

The Closing Bracket . . .

This time we feature an innovative Teaching Learning Material SOGOL (सौ गोले) (Students Own Gadget for Outstanding Learning) designed and developed by Sunil Bajaj, Head of the Mathematics department SCERT, Haryana. (See Figure 1.)

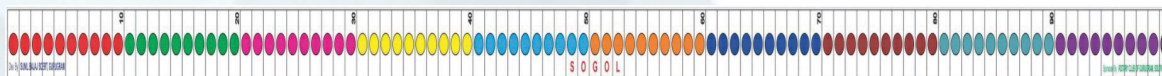


Figure 1

SOGOL is an approximately one metre long strip made of flex sheet, with dots arranged in colour blocks of ten. Each colour block occupies about 1cm which is further divided in to 10 mm.

SOGOL for Measurement

Since SOGOL is flexible, it may be used for measurement of straight and curved surfaces. We recommend that the 'Estimate and Measure' technique is used. Students can find out the area, perimeter, and circumference of real objects by measuring using the SOGOL strip.



Figure 2

SOGOL for making shapes with fixed perimeter.

Children may be asked to make different shapes (squares/ rectangles/ triangles/circles etc.) with fixed perimeter or area using a Sogol strip.

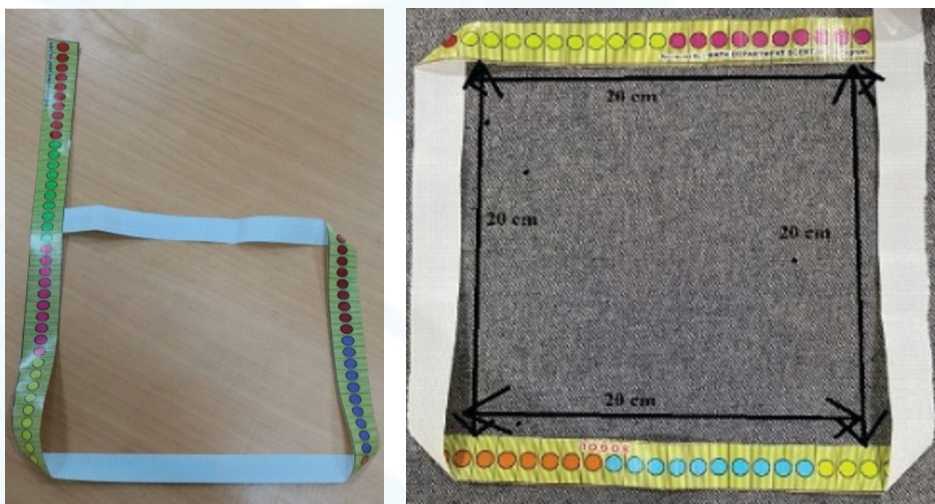


Figure 3: Square with Perimeter 80 cm (internal perimeter).

SOGOL for Number Sense

This game can be played in pairs. One player from each pair starts rolling the SOGOL strip from a corner in a given time (for example, until the partner recites the numbers from 1 to 10). One who folds more will be the winner by counting dots or colour blocks, according to the age group. Initially they may count 1, 2, 3, 4 ..., but later in groups of 10.

SOGOL for Number Operations

Divide the whole class into two groups. The group which reaches 20 (or any other pre-decided target such as 50 or 100) wins. The groups take turns to call out a number less than 4. As each number is called, it is added to the previous total. By using SOGOL as an aid to addition, students understand the pattern required to reach the target number and hence the rule to win. (Students may write the numbers on the strips using sketch pens; this can be erased later). The game can also be played by subtracting numbers starting from 20, with the winner being the one who reaches 0 first.



Figure 4

Hiding Dots

To introduce subtraction, show 9 (initially take 5 or 4) dots and ask them to count the dots; then hide some dots by folding without showing how many are hidden. Now ask how many dots are hidden. Two children can play, or they can play with parents at home.

Hold the strip in the fist and leave some of the part of the strip out. Show it to the children for 3 seconds and ask them to estimate the number of dots out of the fist and then the number of dots in the fist.

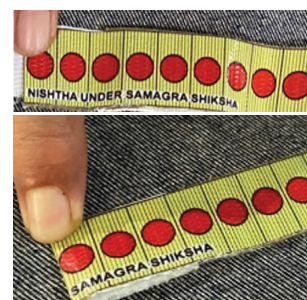


Figure 5

SOGOL for Fractions

We usually represent a given fraction say, $\frac{1}{4}$ by colouring 1 box out of 4 equal boxes. In the Sogol strip, try to visualise fraction using any two-colour dots. For example, 1 blue dot out of 4 dots $\frac{1}{4}$; 3 orange dots out of 4 dots $\frac{3}{4}$.



Figure 6

Think, what are the other ways to represent the above fractions on the Sogol strip?

5 orange dots out of 8 dots $\frac{5}{8}$

Also, 3 blue dots out of 8 dots $\frac{3}{8}$



Figure 7: Fractions using two colours

These are just a few of the ways that SOGOL can be used. For more details, contact Sunil Bajaj bajajsunil68@gmail.com