Composition and decomposition of numbers:

Cherry Model

by Emily S.W. Sum

OBJECTIVES AND STANDARDS

To illustrate the composition and decomposition of numbers using different representations.

YOU NEED

- Cubes and/or counters
- Cherry models

CULTURAL/LANGUAGE CONSIDERATIONS

Students usually struggle with the language required to interpret problems. Teachers should be mindful of whether language is the stumbling block that prevents students from demonstrating their mathematical knowledge and understanding. Therefore, teachers should present problems in multiple ways/representations, and allow students to show possible alternative methods for solving number problems. Avoid passive constructions, such as "can be split into".

DIRECTIONS

Ask students to move cubes/counters/items from a given set to cherry models, and write down the numbers that describe the quantities on the paper. Provide them with practices and pay particular attention to ensuring that students can compose and decompose two numbers easily. Two models can be used to differentiate the actions of composition and decomposition.
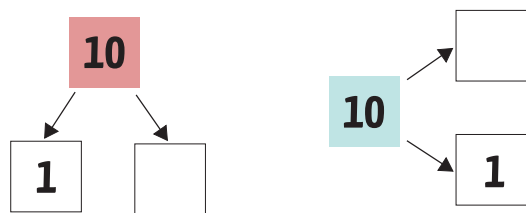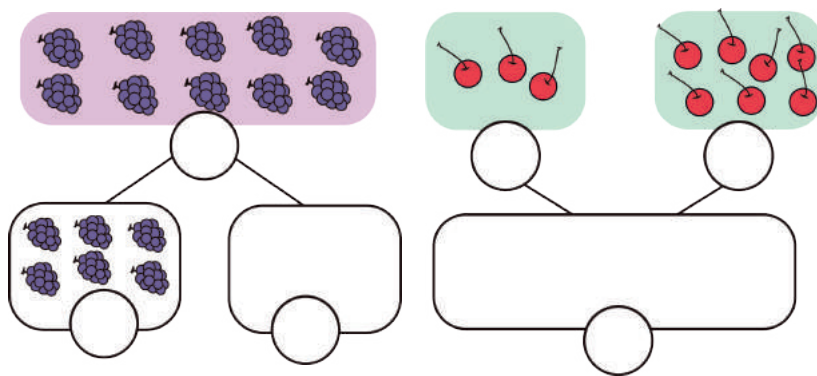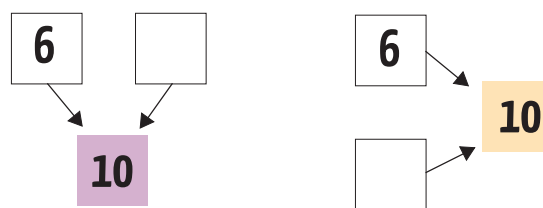
Figure 1: Decomposition

Figure 2: Composition

VARIATION

Reinforce the link between known number facts and addition/subtraction problems to support calculation, using multiple representations.
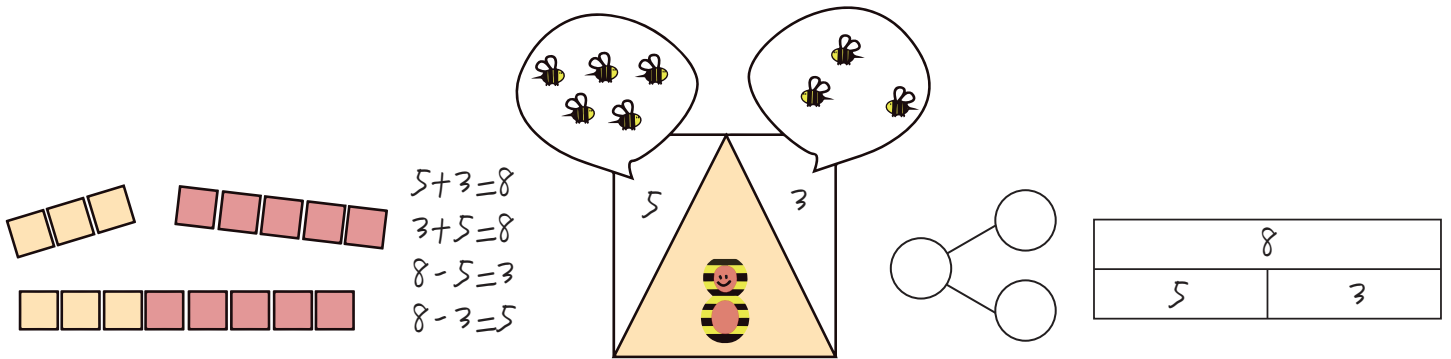
$$5+3=8$$
$$3+5=8$$
$$8-5=3$$
$$8-3=5$$

Figure 3: Multiple representations

Number Line	$8 + 7 = 15$
Cherry Model	$8 + 7 = 15$
Ten Frame	$8 + 7 = 15$
Bar Model	$8 + 7 = 15$

Colour the grids to make 10. Use two different colours to represent the two numbers.

$2 + 8 = 10$
$1 + 9 = 10$
$7 + 3 = 10$
$5 + 5 = 10$
$4 + 6 = 10$
$8 + 2 = 10$
$10 + 0 = 10$
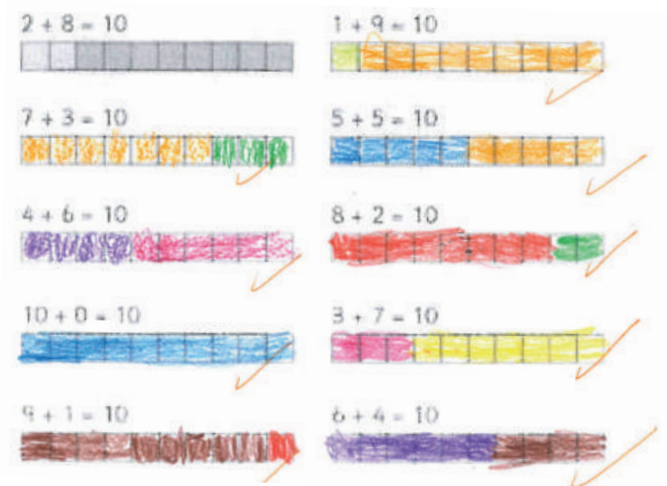$3 + 7 = 10$
$9 + 1 = 10$
$6 + 4 = 10$

Figure 4: Students' work

C-RODS

OBJECTIVES AND STANDARDS

To illustrate the composition and decomposition of numbers using different representations.

YOU NEED

- Cuisenaire rods
- Interlinking cubes OR
- Cuisenaire® Rods / Relational Rods + by mathies

DIRECTIONS

Ask students to make different combinations for a given number using (physical) Cuisenaire rods or interlinking cubes. Work out all the combinations and write the number sentences.
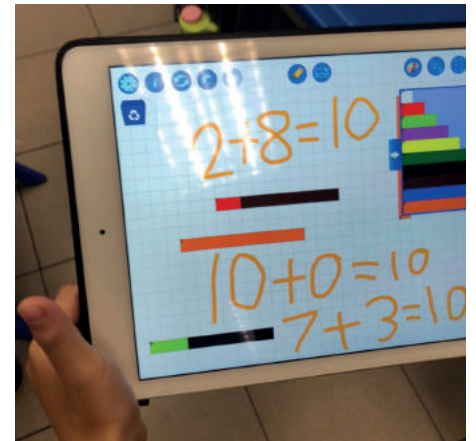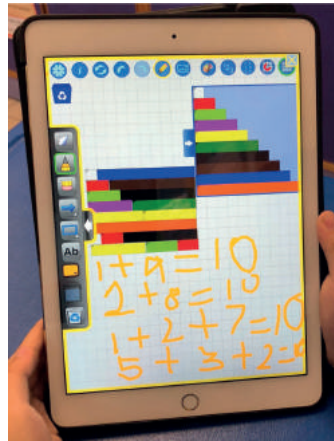

Figure 1: Using applets

VARIATION

Ask students to write their own numbers and find the combinations.

Figure 2: Using counters

QTN-T Project: Supporting the Learning and Teaching of Mathematics for
Non-Chinese Speaking (NCS) Students in Primary Schools (2019-20)

P.3