

Chapter 2 : The Multiplication Quest

Curricular Goal :

CG-8 The goal of this lesson is to enable the students to develop basic skills and capacities of computational thinking, namely, decomposition, pattern recognition, data representation, generalisation, abstraction, and algorithms to solve problems where such techniques of computational thinking are effective.

Competencies :

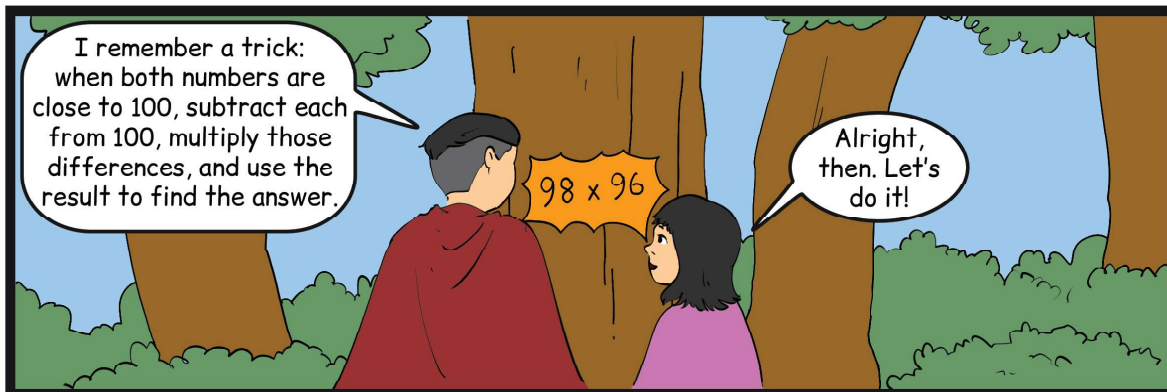
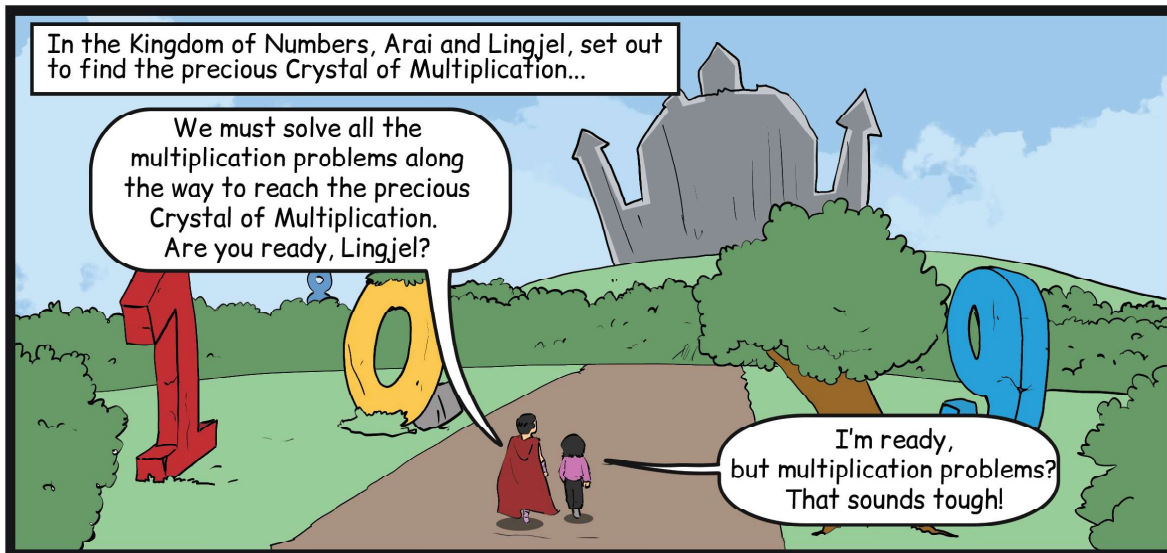
C-8.1 The students should be able to approach problems using programmatic thinking techniques such as logical operations and reformulate problems into series of ordered steps.

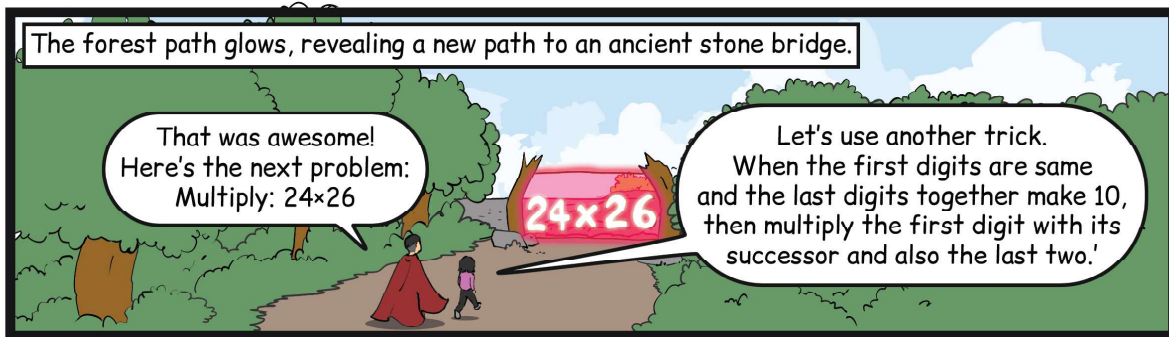
Learning Outcomes :

At the end of the chapter children will be able to multiply two digits numbers with the identification of pattern.

CHAPTER 2

THE MULTIPLICATION QUEST





They cross the bridge, reaching a giant stone gate and a problem written on it.

The next problem is to find the product:
 24×36 .

We can use the Cross-multiplication trick.

First, multiply the unit digits, 4 and 6 to get 24. Put 4 in the unit place and carry over 2.

Next, we cross multiply the digits, add the products and the carry over.
 $(2 \times 6) + (4 \times 3) + 2(\text{carry-over})$
 $= 12 + 12 = 24 + 2 = 26$.

$$\begin{array}{r} 2^2 \ 4 \\ \times 3 \ 6 \\ \hline 4 \end{array}$$
 $4 \times 6 = 24$

$$\begin{array}{r} 2^2 \ 4 \\ \times 3 \ 6 \\ \hline 6 \ 4 \\ 2 \times 6 + 4 \times 3 + 2 \\ = 26 \end{array}$$

We put 6 in the tens place and carry over 2 to the next place. Then we multiply the digits in the tens place and add the carry over.
 $2 \times 3 + 2(\text{carry-over})$
 $= 6 + 2 = 8$, which is the digit in the hundreds place.

$$\begin{array}{r} ? \ 4 \\ \times 3 \ 6 \\ \hline 864 \end{array}$$
 $2 \times 3 + 2 = 8$

The gate rumbles open, revealing a spiral staircase winding down into darkness.

This is so exciting! Let's see what's next.

They descend into a cavern lit by glowing crystals, and found another problem written on the wall

Find:
 48×53

Maybe we round one of the numbers and then adjust?

Great idea! Round 48 up to 50, multiply, and then adjust.

So,
 $50 \times 53 = 2650$.
 Now subtract 2×53 ,
 so $2650 - 106$
 $= 2544$!

A new path lights up, leading them to a shimmering pool of water with the last problem reflected on its surface.

Another clue!
'Square and subtract
when near the middle
of the century.'

So, if we
have numbers like
 51×49 , we use the
square trick?

51×49

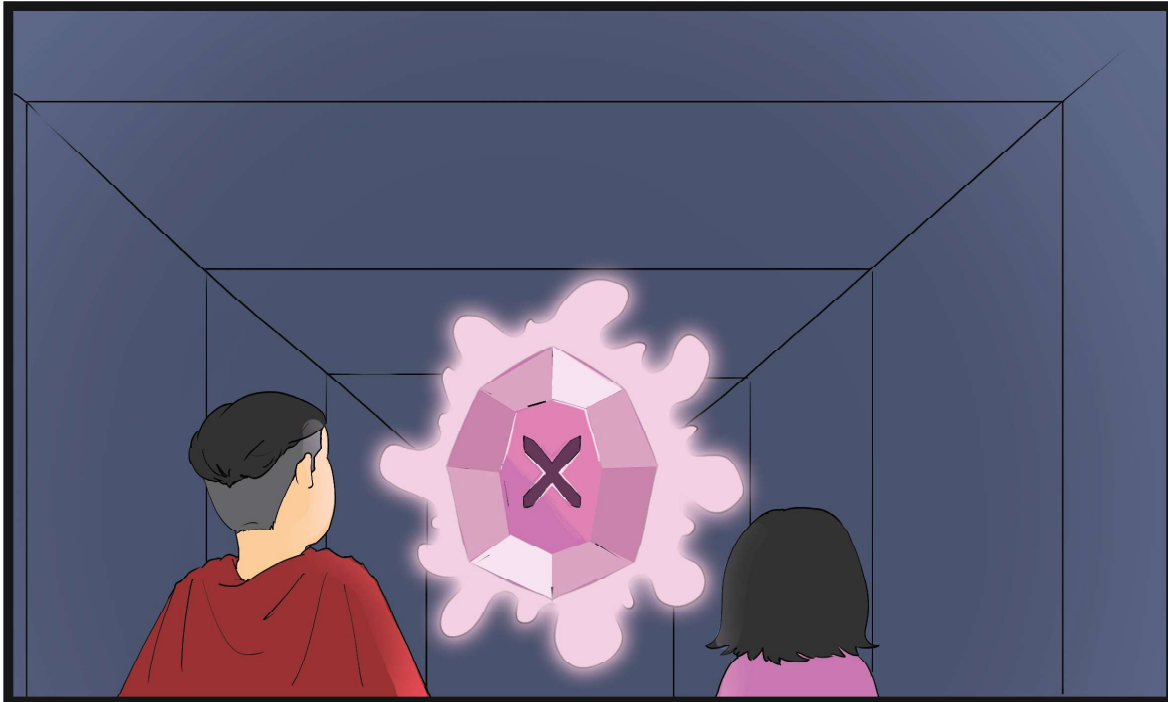
Right! Square
50 to get 2500,
then adjust by
subtracting 1.

So,
 $2500 - 1 = 2499$.
This crystal pool is
glowing!

51×49

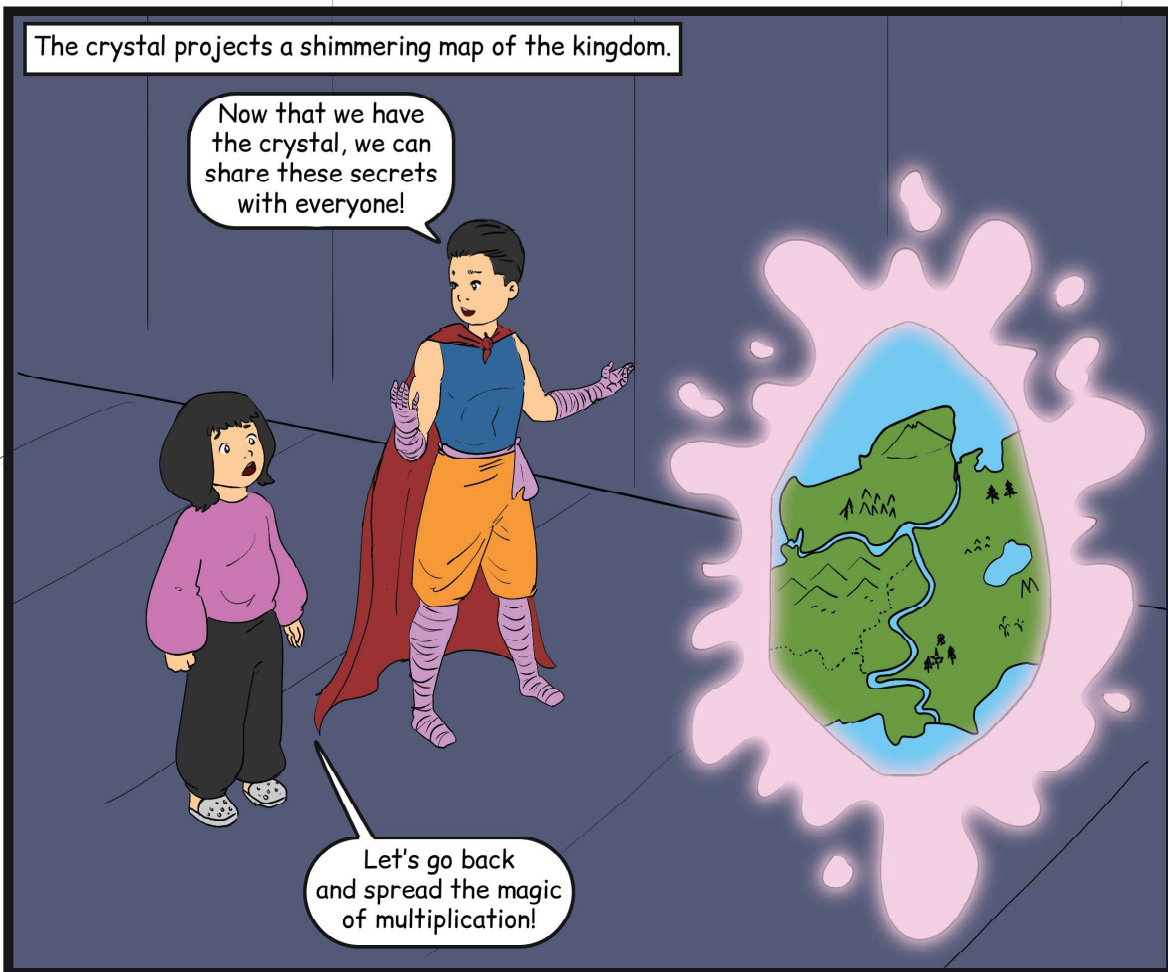
The pool transforms into a doorway, and they step through, finding themselves in a chamber filled with sparkling light.

Look, Arai!
It's the Crystal of
Multiplication!



The crystal projects a shimmering map of the kingdom.

Now that we have the crystal, we can share these secrets with everyone!



Let's go back and spread the magic of multiplication!

ACTIVITY

1. Find 99×97 .
2. Find the product: 98×92
3. Multiply: 47×48