YEAR 5 MATHS

CURRICULUM OVERVIEW

IN YEAR 5, PUPILS BUILD ON THE MORE ABSTRACT CONCEPTS INTRODUCED IN YEAR 4 AND BEGIN TO EXPLORE NUMBER AND CALCULATION WITH EVEN GREATER DEPTH AND COMPLEXITY. THEY CONSOLIDATE THEIR UNDERSTANDING OF PLACE VALUE WITH NUMBERS UP TO ONE MILLION AND DEVELOP MORE EFFICIENT WRITTEN METHODS FOR ALL FOUR OPERATIONS. FRACTIONS, DECIMALS, AND PERCENTAGES BECOME A SIGNIFICANT FOCUS, WITH CHILDREN LEARNING TO CONVERT BETWEEN THEM AND APPLY THEIR KNOWLEDGE IN PROBLEM-SOLVING CONTEXTS. NEW TOPICS SUCH AS NEGATIVE NUMBERS, CONVERTING UNITS, AND VOLUME ARE INTRODUCED, WHILE MEASUREMENT AND GEOMETRY ARE EXPLORED IN GREATER DETAIL, INCLUDING PERIMETER AND AREA, SHAPE, AND POSITION AND DIRECTION. STATISTICS ALSO CONTINUES TO DEVELOP, WITH AN EMPHASIS ON INTERPRETING AND DRAWING CONCLUSIONS FROM DATA.

THROUGHOUT THE YEAR, CHILDREN ARE CHALLENGED TO REASON MATHEMATICALLY, JUSTIFY THEIR METHODS, AND APPLY THEIR LEARNING TO REAL-LIFE AND UNFAMILIAR SITUATIONS. THIS CONTINUED EMPHASIS ON REASONING AND PROBLEM SOLVING ENSURES THEY ARE NOT JUST FLUENT IN PROCEDURES BUT ALSO CONFIDENT, FLEXIBLE THINKERS, WELL PREPARED FOR THE TRANSITION TO UPPER SCHOOL AND BEYOND.

YEAR 5 MATHS YEARLY OVERVIEW

	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10
AUTUMN 1	NUMBER: PLACE VALUE			NUMBER: ADDITION & SUBTRACTION						
AUTUMN 2	NUMBER: MULTIPLICATION & DIVISION A				NUMBER: FRACTIONS A			NUMBER: MULTIPLICATION AND DIVISION		ASSESSMENT WEEK
SPRING 1	NUMBER: FRACTIONS B		NUMBER: DECIMALS & PERCENTAGES							
SPRING 2	MEASUREMENT: PERIMETER & AREA		GEOMETRY: POSITION & DIRECTION		STATISTICS	ASSESSMENT WEEK				
SUMMER	GEOMETRY: SHAPE			NUMBER: DECIMALS		NUMBER: NEGATIVE NUMBERS	MEASUREMENT: CONVERTING UNITS		MEASUREMENT: VOLUME	ASSESSMENT WEEK

五年级数学
课程概览

在五年级中，学生们将在四年级所接触的抽象概念基础上，进一步深入和复杂地探索数字与运算。他们会在理解高达一百万的数位基础上加以巩固，并发展出更高效的四则运算书写方法。分数、小数和百分数将成为学习的重点，学生们会学习如何在它们之间进行转换，并在解决问题的情境中灵活应用。新的主题如负数、单位换算和体积被引入，同时测量与几何的学习也会更加深入，包括周长与面积、图形、位置和方向等内容。统计部分也会继续发展，重点放在对数据的解读和结论的得出。

在整个学习过程中，学生们会不断接受挑战，需要进行数学推理、证明自己的方法，并在现实和陌生情境中应用所学。这种持续强调推理与问题解决的方式确保他们不仅仅熟练掌握运算步骤，还能成为自信、灵活的思考者，为顺利过渡到高年级乃至更远的学习做好充分准备。

五年级数学学年概览

	第一周	第二周	第三周	第四周	第五周	第六周	第七周	第八周	第九周	第十周
秋季学期上	数字：位值			数字：加法和减法						
秋季学期下	数字：乘法和除法A			数字：分数A			数字：乘法和除法			考试周
春季学期上	数字：分数B		数字：小数和百分比							
春季学期下	测量：周长和面积		几何：位置和方向		统计	考试周				
夏季学期	几何：形状			数字：小数		数字：负数	测量：单位转换		测量：体积	考试周

MATHS: CURRICULUM OVERVIEW

YEAR 5 - AUTUMN 1:

PLACE VALUE & ADDITION AND SUBTRACTION

In Year 5, pupils build on the secure foundations of Year 4 and extend their understanding to work confidently with numbers up to 1,000,000. In Number: Place Value, they deepen their knowledge of the value of each digit, learn to round numbers to the nearest 10, 100, 1,000, 10,000 and 100,000, and use this understanding to solve increasingly challenging problems. They also explore negative numbers and number sequences, developing flexibility in reasoning about number.

In Number: Addition and Subtraction, children apply formal written methods to add and subtract larger integers with accuracy, including multi-step problems that require them to choose efficient strategies and explain their reasoning. They also refine mental methods, deciding when it is most effective to use them instead of written calculations. The complexity of problem-solving continues to increase, with pupils expected to draw on their knowledge of place value, estimation and inverse operations to check and explain their work. This progression ensures children are fully prepared to tackle the more advanced concepts of Year 6 and beyond.

STRAND OF MATHS: NUMBER/MEASUREMENT/STATISTICS/GEOMETRY

NUMBER: PLACE VALUE VOCABULARY: ORDER, COMPARE, INTERPRET, VALUE, DIGIT, FORWARDS, BACKWARDS, POWERS OF TEN, NEGATIVE NUMBERS, ROUNDING, POSITIVE, NEGATIVE, THROUGH 0, ROUND, NEAREST, ROMAN NUMERALS, PLACE VALUE, LINEAR, SEQUENCES, FRACTIONS, DECIMALS, TERM-TO-TERM RULE

NUMBER: ADDITION & SUBTRACTION KEY VOCABULARY: ADD, SUBTRACT, FORMAL WRITTEN METHODS, COLUMN ADDITION, COLUMN SUBTRACTION, MENTALLY, ROUNDING, CHECK, CALCULATIONS, ACCURACY, MULTI-STEP, OPERATIONS, MULTI-STEP PROBLEMS, METHODS, ESTIMATION

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数学：课程概览

五年级 – 秋季上半学期：

数位与加法和减法

在五年级中，学生们将在四年级打下的坚实基础上进一步学习，自信地处理 1,000,000 以内的数字。在**数字（数位）**部分，他们会加深对每一位数字数值的理解，学习将数字四舍五入到最接近的 10、100、1,000、10,000 和 100,000，并运用这些知识解决难度逐渐增加的问题。他们还会探索负数和数字序列，培养在数字推理上的灵活性。

在**数字（加法与减法）**部分，孩子们会运用规范的书面方法准确地进行大整数的加减运算，包括需要选择高效策略并解释推理的多步骤问题。他们还会完善心算方法，判断在何种情况下使用心算比书面计算更有效。解决问题的难度持续增加，学生需运用数位知识、估算以及逆运算来检查和解释自己的计算结果。这种循序渐进的学习确保孩子们为六年级及以后更高级的数学概念做好充分准备。

数学领域：数 / 测量 / 统计 / 几何

数：数位值 关键词汇：排序，比较，解读 / 理解（如数据、数值），数值，数字，数位值，向前（数），向后（数），十的幂（如 10，100，1000），负数，正数，穿过0（从负数到正数，跨越0的数轴），四舍五入，四舍五入到最接近的（10，100 等），罗马数字，等差数列 / 线性数列，分数，小数，项与项之间的规律（递推规则）

数：加法与减法 关键词汇：加，减，正式笔算方法，竖式加法，竖式减法，心算，四舍五入，验算，计算，精确性，多步骤，运算，多步骤问题，方法，估算

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MATHS: CURRICULUM OVERVIEW

YEAR 5 - AUTUMN 2: MULTIPLICATION AND DIVISION & FRACTIONS

This term, children will focus on developing accuracy and fluency in multiplication and division. They will learn and use formal written methods for multiplying and dividing larger numbers, including by 10, 100 and 1,000. Pupils will also deepen their understanding of factors, multiples, prime numbers, and squared and cubed numbers, helping them to recognise number patterns and relationships.

The next unit, fractions A, introduces children to comparing, ordering, and finding equivalent fractions. They will also learn how to add and subtract fractions with the same denominator and begin to explore fractions with different denominators. These lessons will help children see the connections between fractions, division, and multiplication.

Children will then continue their work on multiplication and division, applying their knowledge to a variety of real-world and problem-solving contexts. They will use reasoning and mental strategies to choose efficient methods and explain their mathematical thinking clearly.

Throughout the term, pupils will be encouraged to make links between topics and build confidence using number relationships to solve increasingly complex problems with independence.

STRAND OF MATHS: NUMBER/MEASUREMENT/STATISTICS/GEOMETRY

NUMBER: MULTIPLICATION & DIVISION KEY VOCABULARY:

multiples, factors, factor pairs, common factors Square number, cube number, notation for squared (^{2}) and cubed (^{3}), prime numbers, prime factors, composite (non- prime) numbers, equivalence, missing numbers, multiply, divide, mentally, formal-written method, long multiplication, short division, interpret, remainders, decimals, addition, subtraction, multiplication, division, combination, equals sign, scaling (multiplying a number by a certain factor to make it larger or smaller), simple rates, non-integer, rounding, inverse, distributivity a(b + c) = ab + ac.

NUMBER: FRACTIONS KEY VOCABULARY:

compare, order, fractions, denominator, multiples, identify, equivalent, tenths, hundredths, recognise, mixed numbers, improper fractions, convert, form, mathematical statement [for example, 2/5 + 4/5 = 6/5 = 1 1/5] statement, add, subtract, multiples, proper fractions, mixed numbers, whole numbers, diagrams, decimal numbers as fractions [for example, 0.71 =], thousandths, hundredths, tenths, decimal equivalents, round, decimal places, whole, per cent symbol (%), 'number of parts per 100', half, quarter, fifth, proportions, simplify, fractions of, scaling, exceed, count, forwards, backwards, reasonable, mentally, complements of 1 (for example, 0.83 + 0.17 = 1), puzzles, connections.

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数学：课程概览

五年级 – 秋季学期第二单元：

乘法与除法 & 分数

本学期，学生将重点培养乘法和除法的准确性与运算流畅性。他们将学习并使用正式书写方法对较大数字进行乘法和除法运算，包括乘除以 10、100 和 1,000。学生还将深入理解因数、倍数、质数，以及平方数和立方数，从而帮助他们识别数字规律与关系。

接下来的单元 分数 A 将引导学生学习比较、排序和寻找等值分数。他们还将学习如何对具有相同分母的分数进行加减，并开始探索不同分母的分数。这些课程将帮助学生理解分数与除法、乘法之间的联系。

随后，学生将继续学习乘法和除法，并将所学知识应用于各种现实生活和问题解决情境中。他们将运用推理和心算策略选择高效的方法，并清晰地解释自己的数学思路。

整个学期中，学生将被鼓励在不同主题之间建立联系，运用数字关系独立解决越来越复杂的问题，从而增强信心。

数学领域：数 / 测量 / 统计 / 几何

数的运算：乘法与除法关键词汇：

倍数，因数，因数对（如 12 的因数对：3 × 4），公因数（如 12 和 18 的公因数是 6） 平方数（如 $3^2 = 9$）， 立方数（如 $2^3 = 8$）， 平方符号 (²)，立方符 号 (³)，质数（只能被 1 和自身整除），质因 数，合数 / 非质数，等值 / 等价，缺失的数字 乘，除，心算，标准笔算 方法（如竖式），多位数 乘法笔算（长乘法），简 便除法 / 短除法，理解 / 解释（如余数的含义）， 余数，小数，加法，减 法，乘法，除法，综合运 算 / 混合运算，等号 (=) 比例缩放（将数字 按某个因子扩大或缩小） 简单速率（如速度、价格 比）非整数（如 2.5、¾）， 四舍五入，逆运算（乘 ↔ 除，或加 ↔ 减），分 配律（如 $a(b + c) = ab + ac$）

数的运算：分数关键词汇

比 较，排 序, 分 数，分 母, 分子，倍数，识别，等 值，十分之一，百分之 一，千分之一，认出 / 理 解，带分数，假分数，真 分数（分子小于分母的分 数）转换，形式, 数学表 达式，[例如, 2/5 + 4/5 = 6/5 = 1 1/5] 表达式, 加法，减法，倍数，真分 数，带分数，整数，图示、小数化为分数（例 如：0.71 = ），千分 位，百分位，十分位，小 数等价形式，四舍五入， 小数位数，整体，百分号 (%)，"每一百份中的比 例"，二分之一，四分之 一，五分之一，比例，化 简，分数运算，缩放，超 过，计数，顺数，倒数， 合理的，心算，1的补数（例如：0.83 + 0.17 = 1）谜题，关联

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YEAR 5 MATHS OBJECTIVES - AUTUMN

五年级数学教学目标-秋季学期

NUMBER: PLACE VALUE

Number and Place Value	- Understand and use place value to read, write, and compare numbers up to 1,000,000. - Round numbers to the nearest 10, 100, 1,000, 10,000, and 100,000. - Perform calculations with whole numbers, including addition, subtraction, multiplication, and division, using efficient methods. - Recognize and use negative numbers in context. - Read, write, and compare numbers up to 10,000,000 and understand the value of each digit. - Round numbers to any place value and use rounding to estimate and check calculations. - Perform operations with large numbers and decimals, using a range of strategies and methods. - Solve problems involving percentages, including calculating percentages of quantities and percentage increase or decrease.
数字和位值	– 理解并使用位值来读取、书写和比较最高至 1, 000, 000 的数字。 – 将数字四舍五入到最接近的 10、100、1, 000、10, 000 和 100, 000。 – 使用高效的方法进行整数计算，包括加法、减法、乘法和除法。 – 在实际情境中识别并使用负数。 – 读取、书写和比较最高至 10, 000, 000 的数字，理解每位数字的值。 – 将数字四舍五入到任意位值，并使用四舍五入来估算和检查计算结果。 – 使用多种策略和方法对大数和小数进行运算。 – 解决涉及百分比的问题，包括计算数量的百分比以及百分比的增加或减少。

NUMBER: ADDITION AND SUBTRACTION

Addition and Subtraction	- Add and subtract whole numbers with more than four digits, using formal written methods. - Perform mental calculations, including multi-step problems. - Use estimation to check the reasonableness of answers. - Solve problems involving addition and subtraction, including those with increasingly large numbers. - Use formal written methods to add and subtract numbers with up to seven digits. - Perform mental calculations and solve complex problems involving large numbers and decimals. - Use estimation and approximation to assess the reasonableness of answers. - Solve multi-step problems involving addition and subtraction, including those with fractions and decimals.
加法和减法	– 使用正式的、书面的方法加减超过四位的整数。 – 进行包括多步骤问题在内的心算。 – 使用估算来检查答案的合理性。 – 解决涉及加法和减法的问题，包括越来越大的数字的运算。 – 使用正式的、书面的方法加减最高至七位的数字。 – 进行心算并解决涉及大数和小数的复杂问题。 – 通过预计和估算来评估答案的合理性。 – 解决涉及加法和减法的多步骤问题，包括含有分数和小数的问题。

YEAR 5 MATHS OBJECTIVES - AUTUMN CONTINUED...

五年级数学教学目标-秋季学期

Multiplication and Division

- Multiply and divide whole numbers and decimals by 10, 100, and 1,000.
- Perform multiplication and division calculations, including using formal written methods for two-digit by two-digit multiplication and short division.
- Solve problems involving multiplication and division, including those with remainders.
- Use estimation to check the reasonableness of answers and solve multi-step problems.
- Understand and use prime numbers, square numbers, and cube numbers.

- Multiply and divide numbers up to four digits by a one- or two-digit number using long multiplication and long division.
- Perform calculations involving decimals, including dividing decimals by whole numbers.
- Solve complex problems involving multiplication and division, including multi-step problems and those with large numbers.
- Use estimation and approximation to check answers and assess the reasonableness of results.
- Understand and apply concepts of factors, multiples, prime numbers, and common factors.

乘法和除法

- 将整数和小数分别乘以 10、100 和 1,000。
- 进行乘法和除法计算，包括使用正式的、书面的方法进行两位数乘两位数的乘法和短除法。
- 解决涉及乘法和除法的问题，包括含有余数的问题。
- 使用估算来检查答案的合理性，并解决多步骤问题。
- 理解并使用质数、平方数和立方数。

- 使用长乘法和长除法将最高至四位数的数字分别乘以或除以一位数或两位数。
- 进行涉及小数的计算，包括将小数除以整数。
- 解决复杂的乘除问题，包括多步骤问题和涉及大数的问题。
- 通过预计和估算来检查答案，并评估结果的合理性。
- 理解并应用因数、倍数、质数和公因数的概念。

NUMBER: MULTIPLICATION AND DIVISION

END OF YEAR 5 EXPECTATION:

PUPILS MAINTAIN FLUENT RECALL OF ALL MULTIPLICATION AND DIVISION FACTS UP TO 12 × 12 WITH NEAR-INSTANT RECALL (3–5 SECONDS) AND APPLY THEM FLEXIBLY AND EFFICIENTLY IN MORE COMPLEX MATHEMATICAL CONTEXTS,

PUPILS CAN:
USE KNOWN FACTS TO DERIVE AND EXPLAIN RELATED FACTS (E.G. 0.8 × 6 USING 8 × 6)

APPLY MULTIPLICATION AND DIVISION FACTS CONFIDENTLY WITH:

- FRACTIONS AND DECIMALS
- MULTI-STEP PROBLEMS
- SCALING AND RATIO CONTEXTS
- SELECT AND JUSTIFY EFFICIENT STRATEGIES, SHOWING STRONG CONCEPTUAL UNDERSTANDING ALONGSIDE FLUENCY

Fractions

- Compare and order fractions with different denominators, including those greater than one.
- Add and subtract fractions with the same denominator and with different denominators by finding a common denominator.
- Multiply proper fractions and mixed numbers by whole numbers.
- Divide proper fractions by whole numbers.
- Solve problems involving fractions, including those with mixed numbers and improper fractions.
- Understand and use equivalent fractions, and simplify fractions where appropriate.

- Compare and order fractions, including those with different denominators and mixed numbers.
- Add and subtract fractions with different denominators, using a variety of methods.
- Multiply and divide fractions and mixed numbers, including solving problems involving these operations.
- Convert between improper fractions and mixed numbers.
- Solve complex problems involving fractions, including those that combine fractions with other operations.
- Understand and use percentages as a way of expressing fractions.

分数

- 比较和排序不同分母的分数，包括大于 1 的分数。
- 通过找到共同分母来进行同分母分数和不同分母分数的加减运算。
- 将真分数和带分数乘以整数。
- 将真分数除以整数。
- 解决涉及分数的问题，包括带分数和假分数。
- 理解并使用等值分数，并在适当情况下化简分数。

- 比较和排序分数，包括具有不同分母和带分数的分数。
- 使用多种方法加减分母不同的分数。
- 乘除分数和带分数，包括解决涉及这些运算的问题。
- 转换假分数和带分数。
- 解决复杂的分数问题，包括那些结合了其他运算的分数问题。
- 理解并使用百分比作为一种表示分数的方式。

NUMBER: FRACTIONS A

五年级结束时应达到的学业标准：

学生能够流畅掌握所有至 12 × 12 的乘除法运算，做到接近即时反应（3-5 秒内），并能灵活高效地将其应用于更复杂的数学情境中。

学生能够：
利用已知运算推导并解释相关运算（例如，通过 8 × 6 推导 0.8 × 6）

在以下情境中自信运用乘除法运算：

- 分数与小数的计算
- 多步骤问题解决
- 比例与倍数关系的应用
- 选择并说明高效的解题策略，在展现运算流畅性的同时体现出对概念的深刻理解。

MATHS: CURRICULUM OVERVIEW

YEAR 5 - SPRING 1:

FRACTIONS B AND DECIMALS AND PERCENTAGES

This half term in maths, Year 5 pupils will be focusing on Fractions B and decimals and percentages.

Children will deepen their understanding of fractions by comparing, ordering and calculating with fractions, including finding fractions of amounts. They will then build on this knowledge to make clear links between fractions, decimals and percentages, learning to convert between them and apply their understanding to real-life contexts.

How you can help at home:

- Practise finding fractions of amounts using everyday examples, such as money or quantities of items.
- Discuss decimals and percentages in real-life situations, for example when shopping or looking at discounts.
- Encourage your child to explain how fractions, decimals and percentages are connected.
- Revisit key number facts, including times tables, to support fluency.
- Improve recall of number facts by encouraging daily use of TT Rockstars.

STRAND OF MATHS: NUMBER/MEASUREMENT/STATISTICS/GEOMETRY

Key Vocabulary: compare, order, fractions, denominator, multiples, identify, equivalent, tenths, hundredths, recognise, mixed numbers, improper fractions, convert, form, mathematical statement [for example, 2/5 + 4/5 = 6/5 = 1 1/5], add, subtract, multiples, proper fractions, mixed numbers, whole numbers, diagrams, decimal numbers as fractions [for example, 0.71 = 71/100], thousandths, hundredths, tenths, decimal equivalents, round, decimal places, whole, percent symbol (%), 'number of parts per 100', half, quarter, fifth, proportions, simplify, fractions of, scaling, exceed, count, forwards, backwards, reasonable, mentally, complements of 1 (for example, 0.83 + 0.17 = 1), puzzles, connections.

Y6 Vocabulary: probability scale, theoretical probability, impossible, likely, certain random, outcome.

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数学：课程概览

五年级——春季学期第一阶段：分数 B，以及小数和百分数

在本半学期的数学学习中，五年级学生将重点学习分数 B，以及小数和百分数。
孩子们将通过比较、排序和计算分数（包括求数量的分数）来加深对分数的理解。随后，他们将把这些知识拓展到分数、小数和百分数之间的联系，学习如何相互转换，并将所学应用于真实生活情境。

家长在家可以如何帮助孩子：

- 练习用日常实例求数量的分数，例如金钱或物品数量。
- 在现实生活中讨论小数和百分数，例如购物或折扣。
- 鼓励孩子解释分数、小数和百分数之间的联系。
- 复习关键的数字事实，包括乘法表，以提高熟练度。
- 鼓励每天使用 TT Rockstars，提升对数字事实的记忆和回忆能力。

数学学习领域：数 / 测量 / 统计 / 几何

关键词汇：

分数、小数与百分数：

比较，排序，分数，分母，倍数，识别，等值，十分之一，百分之一，识别，带分数，不当分数，转换，形式，数学表达式（例如：2/5 + 4/5 = 6/5 = 1 1/5），加，减，倍数，真分数，带分数，整数，图示，小数表示的分数（例如：0.71 = 71/100），千分之一，百分之一，十分之一，小数等值，四舍五入，小数位，整体，百分号 (%)，“每100份的数量”，二分之一，四分之一，五分之一，比例，化简，求……的分数，缩放，超过，正向计数，倒序计数，合理，心算，1的补数（例如：0.83 + 0.17 = 1），谜题，联系。

六年级词汇– 概率：

概率刻度，理论概率，不可能，可能，必然，随机，结果。

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YEAR 5 MATHS OBJECTIVES - SPRING 1

五年级数学教学目标 - 春季学期

NUMBER: FRACTIONS B

Fractions	- Compare and order fractions with different denominators, including those greater than one. - Add and subtract fractions with the same denominator and with different denominators by finding a common denominator. - Multiply proper fractions and mixed numbers by whole numbers. - Divide proper fractions by whole numbers. - Solve problems involving fractions, including those with mixed numbers and improper fractions. - Understand and use equivalent fractions, and simplify fractions where appropriate. - Compare and order fractions, including those with different denominators and mixed numbers. - Add and subtract fractions with different denominators, using a variety of methods. - Multiply and divide fractions and mixed numbers, including solving problems involving these operations. - Convert between improper fractions and mixed numbers. - Solve complex problems involving fractions, including those that combine fractions with other operations. - Understand and use percentages as a way of expressing fractions.
分数	– 比较和排序不同分母的分数，包括大于 1 的分数。 – 通过找到共同分母来进行同分母分数和不同分母分数的加减运算。 – 将真分数和带分数乘以整数。 – 将真分数除以整数。 – 解决涉及分数的问题，包括带分数和假分数。 – 理解并使用等值分数，并在适当情况下化简分数。 – 比较和排序分数，包括具有不同分母和带分数的分数。 – 使用多种方法加减分母不同的分数。 – 乘除分数和带分数，包括解决涉及这些运算的问题。 – 转换假分数和带分数。 – 解决复杂的分数问题，包括那些结合了其他运算的分数问题。 – 理解并使用百分比作为一种表示分数的方式。

NUMBER: DECIMALS & PERCENTAGES

Decimals	- Understand and use numbers with up to three decimal places. - Compare and order decimals, and solve problems involving decimals. - Convert between decimals and fractions, and solve various problems involving decimals. - Perform calculations with decimals, including addition, subtraction, multiplication, and division. - Solve multi-step problems using decimals in calculations and applications. - Understand and use numbers with up to four decimal places. - Perform calculations with decimals, including addition, subtraction, multiplication, and division. - Solve problems involving decimals and convert between fractions and decimals. - Compare and order different decimals, including solving complex decimal problems. - Apply decimals to solve multi-step problems, including practical and abstract problems.
小数	– 理解并使用最高至三位小数的数。 – 比较和排序小数，解决涉及小数的问题。 – 将小数与分数进行转换，并解决涉及小数的各种问题。 – 进行小数的运算，包括加法、减法、乘法和除法。 – 解决多步骤问题，使用小数进行计算和应用。 – 理解并使用最高至四位小数的数。 – 进行小数的运算，包括加法、减法、乘法和除法。 – 解决涉及小数的问题，并在分数和小数之间进行转换。 – 比较和排序不同的小数，包括解决复杂的小数问题。 – 使用小数解决多步骤问题，包括实际问题和抽象问题。

MATHS: CURRICULUM OVERVIEW

YEAR 5 - SPRING 2:

PERIMETER AND AREA, POSITION AND DIRECTION, STATISTICS

This half term, Year 5 pupils will be developing their maths skills across measurement, geometry and data handling, with a strong focus on reasoning and problem solving.

Perimeter and Area

- Measure and calculate the perimeter (distance around shapes)
- Find the area (space inside shapes), including more complex shapes
- Use multiplication facts to help solve problems involving area and perimeter

Position and Direction

- Use coordinates to describe and plot positions on grids
- Move shapes on a grid and describe these movements accurately
- Use mathematical language to explain direction and position

Statistics

- Read and interpret graphs and charts, including line graphs
- Answer questions using data and explain their thinking
- Compare information and spot patterns or trends in data

How you can help at home:

- Ask your child to explain the difference between perimeter and area
- Practise reading graphs in real life (weather charts, sports results)
- Encourage your child to talk through their thinking when solving problems

STRAND OF MATHS: NUMBER/MEASUREMENT/STATISTICS/GEOMETRY

Key Vocabulary:

Measurement: convert, units, metric measure, [for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre], approximate, equivalence, metric units, common imperial units, inches, points, pints, measure, calculate, perimeter, composite rectilinear shapes,compare, area, rectangles, squares, standard units, square centimetres (cm²), square metres (m²), estimate, irregular shapes, volume, capacity, units of time, four operations, length, mass, volume, money, decimal notation, scaling, unknown, missing measures, algebraic for example 4 + 2b = 20 for a rectangle of sides 2 cm and b cm and perimeter of 20cm, scale drawings.

Geometry - Position and Direction: identify, describe, represent, position, shape, reflection, translation, diagrams, 2-D grid, coordinates, first quadrant, parallel, axes

Statistics: comparison, sum, difference, line graph, interpret, tables, timetables, coordinates, scales, time graphs, most appropriate Average, mean, mode, median

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数学课程概览
五年级 - 春季第二学期
单元内容：周长与面积、位置与方向、统计

本学期，五年级学生将在测量、几何和数据处理方面发展数学技能，并重点关注推理和问题解决能力的培养。

<u>周长与面积</u>

- 测量并计算图形的周长（围绕图形的距离）
- 计算图形的面积（图形内部空间），包括更复杂的图形
- 运用乘法知识解决涉及面积与周长的问题

<u>位置与方向</u>

- 使用坐标描述和标注网格中的位置
- 在网格上移动图形并准确描述移动过程
- 运用数学语言解释方向和位置关系

<u>统计</u>

- 读取并分析图表（包括折线图）
- 依据数据回答问题并解释思考过程
- 比较信息并发现数据中的规律或趋势

家庭辅助建议：

- 请孩子解释周长与面积的区别
- 在生活中练习阅读图表（如天气图、体育赛事结果）
- 鼓励孩子在解决问题时讲解思考过程

数学知识领域：数与代数 / 测量 / 统计 / 几何

<u>核心词汇：</u>

测量：换算、单位、公制度量【例如：公里与米；厘米与米；厘米与毫米；克与千克；升与毫升】、近似、等值、公制单位、常用英制单位、英寸、磅、品脱、测量、计算、周长、复合直线图形、比较、面积、矩形、正方形、标准单位、平方厘米 (cm²)、平方米 (m²)、估算、不规则图形、体积、容积、时间单位、四则运算、长度、质量、体积、货币、小数记法、缩放、未知量、缺失度量、代数（例如：对于一个边长为 2 厘米 和 b 厘米，周长为 20 厘米的矩形，可表示为 4 + 2b = 20）、比例图。

几何 - 位置与方向：识别、描述、表示、位置、形状、反射、平移、图示、二维网格、坐标、第一象限、平行、坐标轴。

统计：比较、总和、差值、折线图、解读、表格、时间表、坐标、刻度、时间序列图、最合适的平均值、平均数、众数、中位数。

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YEAR 5 MATHS OBJECTIVES - SPRING 2

五年级数学教学目标 - 春季学期2

MEASUREMENT: PERIMETER & AREA

Measurement	- Convert between different units of measurement, including metric units (e.g., millimeters to centimeters, grams to kilograms) and imperial units (e.g., inches to feet). - Calculate perimeter and area of various shapes, including compound shapes. - Use formulas to find the area of triangles and parallelograms. - Estimate, measure, and compare lengths, mass, volume, and time accurately. - Solve problems involving converting units of measurement and using measurements in practical contexts. - Convert between different units of measurement, including complex conversions between metric and imperial units. - Calculate the area and volume of a range of shapes, including cubes and cuboids, and apply these calculations to solve problems.
	- Use and apply formulas to find the area of complex shapes and the volume of solids. - Estimate, measure, and compare measurements with a high degree of accuracy. - Solve multi-step problems involving measurement, including real-life contexts and compound units.
度量	– 在不同的测量单位之间进行转换，包括公制单位（如毫米到厘米、克到千克）和英制单位（如英寸到英尺）。 – 计算各种形状的周长和面积，包括复合形状。 – 使用公式找出三角形和平行四边形的面积。 – 准确预估、测量和比较长度、质量、体积和时间。 – 解决涉及单位转换和在实际情境中使用测量的计算问题。 – 在不同的测量单位之间进行转换，包括公制和英制单位的复杂转换。 – 计算各种形状的面积和体积，包括立方体和长方体，并应用这些计算解决问题。 – 运用公式找出复杂形状的面积和固体的体积。 – 以高度的准确度预估、测量和比较测量值。 – 解决涉及测量的多步骤问题，包括实际生活情境和组合情境。

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YR 5 OBJECTIVES - SPRING 2 CONTINUED...

五年级数学教学目标 - 春季学期2（续）

GEOMETRY: POSITION & DIRECTION

Geometry	- Identify and classify 2D shapes based on their properties, including angles, sides, and symmetry. - Recognize and describe properties of 3D shapes, including vertices, edges, and faces. - Understand and use the terms angle, right angle, acute angle, and obtuse angle. - Draw and measure angles using a protractor, and estimate angles accurately. - Describe and plot points on a grid and use coordinates in the first quadrant. - Reflect shapes in vertical and horizontal lines of symmetry. - Classify 2D shapes by their properties and understand the concept of parallel and perpendicular lines. - Describe and classify 3D shapes, including their properties and the relationships between them. - Understand and calculate angles on a straight line, around a point, and in various shapes. - Use a protractor to measure and draw angles with accuracy. - Translate, rotate, and reflect shapes on the coordinate plane, including using negative coordinates. - Understand and apply properties of symmetry in shapes and patterns.
几何	– 基于属性识别并分类 2D 形状，包括角、边和对称性。 – 识别并描述 3D 形状的属性，包括顶点、边和面。 – 理解并使用术语：角、直角、锐角和钝角。 – 使用量角器绘制和测量角度，并准确预估角度。 – 在网格上描述和绘制点，使用第一象限的坐标。 – 在垂直和水平对称轴上反转形状。 – 根据属性分类 2D 形状，并理解平行线和垂直线的概念。 – 描述并分类 3D 形状，包括其属性及它们之间的关系。 – 理解并计算直线、点周围及各种形状中的角度。 – 使用量角器准确测量和绘制角度。 – 在坐标平面上移动、旋转和反转图形，包括使用负坐标。 – 理解并应用形状和图案的对称性属性。

STATISTICS

Statistics	- Collect, interpret, and present data using various methods, including bar charts, line graphs, and tables. - Calculate and interpret the mean, median, mode, and range of a data set. - Use data to solve problems, including comparing different data sets and drawing conclusions. - Construct and interpret pie charts and use them to solve problems. - Collect, analyze, and interpret data from a range of sources, presenting it using more complex charts and graphs. - Calculate and interpret measures of central tendency (mean, median, mode) and range for larger data sets. - Construct and interpret a variety of graphs, including line graphs with multiple lines, and pie charts with greater complexity. - Solve problems involving data, including using statistical methods to make predictions and draw conclusions from data sets.
统计	– 收集、解读并使用各种方法展示数据，包括条形图、折线图和表格。 – 计算并解读数据集的均值、中位数、众数和范围。 – 使用数据解决问题，包括比较不同的数据集并得出结论。 – 构建并解读饼图，并使用饼图解决问题。 – 从各种来源收集、分析和解读数据，使用更复杂的图表和图形做展示。 – 为较大的数据集计算并解读集中趋势测量值（均值、中位数、众数）和范围。 – 构建并解读各种图表，包括带多条线的折线图和更复杂的饼图。 – 解决涉及数据的问题，包括使用统计方法对数据集进行预测并得出结论。

MATHS: CURRICULUM OVERVIEW

YEAR 5 - SUMMER: SHAPE, DECIMALS, NEGATIVE NUMBERS, CONVERTING UNITS AND VOLUME

In the Summer term, Year 5 children will continue to deepen their understanding of key mathematical concepts, applying their knowledge with increasing confidence across a range of topics. Learning will focus on fluency, reasoning and problem-solving through practical and real-life contexts.

Shape (Geometry):

- Identify, describe and represent the position of shapes following reflections and translations
- Understand and use the properties of angles (including acute, obtuse and reflex)
- Estimate, measure and draw angles using a protractor
- Solve problems involving angles around a point, on a straight line and within shapes

Decimals (Number):

- Read, write, order and compare decimals up to three decimal places
- Round decimals to the nearest whole number and decimal place
- Solve problems involving decimals, including measures and money
- Recognise and use decimal equivalents of fractions

Negative Numbers (Number):

- Count forwards and backwards with positive and negative whole numbers
- Use negative numbers in real-life contexts (e.g. temperature)
- Find the difference between positive and negative numbers
- Solve problems involving negative numbers

Converting Units (Measurement):

- Convert between different units of metric measure (e.g. km and m, cm and m)
- Understand and use approximate equivalences between metric and common imperial units
- Solve problems involving converting units of time
- Apply conversion skills in real-life contexts

Volume (Measurement):

- Estimate, compare and calculate volume and capacity
- Use standard units (cubic centimetres and cubic metres)
- Solve problems involving volume and capacity
- Apply knowledge to practical situations

How you can help at home:

- Encourage your child to practise reading and using decimals in everyday contexts (e.g. money, measurements)
- Talk about negative numbers using real-life examples such as temperature
- Practise measuring and estimating angles and shapes around the home
- Support your child in converting between units when cooking or measuring
- Discuss capacity and volume when filling containers or using liquids
- Encourage your child to explain their reasoning when solving problems

STRAND OF MATHS: NUMBER/MEASUREMENT/STATISTICS/GEOMETRY

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数学：课程概览

五年级 - 夏季学期：图形，小数，负数，单位换算与体积

在夏季学期，五年级的孩子们将继续深化关键数学概念的理解，并在不同主题中越来越自信地应用所学知识。学习将侧重于通过实际操作和现实生活情境发展流畅性、推理能力和解决问题的能力。

图形（几何）：
- 识别、描述并表示经过反射和平移后的图形位置
- 理解并使用角的性质（包括锐角、钝角和优角）
- 使用量角器估计、测量和绘制角度
- 解决涉及一点周围、直线以及图形内部角度的问题

小数（数）：
- 读、写、排序和比较最多三位小数
- 将小数四舍五入到最接近的整数和指定位数
- 解决涉及小数（包括测量和钱币）的应用题
- 识别并使用分数的小数等值

负数（数）：
- 在正负整数之间进行前后计数
- 在现实生活情境中使用负数（例如温度）
- 求正数与负数之间的差
- 解决涉及负数的问题

单位换算（测量）：
- 在不同公制单位之间进行换算（例如千米与米、厘米与米）
- 理解并使用公制与常用英制单位的近似等值
- 解决时间单位换算问题
- 在现实生活中应用换算技能

体积（测量）：
- 估算、比较和计算体积与容量
- 使用标准单位（立方厘米和立方米）
- 解决与体积和容量相关的问题
- 将知识应用于实际情境

在家中可以帮助孩子的方法：
- 鼓励孩子在日常生活中练习使用小数（例如金钱、测量）
- 用温度等真实例子讨论负数
- 在家中练习测量和估计角度与图形
- 在烹饪或测量时练习单位换算
- 在装水或使用容器时讨论容量与体积
- 鼓励孩子在解决问题时解释自己的思考过程

数学分支：数与运算/测量/统计/几何

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数学：课程概览
五年级 - 夏季学期：图形，小数，负数，单位换算与体积

Key Vocabulary/关键词汇:

Geometry - Shape: 3-D shapes, cubes, cuboids, 2-D, representations, measure, degrees, (°) , estimate, compare, acute, obtuse, reflex, angles, point, whole, turn, straight line, half turn, multiples, rectangles, facts, missing lengths, regular, irregular, polygons, equal, sides, millimetre, nearest, protractor, conventional markings, parallel lines, right angles, diagonal, conjectures, parallel sides, quadrilaterals, sum, facts, missing angles
几何——图形: 三维图形，立方 体，长方体，二 维，表示法 / 展 示，角，测量，度 数（°），估计， 比较，锐角，钝 角，优角（大于 180°小于360° 的角），点，整圈 （360°），直线 （上的角为 180°），半圈 （180°），倍 数，矩形，事实 / 数学事实（角度、 边长等已知量）， 缺失的边长，规则 的，不规则的，多 边形，相等的，边 毫米，最接近的 （如：四舍五 入），量角器，常 规标记（如图形中 的角标、箭头 等），平行线，直角，对角线，推测 / 猜想，平行边， 四边形，总和，数 学事实，缺失的角 度（需要计算得 出）

Number - Decimals: thousandths, hundredths, tenths, decimal equivalents, round, decimal places, whole, 'number of parts per 100', half, quarter, fifth, proportions, simplify, fractions of, scaling, exceed, count, forwards, backwards, reasonable, mentally, complements of 1 (for example, 0.83 + 0.17 = 1), puzzles, connections
数——小数：千分位，百分位，十分位，小数等值，四舍五入，小数位，整数，每100中的部分，一半，四分之一，五分之一，比例，化简，……的几分之几，按比例缩放，超过，计数，向前，向后，合理的，心算的，1的补数（例如0.83 + 0.17 = 1），谜题，联系

Negative Numbers: order, compare, interpret, value, digit, forwards, backwards, powers of ten, negative numbers, rounding, positive, negative, through 0, round, nearest, place value, linear, sequences, term-to-term rule.
负数：顺序，比较，理解，数值，数字，向前，向后，10的幂，负数，四舍五入，正数，负数，经过0，四舍五入，最接近，数位值，线性，数列，项与项之间的规律

Measurement - Converting Units and Volume: convert, units, metric measure, [for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre], approximate, equivalence, metric units, common imperial units, inches, points, pints, measure, calculate, perimeter, composite rectilinear shapes,compare, area, rectangles, squares, standard units, square centimetres (cm^2), square metres (m^2), estimate, irregular shapes, volume, capacity, units of time, four operations, length, mass, volume, money, decimal notation, scaling, unknown, missing measures, algebraic for example 4 + 2b = 20 for a rectangle of sides 2 cm and b cm and perimeter of 20cm, scale drawings.
测量——单位换算与体积：换算，单位，公制测量（例如千米和米；厘米和米；厘米和毫米；克和千克；升和毫升），近似，等值关系，公制单位，常用英制单位，英寸，点，品脱，测量，计算，周长，复合直线图形，比大小，面积，长方形，正方形，标准单位，平方厘米（cm^2），平方米（m^2），估算，不规则图形，体积，容量，时间单位，四则运算，长度，质量，体积，钱，小数表示，按比例缩放，未知量，缺失的测量值，代数（例如 4 + 2b = 20 表示一个长方形，两边为2厘米和b厘米，周长为20厘米），比例图。

数学分支：数与运算/测量/统计/几何

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YEAR 5 MATHS OBJECTIVES - SUMMER

五年级数学教学目标-夏季学期

NUMBER: DECIMALS

Decimals

- Understand and use numbers with up to three decimal places.
- Compare and order decimals, and solve problems involving decimals.
- Convert between decimals and fractions, and solve various problems involving decimals.
- Perform calculations with decimals, including addition, subtraction, multiplication, and division.
- Solve multi-step problems using decimals in calculations and applications.

- Understand and use numbers with up to four decimal places.
- Perform calculations with decimals, including addition, subtraction, multiplication, and division.
- Solve problems involving decimals and convert between fractions and decimals.
- Compare and order different decimals, including solving complex decimal problems.
- Apply decimals to solve multi-step problems, including practical and abstract problems.

小数

- 理解并使用最高至三位小数的数。
- 比较和排序小数，解决涉及小数的问题。
- 将小数与分数进行转换，并解决涉及小数的各种问题。
- 进行小数的运算，包括加法、减法、乘法和除法。
- 解决多步骤问题，使用小数进行计算和应用。

- 理解并使用最高至四位小数的数。
- 进行小数的运算，包括加法、减法、乘法和除法。
- 解决涉及小数的问题，并在分数和小数之间进行转换。
- 比较和排序不同的小数，包括解决复杂的小数问题。
- 使用小数解决多步骤问题，包括实际问题和抽象问题。

NUMBER: NEGATIVE NUMBERS

MEASUREMENT: CONVERTING UNITS & VOLUME

Measurement

- Convert between different units of measurement, including metric units (e.g., millimeters to centimeters, grams to kilograms) and imperial units (e.g., inches to feet).
- Calculate perimeter and area of various shapes, including compound shapes.
- Use formulas to find the area of triangles and parallelograms.
- Estimate, measure, and compare lengths, mass, volume, and time accurately.
- Solve problems involving converting units of measurement and using measurements in practical contexts.

- Convert between different units of measurement, including complex conversions between metric and imperial units.
- Calculate the area and volume of a range of shapes, including cubes and cuboids, and apply these calculations to solve problems.
- Use and apply formulas to find the area of complex shapes and the volume of solids.
- Estimate, measure, and compare measurements with a high degree of accuracy.
- Solve multi-step problems involving measurement, including real-life contexts and compound units.

度量

- 在不同的测量单位之间进行转换，包括公制单位（如毫米到厘米、克到千克）和英制单位（如英寸到英尺）。
- 计算各种形状的周长和面积，包括复合形状。
- 使用公式找出三角形和平行四边形的面积。
- 准确预估、测量和比较长度、质量、体积和时间。
- 解决涉及单位转换和在实际情境中使用测量的计算问题。

- 在不同的测量单位之间进行转换，包括公制和英制单位的复杂转换。
- 计算各种形状的面积和体积，包括立方体和长方体，并应用这些计算解决问题。
- 运用公式找出复杂形状的面积和固体的体积。
- 以高度的准确度预估、测量和比较测量值。
- 解决涉及测量的多步骤问题，包括实际生活情境和组合情境。

GEOMETRY: SHAPE

Geometry	- Identify and classify 2D shapes based on their properties, including angles, sides, and symmetry. - Recognize and describe properties of 3D shapes, including vertices, edges, and faces. - Understand and use the terms angle, right angle, acute angle, and obtuse angle. - Draw and measure angles using a protractor, and estimate angles accurately. - Describe and plot points on a grid and use coordinates in the first quadrant. - Reflect shapes in vertical and horizontal lines of symmetry. - Classify 2D shapes by their properties and understand the concept of parallel and perpendicular lines. - Describe and classify 3D shapes, including their properties and the relationships between them. - Understand and calculate angles on a straight line, around a point, and in various shapes. - Use a protractor to measure and draw angles with accuracy. - Translate, rotate, and reflect shapes on the coordinate plane, including using negative coordinates. - Understand and apply properties of symmetry in shapes and patterns.
几何	– 基于属性识别并分类 2D 形状，包括角、边和对称性。 – 识别并描述 3D 形状的属性，包括顶点、边和面。 – 理解并使用术语：角、直角、锐角和钝角。 – 使用量角器绘制和测量角度，并准确预估角度。 – 在网格上描述和绘制点，使用第一象限的坐标。 – 在垂直和水平对称轴上反转形状。 – 根据属性分类 2D 形状，并理解平行线和垂直线的概念。 – 描述并分类 3D 形状，包括其属性及它们之间的关系。 – 理解并计算直线、点周围及各种形状中的角度。 – 使用量角器准确测量和绘制角度。 – 在坐标平面上移动、旋转和反转图形，包括使用负坐标。 – 理解并应用形状和图案的对称性属性。

NUMBER: NEGATIVE NUMBERS

Number and Place Value	- Understand and use place value to read, write, and compare numbers up to 1,000,000. - Round numbers to the nearest 10, 100, 1,000, 10,000, and 100,000. - Perform calculations with whole numbers, including addition, subtraction, multiplication, and division, using efficient methods. - Recognize and use negative numbers in context. - Read, write, and compare numbers up to 10,000,000 and understand the value of each digit. - Round numbers to any place value and use rounding to estimate and check calculations. - Perform operations with large numbers and decimals, using a range of strategies and methods. - Solve problems involving percentages, including calculating percentages of quantities and percentage increase or decrease.
数字和位值	– 理解并使用位值来读取、书写和比较最高至 1, 000, 000 的数字。 – 将数字四舍五入到最接近的 10、100、1, 000、10, 000 和 100, 000。 – 使用高效的方法进行整数计算，包括加法、减法、乘法和除法。 – 在实际情境中识别并使用负数。 – 读取、书写和比较最高至 10, 000, 000 的数字，理解每位数字的值。 – 将数字四舍五入到任意位值，并使用四舍五入来估算和检查计算结果。 – 使用多种策略和方法对大数和小数进行运算。 – 解决涉及百分比的问题，包括计算数量的百分比以及百分比的增加或减少。