P3 Mathematics Sharing

22 Feb 2019

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Outline

- Maths assessment plan
- Tips on helping your child in maths

P3 Maths Assessment Plan: Termly Factual Fluency Review

Term	Assessment (Weighting)	Topics
1	Factual Fluency Review 1 (0%)	- Addition Facts within 20 - Subtraction Facts within 20 - Multiplication Tables: 2, 3, 4, 5, 6, 7 and 10
2	Factual Fluency Review 2 (0%)	- Addition Facts within 20 - Subtraction Facts within 20 - Multiplication Tables: 2, 3, 4, 5, 6, 7 and 10
3	Factual Fluency Review 3 (0%)	- Addition Facts within 20 - Subtraction Facts within 20 - Multiplication Tables: 2 to 10
4	Factual Fluency Review 4 (0%)	- Addition Facts within 20 - Subtraction Facts within 20 - Multiplication Tables: 2 to 10

No. of Marks / Duration: <u>30 marks / 5 min</u>

P3 Maths Assessment Plan:
Termly Review / Weighted Assessment

Term	Assessment (Weighting)	Topics
1	Progress Review (0%)	- P3 Numbers to 10 000 - P3 Addition and Subtraction within 10 000 - P3 Multiplication and Division: 6,7,8 and 9
2	Weighted Assessment 1 (15%)	- P3 Numbers to 10 000 - P3 Addition & Subtraction within 10 000 - P3 Multiplication and Division: 6,7,8 and 9 - P3 Multiplication & Division
3	Weighted Assessment 2 (15%)	- P2 Money - P3 Money - P2 Length and Mass and Volume - P3 Length and Mass and Volume - P3 Fractions

No. of Marks / Duration: 20 marks / 30 min
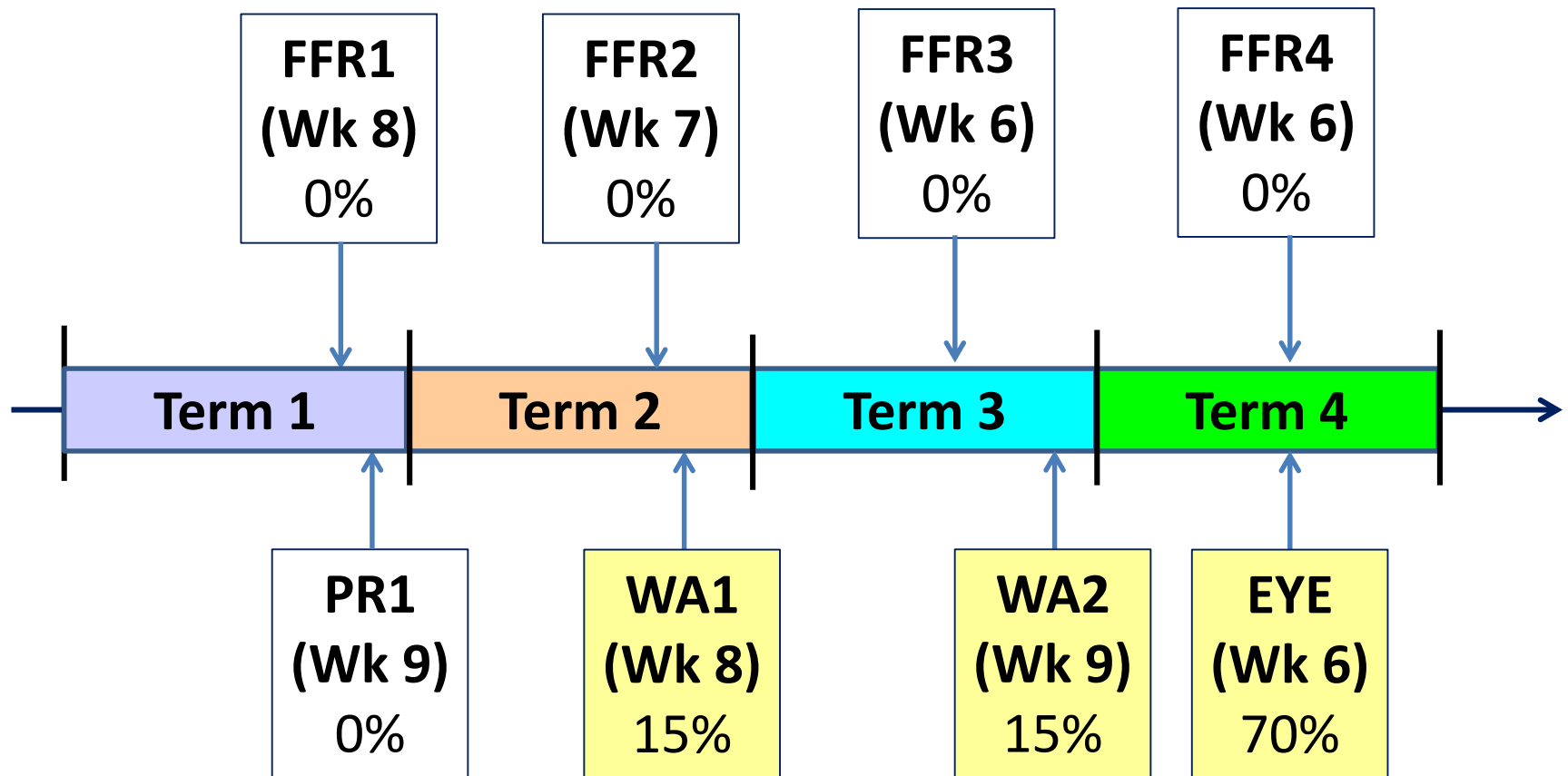
P3 Maths Assessment Plan: End-of-Year Exam

Term	Assessment (Weighting)	Topics
4	End-of-Year Exam (70%)	- P3 Numbers to 10 000 - P3 Addition & Subtraction within 10 000 - P2 Multiplication Tables of 2, 5 and 10 - P2 Multiplication Tables of 3 and 4 - P3 Multiplication and Division 6,7,8 and 9 - P3 Multiplication & Division - P3 Money - P3 Length and Mass and Volume - P3 Time - P3 Fractions - P3 Angles - P3 Perpendicular Lines and Parallel Lines - P3 Perimeter and Area - P3 Bar Graph

P3 Maths End-of-Year Exam Format

- One written paper (1 h 45 min) comprising of Sections A, B and C:

Section	Item Type	No. of Qn	No. of Marks per Qn	Total Marks
A	Multiple Choice Qn	19	1 – 2	60 marks
B	Short Answer Qn	15	1 – 2	
C	Long Answer Qn	6	3 – 4	20 marks
Total		**40 Qns**	**-**	**80 marks**

P3 Maths Assessment Timeline

| FFR1 (Wk 8) 0% | FFR2 (Wk 7) 0% | FFR3 (Wk 6) 0% | FFR4 (Wk 6) 0% |

| Term 1 | Term 2 | Term 3 | Term 4 |

| PR1 (Wk 9) 0% | WA1 (Wk 8) 15% | WA2 (Wk 9) 15% | EYE (Wk 6) 70% |

FFR = Factual Fluency Review; PR = Progress Review;
WA = Weighted Assessment; EYE = End-of-Year Exam

* Subject to change (refer to termly assessment schedule for actual dates)

Outline

- Maths assessment plan

- Tips on helping your child in maths

Story of a yellow house

- In Sep 2008, Hurricane Ike surged through a town in Texas, USA
- Most of the roughly 200 houses were flattened except this house
- **Why was this house able to withstand the hurricane?**
- House's foundation: hurricane standards

Lesson learnt: **Think long term and lay a strong foundation**

What's so special about this house?

Tips on helping your child:
Strengthen Maths Conceptual Understanding

Mathematics Framework

Beliefs
Interest
Appreciation
Confidence
Perseverance

Monitoring of one's own thinking
Self-regulation of learning

Numerical calculation
Algebraic manipulation
Spatial visualisation
Data analysis
Measurement
Use of mathematical tools
Estimation

Reasoning, communication
and connections
Applications and modelling
Thinking skills and heuristics

Numerical
Algebraic
Geometric
Statistical
Probabilistic
Analytical
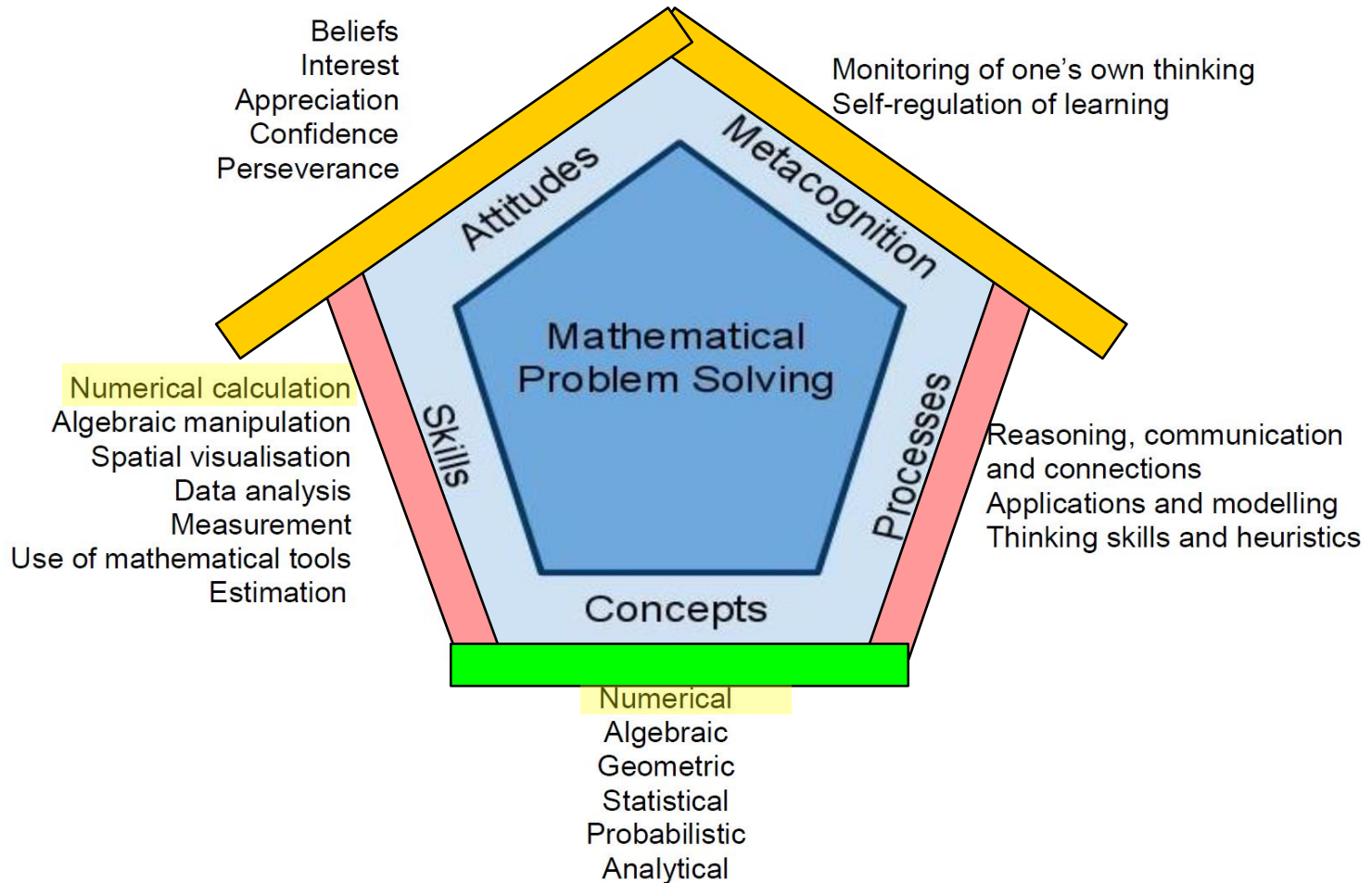
What's the difference between skills and concepts?
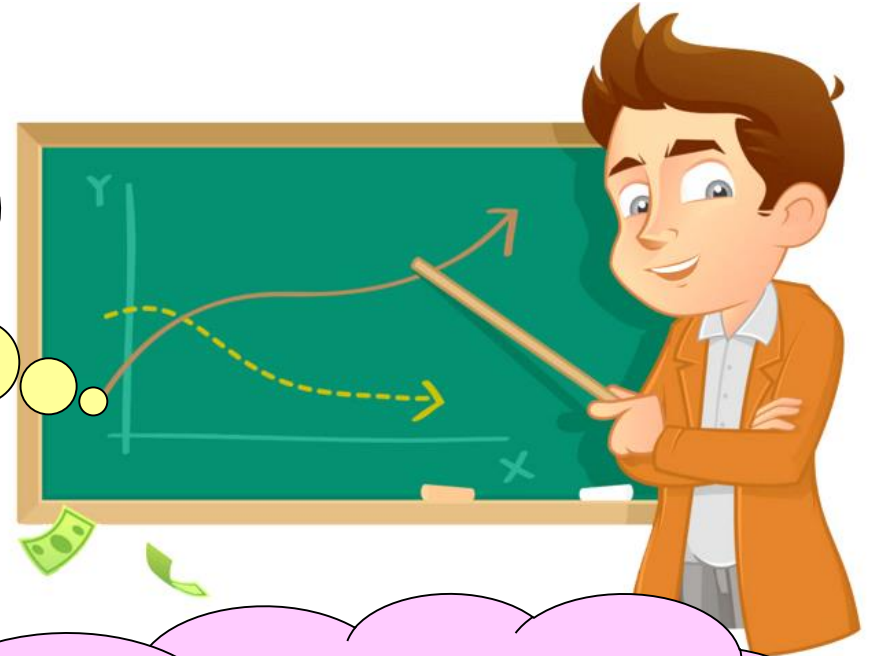
Difference between skills and concepts
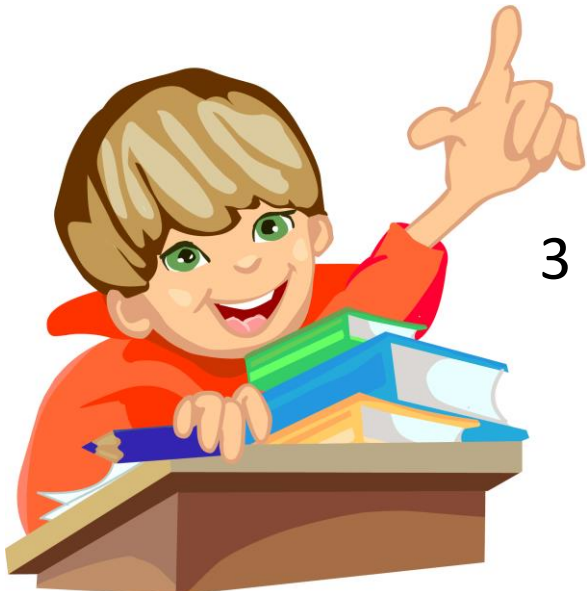
Difference between skills and concepts

Mmm… That's interesting. Can you tell me what 35 ÷ 3 means?

Okay! But I was not asking for the answer.

What do you think was the student's response?

```
    1 1
3 | 3 5
   - 1
   ─────
     0 5
    -  3
   ─────
       2
```

Cher, so easy! The answer is 11 R 2.

Difference between skills and concepts

Mmm… That's interesting. Can you tell me what 35 ÷ 3 means?

Let me rephrase my question. Can you tell me a story using 35 ÷ 3?

What do you think was the student's response?

```
      1 1
  3 | 3 5
    - 1
    ─────
      0 5
    -   3
    ─────
        2
```
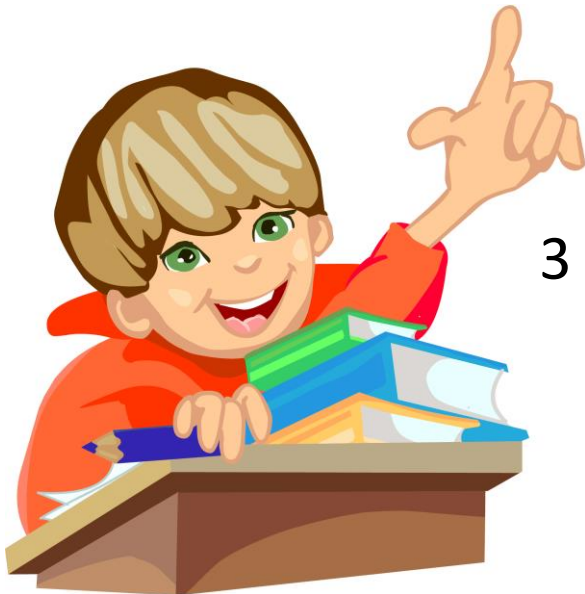
Difference between skills and concepts

What happened in the story?

- procedural skill of long division ready

- conceptual understanding of division not ready

Implication

(Q1) Find the value of 35 ÷ 3.

(Q2) 35 pens were shared equally among 3 children.
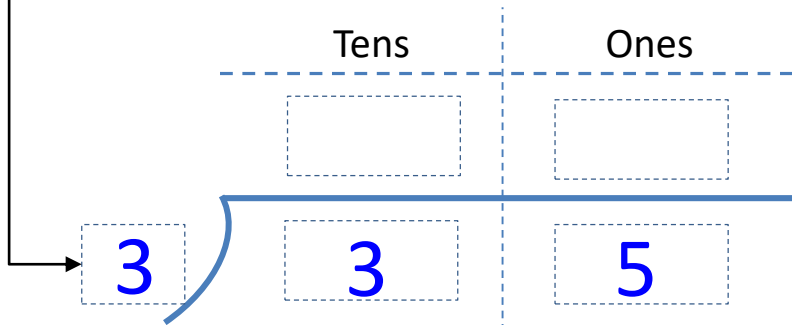
How many pens did each child get?

Unpacking the maths concepts involved in long division algorithm

35 pens were [shared equally] among 3 children.
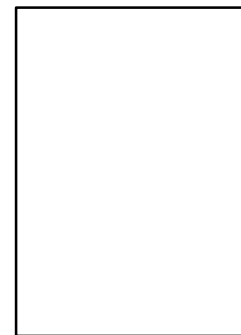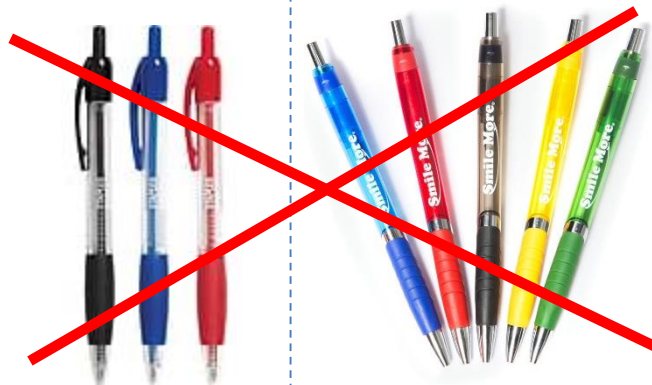## How many pens did each child get?
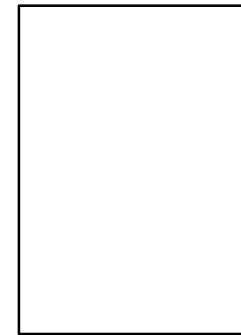
What does '35' refer to?

What does '3' refer to?

What does '35 ÷ 3' tell you?

	Tens	Ones
3	3	5

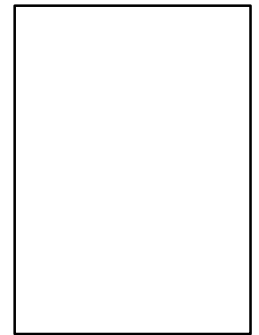| Tens	Ones
10 10 10	1 1 1 1 1
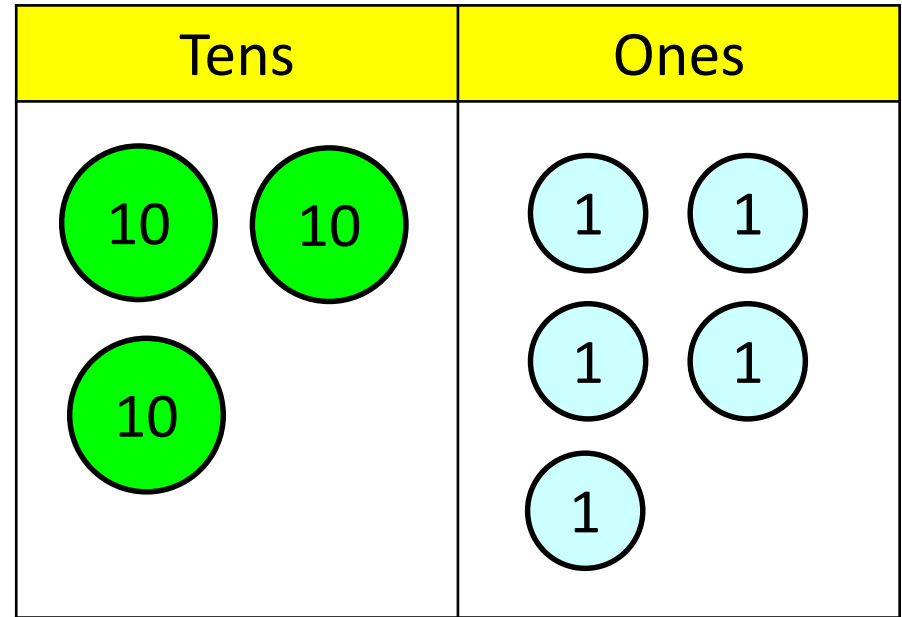
shared equally among

Child A

Child B

Child C

35 pens were shared equally among 3 children.

How many pens did each child get?

What does '1' tell you?

What does '-3' tell you?

What does '0' tell you?

Tens	Ones
3 tens pens were given away	
10 10	1 1
10	1 1
no pen left in tens place	1

shared equally among

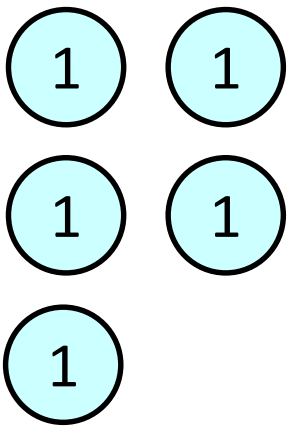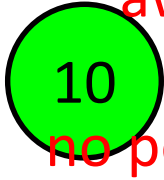| Tens	Ones
1	
3	5
− 3	
0	

Child A: 10

Child B: 10

Child C: 10

35 pens were shared equally among 3 children.

How many pens did each child get?

What does '5' tell you?

What does '1' tell you?

What does '-3' tell you?

Tens	Ones
	1 1 1 1 1

3 ones pens were given away

Tens	Ones
1	1
3	5
3	
0	5
	3

3

shared equally among

Child A	Child B	Child C
10 1	10 1	10 1

35 pens were shared equally among 3 children.

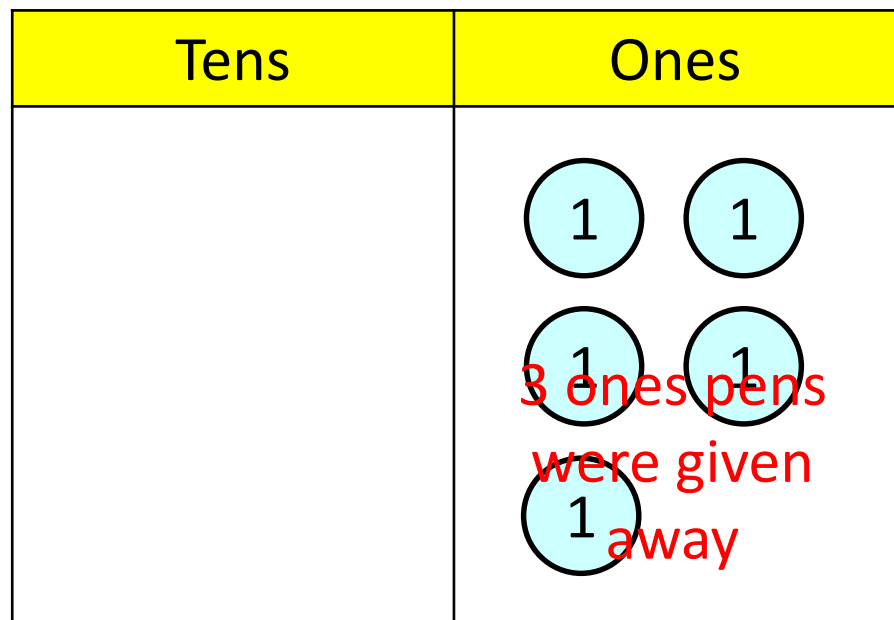# How many pens did each child get?

What does '2' tell you?

Tens	Ones
	① ①

	Tens	Ones
	1	1
3	3	5
−	3	
	0	5
−		3
		2
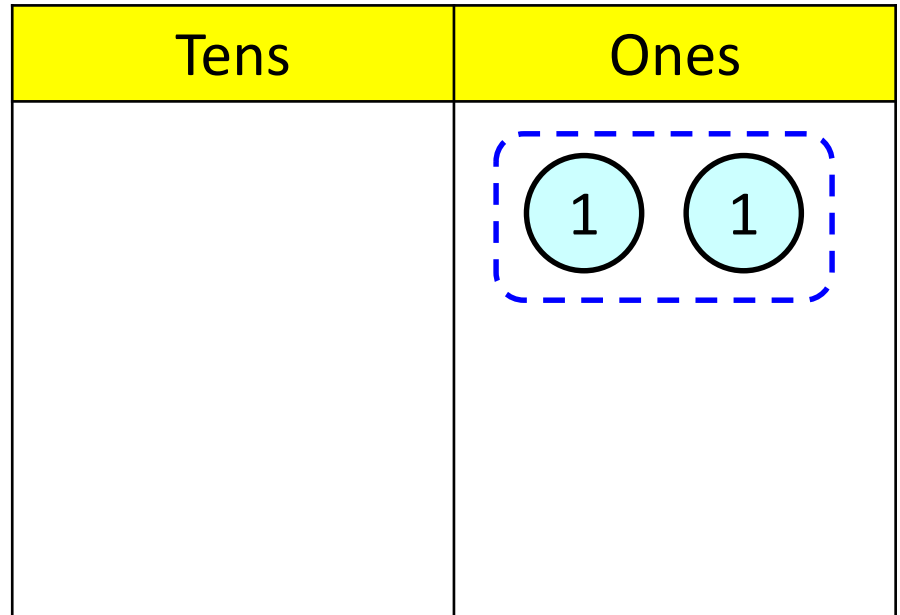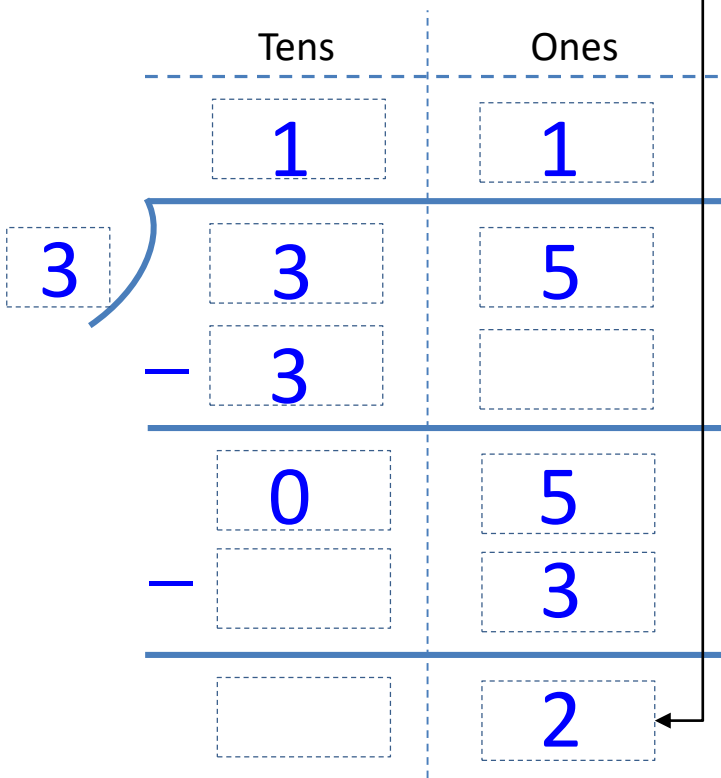
shared equally among
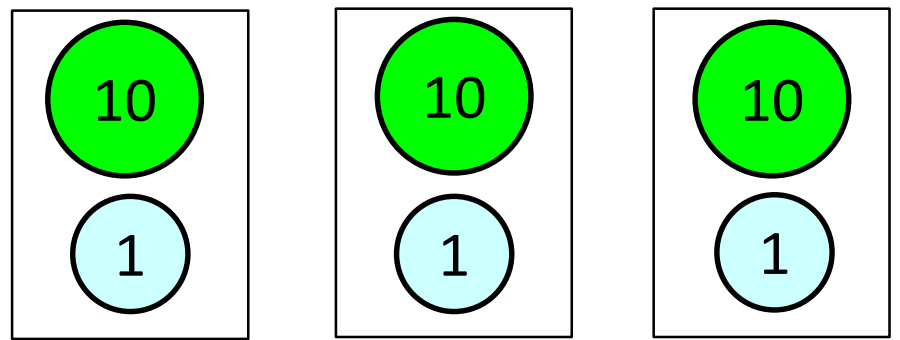
Child A   Child B   Child C

Tips on helping your child:
Strengthen Maths Conceptual Understanding

Mathematics Framework

Beliefs
Interest
Appreciation
Confidence
Perseverance

Monitoring of one's own thinking
Self-regulation of learning

Attitudes

Metacognition

Mathematical Problem Solving

Numerical calculation
Algebraic manipulation
Spatial visualisation
Data analysis
Measurement
Use of mathematical tools
Estimation

Skills

Processes

Reasoning, communication and connections
Applications and modelling
Thinking skills and heuristics

Concepts

Numerical
Algebraic
Geometric
Statistical
Probabilistic
Analytical
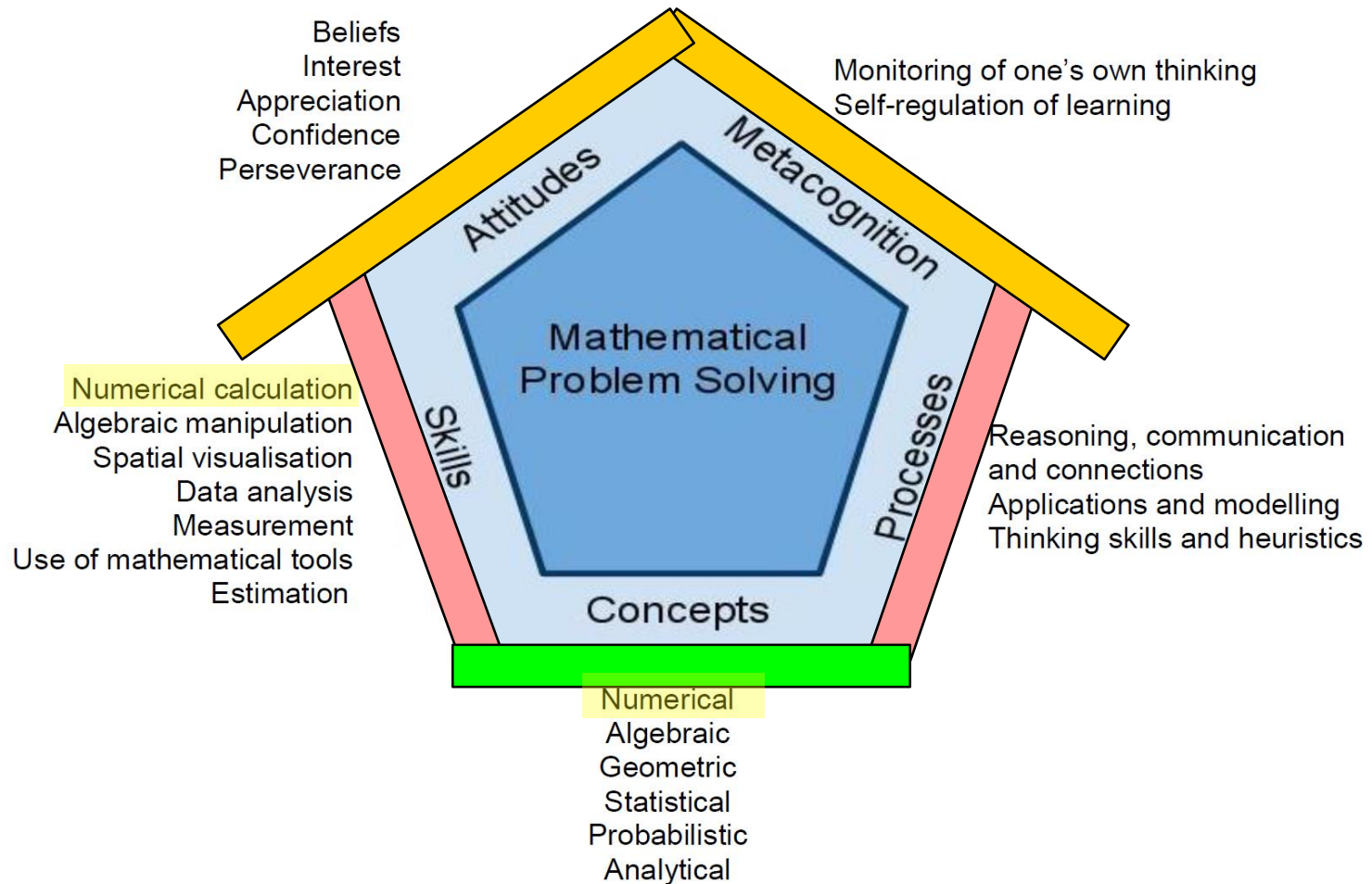
Tips on helping your child: Strengthen maths conceptual understanding

- Don't just teach the algorithm, ask your child to **tell a maths story**

Expression	Story
2 + 5	Andy had 2 erasers. Betty had 5 erasers. How many erasers do they have in all?
9 − 2	Liting had 9 apples. She ate 2 apples. How many apples did she have left?
7 x 3	Ahmad bought 7 packets of pens. There were 3 pens in each packet. How many pens did he buy altogether?
24 ÷ 3	Aisha had 24 m of rope to tie some boxes. She used 3 m of rope to tie each box. How many boxes could she tie?

Tips on helping your child:
Strengthen maths conceptual understanding

Chris baked 315 chocolate cookies. She also baked 59 vanilla cookies. How many cookies did she bake?	Group
Carl had 623 chocolate cookies. He gave his friend 572 cookies. How many cookies does Carl have now?	Change
Chris has 316 marbles. Carl has 49 marbles more than Chris. How many marbles does Carl have?	Compare

Figure 6-14   Semantic structures for addition and subtraction

Yeap, B., & Lee, N. (2009). *Teaching Primary School Mathematics: A Resource Book* (2nd ed.). McGraw Hill, 117

Tips on helping your child:
Strengthen maths conceptual understanding

Semantic Structure	Multiplication	Division
Equal Groups	There are 6 apples in each bag. How many apples are there in 3 such bags?	There are 18 apples packed into 3 bags. Each bag has the same number of apples. How many apples are there in a bag?
Array/Area	There are 6 rows of desks. Each row has 3 desks. A rectangle has a length of 6 m and a width of 3 m. Find the area of the rectangle.	18 desks are arranged in 6 equal rows. How many desks are there in a row? A rectangle of area 18 m^2 has a length of 6 m. Find its width.
Rate	A school T-shirt costs $6.00. How much does 3 such T-shirts cost?	A school T-shirt costs $6.00 Mother pays $18 for some school T-shirts. How many school T-shirts does mother buy?
Combination	My teddy bear has 3 pairs of pants and 6 shirts. In how many different ways can I dress my teddy bear if it must wear pants and shirts?	

Figure 6-21   Semantic structures of multiplication and division

Yeap, B., & Lee, N. (2009). *Teaching Primary School Mathematics: A Resource Book* (2nd ed.). McGraw Hill, 124

Tips on helping your child: Strengthen maths conceptual understanding

- Make use of the **Maths textbook** to teach concept

1 Divide 35 by 3.
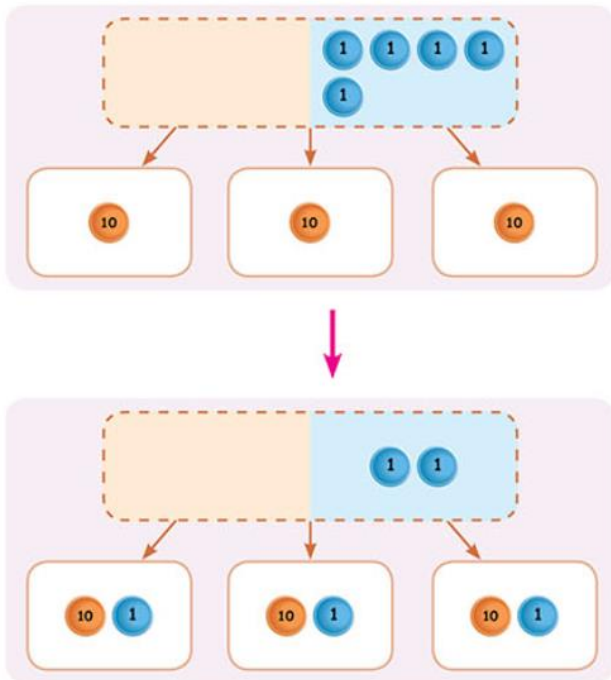
Step 1

Divide 3 tens by 3.

```
  T O
    1        ← 1 ten in each group
3) 3 5
    3        ← 1 ten × 3 = 3 tens
  ───
```

Step 2

Divide 5 ones by 3.

```
  T O
  1 1        ← 1 one in each group
3) 3 5
  3
  ───
    5
    3        ← 1 one × 3 = 3 ones
  ───
    2        ← remainder
```

$35 \div 3 = 11 \text{ R } 2$

The quotient is 11.
The remainder is 2.

Check:

There are 11 ones in each group.
There are 3 groups.
$11 \times 3 = 33$
$33 + 2 = 35$
The number before division is 35.

<u>Summary</u>

- Assessment plan
  - Topics, format and timeline

- Difference between skills and concepts

- Strengthen maths conceptual understanding
  - Ask your child to tell a maths story
  - Make use of the maths textbook

Closure to the story

- Understood that she only picked maths skill up outside of school

- Paid more attention in class
- Asked more "why" questions

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