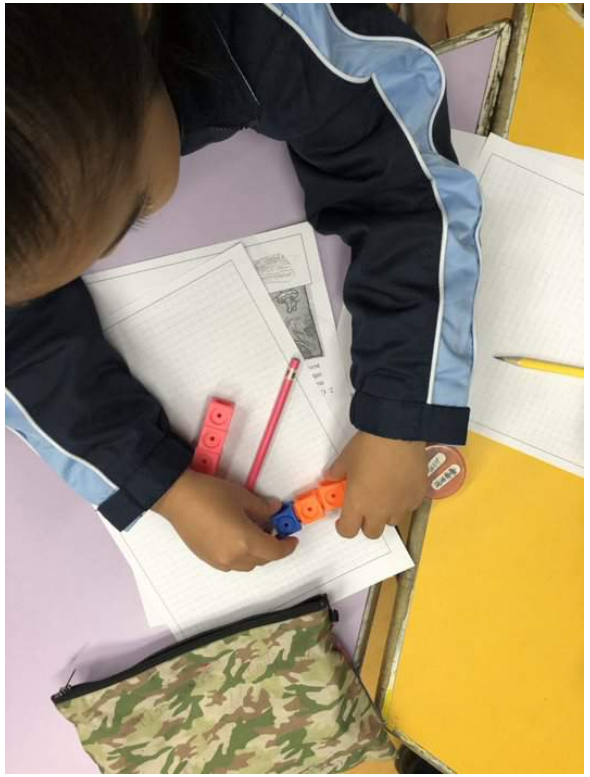
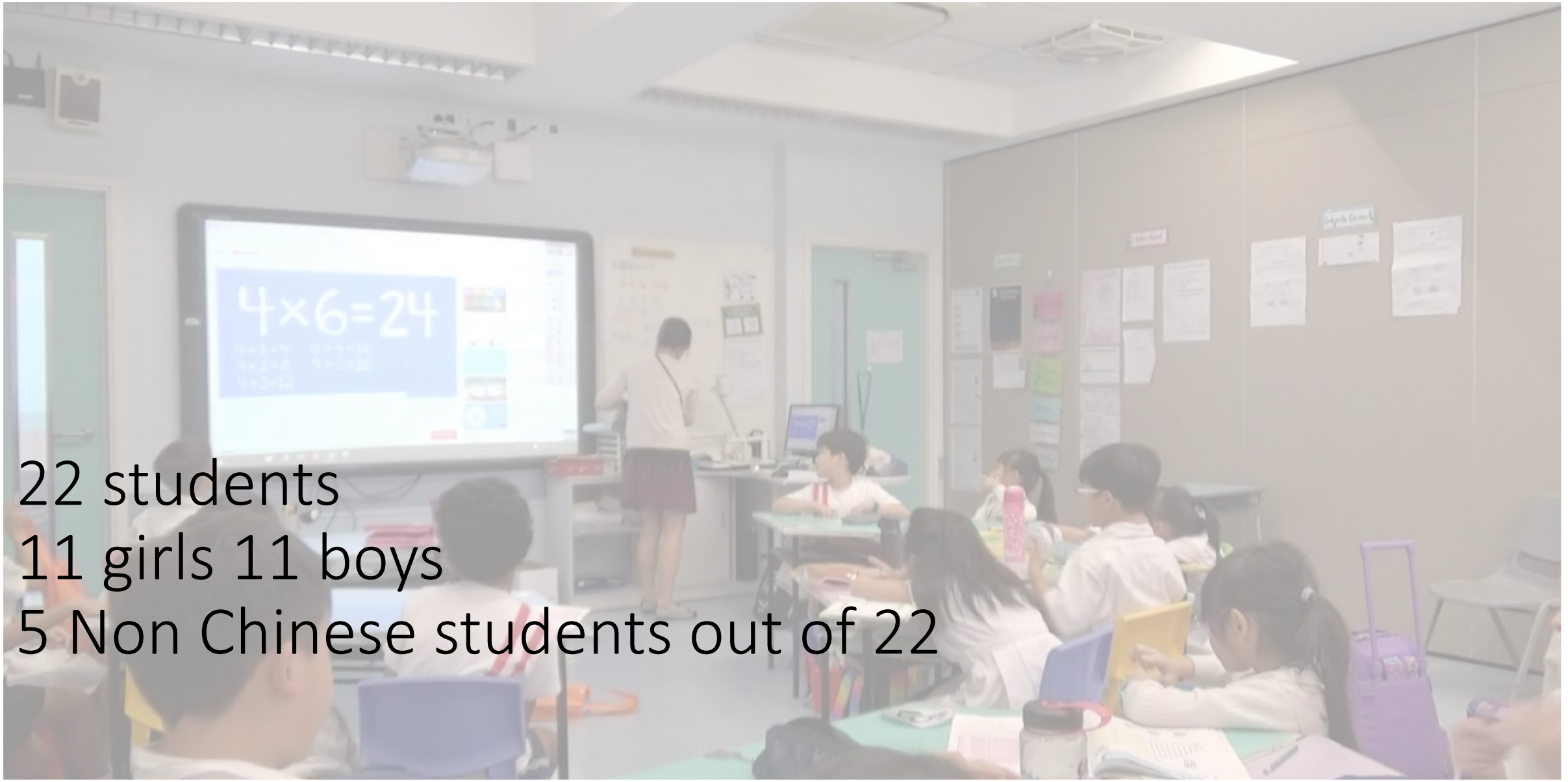
St Margaret's Co-educational Secondary and Primary School

Teaching multiplication through stories in multicultural classroom



by Ingrid Wong

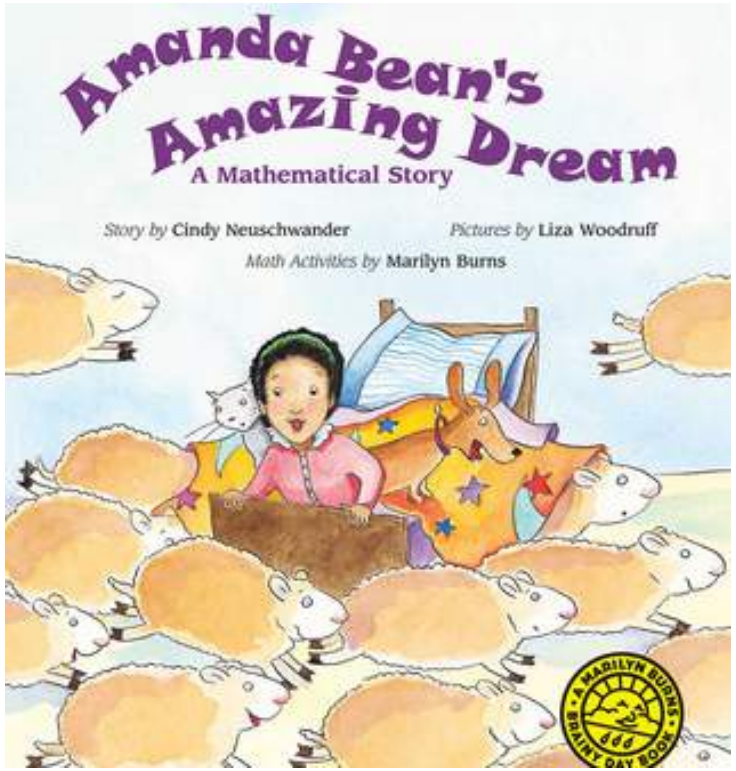
We are P2G1 !

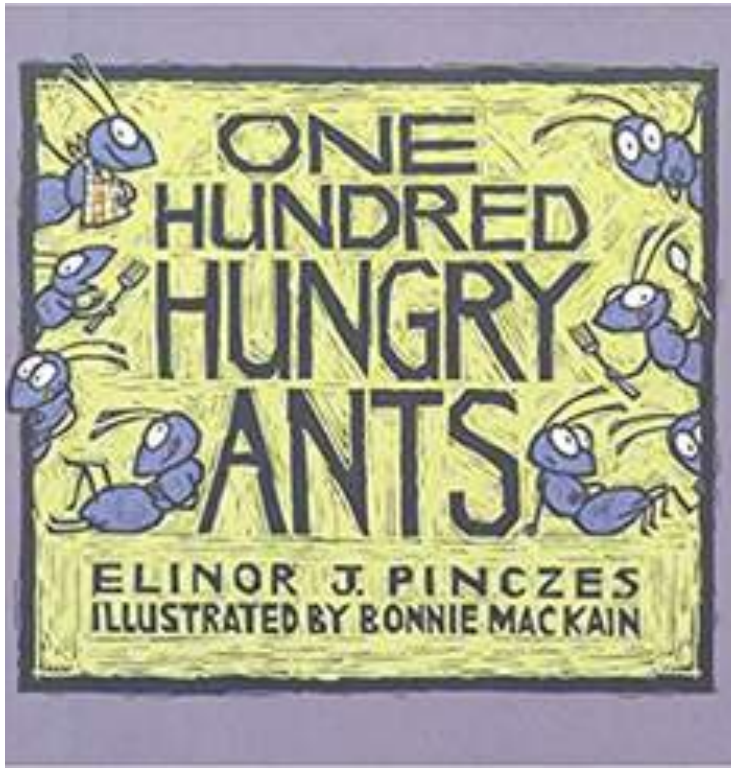


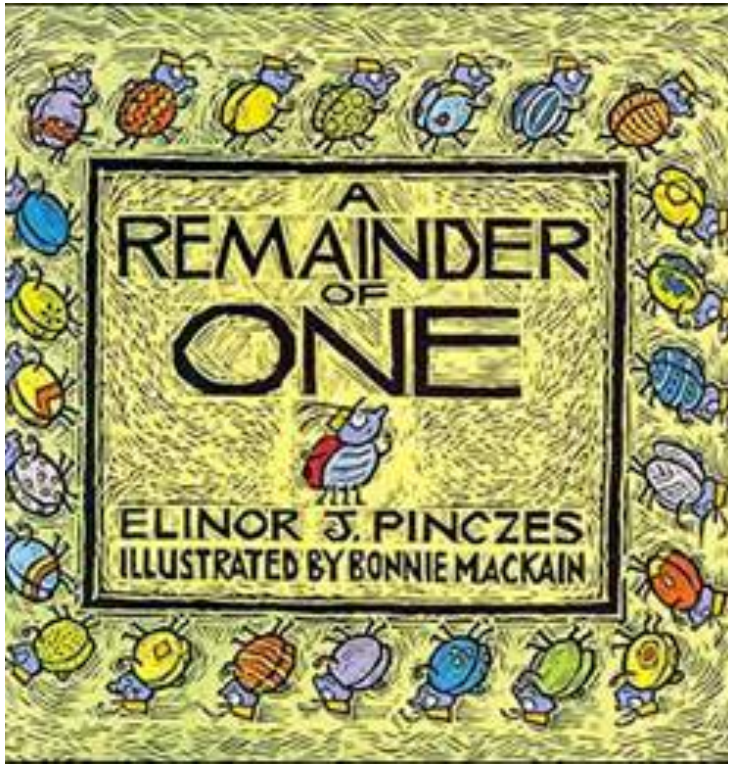
22 students
11 girls 11 boys
5 Non Chinese students out of 22

Storytelling to develop mathematics concept and mathematics language

3 stories targeting in incremental learning outcomes





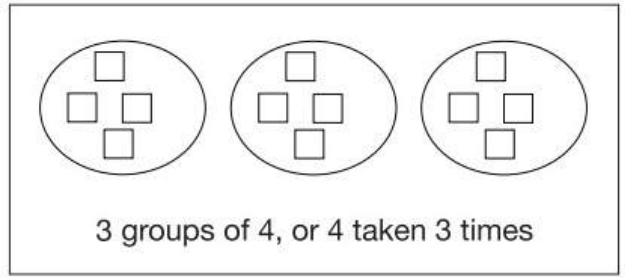


Why multiplication?

- NCS students may confuse with mathematical language, words used to describe/explain multiplication concept
- For example: each, groups of , multiply, multiplied by.

- Culture differences causes sentence structures used in the language of multiplication are challenging for many language learners
- For example: multiplicand and multiplier

  (three groups of 4 ; 3 x 4)



- Structured learning materials such as Textbook may limited the potential of student learning outcome
- Potential Learning outcome like relationship between multiplication and division

Why storytelling?

- Story context can bridge mathematical concept with students' real life experience.
- To help student to transit from their home language to mathematical language
- To maximum the learning outcome by using children's imagination while reading
- To connect students with mathematical language by providing visual aid

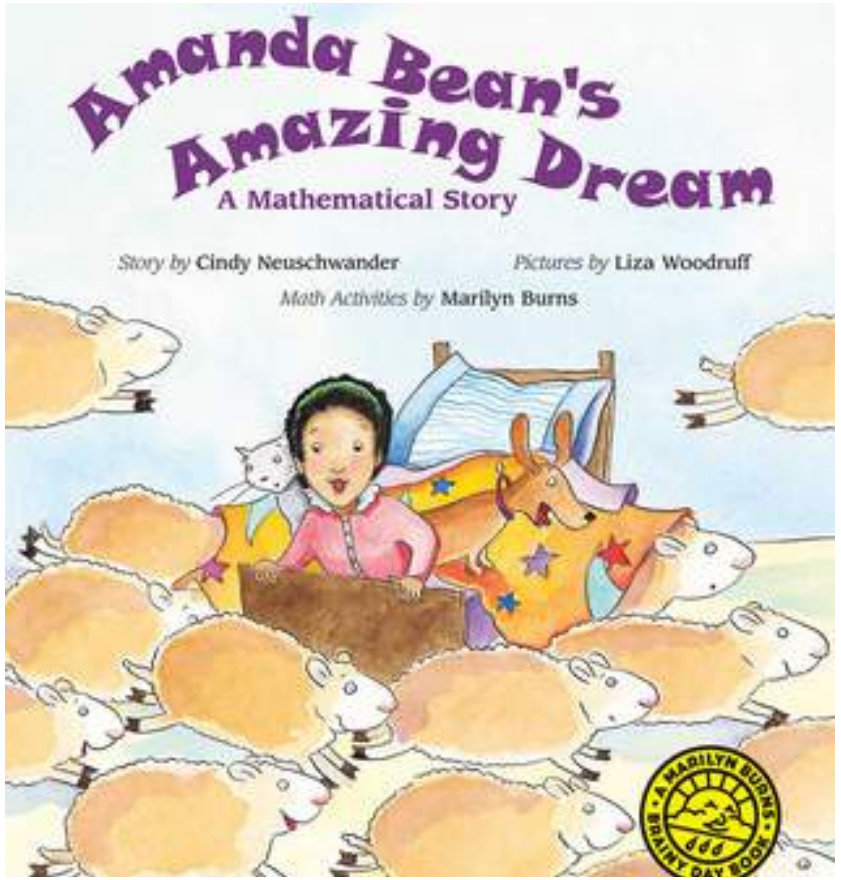
"Many children's books present interesting problems and illustrate how other children solve them. Through these books students see mathematics in a different context while they use reading as a form of communication"

(National Council of Teachers of Mathematics, 1989, p.27).

Learning Unit:2N3 Basic Multiplication

Learning outcomes:

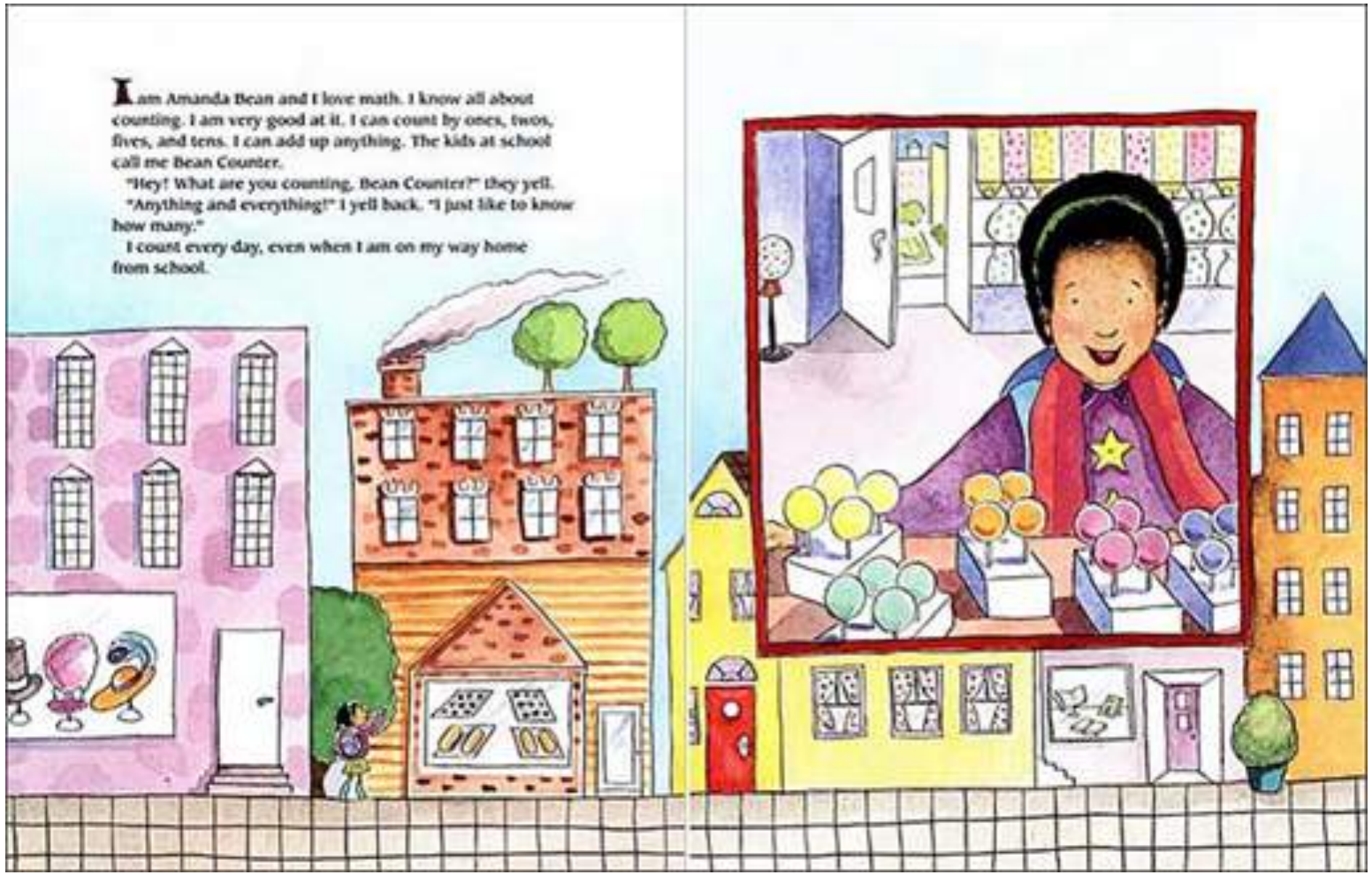
- Understand multiplication as repeated addition of the same quantities
- Understand and use the language of multiplication
- Model multiplicative situation as rows and columns in array models



AMANDA BEAN'S AMAZING DREAM by Marilyn Burns

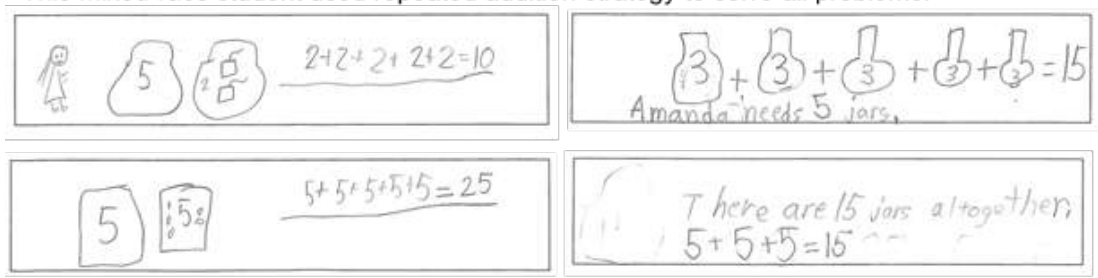
https://www.facebook.com/hku.ncs.math/videos/452054019074067/

Outcome: The context lends students modelling multiplicative situation as arrays.

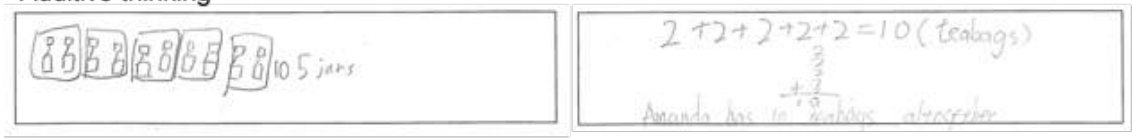


The context lends students modelling multiplicative situation as arrays.

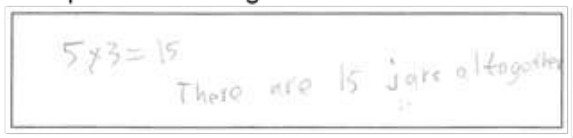
This mixed-race student used repeated addition strategy to solve all problems.



Additive thinking

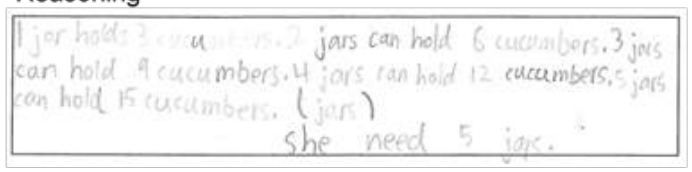


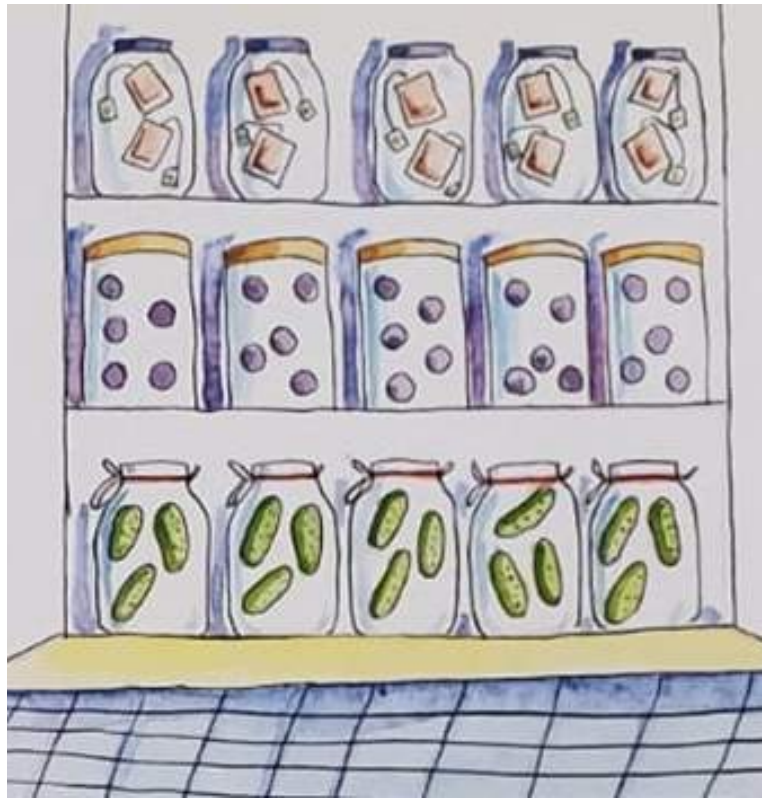
Multiplicative thinking



Repeated subtraction

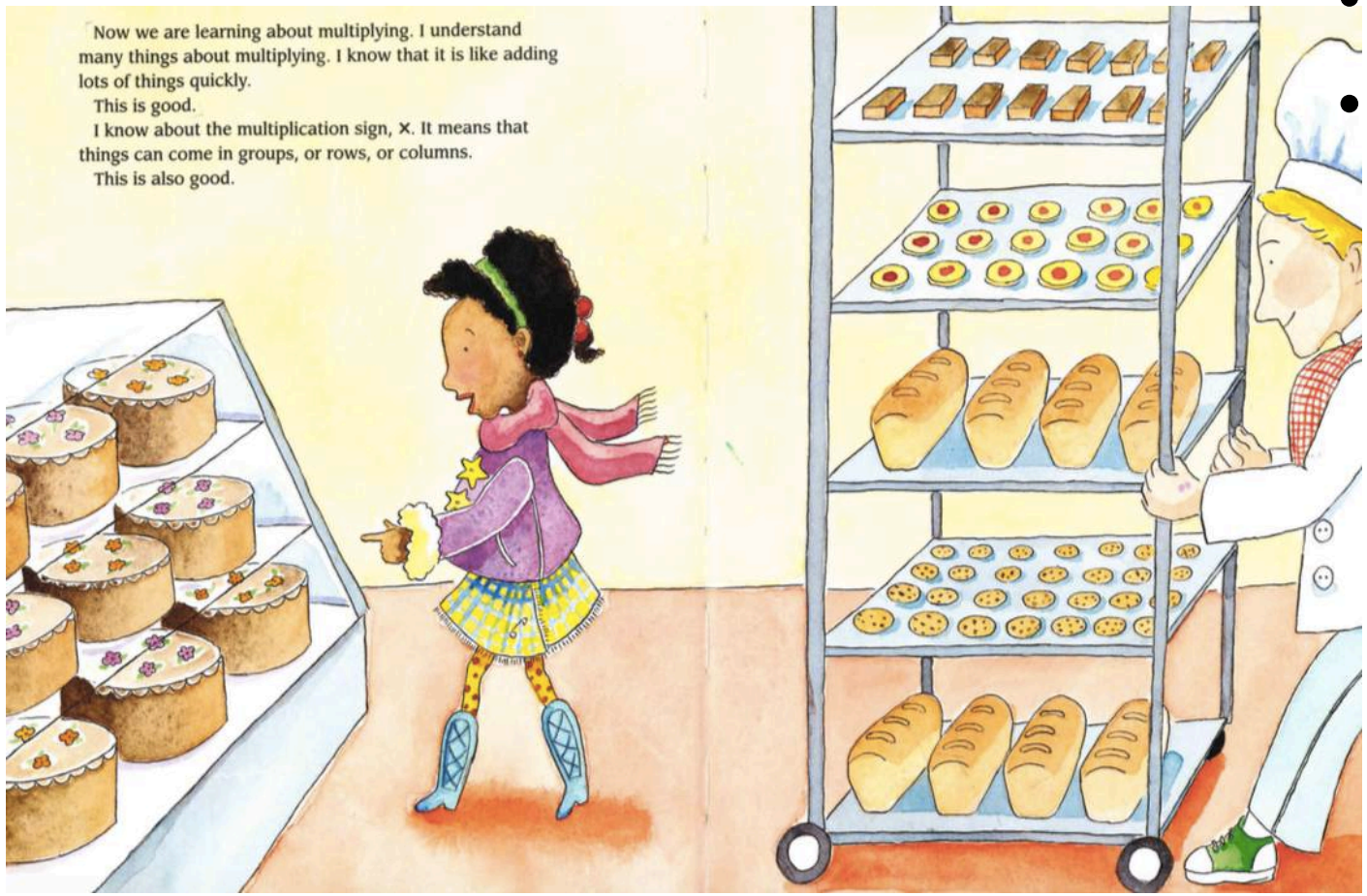
Reasoning





Expanding the potential of multiplication and division.
(Equal groups, multiplication), (Equal groups , division)

Worksheet



- How many loaves of breads in a row?
- How many rows?
- Are there any other arrangement?

(c) How did you arrange the ?

I arrange them into groups of 3. And there are 6 groups.

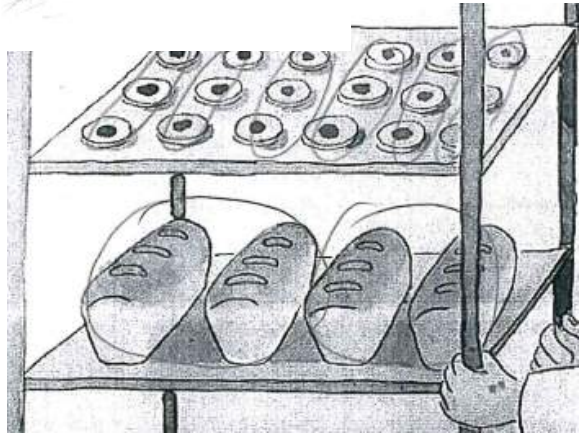
(d) There are 18 altogether.

3+3+3+3+3+3
6 6 6
12 6
18

(e) How did you arrange the ?

I arrange them into groups of 2. And there are 2 groups.

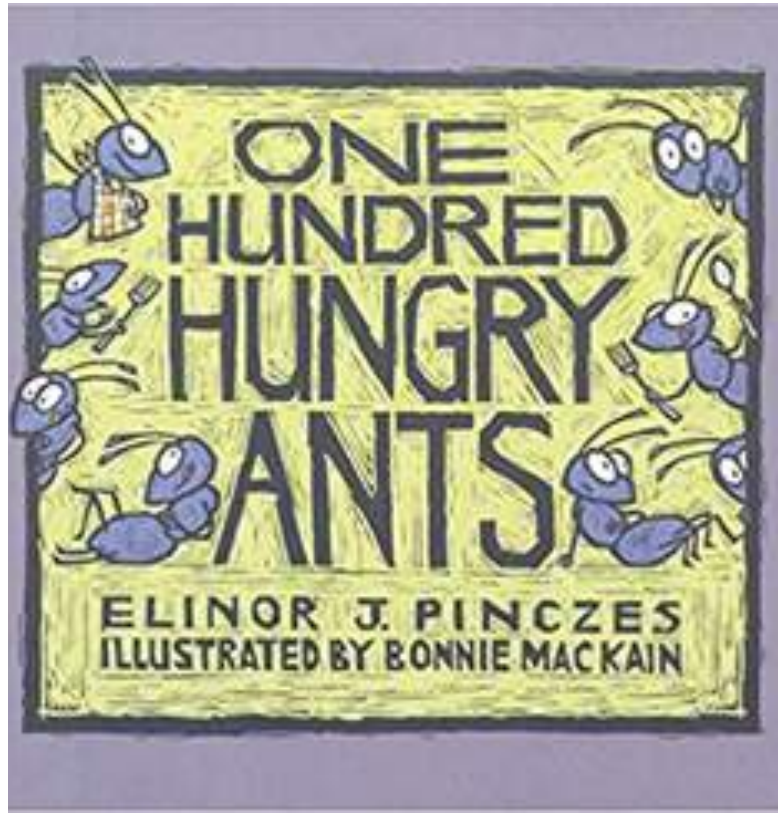
(f) There are 4 altogether.



Learning Unit: Multiplication of 4 and 8

Learning outcomes:

- relationship between multiplication and division
- Partitioning (Sharing)



ONE HUNDRED HUNGRY ANTS by Elinor J. Pinczes

A Story that have underlying patterns and structures

"Stop!" yelled the little ant. "We're moving way too slow!
More of the food will be gone unless we hurry up. So ...
with 4 lines of 25 we'd get there soon. I know."

Manipulatives

1. the book context start off ..

With 1 row of 100

With 2 rows of 50

with10 rows of 10

2. use block to advance mathematical thinking and explore array

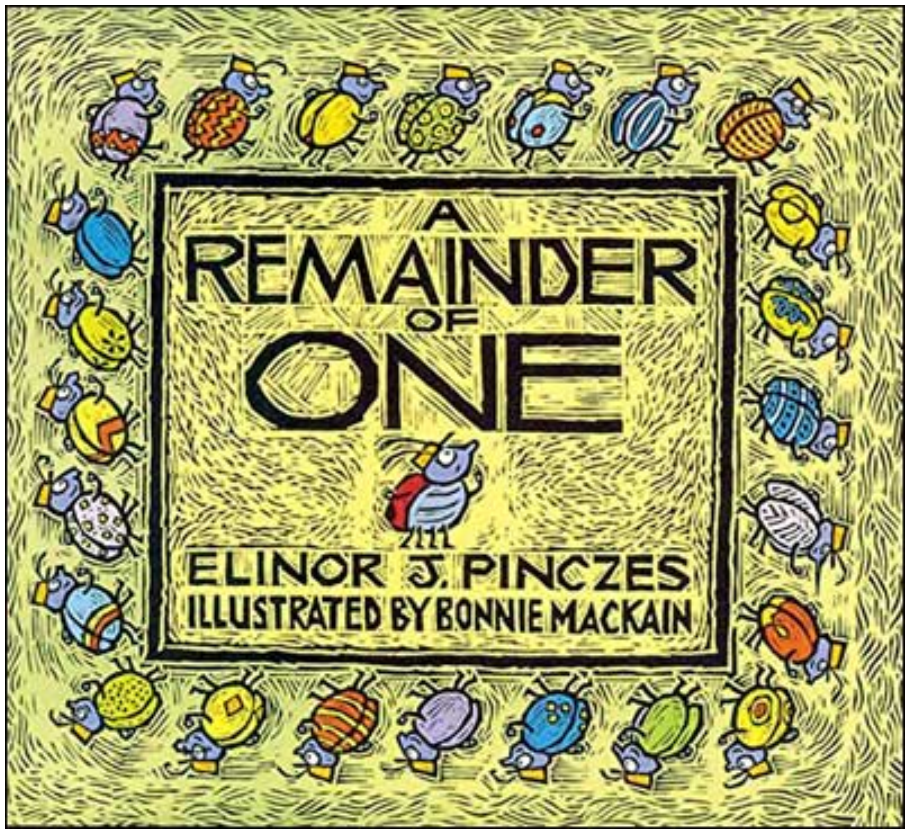
3. Enforce mathematical language by writing number sentence

For example : 4 x 4=16 ; 2 x 8; 8 x 2 ; 1x 16

Learning Unit: Multiplication of 7 and 9

Learning outcomes:

- relationship between multiplication and division
- Partitioning (Sharing)

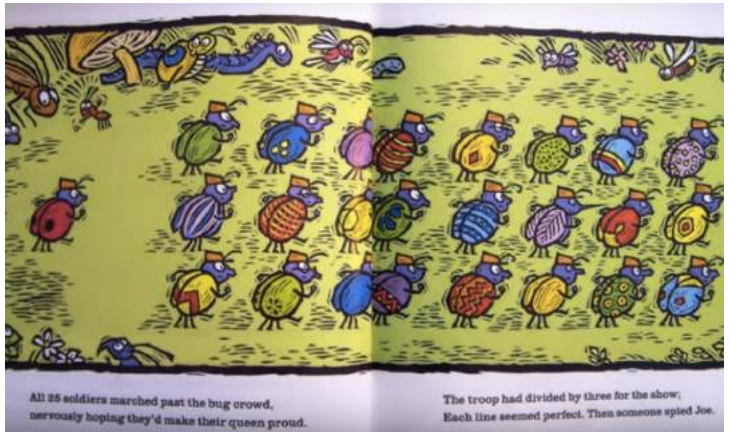


A REMAINDER OF ONE by Elinor J. Pinczes

'the troop had divided by four for the show. The lines all looked even, till they spotted Joe.'

Story context is to solve a mathematical problem about soldier joe, helping Joe to participate in the parade not being left out.

1. What is a remainder?
2. How did 25 troops arrange themselves?
3. with 2lines -> with 3 lines-> with 4 lines -> with 5 lines



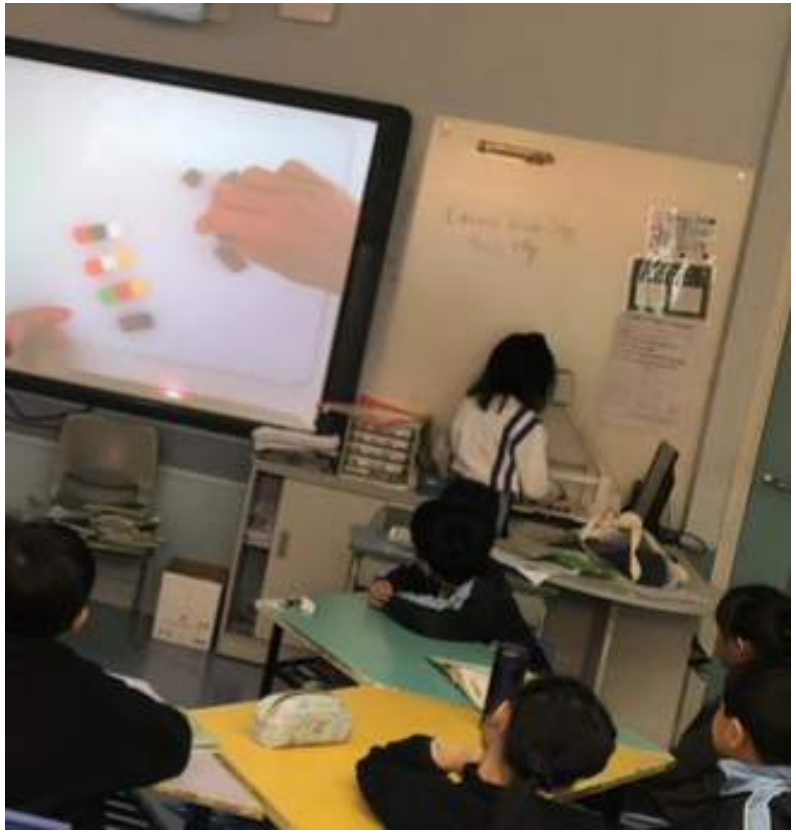
The systematic use of structure and numbers sentence in the picture, allow students to understand and develop problem solving strategies

Explore with different arrangement of the blocks in lines

How should we arrange the blocks?

- With 2 lines
- With 3 lines
- With 4 lines

Modeling "*One for you and one for me*" in which all bugs are distributed until one was left as the remainder.



Thank You

Q & A