centuries; convert one unit of time into another.	<p>Revise previous learning. Use, read and write the vocabulary associated with time.</p> <p>Know and use: 1 millennium = 1000 years 1 century = 100 years 1 decade = 10 years 1 year = 12 months/52 weeks/ 356 days 1 week = 7 days 1 day = 24 hours 1 hour = 60 minutes 1 minute = 60 seconds</p> <p>Use questions: e.g. How many seconds since you ate breakfast? Is that a sensible way of measuring the passage of time? Why not?</p>

WEEK	TOPIC	TOPIC DETAILS
13.1	Recognise prime numbers up to 20 and find all prime numbers less than 100. Use logical reasoning to explore and solve number problems and mathematical puzzles.	<p>Revise and consolidate the meaning of 'prime numbers'</p> <p>Use Eratosthenes (Sieve of Eratosthenes) method to find prime numbers.</p> <p>Set up a bank of logic puzzles. Choose one as a starting activity, then allow student to work as small groups choosing their own logic puzzles from the bank.</p>
13.2	Count on and back in fractions and decimals, e.g. $\frac{1}{3}$ s, 0.1s, and repeated steps of whole numbers (and through zero). Multiply and divide decimals by 10 or 100 (answers up to two decimal places for division).	<p>Class chanting and targeted questions.</p> <p>Show understanding of multiplying and dividing a whole number by 10 or 100. (Digits move to the left - x or to the right - division)</p> <p>Understand that multiplying by 10 and then by 10 again is equivalent to multiplying by 100. Observe and comment on the effect of multiplying or dividing by 10 or 100 using a calculator (using the constant function)</p>
13.3	SPORTS DAY	SPORTS DAY

WEEK	TOPIC	TOPIC DETAILS
13.4	<p>Tell the time using digital and analogue clocks using the 24 hour clock system. Compare times on digital/analogue clocks. Calculate time intervals using digital and analogue times. Use a calendar to calculate time intervals in day, weeks or months. Calculate time intervals in days, months or years.</p>	<p>What would you use? Find out the answer by using a more sensible unit of time and then convert to seconds.</p> <p>Match times from analogue to digital and digital to analogue.</p> <p>On a digital clock showing 24 hour time, over a whole day, how many times does a 7 appear? Is it the same number for a 12 hour clock over a whole day?</p> <p>Imagine that an analogue clock has numbers by every minute. How many times does the minute hand and the hour hand point exactly to a 7 over 24 hours? Is it the same number over 12 hours? What do you notice about the results for both the analogue and digital clocks?</p> <p>Revise work done previously. Use appropriate questions to extend. Revise work done previously. Use appropriate questions to extend. Ask questions: How long from the 24th May to the 3rd Wednesday in September? My birthday is the 24th December. How many months, weeks and days are there between my birthday and yours? How old will you be in days and weeks and years 132 days before your birthday?</p> <p>Include time intervals in months, years, decades and centuries.</p>
14.1	<p>Round a number with two decimal places to the nearest tenth or to the nearest whole number. Order and compare positive numbers to one million, and negative integers to an appropriate level. Order numbers with up to two decimal places (including different numbers of places</p>	<p>Use knowledge and understanding of place value.</p> <p>Put numbers in order; ascending/descending. Use knowledge and understanding of place value. Respond to oral or written questions.</p> <p>Use knowledge and understanding of place value. Respond to oral or written questions</p>

WEEK	TOPIC	TOPIC DETAILS
14.2	Convert a larger metric unit to a smaller: 2.372km in metres (2372 metres) 16.35 litres in millilitres (16350 millilitres) Convert halves, quarters, tenths, hundredths to a larger unit: 500 grams in kilograms 285 millilitres in litres 8 centimetres in metres.	Convert a larger metric unit to a smaller: 2.372km in metres (2372 metres) 16.35 litres in millilitres (16350 millilitres) Convert halves, quarters, tenths, hundredths to a larger unit: 500 grams in kilograms 285 millilitres in litres 8 centimetres in metres.
14.3	Recognise the historical origins of our number system and begin to understand how it developed.	Continue to research the historical origins of the number system. Make a timeline to show the history of the number system. Make real life links to the present day.
14.4	Appreciate how the time is different in different time zones around the world. Measure and calculate the perimeter and area of rectilinear shapes.	Read world time charts. Use a world time chart to answer questions: It is 12.00 noon in London. What time is it in Cairo, Hong Kong New York Link with solving a problem (e.g. 6Mt7). What if you start from London at 12.00 but have to land to refuel in Cairo and then ... and then... and then , what time will take off be? Revise previous work on perimeter. Calculate perimeters of compound shapes that can be split into rectangles.
15.1	Recall addition and subtraction facts for numbers to 20 and pairs of one-place decimals with a total of 1, e.g. 0.4 + 0.6. Derive quickly pairs of one-place decimals totaling 10, e.g. 7.8 and 2.2, and two-place decimals totaling 1, e.g. 0.78 + 0.22.	Use knowledge and understanding of addition/subtraction and place value. Use knowledge and understanding of addition/subtraction and place value
15.2	Know and apply tests of divisibility by 2, 4, 5, 10, 25 and 100.	Recognise that a whole number is divisible by 2 if the answer is even, by 4 if the last 2 digits are divisible by 4, by 5 if the number ends in 5 or 0, by 10 if the number ends in 0, by 25 if the last 2 digits are divisible by 25 (or the last 2 digits are 00, 25, 50, 75) and by 100 if the answer ends in 00. Use in practical problems
15.3	Double quickly any two-digit number, e.g. 78, 7.8, 0.78 and derive the corresponding halves.	Understand that halving is the inverse of doubling. Understand that halving is the same as dividing by 2 and doubling is the same as multiplying by 2.

WEEK	TOPIC	TOPIC DETAILS
15.4	Estimate the area of an irregular shape by counting squares.	Use sets of irregular shapes on square paper. Estimate, then check. Record estimations and real area.

MATHEMATICS SCHEME OF WORK

YEAR 6 - TERM 2

WEEK	TOPIC	TOPIC DETAILS
1.1	STAFF DEVELOPMENT	STAFF DEVELOPMENT
1.2	Use place value and number facts to add or subtract two-digit whole numbers and to add or subtract three-digit multiples of 10 and pairs of decimals, e.g. $560 + 270$; $2.6 + 2.7$; $0.78 + 0.23$.	Use knowledge and understanding of place value and number facts. Set in practical and real life examples
1.3	Add/subtract near multiples of one when adding numbers with one decimal place, e.g. $5.6 + 2.9$; $13.5 - 2.1$.	Use knowledge and understanding of place value and number facts. Understand the decimal notation.
1.4	Add/subtract a near multiple of 10, 100 or 1000, or a near whole unit of money, and adjust, e.g. $3127 + 4998$; $5678 - 1996$. Calculate perimeter and area of simple compound shapes that can be spilt into rectangles.	Continue to add/subtract 9, 19, 29, or 11. 21. 31 by adding/subtracting 10, 20, 30 and adjusting by 1. Add/subtract 0.9, 1.9, 2.9 or 1.1, 2.1, 3.1 by adding and subtracting 1, 2, 3, Then adjusting by 0.1. Know the formula for finding area. Begin to find the areas of compound shapes that can be split into rectangles. Choose a suitable unit to estimate the area of different irregular shapes

WEEK	TOPIC	TOPIC DETAILS
2.1	Add or subtract numbers with the same and different numbers of decimal places, including amounts of money. Find the difference between a positive and negative integer, and between two negative integers in a context such as temperature or on a number line.	<p>Use informal written methods to support record or explain calculations. Discuss, explain and compare methods. Where calculations are set out in columns understand that each units column should be in line, each tens column should be in line</p> <p>Standard written methods Develop an efficient standard method that can be applied generally. Extend method to at least 4 digits. Extend to decimals. Understand that the decimal points must be under each other. Put integers in order. Explore equations where 1 or 2 of the values are unknown: $? + ? = 13$. Make a table of possible values of ? Continue to use numbers in the context of temperature.</p>
2.2	Use number facts to generate new multiplication facts, e.g. the $17\times$ table from $10\times + 7\times$ tables. Divide three-digit numbers by single-digit numbers, including those leaving a remainder and divide three-digit numbers by two-digit numbers (no remainder) including sums of money.	<p>Develop strategies of how to find what you don't now from what you already do know Informal written methods Use pencil and paper methods to support record and explain calculations. Discuss, explain and compare methods</p>

WEEK	TOPIC	TOPIC DETAILS
2.3	Know and apply the arithmetic laws as they apply to multiplication (without necessarily using the terms commutative, associative or distributive).	<p>Understand and use when appropriate the rules of the commutative, associative and distributive laws as they apply to multiplication.</p> <p>Commutative: $67 \times 72 = 72 \times 67$</p> <p>Associative: $34 \times 60 = 34 \times (6 \times 4)$ or $34 \times 60 = (34 \times 10) \times 6$</p> <p>Distributive $23 \times 38 = 23 \times (40 - 10)$ or $23 \times 38 = (23 \times 30) - (23 \times 2)$</p>

WEEK	TOPIC	TOPIC DETAILS
2.4	Solve a problem by representing, extracting and interpreting data in tables, graphs, charts and diagrams, e.g. line graphs for distance and time; a price 'ready-reckoner' for currency conversion; frequency tables and bar charts with grouped discrete data. Find the mode and range of a set of data from relevant situations, e.g. scientific experiments. Begin to find the median and mean of a set of data.	<p>Test hypotheses by drawing and discussing a bar chart where (discrete) data are grouped.</p> <p>Know that for grouped discrete data the bars may be labelled with the range that they represent but not the divisions between the bars.</p> <p>Begin to interpret simple pie charts.</p> <p>Discuss results.</p> <p>Find the mode and develop understanding of the range of a set of data.</p> <p>Make a simple database and enter the data.</p> <p>Find the most common (mean) data.</p> <p>Put the data in order to find the maximum and minimum. The difference between them is the range.</p> <p>Discuss the meaning of median and mean.</p> <p>Make a simple data base. (results of a maths test)</p> <p>Enter the data.</p> <p>What was the middle score? (the median)</p> <p>What was the sum of all the scores, divided by the total number of scores? (mean)</p>
3.1	Recognise and use the equivalence between decimal and fraction forms.	<p>Know that</p> <p>0.5 is equivalent to $\frac{5}{10}$ or $\frac{1}{2}$</p> <p>0.1 is equivalent to $\frac{1}{10}$</p> <p>0.25 is equivalent to $\frac{25}{100}$ or $\frac{1}{4}$</p> <p>0.75 is equivalent to $\frac{75}{100}$ or $\frac{3}{4}$</p>

WEEK	TOPIC	TOPIC DETAILS
3.2	Begin to convert a vulgar fraction to a decimal fraction using division	<p>Use knowledge and understanding of linking fractions with division.</p> <p>Use knowledge of equivalence of fractions and decimals</p>
3.3	Understand percentage as parts in every 100 and express $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{3}$ $\frac{1}{10}$ $\frac{1}{100}$ as percentages. Find simple percentages of shapes and whole numbers.	<p>Identify the percentage of a shape. Find 75% of a circle. Find percentages by halving and quartering the original figure:</p> <p>50% is one-half (a semi-circle)</p> <p>25% is one quarter ($\frac{1}{4}$ of a circle)</p> <p>75% is three quarters of a circle.</p> <p>Apply the same logic to numbers, including money.</p>
3.4	Use the language associated with probability to discuss events, to assess likelihood and risk, including those with equally likely outcomes. Select and use standard units of measure Read and write to 2 decimal places. Convert between two units of measurement, using decimals to three places.	<p>Use the language associated with probability to discuss events; including those with equally likely outcomes.</p> <p>Discuss events which might have two equally likely outcomes:</p> <p>Rolling a dice (odd or even number)</p> <p>Tossing a coin.</p> <p>Discuss events with two or more likely outcomes:</p> <p>Rolling a dice and getting an odd number</p> <p>Rolling a number greater than 3</p> <p>Place each probability of outcomes on a scale impossible (0), evens ($\frac{1}{2}$) or certain (1).</p> <p>Discuss the difference between the conjecture of outcomes and the actual experimental result.</p> <p>Suggest things you could</p>

WEEK	TOPIC	TOPIC DETAILS
		<p>measure in different weights, lengths or capacities.</p> <p>Suggest an imperial or metric unit to measure from to, the weight of a or a, the amount of liquid in a cup or a barrel</p> <p>Use story problems to put the objective into a context: E.g. The front wheel on the tractor has a circumference of 450 centimetres. If you were describing the circumference in metres, what would it be? How many times would the wheel turn if the tractor travels one kilometre?</p>
4.1	Solve simple problems involving ratio and direct proportion. Choose appropriate and efficient mental or written strategies to carry out a calculation, involving addition, subtraction, multiplication or division.	<p>Understand that 'four to every 7' compares part to part: it is equivalent to four in every 7, which compares a part to a whole.</p> <p>Show pattern of shapes to compare shapes using statement.</p> <p>Respond to questions.</p> <p>Solve ratio and proportion problems in context: I mix 1 tin of blue paint with 2 tins of white paint. I need 12 tins of paint altogether. How many tins of each colour do I need?</p>

WEEK	TOPIC	TOPIC DETAILS
4.2	Use ordered lists or tables to help solve number problems systematically. Solve simple word problems involving ratio and direct proportion.	<p>Explain the need for being systematic. Use lists or tables as an example when solving problems.</p> <p>E.g. There are 6 fruit chews to every 2 chocolates in a box of 32 sweets. How many chocolates are there in the box?</p>
4.3	Draw and measure lines to the nearest centimetre and millimetre.	<p>Measure prepared lines (including curved).</p> <p>Draw lines of particular lengths.</p>
4.4	Interpret readings on different scales, on a range of measuring instruments. Know imperial units still in common use, e.g. the mile, and approximate metric equivalents. Understand everyday systems of measurement in length, weight, capacity, temperature and time and use these to perform simple calculations. Estimate and approximate when calculating e.g. use rounding and check working.	<p>Read metric and imperial units from measuring scales that show both:</p> <p>Approx. how many gallons are there in 250 litres?</p> <p>Approx. how many litres are there in 72 gallons?</p> <p>Recognise that:</p> <p>A mile is a unit of distance and is more than a km (about 1600 m)</p> <p>A pint is a unit of capacity and is more than half a litre (about 570ml)</p> <p>A gallon is a unit of capacity and is less than 5 litres.</p> <p>Explore approx. equivalence between imperial and metric units.</p> <p>1 litre =? pints 4.5 litres = ? gallons or pints 1 Kilogram = ? pounds (lbs.) 30 grams = ? ounces (oz.) 8 kilometres = ? miles</p> <p>E.g. Is it true that the height of a person is the same as 3 times the distance round their head? How could we find out?</p>

WEEK	TOPIC	TOPIC DETAILS
5.1	Compare fractions with the same denominator and related denominators, e.g. $\frac{3}{4}$ with $\frac{7}{8}$.	Recognise from practical work relationships between fractions
5.2	Recognise equivalence between fractions, e.g. between $\frac{1}{100}$ s, $\frac{1}{10}$ s and $\frac{1}{2}$ s	<p>Begin to recognise patterns in equivalent fractions $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} \dots\dots\dots$</p> <p>Recognise that $\frac{10}{100}$ is equivalent to $\frac{1}{10}$ $\frac{20}{100}$ is equivalent to $\frac{2}{10}$ $\frac{50}{100}$ is equivalent to $\frac{5}{10}$ or $\frac{1}{2}$ $\frac{25}{100}$ is equivalent to $\frac{1}{4}$ $\frac{75}{100}$ is equivalent to $\frac{3}{4}$</p>
5.3	Order mixed numbers and place between whole numbers on a number line. Change an improper fraction to a mixed number, e.g. $\frac{17}{8}$ to $2 \frac{1}{8}$.	<p>Enter fractions into a calculator and interpret the display to find the equivalent decimal</p> <p>Begin to recognise that 0.03 is equivalent to $\frac{3}{100}$ and that 8.25 is equivalent to $8 \frac{25}{100}$.</p> <p>Order fractions on a number line</p>

WEEK	TOPIC	TOPIC DETAILS
5.4	<p>Read and use timetables using the 24 hour clock system.</p> <p>Calculate time intervals using digital and analogue times. Use a calendar to calculate time intervals in day, weeks or months.</p> <p>Appreciate how the time is different in different time zones around the world.</p>	<p>Revise work previously done. Use appropriate questions to extend.</p> <p>Revise work previously done. Use appropriate questions to extend.</p> <p>Use student's questions from the previous unit on measures as a starting point. How long from today is your birthday?</p> <p>How long until we have a school holiday?</p> <p>How long ago was our last school holiday?</p> <p>What is the length of time of the total school holiday period?</p> <p>Encourage students to devise questions of their own.</p> <p>Read world time charts. Use a world time chart to answer questions: It is 12.00 noon in London. What time is it in Cairo, Hong Kong New York</p> <p>Set up a role play area of a Travel Agent.</p> <p>Have access to local timetables as well as travel information for the holiday destination, including timetables.</p> <p>What time will you need to leave home to be sure to arrive on time?</p>

WEEK	TOPIC	TOPIC DETAILS
6.1	Reduce fractions to their simplest form, where this is $\frac{1}{4}$, $\frac{1}{2}$, or $\frac{3}{4}$ or a number of fifths or tenths.	Recognise that a fraction such as $\frac{6}{24}$ can be reduced to an equivalent fraction $\frac{1}{4}$ by dividing both the numerator and denominator by the same number.
6.2	Recognise and use the equivalence between decimal and fraction forms.	<p>Know that</p> <p>0.5 is equivalent to $\frac{5}{10}$ or $\frac{1}{2}$</p> <p>0.1 is equivalent to $\frac{1}{10}$</p> <p>0.25 is equivalent to $\frac{25}{100}$ or $\frac{1}{4}$</p> <p>0.75 is equivalent to $\frac{75}{100}$ or $\frac{3}{4}$</p> <p>Use knowledge and understanding of linking fractions with division.</p>
6.3	Begin to convert a vulgar fraction to a decimal fraction using division.	Use knowledge of equivalence of fractions and decimals
6.4	Calculate time intervals in days, months or years. Understand everyday systems of measurement in length, weight, capacity, temperature and time and use these to perform simple calculations. Measure and calculate the perimeter and area of rectilinear shapes. Estimate the area of an irregular shape by counting squares.	<p>Include time intervals in months, years, decades and centuries.</p> <p>Test your game. Is it fair? Think about the equipment you will need to play the game.</p> <p>Ask friends to play your game.</p> <p>Did it work as you wanted it to, or would you like to change it?</p> <p>Revise previous work on perimeter.</p> <p>Draw a square in which the perimeter is numerically equal to the area. What about drawing a rectangle that is twice as long as it is wide which still has a perimeter numerically equal to its area?</p>

WEEK	TOPIC	TOPIC DETAILS
7.1	Find simple percentages of shapes and whole numbers. Solve simple word problems involving percentages, e.g. find discounted prices.	<p>Use knowledge of equivalence of fractions, decimals and percentages.</p> <p>Identify the percentage of a shape</p> <p>Find 75% of a circle</p> <p>Find percentages by halving and quartering the original figure:</p> <p>50% is one half (a semi-circle)</p> <p>25% is one quarter ($\frac{1}{4}$ of a circle or half of the half)</p> <p>75% is three quarters (half + quarter)</p> <p>Apply the same logic to numbers, including money.</p> <p>Use the percentage board</p>

WEEK	TOPIC	TOPIC DETAILS
7.2	Calculate perimeter and area of simple compound shapes that can be spilt into rectangles.	<p>Calculate perimeters of compound shapes that can be split into rectangles.</p> <p>Know the formula for finding area. Begin to find the areas of compound shapes that can be split into rectangles.</p> <p>Choose a suitable unit to estimate the area of different irregular shapes.</p> <p>Draw irregular shapes on square paper and ask a friend to estimate the area. How can you check?</p> <p>Take a sheet of A4 paper Fold up the bottom left hand corner.</p> <p>Fold up the bottom right hand corner.</p> <p>What shape have you made? What is the area and perimeter of this shape?</p> <p>Fold your own shapes and measure the area and perimeter of it.</p>
7.3	MID TERM BREAK	MID TERM BREAK
8.1	Visualise and describe the properties of 3D shapes.	<p>Revise use of vocabulary. Visualise 3D shapes from 2D drawings. Describe a 3D shape when only the name has been given. Describe a 3D shape to another person. Play Shape Hunt.</p>

WEEK	TOPIC	TOPIC DETAILS
8.2	Identify and describe properties of quadrilaterals and classify using parallel sides, equal sides, equal angles.	<p>Name, describe and begin to classify quadrilaterals using criteria such as equal angles, equal sides, lines of symmetry</p> <p>Discuss the best way to display the classification. Give reasons.</p> <p>Is there more than one way of classifying? Give reasons.</p> <p>What other criteria could be used? Using 3D shapes, discuss how to make 2D representations.</p>
8.3	Recognise and make 2D representations of 3D shapes including nets. Recognise 2D and 3D shapes and their relationships, e.g. a cuboid has a rectangular cross-section.	<p>Make nets and check by using them to construct the 3D shape.</p> <p>Classify 2D and 3D shapes according to matching criteria:</p> <p>Same shape as 2D can be found as a face on 3D.</p> <p>The shape has a right angle</p> <p>The shape has no right angles</p>

WEEK	TOPIC	TOPIC DETAILS
8.4	Classify different polygons and understand whether a 2D shape is a polygon or not. Read and plot co-ordinates in all four quadrants.	<p>Revise the meaning of polygon: a closed 2D shape with straight sides.</p> <p>Discuss the difference between regular and irregular, concave and convex and simple and complex polygons.</p> <p>Revisit the meaning of 'quadrant'</p> <p>The x- and y- axes divide the coordinate plane into four regions. These regions are called the quadrants.</p> <p>Note that all points in each of the four quadrants share the same x and y values in terms of positive or negative. For example, if both numbers are positive, the point will be in the first quadrant</p> <p>If either coordinate is 0, the point will not be in a quadrant, but will lie on an axis. All points with $y = 0$ are on the x-axis, and all points with $x = 0$ are on the y-axis. Note that the origin (0, 0) is the only point on both axes.</p>
9.1	Predict where a polygon will be after one reflection, where the sides of the shape are not parallel or perpendicular to the mirror line; after one translation or after a rotation through 90 degrees about one of its vertices.	<p>Using quadrants (6Gp1) sketch polygons after translation or rotation.</p> <p>Give instructions to another person for the translation or rotation of a shape using all four quadrants.</p>

WEEK	TOPIC	TOPIC DETAILS
9.2	Estimate, recognise and draw acute and obtuse angles and use a protractor to measure to the nearest degree.	Revise definitions of acute and obtuse angles. Discuss the skill of using a protractor. Use a protractor to measure given angles to the nearest degree. Use a protractor to draw angles to the nearest degree.
9.3	Check that the sum of the angles in a triangle is 180 degrees. Deduce new information from existing information and realise the effect that one piece of information has on another.	Use knowledge and understanding of angle. Know that an angle of 180 degrees is a straight line. Check by measuring or practically: Draw a triangle using a ruler. Cut it out. Cut off each corner and rearrange so that, when placed together, they make a straight line. Repeat with all types of triangle.
9.4	END OF CURRICULUM FOR YEAR 6	REVISION WORK
10.1	MID YEAR ASSESSMENT	MID YEAR ASSESSMENT
11.1	REVISION	REVISION
12.1	REVISION	REVISION
13.1	REVISION	REVISION
13.3	OPEN DAY	

MATHEMATICS SCHEME OF WORK

YEAR 6 - TERM 3

WEEK	TOPIC	TOPIC DETAILS
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