Providing a Challenging and Engaging Curriculum

How does your current mathematics curriculum measure up?

A good mathematics curriculum consists of 12–15 substantial modules of work that link 2–3 aspects of mathematics together. These modules build through the key standards for each year group and share the following four characteristics.

**Characteristics of Effective Mathematics Curricula**

1. **Builds in progression and continuity through:**
   a. the key conceptual learning strands of the mathematics curriculum, e.g. place value, calculations, fractions & percentages, 2D shape and space
   b. both content skills and process skills within and between year groups
   c. highlighting priority achievement milestones in each module
   d. ensuring modules develop conceptual understanding of a key concept and include an application / problem solving aspect
   e. development of important mathematical language within each year, and from year to year.

2. **Promotes mathematical thinking, reasoning and communication by:**
   a. requiring pupils to explain their reasoning and justify their conclusions
   b. encouraging the use of different forms of presentation (tables, charts, graphs, diagrams, text) appropriate to the problem, solution or explanation
   c. expecting pupils to check and understand the reasonableness of their answers.

3. **Organizes learning throughout modules to allow a mixture of:**
   a. collaborative activity in pairs and groups, giving pupils time to think and reason
   b. asking pupils to comment on each other’s answers
   c. pupil-to-pupil discussion, through games and paired group tasks
   d. carefully-managed paired work (maths partners) to ‘rehearse’ explanations and justifications
   e. consolidation and practice to develop the necessary fluency and automaticity
   f. pupils generating their own questions for others to solve.
Develops positive attitudes and mathematical habits of mind by emphasising:

a. looking for patterns and generalizations
b. testing predictions and finding examples that are exceptions
c. engaging in investigations, projects and simulations to involve pupils in active problem-solving
d. rich verbal and written mathematical communication that enhances learning and promotes higher order thinking skills in learners
e. good work habits such as persistence and willingness to try alternative strategies and not giving up too easily.