Enrichment Topics

In the study of mathematics, pupils often differ in ability and progress. Such differences become more apparent at Key Stage 2. In order to cater for the needs of the academically high achievers, teachers can teach some enrichment topics at Primary 4,5 and 6 levels, so as to broaden pupils' horizons and arouse their interest in learning mathematics. Since these topics are not part of the basic curriculum, there is no need to assess pupils formally on them and the academically less able pupils are not required to study them. Teachers may adapt the teaching materials flexibly according to the pace of study and interest of the pupils, as well as time or other factors, so that pupils can learn more effectively. The following are some examples for teachers' reference:

Primary 4

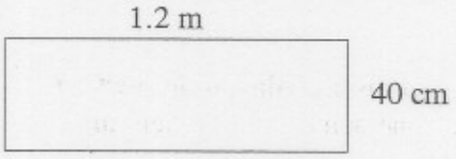
Topic: Changing Units in Metric System

Notes on Teaching:

1. Let pupils learn from everyday examples that quantities should be recorded in single units in the metric system.

2. Let pupils understand the methods of changing units in the metric system. (Exercises should only be restricted to changing between neighbouring units and small numbers.)
   e.g. 0.234 L = 234 mL
   1.06 kg = 1060 g
   4900 m = 4.9 km
   27 mm = 2.7 cm

3. Let pupils discuss how to select and use various metric units in solving problems.
   e.g. Find the perimeter and area of the following rectangle.



4. Reference materials: *Syllabuses for Primary Schools : Mathematics, 1983*
   (4.17 Changing Units in Metric System)

Primary 5

Topic : Recurring Decimals

Notes on Teaching :

1. Introduce recurring decimals through the process of changing fractions into decimals (exclude changing recurring decimals into fractions).

$$\frac{1}{9} = 1 \div 9 = 0.111...$$

$$\frac{2}{11} = 2 \div 11 = 0.1818...$$

2. Let pupils learn the way to express recurring decimals.

$$0.333... = 0.\dot{3}$$
$$0.727272... = 0.\dot{7}\dot{2}$$
$$0.1666... = 0.1\dot{6}$$

3. In changing a fraction into a decimal, let pupils explore on their own how to determine that the decimal is recurring. Let them appreciate the interesting number patterns generated when certain fractions are changed into decimals.

4. Reference materials : *Syllabuses for Primary Schools : Mathematics, 1983* (6.12 Recurring Decimals)

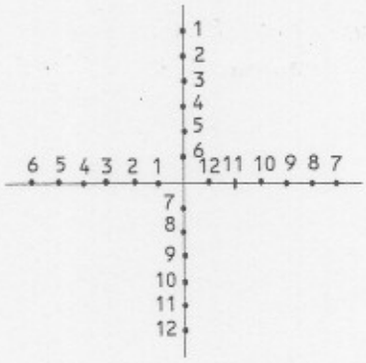
Primary 6

Topic : Curve Stitching

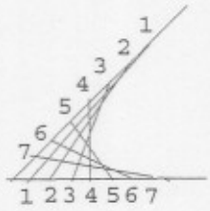
Notes on Teaching :

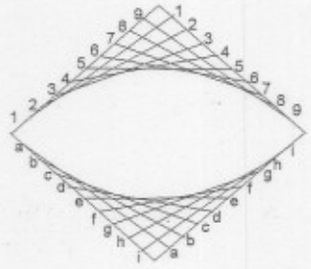
1. Let pupils learn and appreciate the patterns of curve stitching.

2. Let pupils complete the patterns according to instructions.
   e.g. Connect the same numbers by straight lines.



3. Let pupils design some simple patterns by themselves, e.g.





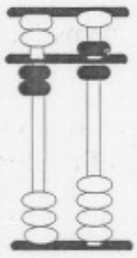
4. Reference materials : *Syllabuses for Primary Schools : Mathematics, 1983*
(6.8 Curve Stitching)

Topic : Addition and Subtraction on the Chinese Abacus

Notes on Teaching :

1. Discuss the use of Chinese abacus in everyday life with pupils.

2. Introduce the notation on the Chinese abacus to pupils.



2 6

3. Let pupils learn the method of calculating simple additions and subtractions by using Chinese abacus (but without reciting mnemonic rhymes).

e.g. 13 + 24
53 + 289
67 - 22
131 - 108

4. Let pupils discuss the differences between doing calculations by abacus and by pen.

5. Reference materials : *Syllabuses for Primary Schools : Mathematics, 1983*
(6.15 Stories of Calculating Devices)

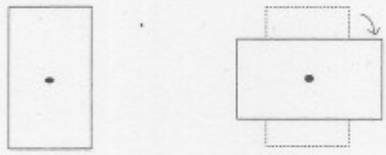
Topic : Rotational Symmetry

Notes on Teaching :

1. Let pupils identify shapes with line symmetry; guide them to find out all the lines of symmetry in the shapes.

2. Introduce shapes with rotational symmetry through activities :

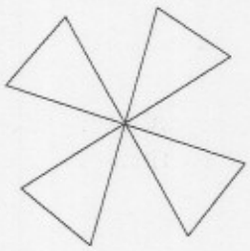
   Trace on a piece of paper the outline of a shape and stick a pin through its centre; then rotate the shape about the pin for one full turn and observe the number of times the shape overlaps with the traced outline.



3. Lead pupils to identify and appreciate shapes with rotational symmetry from the surroundings, e.g.

4. Let pupils produce shapes with rotational symmetry by themselves :

   Cut out a triangle and place it on a piece of paper, then draw the following shape by making use of the properties of rotational symmetry.



5. Reference materials : *Syllabuses for Primary Schools : Mathematics, 1983* (6.16 Symmetry)

Topic : Height and Angle of Elevation

Notes on Teaching :

1. Introduce the concept of the horizontal and vertical, as well as the meaning of the angle of elevation.

2. Ask pupils to make a simple clinometer by themselves.

3. Ask pupils to measure the angle of elevation with a clinometer.

4. Guide pupils to make simple measurements, e.g.
   a. measure the angle of elevation and the distance of an object
   b. draw diagrams on squared papers
   c. find out the height of the object by the scale used.

5. Reference materials : *Syllabuses for Primary Schools : Mathematics, 1983* (6.18 Simple Surveying)