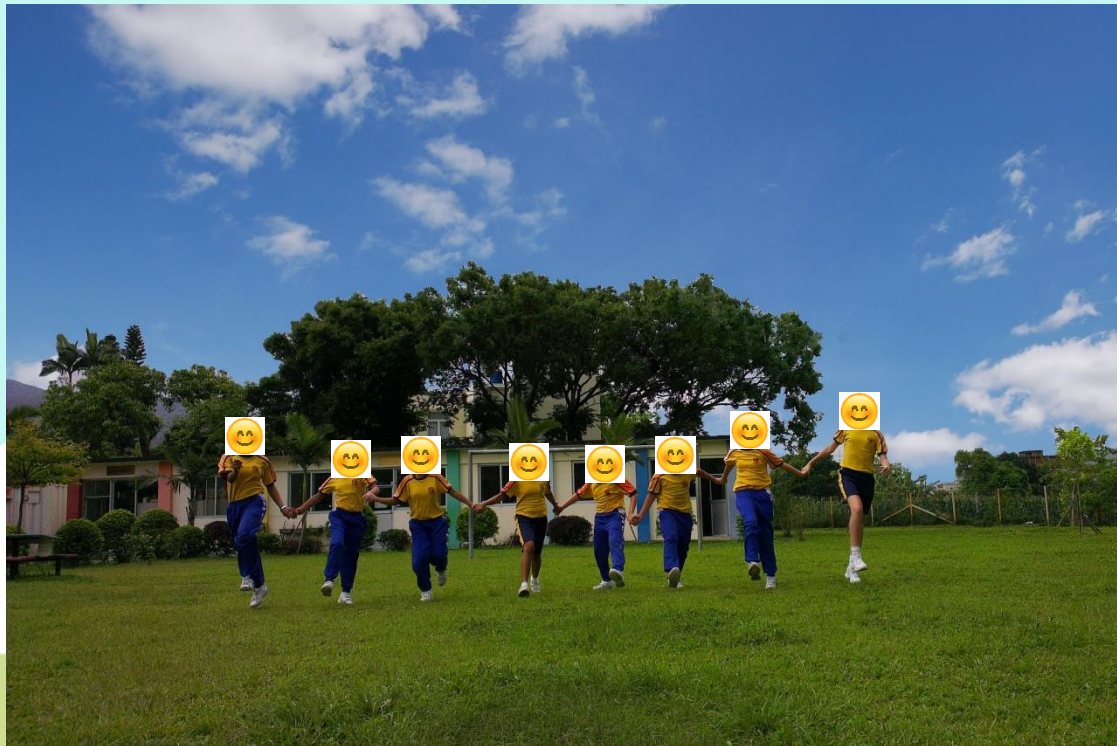


Pat Heung Central Primary School Math Team



80% NCS students
including students from Nepal, Pakistan, The Philippines,
Germany, Africa, Sri Lanka, Britain, Japan...

7
classes



Queenie:
‘最緊要有心!’

7 math
teachers

Primary 5

27 students



Pat Heung Math teachers had the first meeting with
HKU Supporting team.



Pre-stage

Pat Heung Central Primary School
2017 – 2018 Primary 5
Mathematics
Baseline Revision
(Fraction)

Name: _____ () Date: _____

Answer the following questions.

- (a) $\frac{8}{()} = 1$
(b) $\frac{()}{5} = 1$
(c) $\frac{()}{24} = 1$
(d) $\frac{()}{1234} = 1$

- $\frac{1}{3}$ of 12 is _____.



Revision test for
P.5 about fraction
on 19 Oct 2017

- See from the pictures, write the fractions that the shaded parts stand for.



- $\frac{1}{2} + \frac{1}{2} = \underline{\hspace{2cm}}$ (simplest form)

- Find the answers in their simplest form.

(a) $\frac{5}{12} + \frac{9}{12}$

(b) $1\frac{5}{7} + 2\frac{3}{7}$

- Convert the following improper fractions into mixed numbers or whole numbers.

$$\frac{17}{3} = \underline{\hspace{2cm}}$$

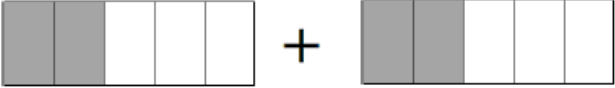
- Convert the following improper fractions into mixed numbers or whole numbers.

$$\frac{54}{9} = \underline{\hspace{2cm}}$$

- Convert the following mixed number into improper fraction.

$$2\frac{4}{7} = \underline{\hspace{2cm}}$$

5. (32) See from the pictures, write the fractions that the shaded parts stand for.

for.  = $\frac{(\quad)}{(\quad)}$

$\frac{(4)}{(10)}$, $\frac{(2)}{(2)}$, $\frac{(2)}{(5)}$

6. (36) $\frac{1}{2} + \frac{1}{2} =$ _____ (simplest form) $\frac{1}{1}$ $\frac{1}{2}$ $\frac{2}{2}$ $\frac{2}{4}$

Students had difficulty in interchanging improper fraction and mixed number.

7. (32) Convert the following improper fractions into mixed numbers or whole numbers. $\frac{17}{3} =$ _____

$3\frac{2}{3}$ $1\frac{8}{3}$

8. (48) Convert the following improper fractions into mixed numbers or whole numbers. $\frac{54}{9} =$ _____

$9\frac{3}{6}$ $1\frac{6}{9}$ $\frac{54}{9} = 5\frac{9}{9}$ $\frac{6}{9}$

9. (52) Convert the following mixed number into improper fraction. $2\frac{4}{7} =$ _____

$\frac{12}{9}$ $\frac{8}{7}$ $\frac{39}{7}$

$2\frac{4}{7} = \frac{36}{7}$ $2\frac{4}{7} = \frac{49}{7}$

Rough Work

7. $\frac{17}{3} = \frac{34}{3}$ $\frac{17}{34}$

8. $\frac{54}{9} = \frac{108}{9}$ $\frac{54}{108}$

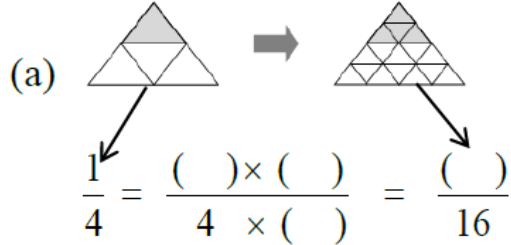
9. $2\frac{4}{7} = \frac{8}{7}$

5

Expanding and Reducing Fractions

11. Expand the following fractions.

(32)



$$\frac{(1) \times (4)}{4 \times (16)} = \frac{(4)}{16}$$

$$\frac{(1) \times (3)}{4 \times (4)} = \frac{(3)}{16}$$

(40)

(b) $\frac{3}{8} = \underline{\hspace{2cm}} = \frac{9}{(\quad)}$

$$\frac{3 \times 3}{8 \times 8} = \frac{9}{(64)}$$

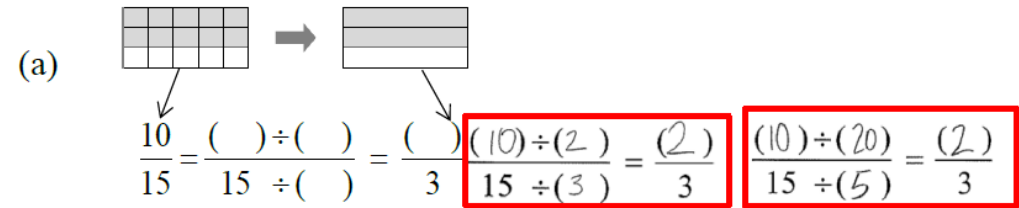
$$\frac{3 \times 3}{8 \times 2} = \frac{9}{(16)}$$

$$\frac{3 \div 3}{8 \div 4} = \frac{9}{(2)}$$

$$\frac{6}{8} = \frac{9}{(8)}$$

10. Reduce the fraction to its simplest form.

(16)



(56)

(b) $\frac{16}{20} = \underline{\hspace{2cm}}$

$$\frac{16 \div 4}{20 \div 2} = \frac{4}{10}$$

$$\frac{16 \div 8}{20 \div 10} = \frac{2}{2}$$

$$\frac{16^4}{20^4} = 1$$

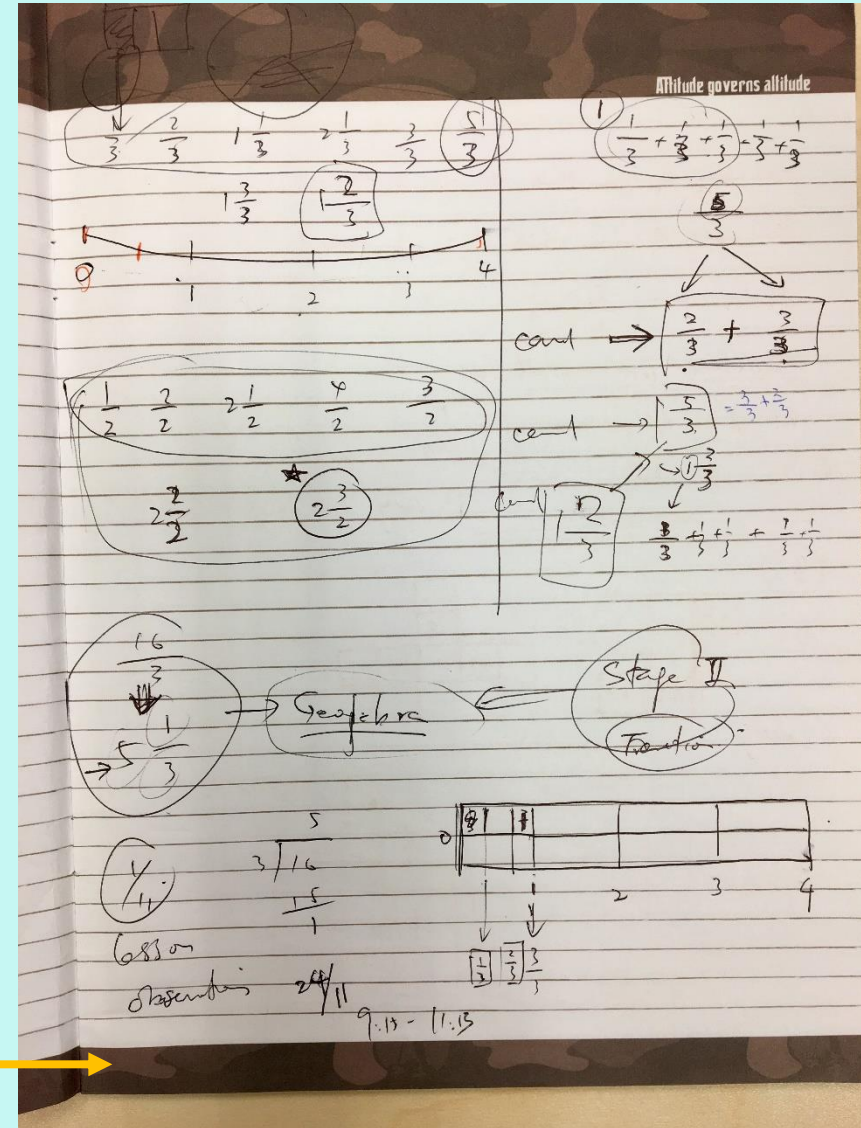
$$\frac{16 \div 8}{20 \div 5} = \frac{2}{4}$$

$$\frac{16}{32} = \frac{32}{20}$$

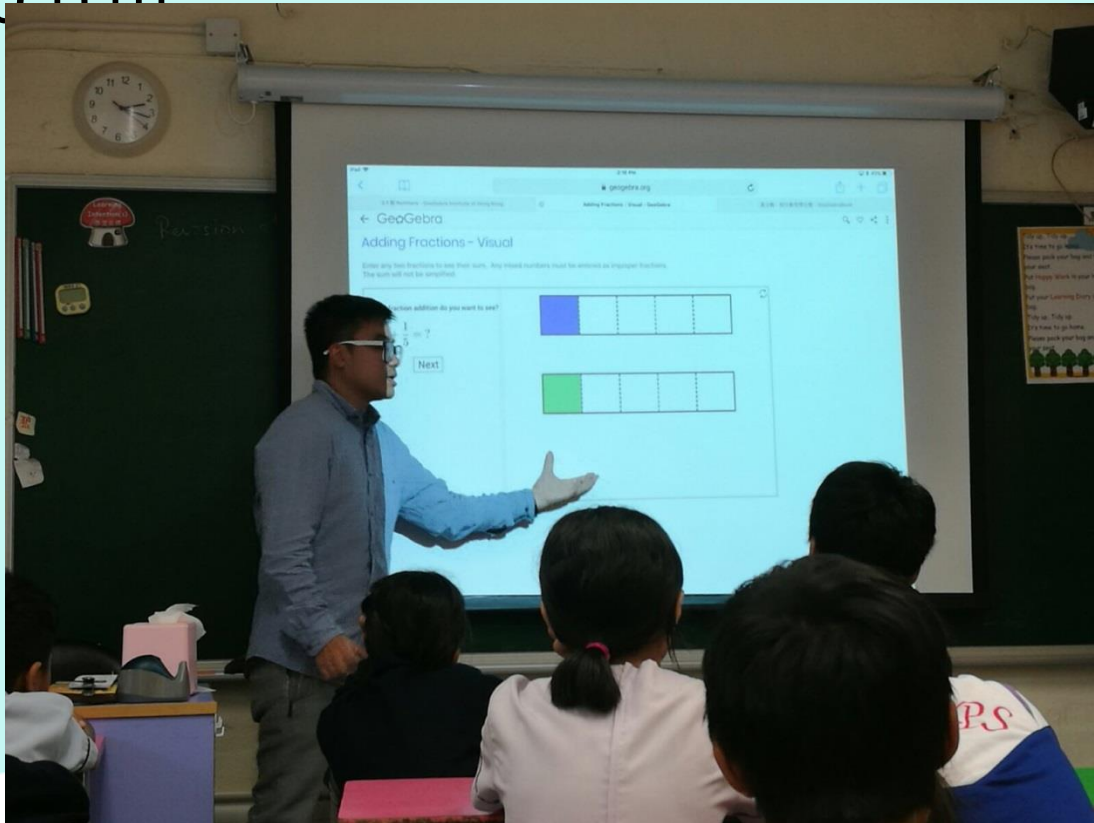
$$\frac{16 \div 2}{15 \div 3} = \frac{8}{5}$$

With picture prompts, students were more able to expand and reduce fractions.

Co-planning


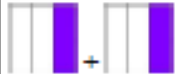
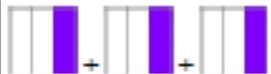

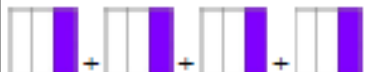



Lesson Observation 1-11-2017 2:00 – 2:30 p.m



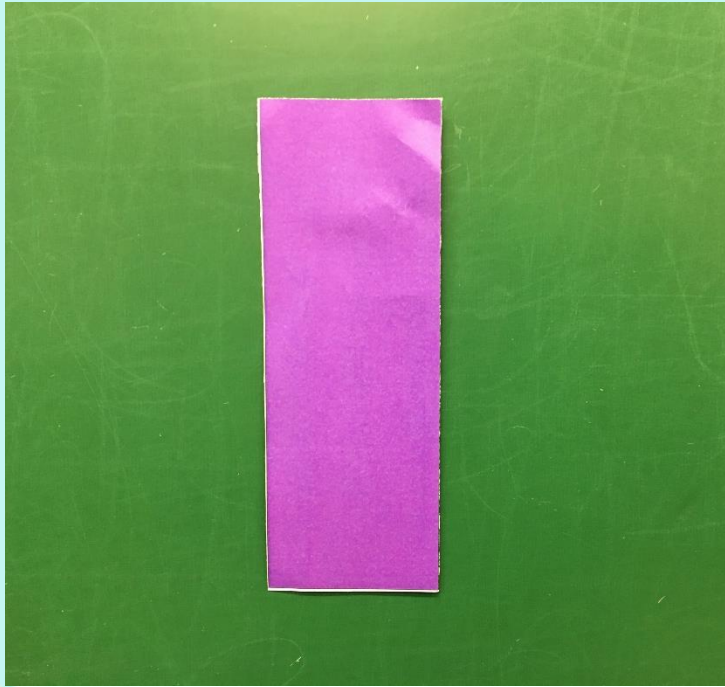
Name: _____ ()

Date: _____

<p>1.</p> 	<p>It is read as: <u>one third</u></p> <p>It is written as: $\frac{(1)}{(3)}$</p>	
<p>2.</p> 	<p>There are ____ <u>one third</u></p> <p>It is read as: <u>Two thirds</u></p> <p>$\frac{1}{3} + \frac{1}{3} = \frac{(\quad)}{(3)}$</p>	
<p>3.</p> 	<p>There are ____ <u>one third</u></p> <p>It is read as: <u>Three thirds</u></p> <p>$\frac{1}{3} + \frac{1}{3} + \frac{1}{3} = \frac{(\quad)}{(3)}$</p>	 <p>= ____ (whole number)</p>
<p>4.</p> 	<p>There are ____ <u>one third</u></p> <p>It is read as: <u>Four thirds</u></p> <p>$\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} = \frac{(\quad)}{(3)}$ (Improper fraction)</p>	 <p>$\frac{4}{3} =$ ____ (mixed number)</p>

Get your eyes ready!
Get your ears ready!
Get your brain ready!

Get their senses ready!



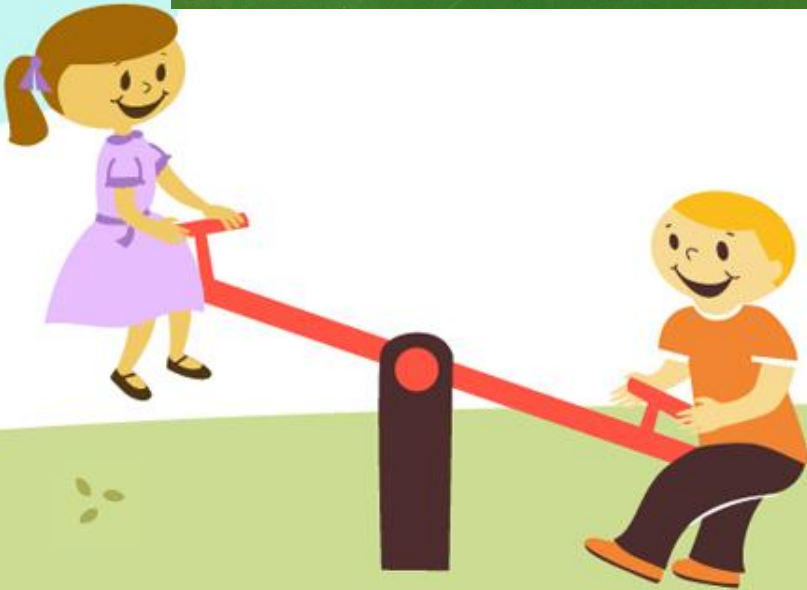
Wait and think first!

T: "What is this?"

S: "1"

T: "Can you give the answer with a fraction?"

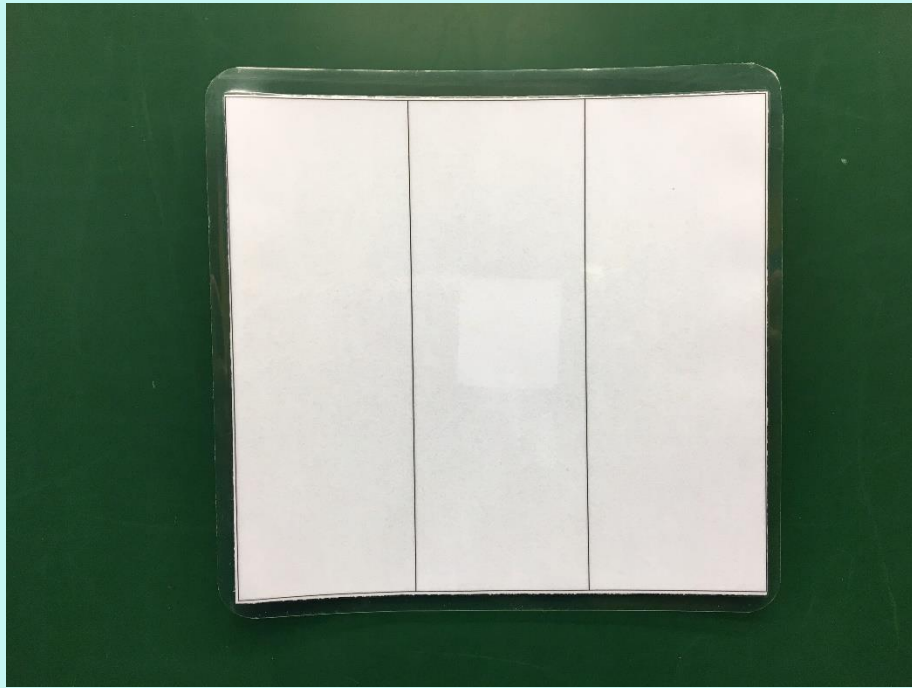
S: "1 over 1, 4 over 4....."



T: "Hm...Can it be $\frac{1}{3}$, $\frac{1}{4}$,?"

Ss: "Yes,... No,..."

T: "How can we make it as $\frac{1}{3}$?"



S: "We need a denominator."

Inspired students
to consider about
the idea of unit
fraction



好難讀呀
!~~~

One half, two halves, three halves,.....

One third, two thirds, three thirds,

One fourth, two **fourths**, three fourths, four fourths,

One fifth, two **fifths**, three fifths, four fifths, five fifths, six fifths,...

One sixth, two **sixths**, three sixths, four sixths, five sixths, six sixths,.....



Ah~~ Why don't we just teach Ss to read the numbers directly and add the word 'over' in between??!!!



Math Language:

It is read as: one third

It is written as: $\frac{1}{3}$

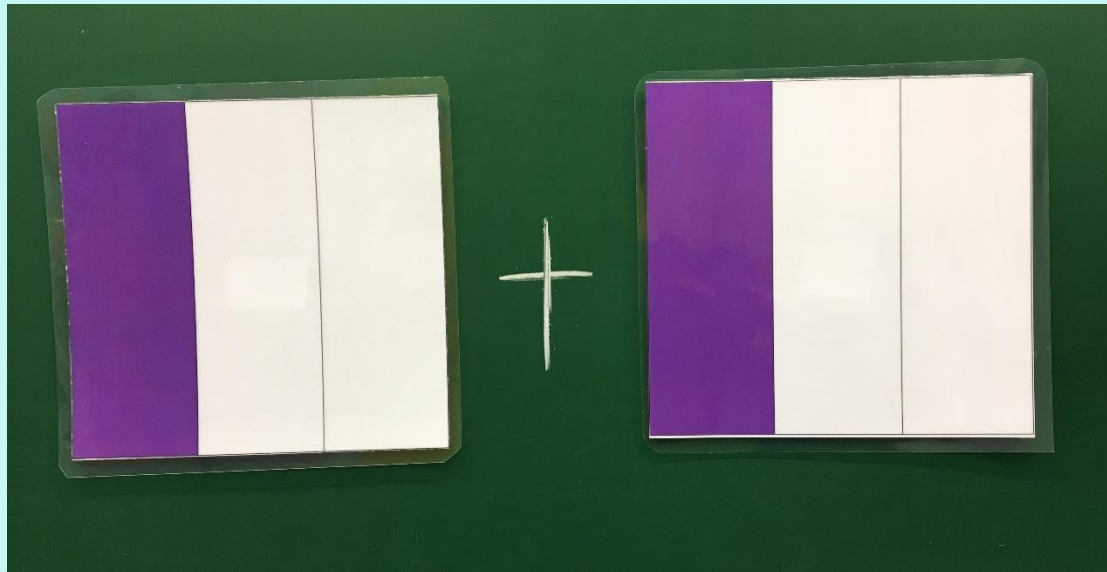
one over three vs. one third

1.



It is read as: one third

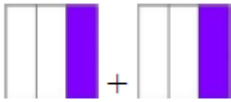
It is written as: $\frac{(1)}{(3)}$



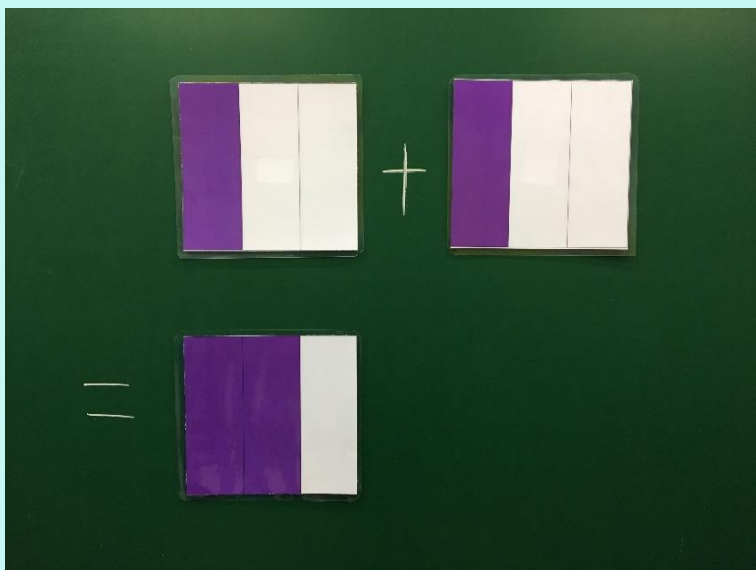
T: “ How many one third(s)?”

S: “Two one third.”

T: “In math, we can call it two thirds.”

2. 	There are ____ <u>one third</u> It is read as: <u>Two thirds</u> $\frac{1}{3} + \frac{1}{3} = \frac{(\quad)}{(\quad 3)}$
--	--





T: “ When Mr Man and I was preparing this lesson, we thought students might ask

one question. Can you guess what question we think you may

ask?

Involve students to have higher functioning / inferencing

S: “Why is it not Two sixths?”





T: “ Can you guess what questions I am going to ask you?”

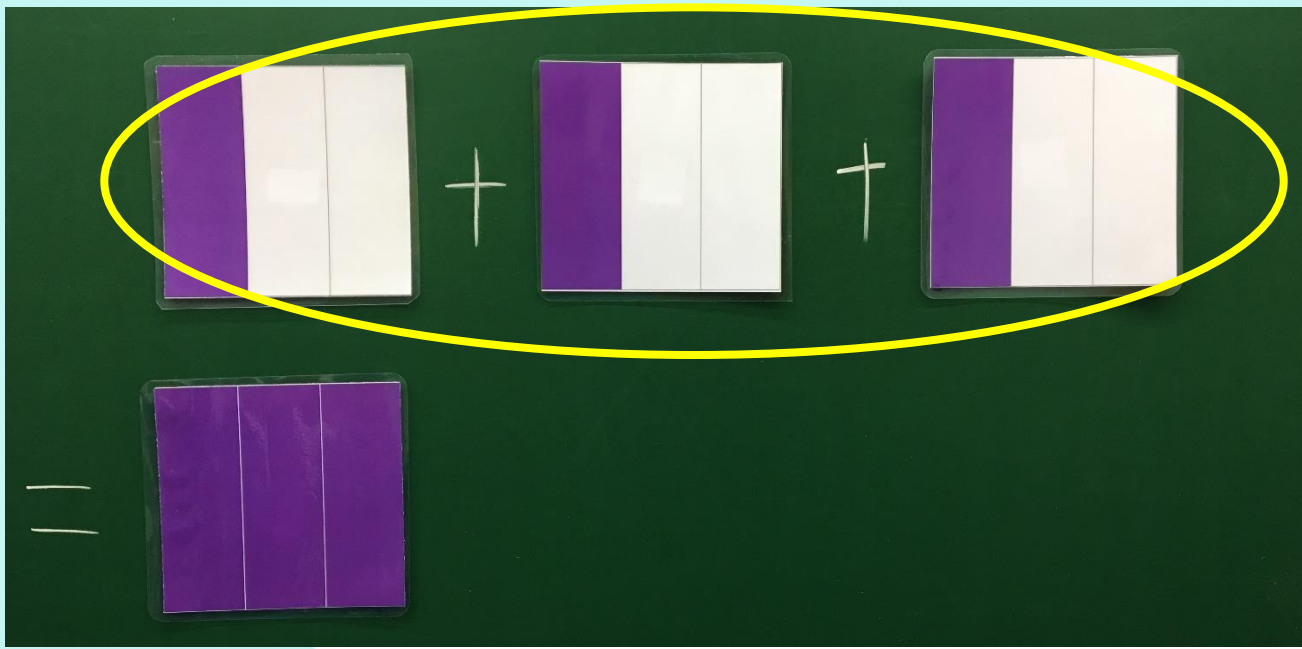
(Students forming the questions with the math language they have learnt in Q1 and Q2.)

S: “ How many one thirds are there?”

S: “What fraction is it?”

Students use proper language to understand and express the math.



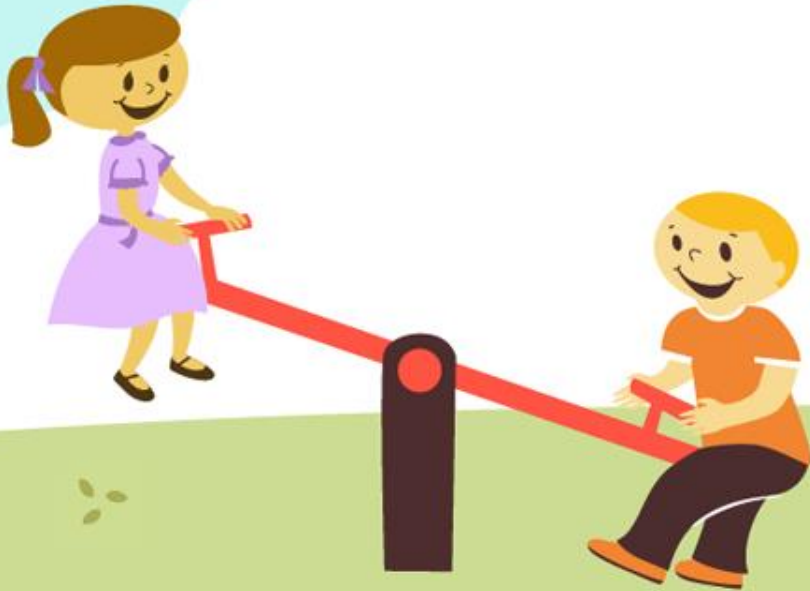


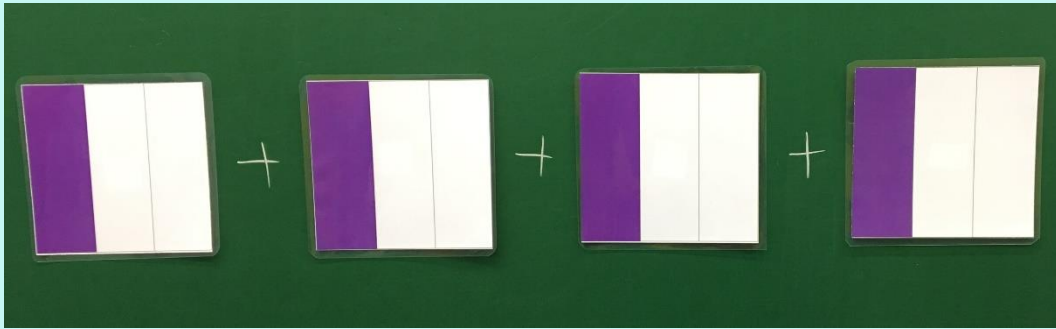
Combine 3 one third(s) into 1 whole

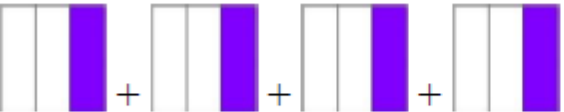
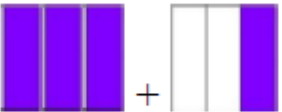
1 whole
cake!

<p>3.</p> <p>$\frac{1}{3} + \frac{1}{3} + \frac{1}{3} = \frac{(\quad)}{(\quad)}$</p>	<p>There are <u>one third</u></p> <p>It is read as: <u>Three thirds</u></p>	<p>= <u>1</u> (whole number)</p>
---	---	----------------------------------

Assess students' understanding on whole concept

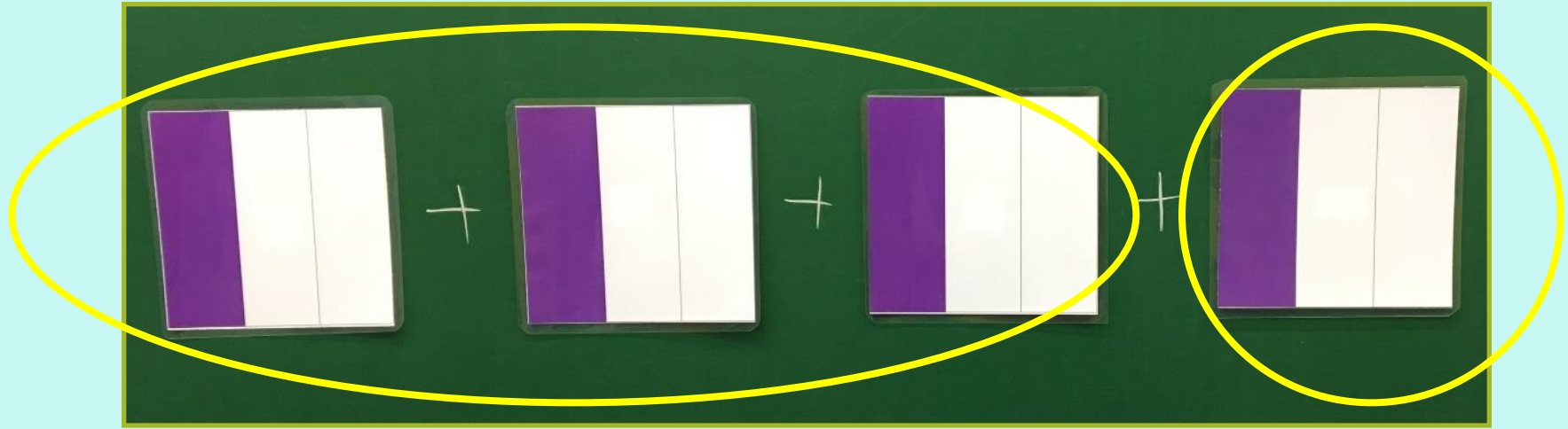




<p>4.</p> 	<p>There are <u>one third</u></p> <p>It is read as: <u>Four thirds</u></p> $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} = \frac{(\quad)}{(3)}$ <p>(Improper fraction)</p>	 <p>$\frac{4}{3} = \underline{\quad}$ (mixed number)</p>
--	---	--

Picking out the math language
and connect with the math
concept





=



+



=

1

+

$\frac{1}{3}$



Geogebra

1. To draw students 'attention
2. To show more examples
3. Animation

Improper fraction to mixed number

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Vision: To promote and support the use of GeoGebra and the development and sharing of its materials in Hong Kong, and to nurture collaboration between teachers, educators and researchers for a self-sustaining community of practice.

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Materials > Key Stage 2 (Senior Primary) >

2.1 數 Numbers

4N7 分數 (二) Fractions (II)

- 4N7.1 真分數、假分數和帶分數
- 4N7.2 擴分和約分
Expanding and Reducing Fractions

4N8 小數 (一) Decimals (I)

- GeoGebraBook 電子書：小數 (基本概念)
- GeoGebraBook: Decimals (Trial version)
- 4N8.1 分數與小數
- 4N8.1 以分數或小數表示數線上的位置

5N2 分數 (三)

- 異分母分數加法 Fraction Addition

Pair Work

5.



There are _____ **one third**

It is read as: _____ thirds

$$\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} = \frac{(\quad)}{(\quad 3)} \text{ (Improper fraction)}$$


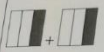


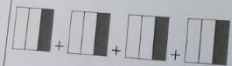



$$\frac{5}{3} = \text{_____ (mixed number)}$$

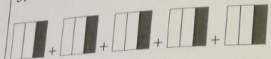
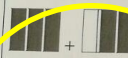


Pat Heung Central Primary School
Primary 5 Mathematics
Fraction 1

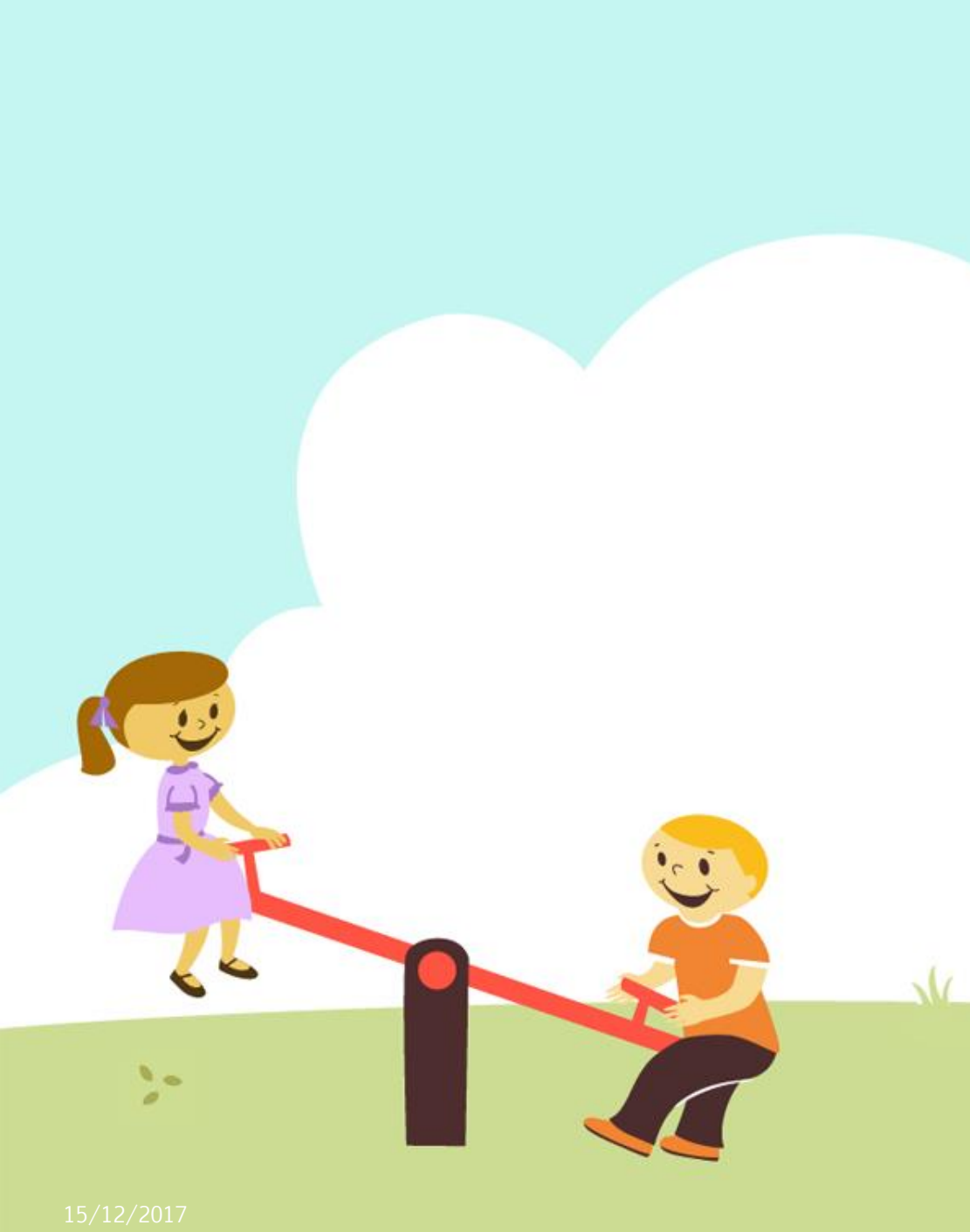
Name: Sumna (19) Date: 11-2017

1. 	It is read as: <u>one third</u> It is written as: $\left(\frac{1}{3}\right)$
2. 	There are <u>2</u> <u>one third</u> It is read as: <u>Two thirds</u> $\frac{1}{3} + \frac{1}{3} = \left(\frac{2}{3}\right)$
3. 	There are <u>3</u> <u>one third</u> It is read as: <u>Three thirds</u> $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} = \left(\frac{3}{3}\right)$  = <u>1</u> (whole number)
4. 	There are <u>4</u> <u>one third</u> It is read as: <u>Four thirds</u> $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} = \left(\frac{4}{3}\right)$ (Improper fraction)  $\frac{4}{3} = 1\frac{1}{3}$ (mixed number)

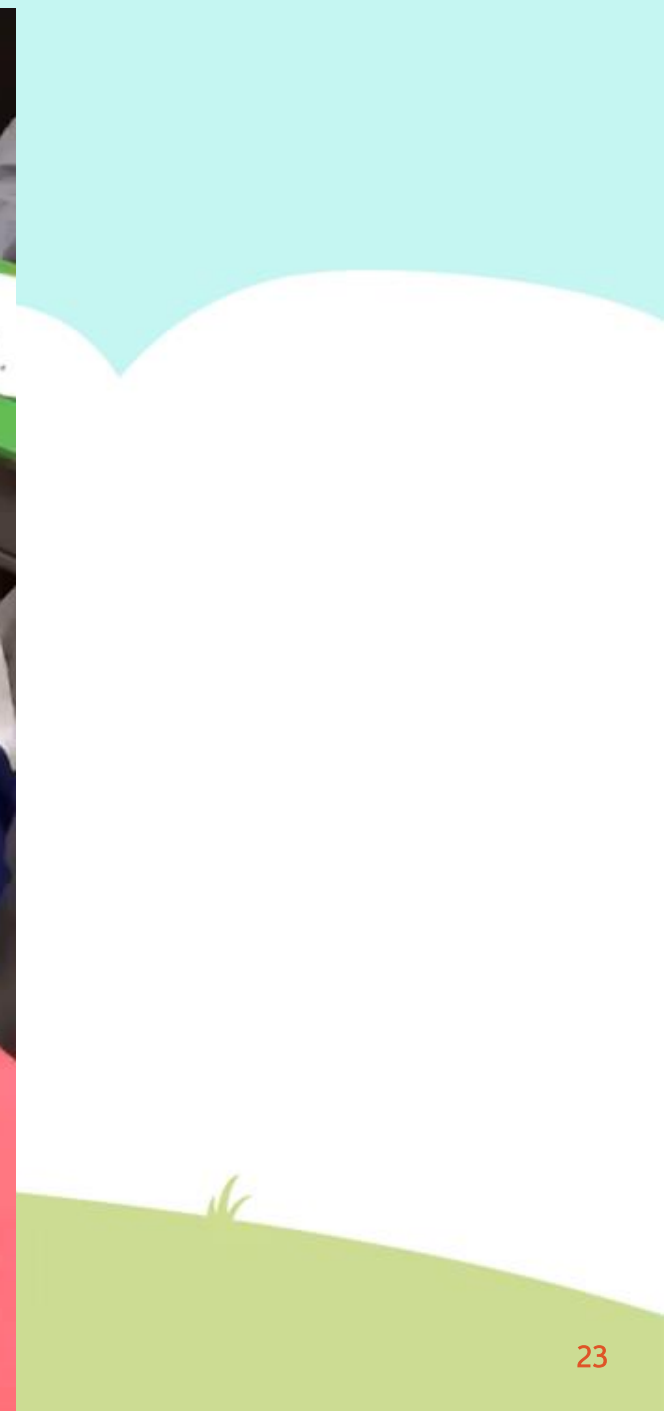
P. Sumna

5. 	There are <u>5</u> <u>one third</u> It is read as: <u>five thirds</u> $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} = \left(\frac{5}{3}\right)$ (Improper fraction)  $\frac{5}{3} = 1\frac{2}{3}$ (mixed number) $\begin{array}{r} 1 \\ 3 \overline{)5} \\ \underline{3} \\ 2 \end{array}$
---	---





15/12/2017





5.

There are one fourth.

It is read as: _____

$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{(\quad)}{(\quad)}$ (Improper fraction)

$\frac{(\quad)}{(\quad)} = \frac{(\quad)}{(\quad)}$ (mixed number)

6.

There are one fourth.

It is read as: _____

It equals: $\frac{(\quad)}{(\quad)}$ (Improper fraction)

Drawing place (If you need)

It equals: _____ (mixed number)

2 NOV 2017

**

6.

There are 9 one fourth.

It is read as: nine fourths

It equals: $\frac{9}{4}$ (Improper fraction)

Drawing place (If you need)

It equals: $2\frac{1}{4}$ (mixed number)

Drawing place (If you need)

It equals: $2\frac{1}{4}$ (mixed number)

Pat Heung Central Primary School
Primary 5 Mathematics
Fraction 2

Name: _____ Date: _____

1. It is read as: one fourth
It is written as: $\frac{(\quad)}{(\quad)}$

2. There are one fourth
It is read as: Two fourths
 $\frac{2}{4} + \frac{1}{4} = \frac{(\quad)}{(\quad)}$

3. There are one fourth
It is read as: _____
 $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{(\quad)}{(\quad)}$

4. There are one fourth
It is read as: _____
 $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{(\quad)}{(\quad)}$
 $\frac{4}{4} = \underline{\quad}$ (whole number)

Question Time

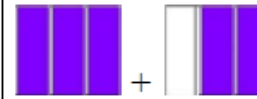
5.



There are one third

It is read as: thirds

$$\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} = \frac{(\quad)}{(\quad 3)} \text{ (Improper fraction)}$$

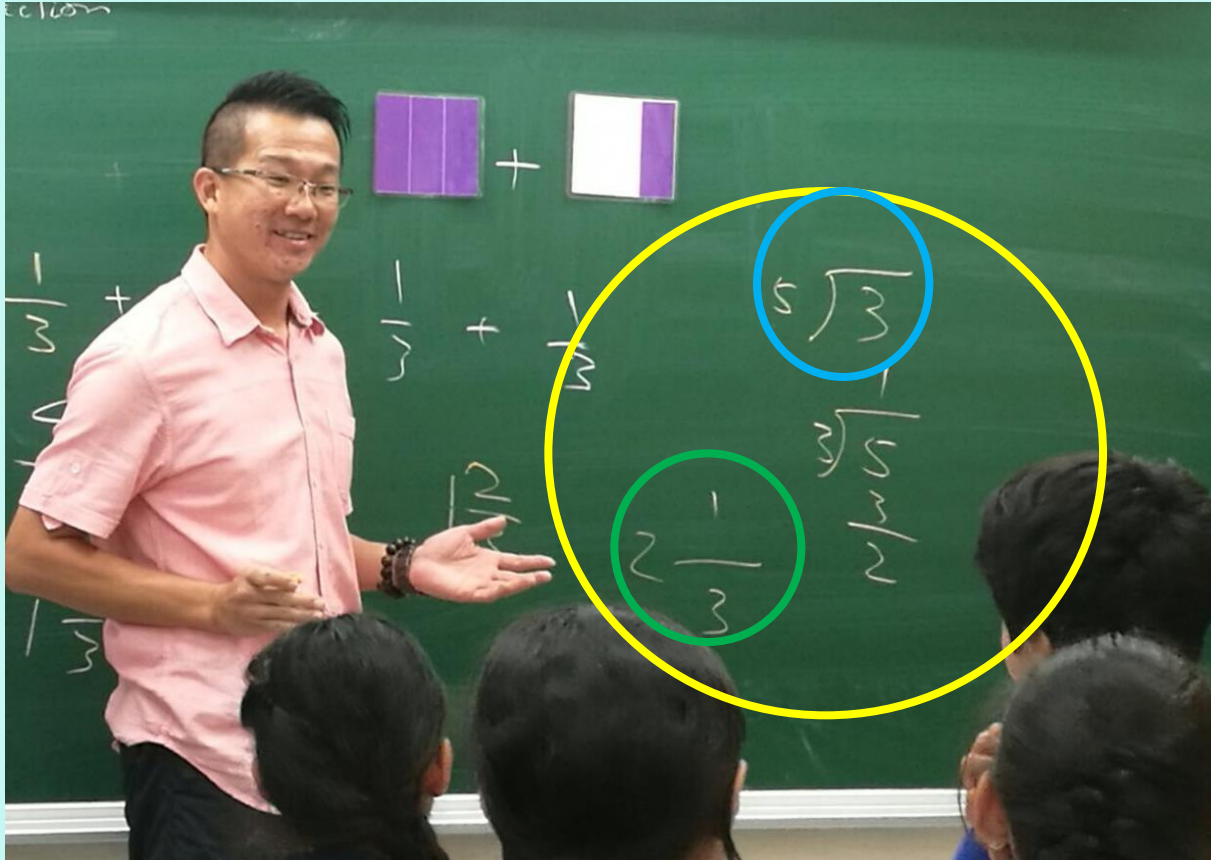


$$\frac{5}{3} = \text{---} \text{ (mixed number)}$$

T: Do you have any questions to ask me or Mr Man about this topic (changing improper fraction into mixed number)?

S: Why don't we use division (Ss learnt in P.4) instead?





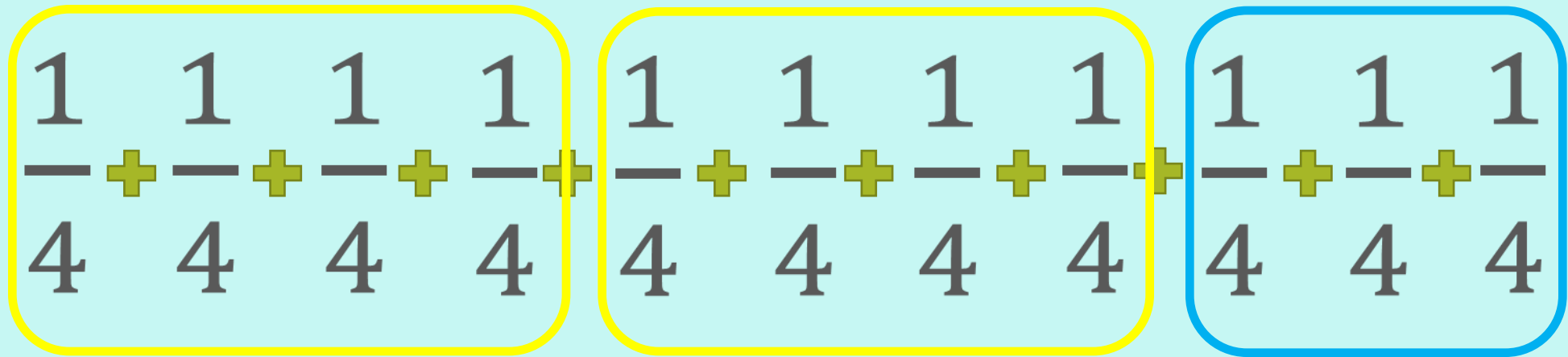
$$\begin{array}{r} 5 \\ - \\ 3 \end{array}$$

1. Could not put the numerator and denominator in the column form of division correctly.

2. Could not put the quotient as the whole number and remainder as numerator for the mixed number correctly.

improper fraction

$$\frac{11}{4} =$$



$$= \frac{4}{4} + \frac{4}{4} + \frac{3}{4}$$

$$1 + 1 + \frac{3}{4} = 2\frac{3}{4}$$

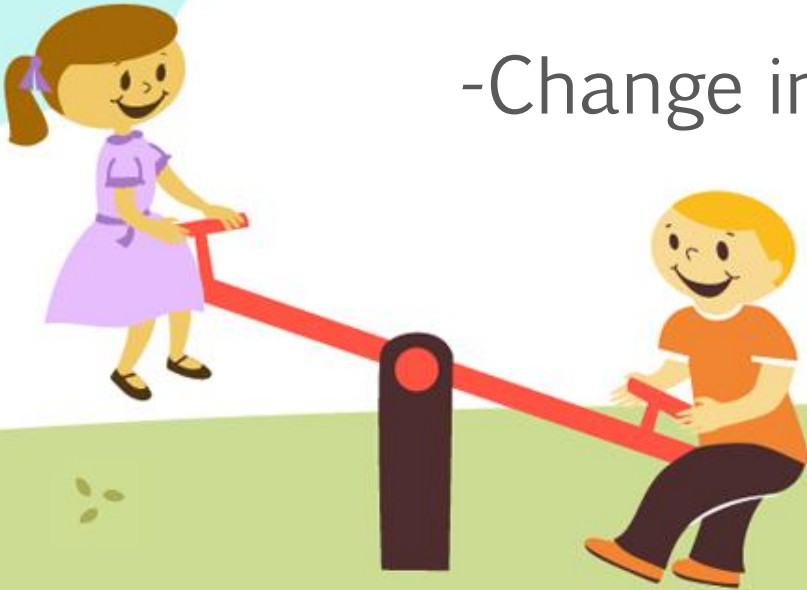
mixed number



Lesson Goals



- Reveal / visualize abstract concepts (realia and geogebra)
- Introduce and emphasis on unit fraction
- Student be able to talk/ express fraction with appropriate math language
- Change improper fraction to mixed number
- Knowing where to put whole number and numerator in a mixed number





臨淵羨魚，不如退而結網。
《漢 · 淮南子》

