HARROW INTERNATIONAL SCHOOL 哈罗国际学校 SHANGHAI 上海

LOWER SCHOOL • PROGRESSION FRAMEWORK

Mathematics 数学

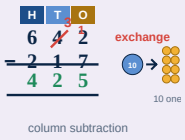
YEAR 4

By the end of Year 4, pupils will be able to...



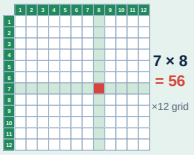
Number and Place Value 数字和位值

- Count in multiples of 6, 7, 9, 25 and 1000
- Find 1000 more or less than a given number
- Count backwards through zero to include negative numbers
- Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens and ones)
- Order and compare numbers beyond 1000
- Identify, represent and estimate numbers using different representations
- Round any number to the nearest 10, 100 or 1000
- Solve number and practical problems that involve all of the above and with increasingly large positive numbers
- Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value



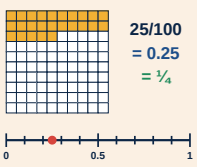
Addition and Subtraction 加法和减法

- Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate
- Estimate and use inverse operations to check answers to a calculation
- Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why



Multiplication and Division 乘法和除法

- Recall multiplication and division facts for multiplication tables up to 12 × 12
- Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers
- Recognise and use factor pairs and commutativity in mental calculations
- Multiply two-digit and three-digit numbers by a one-digit number using formal written layout
- Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one digit, integer scaling problems and harder correspondence problems such as *n* objects are connected to *m* objects



Fractions 分数

- Recognise and show, using diagrams, families of common equivalent fractions
- Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten
- Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number
- Add and subtract fractions with the same denominator
- Recognise and write decimal equivalents of any number of tenths or hundredths
- Recognise and write decimal equivalents to ¼, ½ and ¾
- Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths
- Round decimals with one decimal place to the nearest whole number
- Compare numbers with the same number of decimal places up to two decimal places
- Solve simple measure and money problems involving fractions and decimals to two decimal places

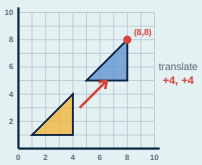
Mathematics 数学

YEAR 4



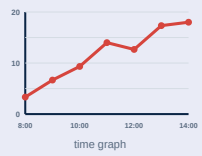
Measurement 度量

- Convert between different units of measure
- Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres
- Find the area of rectilinear shapes by counting squares
- Estimate, compare and calculate different measures, including money in pounds and pence
- Read, write and convert time between analogue and digital 12- and 24-hour clocks
- Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days



Geometry 几何

- Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes
- Identify acute and obtuse angles and compare and order angles up to two right angles by size
- Identify lines of symmetry in 2-D shapes presented in different orientations
- Complete a simple symmetric figure with respect to a specific line of symmetry
- Describe positions on a 2-D grid as coordinates in the first quadrant
- Describe movements between positions as translations of a given unit to the left/right and up/down
- Plot specified points and draw sides to complete a given polygon



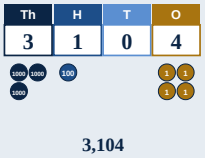
Statistics 统计

- Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs
- Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

数学 Mathematics

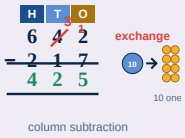
四 年级

在四年级结束时，学生将能够……



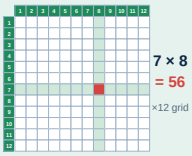
数字和位值 Number and Place Value

- 以 6、7、9、25 和 1000 的倍数计数
- 找出比给出数字大/小 1000 的数
- 倒数经过 0，数到负数
- 认出四位数中每一位的位值（千位、百位、十位、个位）
- 比较 1000 以上的数并排序
- 使用不同方法来辨认、呈现并估计数字
- 将任意数四舍五入到最接近的 10、100 或 1000
- 解决包含上述所有内容及更大正数的数字问题和实际问题
- 读 100 以内的罗马数字（I 至 C），并知道数字系统随着时间发展，加入了零和位值的概念



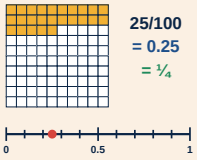
加法和减法 Addition and Subtraction

- 在适当时使用正式的书面竖式计算最多四位数的加减法
- 估算，并用逆运算检查计算结果
- 解决情境中的两步加减法问题，决定使用哪些运算和方法，并说明原因



乘法和除法 Multiplication and Division

- 熟记 12 × 12 以内的乘除法事实
- 运用位值以及已知和推导出的事实进行乘除法心算，包括：乘 0 和乘 1；除以 1；三个数相乘
- 在心算中识别并运用因数对和交换律
- 使用正式的书面格式计算两位数和三位数乘一位数
- 解决涉及乘法和加法的问题，包括运用分配律计算两位数乘一位数、整数倍数缩放问题，以及更难的对应问题（如 *n* 个对象对应 *m* 个对象）



分数 Fractions

- 用图示认识并表示常见的等值分数族
- 以百分之一为单位正序/倒序数数；认识到百分之一来自把一个物体平均分成 100 份，或把十分之一除以 10
- 解决难度逐步提高的问题：用分数计算数量、用分数划分数量，包括答案为整数的非单位分数问题
- 加减同分母分数
- 认识并写出与任意十分之几或百分之几相等的小数
- 认识并写出与四分之一、二分之一和四分之三相等的小数
- 找出一位数或两位数除以 10 和 100 的结果，并确定答案中各数字分别在个位、十分位和百分位上的值
- 将一位小数四舍五入到最接近的整数
- 比较小数位数相同（最多两位小数）的数
- 解决涉及分数和两位小数的简单度量和货币问题

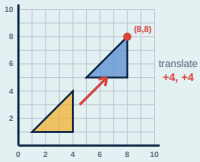
数学 Mathematics

四 年级



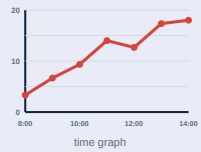
度量 Measurement

- 在不同度量单位之间进行换算
- 以厘米和米为单位测量并计算直线图形（包括正方形）的周长
- 通过数方格求直线图形的面积
- 估计、比较并计算不同的度量，包括以英镑和便士计的金额
- 读、写模拟钟表和 12 小时制、24 小时制电子钟上的时间，并相互转换
- 解决涉及时与分、分与秒、年与月、周与日换算的问题



几何 Geometry

- 根据几何图形（包括四边形和三角形）的特征和大小进行比较和分类
- 识别锐角和钝角，比较不超过两个直角的角的大小并排序
- 认出以不同方向呈现的平面图形中的对称轴
- 根据指定的对称轴补全简单的对称图形
- 用第一象限中的坐标描述二维网格上的位置
- 将位置之间的移动描述为向左/右、向上/下平移若干单位
- 描出指定的点并画出边，补全给定的多边形



统计 Statistics

- 使用合适的图表方法（包括条形图和时间图）解读并呈现离散数据和连续数据
- 运用条形图、象形图、表格和其他图表中的信息，解决比较、求和与求差问题