PAIS

PROGRESSIVE ACHIEVEMENT
FOR INTERNATIONAL SCHOOLS

Described scale for PAIS Adaptive Mathematics

A student at the top of each band is likely to be able to demonstrate all of the skills in that band, and all of the skills in the bands below.

A student in the middle of a band is likely to be able to demonstrate about half of the skills in that band, and all of the skills in the bands below.

The skills listed in each band are a representative of the kinds of skills a student at that level would be expected to demonstrate.

Described scale for PAIS Adaptive Mathematics	
Level 9	Demonstrate mastery in solving equations in exact surd form, identifying graphs of polynomials, and translating complex word problems into algebraic equations. Excel in measurement problems in non-standard contexts, involving conversion of units and inverse use of formulas. Start using complex timetables and reasoning with time to calculate duration of events. Confidently apply ratios to scales in map reading with unit conversion. Employ scale factors to calculate flexibly with 2-D shapes and 3-D objects, use circle theorems, and apply circle properties to solve problems, including finding missing angles. Calculate probabilities for compound events and simple conditional events expressed in words.
Level 8	Simplify surd expressions with irrational denominators and exponential expressions involving negative indices. Determine the effects of consecutive percentage increases and decreases and use different methods to determine equations of lines on a Cartesian plane. Confidently convert between litres and cubic meters and work flexibly with measurement formulas for non-standard shapes or objects. Calculate percentage change from different data representations. Calculate the probabilities of compound events using tree diagrams. Use combinations in simple real-life scenarios
Level 7	Simplify, calculate, and estimate numerical surd expressions and solve word problems involving fractions and ratios. Excel in multi-step problems involving speed, distance, and time, as well as calculating with ratio scales and maps. Demonstrate proficiency in calculating volume, surface area, and area of composite shapes involving circles. Start using parallel line properties to find unknown angles and can identify nets of prisms. Start representing data in pie charts, calculate flexibly with mean, median and mode, and interpret Venn diagrams.

Described scale for PAIS Adaptive Mathematics	
Level 6	Find prime factors, lowest common multiples, and highest common factors. Start solving linear equations, simple inequalities, and word problems with one or two unknowns. Complete time calculations across different time zones, work flexibly with area, surface area, volume, and capacity. Start calculating angles in triangles and quadrilaterals, describing 3-D objects using their properties, and interpret maps using scales. Understand the concept of mean and median, and complete basic comparisons of the two measures. Read values in two-way tables and start calculating probabilities from spinners, dice, and random draws. Start interpreting Venn diagrams.
Level 5	Proficiently solve problems involving all four operations. Begin working with negative numbers and decimals. Identify properties of numbers such as prime, composite, square, and cube numbers. Start converting between metric units and can estimate mass of familiar objects, calculate perimeter and area of rectangles, and connect simple nets with 3-D objects. Interpret simple probabilities and data presented in various graphical forms.
Level 4	Use arithmetic operations with numbers up to five digits. Start using partitioning to solve addition and subtraction problems, solve multiplication problems involving large numbers in familiar contexts, and start solving division problems with remainders. Compare unit fractions with small denominators, calculate durations using analogue or digital clocks, and interpret simple unfamiliar measurement scales. Start reading maps with perspective views. Represent simple probabilities as fractions, and begin to use the language of probability to describe the chance of occurrence of simple familiar events.
Level 3	Begin to explore the relation between multiplication and division and solve simple problems involving addition, subtraction, multiplication, and division without remainders. Recognize odd and even numbers, find very simple fractions of whole numbers, and continue simple number patterns. Tell time to the minute and read confidently scaled instruments without subdivisions to measure and compare length, mass, capacity, and temperature. Begin to identify lines of symmetry, properties of shapes, and read maps with legends. Interpret simple comparative column graphs, and start reading many-to-one pictographs with keys.
Level 2	Develop understanding of place value up to four digits. Extend addition and subtraction skills to include adding two-digit numbers and demonstrating the relationship between addition and subtraction. Multiply two-digit by one-digit numbers and start recognising multiplication as repeated addition. Solve simple multi-step problems involving all four operations. Begin to read time to the quarter-hour, order lengths using informal measures, and identify reflections and rotations of simple familiar shapes.
Level 1	Use the four operations with single digit numbers, and understand place value of numbers up to three digits. Identify very simple patterns involving counting, and solve straightforward word problems involving addition and subtraction. Recognise different units of measurement, and read the scales of basic instruments, including time to the half hour. Compare the lengths of lines and identify familiar 2-D and 3-D shapes. Identify positions on simple maps. Interpret simple pie charts and bar graphs. Retrieve information from basic timetables and one-to-one pictographs.