MINISTRY OF EDUCATION
Te Tāhuhu o te Mātauranga

GloSS

INTERVIEW 3

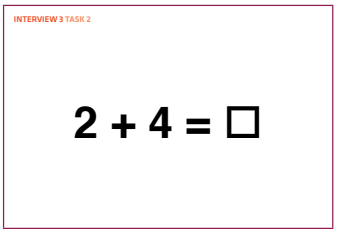
TASK 1

ACTION: *Place 7 counters of the same colour on the table.*
SAY: How many counters are there?

Stage	Strategy observed
0	**Student cannot count 7 objects**
1	**Correctly counts the 7 objects**

DECISION: If "1" is circled in **Task 1**, CONTINUE the interview.
If "0" is circled, rate the student at Stage 0 and STOP the interview.

TASK 2



SAY: Please hold out your hands for me.
ACTION: *Place 2 counters in the student's hand.*
SAY: Here are 2 counters.
ACTION: *Place 4 counters in their other hand.*
SAY: Here are another 4 counters.
ACTION: *Close the student's hands to encourage imaging.*
SAY: How many counters have you got altogether?
ACTION: *Allow the student to open their hands if they find imaging difficult.*

Stage	Strategy observed
1	**Cannot solve the addition problem** (Stage 1)
2–3	**Physically counts all the objects from 1 on materials** (Stage 2) **Correctly counts all the items from 1 by imaging** (Stage 3)
4 or higher	**Counts on** e.g., 3, 4, 5, 6 **or** 5, 6 **Knows** 2 + 4

DECISION: If **either** "2–3" **or** "4" are circled in **Task 2**, CONTINUE the interview.
If "1" is circled, STOP the interview. If in any doubt, CONTINUE the interview.

INTERVIEW 3 TASK 2

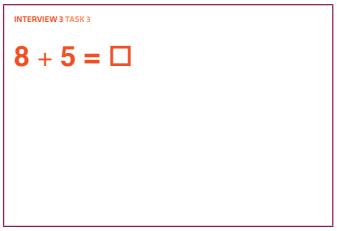
$$2 + 4 = \square$$

INTERVIEW 3 TASK 3

$$8 + 5 = \square$$

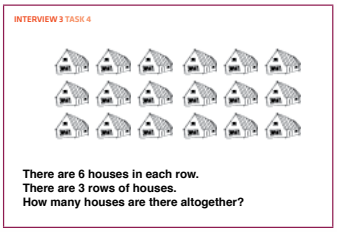
TASK 3

ACTION: *Place 8 counters under a card then place 5 under another card.*
SAY: Here are 8 counters, and here are 5 counters.
How many counters are there altogether?



Stage	Strategy observed
3	**Cannot solve the problem** (After removing the cards – Stage 1) **Counts all objects from 1 on materials** (Stage 2) **e.g.,** 1, 2, 3, …, 13 **Counts all objects from 1 by imaging** (Stage 3) **e.g.,** 1, 2, 3, …, 13
4	**Counts on** (Stage 4) **e.g.,** 9, 10, 11, 12, 13 **or** 6, 7, …, 12, 13
Early 5 or higher	**Uses a part-whole strategy e.g.,** - Making to ten e.g., 8 + 2 = 10; 10 + 3 = 13 - Doubling with compensation e.g., 5 + 5 = 10; 10 + 3 = 13 **or** 8 + 8 = 16; 16 – 3 = 13 - Addition fact e.g., 8 + 5 = 13

TASK 4

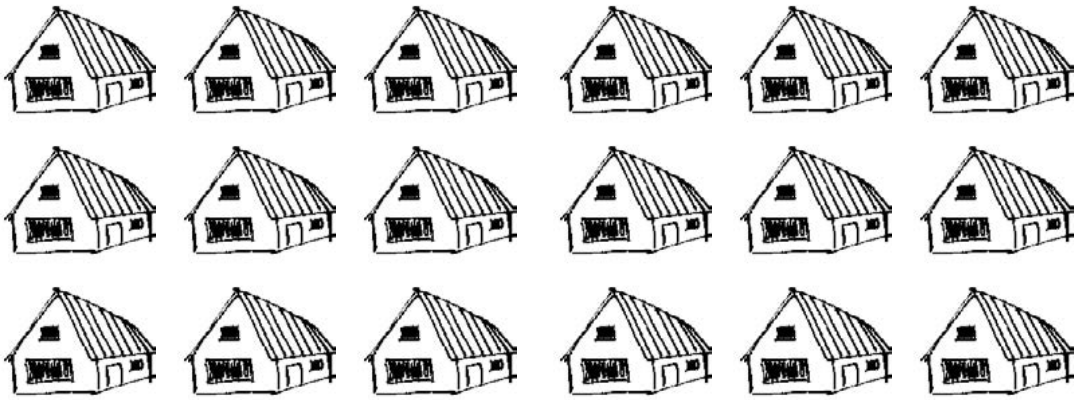


SAY: There are 6 houses in each row.
SAY: There are 3 rows of houses.
SAY: How many houses are there altogether?

ACTION: *Sweep one row with your finger*
ACTION: *Point to each row one by one*

Stage	Strategy observed
3	**Cannot solve the problem** **Counts all objects from 1 on materials** (Stage 2) **e.g.,** 1, 2, …, **6**, 7, …, **18** **Counts all objects from 1 by imaging** (Stage 3) **e.g.,** 1, 2, …, **6**, 7, …, **18**
4	**Skip counting** (Stage 4) **e.g.,** 6, 12, 18 [**or** 3, 6, 9, 12, 15, 18]
Early 5 or higher	**Uses an additive or multiplicative strategy e.g.,** - Repeat addition e.g., 6 + 6 + 6 = 18 or 6 + 6 = 12; 12 + 6 = 18 - Multiplication strategies e.g., 2 × 6 = 12; 12 + 6 = 18 - Multiplication fact e.g., 3 × 6 = 18

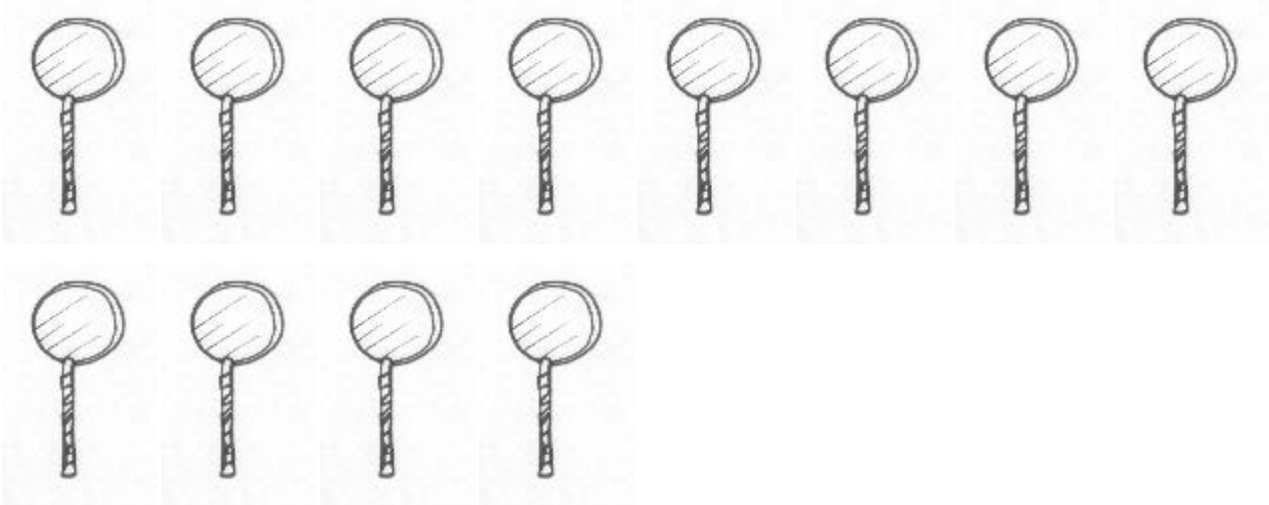
INTERVIEW 3 TASK 4



There are 6 houses in each row.
There are 3 rows of houses.
How many houses are there altogether?

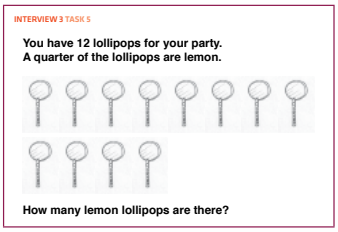
INTERVIEW 3 TASK 5

You have 12 lollipops for your party.
A quarter of the lollipops are lemon.



How many lemon lollipops are there?

TASK 5



ACTION: *Provide 12 counters (lollipops).*
Allow the student access to these counters if necessary.

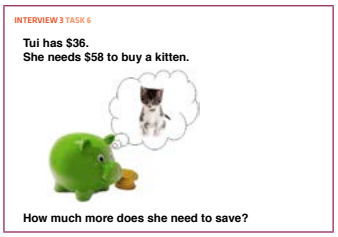
SAY: You have 12 lollipops for your party.
A quarter of the lollipops are lemon.
How many lemon lollipops are there?

Note: Say "fourth" instead of "quarter" if this is more familiar to your student.

Stage	Strategy observed
2–4	**Cannot solve the problem** **Equally shares the lollipops, on materials or by imaging** (Stage 2–4)
Early 5 or higher	**Uses an additive or multiplicative strategy e.g.,** - Additive partitioning e.g., 6 + 6 = 12 and 3 + 3 + 3 + 3 = 12 - Multiplication or division strategy e.g., 3 × 3 = 9; 9 + 3 = 12 - Multiplication or division fact e.g., 4 × 3 = 12 or 12 ÷ 4 = 3

DECISION: If **any** "E5" are circled in **Tasks 3, 4** or **5**, **or** if the "4s" are circled in **both Task 3** and **Task 4**, CONTINUE the interview.
Otherwise STOP the interview. If in any doubt, CONTINUE the interview.

TASK 6



SAY: Tui has $36.
She needs $58 to buy a kitten.
How much more does she need to save?

Stage	Strategy observed
Early 5	**Cannot solve the problem** or **Uses an earlier numeracy stage** **Counting on** or **Counting back** (Stage 4) **e.g.,** 37, 38, …, 58 **Skip counting in tens and ones** (Stage 4) **e.g.,** [36] 46, 56, 57, 58 **Repeat addition in tens and ones** (Stage E5) **e.g.,** 58 – 10 = 48; 48 – 10 = 38; 38 – 2 = 36; 20 + 2 = 22 **or** 36 + 10 = 46; 46 + 10 = 56; 56 + 2 = 58; 20 + 2 = 22 **Mix of counting and part-whole strategies** (Stage E5) **e.g.,** 36 + 4 = 40; 40 + 10 = 50; 51, 52, … , 57, 58
5 or higher	**Uses a part-whole strategy e.g.,** - Place value partitioning e.g., (50 – 30) + (8 – 6) = 20 + 2 = 22 - Adding on in parts e.g., 36 + 20 = 56; 56 + 2 = 58; 20 + 2 = 22 - Making to ten e.g., 36 + 4 = 40; 40 + 10 = 50; 50 + 8 = 58; 4 + 10 + 8 = 22

INTERVIEW 3 TASK 6

Tui has $36.
She needs $58 to buy a kitten.

How much more does she need to save?

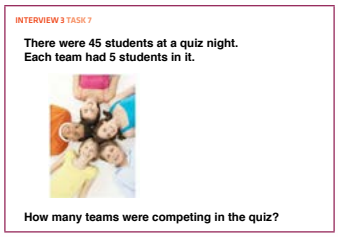
INTERVIEW 3 TASK 7

There were 45 students at a quiz night.
Each team had 5 students in it.

How many teams were competing in the quiz?

TASK 7

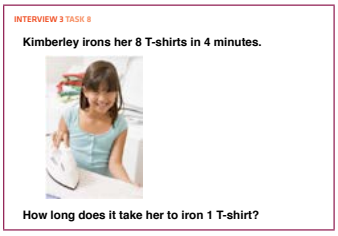
SAY: There were 45 students at a quiz night.
Each team had 5 students in it.
How many teams were competing in the quiz?



Stage	Strategy observed
Early 5	**Cannot solve the problem** or **Uses an earlier numeracy stage** **Skip counting** (Stage 4) **e.g.,** 5, 10, 15, …, 45 **Repeated addition** (Stage E5) **e.g.,** 5 + 5 + 5 + … + 5 = 45
5 or higher	**Uses an additive or multiplicative strategy e.g.,** - Additive strategies e.g., 5 + 5 =10; 10 + 10 = 20; 20 + 20 = 40; 40 + 5 = 45; 8 + 1 = 9 - Derive from multiplication facts e.g., 4 × 5 = 20; 20 + 20 = 40; 40 + 5 = 45; 8 + 1 = - Multiplication or division facts e.g., 5 × 9 = 45 **or** 45 ÷ 5 = 9

TASK 8

SAY: Kimberley irons her 8 T-shirts in 4 minutes.
How long does it take her to iron 1 T-shirt?



Stage	Strategy observed
Early 5	**Cannot solve the problem** or **Uses an earlier numeracy stage** **Incorrect additive strategy** (Stage 4) **e.g.,** 4 + 4 = 8; 1 + 4 = 5 minutes **or** 4 + 4 = 8 so 1 + 1 = 2 minutes
5 or higher	**Uses a proportional approach e.g.,** - Additive strategies e.g., $\frac{1}{2} + \frac{1}{2} + \ldots + \frac{1}{2} = 4$ **or** 4 + 4 = 8 and $\frac{1}{2} + \frac{1}{2} = 1$ so the answer is $\frac{1}{2}$ - Multiplicative strategies e.g., 4 is half of 8 so it's half of 1 minute **or** 4 ÷ 8 = $\frac{1}{2}$ minute - Rate strategies e.g., 8:4 = 4:2 = 2:1 so the answer is $\frac{1}{2}$ a minute (= 30 seconds)

DECISION: If **any** "5" are circled in **Tasks 6, 7** or **8**, CONTINUE the interview.
If **only** "E5" are circled, STOP the interview. If in any doubt, CONTINUE the interview.

INTERVIEW 3 TASK 8

Kimberley irons her 8 T-shirts in 4 minutes.

How long does it take her to iron 1 T-shirt?

INTERVIEW 3 TASK 9

There were 128 lambs in a field.
Another 74 lambs joined them.

How many lambs were there altogether?

TASK 9

SAY: There were 128 lambs in a field.
Another 74 lambs joined them.
How many lambs were there altogether?

Stage	Strategy observed
5	**Cannot solve the problem** or **Uses an earlier numeracy stage** **Skip counting in tens and ones** (Stage 4) **e.g.,** [128] 138, ..., 198; 199, 200, 201, 202 **Repeat addition in tens and ones** (Stage E5) **e.g.,** 128 + 10 + 10 + … + 10 = 198; 199, 200, 201, 202 **Mix of counting and part-whole strategies** (Stage E5) **e.g.,** 128 + 10 + 10 + … + 10 = 198; 198 + 2 + 2 = 202 **Attempts part-whole strategy with error** (Stage E5) **e.g.,** 192 (no carrying)
Early 6 or higher	**Uses a part-whole strategy e.g.,** - Place value partitioning e.g., (120 + 70) + (8 + 4) = 190 + 12 = 202 - Adding on in parts e.g., 128 + 70 = 198; 198 + 4 = 202 **or** 120 + 74 = 194; 194 + 8 = 202 - Making to ten e.g., 128 + 2 = 130; 130 + 70 = 200; 200 + 2 = 202

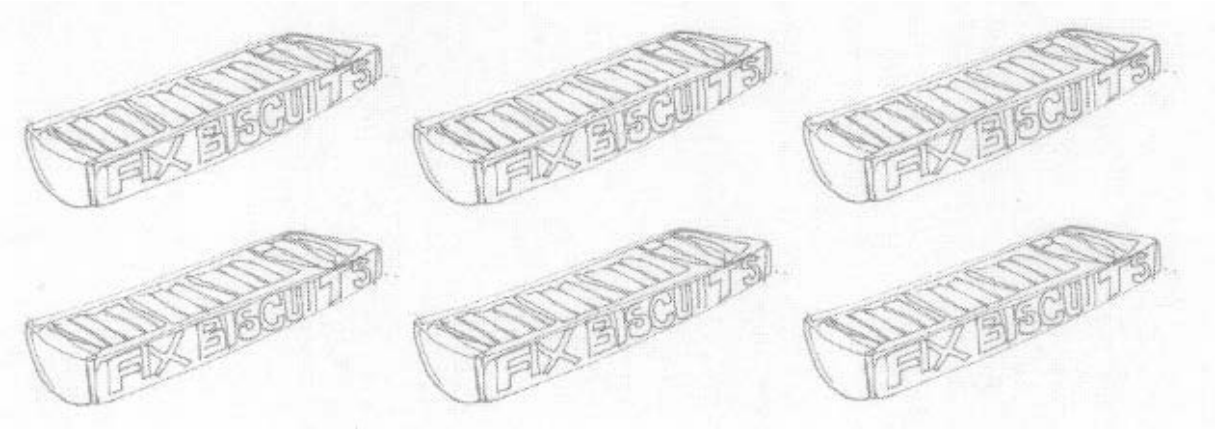
TASK 10

SAY: Ra has 6 packets of biscuits.
There are 15 biscuits in each packet.
How many biscuits does Ra have?

Stage	Strategy observed
5	**Cannot solve the problem** or **Uses an earlier numeracy stage** **Uses an additive strategy e.g.,** - Skip counting (Stage 4) e.g., 15, 30, 45, 60, 75, 90 [or 6, 12, 18, …, 90] - Repeated addition e.g., (Stage E5) e.g., 15 + 15 + ... + 15 = 90 [**or** 6 + 6 + ... + 6 = 90] - Doubling additively (Stage 5) e.g., 15 + 15 = 30; 30 + 30 = 60; 60 + 30 = 90
Early 6 or higher	**Uses a multiplicative strategy e.g.,** - Place value partitioning e.g., 6 × 10 = 60; 6 × 5 = 30; 60 + 30 = 90 - Derived from basic fact e.g., 6 × 10 = 60; 60 + 6 + 6 + 6 + 6 + 6 = 90 - Halving and doubling e.g., 6 × 15 = 3 × 30 = 90

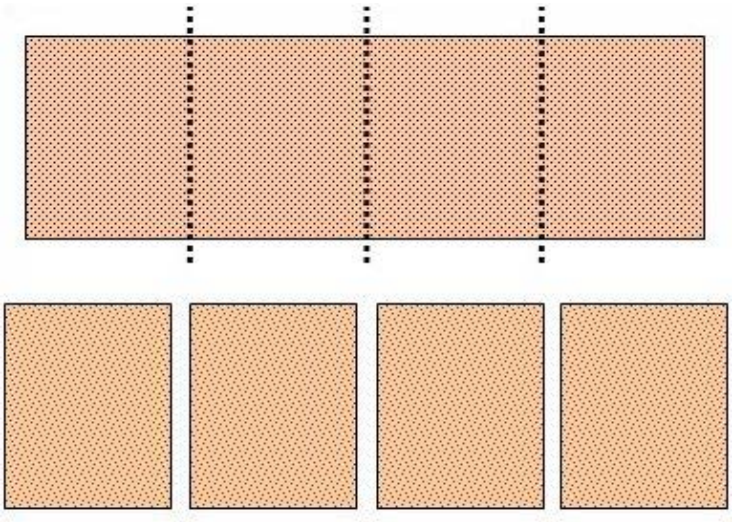
INTERVIEW 3 TASK 10

Ra has 6 packets of biscuits.
There are 15 biscuits in each packet.



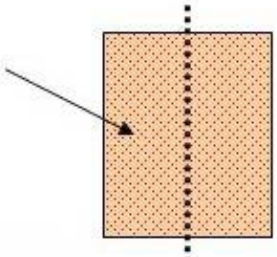
How many biscuits does Ra have?

INTERVIEW 3 TASK 11



You cut a lamington into 4 equal pieces.

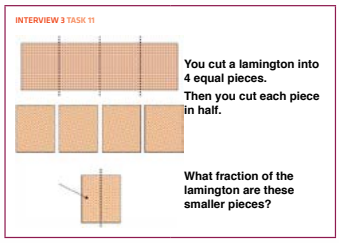
Then you cut each piece in half.



What fraction of the lamington are these smaller pieces?

TASK 11

SAY: You cut a lamington into 4 equal pieces.
Then you cut each piece in half.
What fraction of the lamington are these smaller pieces?

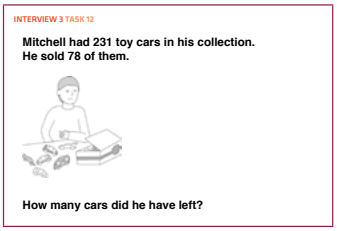


Stage	Strategy observed
5	**Cannot solve the problem OR Uses an earlier numeracy stage** **Counting strategy** (Stage 4) **e.g.,** 1, 2, 3, ..., 8 so the pieces are eighths
Early 6 or higher	**Uses an additive or multiplicative strategy e.g.,** - Additive strategy e.g., 2 + 2 + 2 + 2 = 8, so these pieces are quarters, and the smaller ones are eighths - Multiplicative strategy e.g., 4 × 2 = 8 so the pieces are eighths

DECISION: If **any** "E6" are circled in **Tasks 9, 10** or **11**, CONTINUE the interview.
If **only** "5" are circled, STOP the interview. If in any doubt, CONTINUE the interview.

TASK 12

SAY: Mitchell had 231 toy cars in his collection.
He sold 78 of them.
How many cars did he have left?



Stage	Strategy observed
Early 6	**Cannot solve the problem** or **Uses an earlier numeracy stage** **Mix of counting and part-whole strategies** (Stage E5) **e.g.,** [231] 22 1, 201, ..., 161; 161 – 1 = 160; 160 – 7 = 153 **Attempts part-whole strategy with error** (Stage 5) **e.g.,** 231 – 80 = 151; 151 – 2 = 149 (compensates in the wrong direction)
6 or higher	**Uses a part-whole strategy e.g.,** - Place value partitioning e.g., (230 – 70) + (1 – 8) = 160 – 7 = 153 - Making to hundreds e.g., 231 – 31 = 200; 78 – 31 = 47; 200 – 47 = 153 - Subtracting tidy number and compensation e.g., 231 – 80 = 151; 151 + 2 = 153 - Equal additions e.g., 231 – 78 = 253 – 100 = 153

INTERVIEW 3 TASK 12

Mitchell had 231 toy cars in his collection.
He sold 78 of them.

How many cars did he have left?

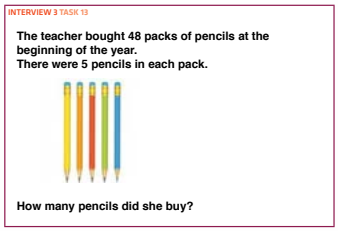
INTERVIEW 3 TASK 13

The teacher bought 48 packs of pencils at the beginning of the year.
There were 5 pencils in each pack.

How many pencils did she buy?

TASK 13

SAY: The teacher bought 48 packs of pencils at the beginning of the year.
There were 5 pencils in each pack.
How many pencils did she buy?



Stage	Strategy observed
Early 6	**Cannot solve the problem** or **Uses an earlier numeracy stage** **Uses additive strategies e.g.,** - Doubling additively (Stage 5) e.g., 48 + 48 = 96; 96 + 96 = 192; 192 + 48 = 240
6 or higher	**Uses a multiplicative strategy e.g.,** - Place value partitioning with basic facts e.g., (5 × 40) + (5 × 8) = 200 + 40 = 240 - Doubling and halving e.g., 48 × 5 = 24 × 10 = 240 - Rounding and compensation e.g., (5 × 50) – (5 × 2) = 250 – 10 = 240

TASK 14

SAY: Three friends share two pizzas.
What fraction of a pizza does each friend get?

Stage	Strategy observed
Early 6	**Cannot solve the problem** or **Uses an earlier numeracy stage** **Uses an additive strategy** (Stage 5) **e.g.,** $\frac{1}{2} + \frac{1}{2} + \frac{1}{2}$ each, the remaining half is cut into three pieces, but cannot name the combined fraction.
6 or higher	**Uses a multiplicative strategy e.g.,** Two lots of $\frac{1}{3}$ of 1 = $2 \times \frac{1}{3} = \frac{2}{3}$ **or** 2 out of 6 pieces is $\frac{2}{3}$ of one pizza **or** $3 \times \frac{1}{2} = 1\frac{1}{2}$; $\frac{1}{3}$ of $\frac{1}{2} = \frac{1}{6}$; $\frac{1}{2} + \frac{1}{6} = \frac{2}{3}$

DECISION: If **any** "6" are circled in **Tasks 12, 13** or **14**, CONTINUE the interview.
If **only** "E6" are circled, STOP the interview. If in any doubt, CONTINUE the interview.

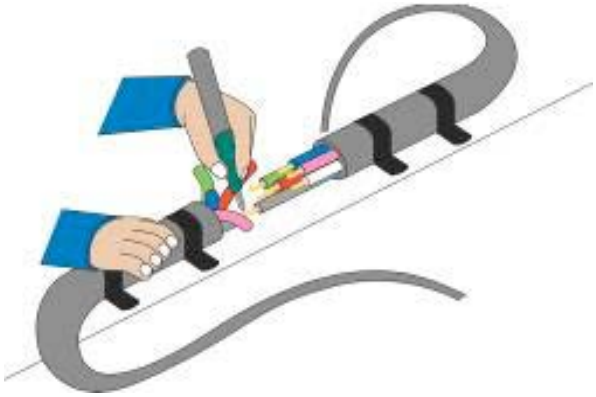
INTERVIEW 3 TASK 14

Three friends share two pizzas.

What fraction of a pizza does each friend get?

INTERVIEW 3 TASK 15

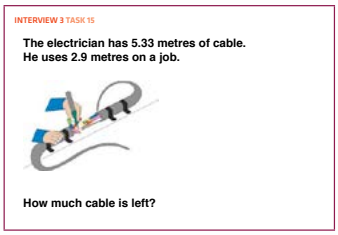
The electrician has 5.33 metres of cable.
He uses 2.9 metres on a job.



How much cable is left?

TASK 15

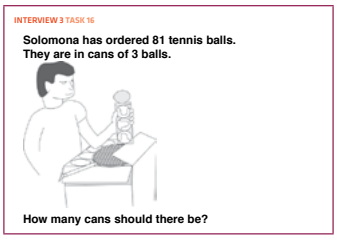
SAY: The electrician has 5.33 metres of cable.
He uses 2.9 metres on a job.
How much cable is left?



Stage	Strategy observed
6	**Cannot solve the problem** or **Uses an earlier numeracy stage** **Misinterprets decimal place value** (Stage 6) **e.g.,** - Ignores the decimal points e.g., 533 – 29 = 504 - Treats numbers after the decimal as whole numbers e.g., 5.33 – 2.9 = (5 – 2) + (0.33 – 0.9 "=" 0.24) = 3.24
Early 7 or higher	**Uses part-whole strategies e.g.,** - Taking off in parts e.g., 5.33 – 2.0 = 3.33; 3.33 – 0.9 = 2.43 - Place value partitioning e.g., (5 – 2) + (0.3 – 0.9) + 0.03 = 3 – 0.6 + 0.03 = 2.43 - Making to ones e.g., 2.9 + 0.1 = 3.0; 3.0 + 2.33 = 5.33; 0.1 + 2.33 = 2.43 - Rounding and compensation e.g., 5.33 – 3.0 = 2.33; 2.33 + 0.1 = 2.43

TASK 16

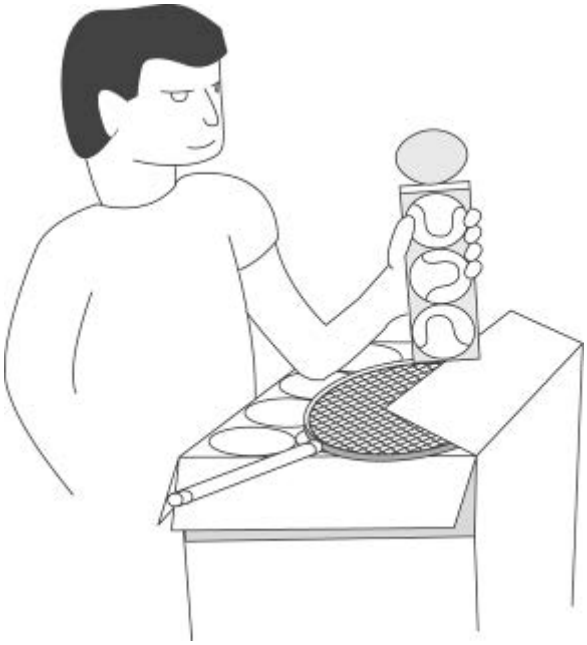
SAY: Solomona has ordered 81 tennis balls.
They are in cans of 3 balls.
How many cans should there be?



Stage	Strategy observed
6	**Cannot solve the problem** or **Uses an earlier numeracy stage** **Uses additive strategies (Stage 5) e.g.,** - Additive doubling or tripling e.g., 3 + 3 + 3 = 9; 9 + 9 + 9 = 27; 27 + 27 + 27 = 81 **Uses a mix of additive and multiplicative strategies (Stage 6) e.g.,** 20 × 3 = 60; 60 + 3 + 3 + 3 + … + 3 = 81 so the answer is 20 + 7 = 27
Early 7 or higher	**Uses multiplicative strategies e.g.,** - Derive from basic facts e.g., (3 × 20) + (3 × 7) = 60 + 21 = 81; 20 + 7 = 27 **or** 30 × 3 = 90; 90 – (3 × 3) = 90 – 9 = 81; 30 – 3 = 27 - Proportional adjustment e.g., 81 ÷ 9 = 9 so 81 ÷ 3 = 3 × 9 = 27

INTERVIEW 3 TASK 16

Solomona has ordered 81 tennis balls.
They are in cans of 3 balls.



How many cans should there be?

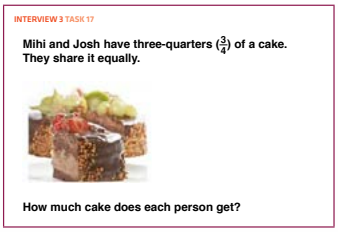
INTERVIEW 3 TASK 17

Mihi and Josh have three-quarters ($\frac{3}{4}$) of a cake.
They share it equally.

How much cake does each person get?

TASK 17

SAY: Mihi and Josh have three-quarters of a cake.
They share it equally.
How much cake does each person get?



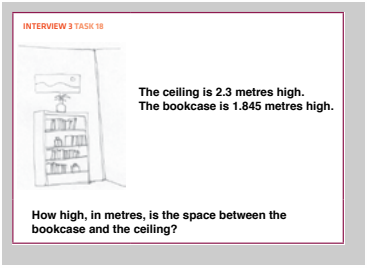
Note: Say "three-fourths" instead of "three-quarters" if this is more familiar to your student.

Stage	Strategy observed
6	**Cannot solve the problem** or **Uses an earlier numeracy stage**
Early 7 or higher	**Images three quarters, and equally shares e.g.,** $\frac{1}{4}$ plus ($\frac{1}{2}$ of $\frac{1}{4}$) = $\frac{1}{4}$ + $\frac{1}{8}$ = $\frac{2}{8}$ + $\frac{1}{8}$ = $\frac{3}{8}$ **Uses a multiplicative strategy e.g.,** $\frac{1}{2}$ of $\frac{1}{4}$ is $\frac{1}{8}$ so $\frac{1}{2}$ of $\frac{3}{4}$ = 3 × $\frac{1}{8}$ = $\frac{3}{8}$

DECISION: If **any** "E7" are circled in **Tasks 15, 16** or **17**, CONTINUE the interview.
If **only** "6" are circled, STOP the interview. If in any doubt, CONTINUE the interview.

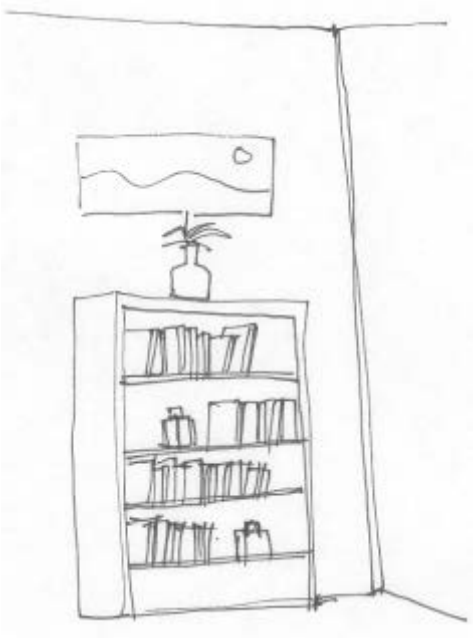
TASK 18

SAY: The ceiling is 2.3 metres high.
The bookcase is 1.845 metres high.
How high, in metres, is the space between the bookcase and the ceiling?



Stage	Strategy observed
Early 7	**Cannot solve the problem** or **Uses an earlier numeracy stage** **Misinterprets or ignores decimal place value** (Stage 6) **e.g.,** 2.3 – 1.845 = (2 – 1) + (0.3 – 0.845) "=" 1 – 0.842 = 0.158 **or** 0.152
7 or higher	**Uses part-whole strategies e.g.,** - Place value partitioning e.g., (2 – 1) + (0.3 – 0.845) = 1 – 0.545 = 0.455 **or** (2.3 – 1.8) + (0 – 0.045) = 0.5 – 0.045 = 0.455 - Making to ones e.g., 1.845 + 0.155 = 2.0; 0.155 + 0.3 = 0.455 - Rounding and compensation e.g., 2.3 – 1.9 = 0.4; 0.4 + 0.55 = 0.455

INTERVIEW 3 TASK 18



The ceiling is 2.3 metres high.
The bookcase is 1.845 metres high.

How high, in metres, is the space between the bookcase and the ceiling?

INTERVIEW 3 TASK 19

Joni has 1.5 kilograms of butter in the fridge.
A batch of scones requires 0.075 kilograms of butter.

How many batches of scones will Joni be able to bake?

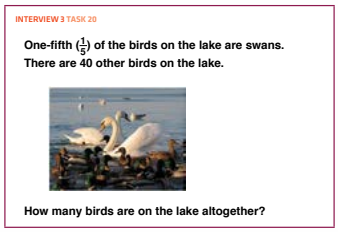
TASK 19

SAY: Joni has 1.5 kilograms of butter in the fridge.
A batch of scones requires 0.075 kilograms of butter.
How many batches of scones will Joni be able to bake?

Stage	Strategy observed
Early 7	**Cannot solve the problem** or **Uses an earlier numeracy stage** **Attempts multiplication strategy** (Stage 6)
7 or higher	**Uses multiplication strategies e.g.,** 0.075 × 20 = 1.5 [because 75 × 2 = 150] so the answer is 20 **or** 1500 ÷ 75 (simplify by 5) = 300 ÷ 15 = 60 ÷ 3 = 20 **or** 2 batches need 2 × 0.075 = 0.15; 10 × 0.15 = 1.5; 2 × 10 = 20

TASK 20

SAY: One-fifth of the birds on the lake are swans.
There are 40 other birds on the lake.
How many birds are on the lake altogether?



Stage	Strategy observed
Early 7	**Cannot solve the problem** or **Uses an earlier numeracy stage** **Uses additive strategies** (Stage 6) **e.g.,** $\frac{4}{5}$ is 40 because 10 + 10 + 10 + 10 = 40 so $\frac{1}{5}$ is 10; $\frac{5}{5}$ is 40 + 10 = 50
7 or higher	**Uses a multiplicative strategy e.g.,** $\frac{4}{5}$ is 40 because 4 × 10 = 40, so $\frac{5}{5}$ is 5 × 10 = 50 $\frac{4}{5}$ is 40 so $\frac{1}{5}$ is 40 ÷ 4 = 10; $\frac{5}{5}$ is 5 × 10 = 50

DECISION: If **any** "7" are circled in **Tasks 18, 19** or **20**, CONTINUE the interview.
If **only** "E7" are circled, STOP the interview. If in any doubt, CONTINUE the interview.

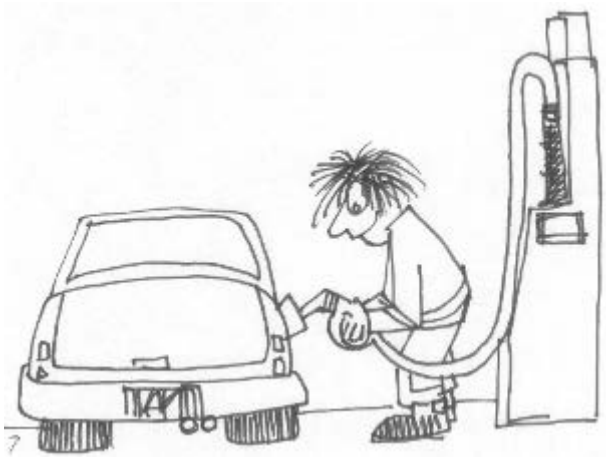
INTERVIEW 3 TASK 20

One-fifth ($\frac{1}{5}$) of the birds on the lake are swans.
There are 40 other birds on the lake.

How many birds are on the lake altogether?

INTERVIEW 3 TASK 21

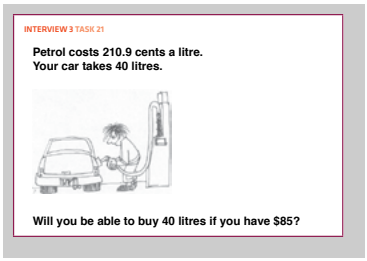
Petrol costs 210.9 cents a litre.
Your car takes 40 litres.



Will you be able to buy 40 litres if you have $85?

TASK 21

SAY: Petrol costs 210.9 cents a litre.
Your car takes 40 litres.
Will you be able to buy 40 litres if you have $85?



Stage	Strategy observed
7	**Cannot solve the problem** or **Uses an earlier numeracy stage** **Attempts multiplication strategy e.g.,** 40 × 200 = 8000
Early 8 or higher	**Uses multiplication strategies e.g.,** - Place value partitioning e.g., 40 × 200 = 8000; 40 × 10 = 400; 40 × 0.9 = 36; 8000 + 400 + 36 = 8436c = $84.36 - Rounding dollars and cents e.g., Round 210.9 to 211 **then** 40 × $2 = $80; 40 × 10c = $4; 40 × 1c = 40c; $80 + $4 + 40c = $84.40 - Unitising (i.e. cost of fuel per litre if 40 litres costs $85) e.g., 80 ÷ 40 = $2; 5 ÷ 40 = $\frac{1}{8}$; $\frac{1}{8}$ of $1 = 12.5 cents; so could pay if petrol cost 212.5 cents per litre

TASK 22

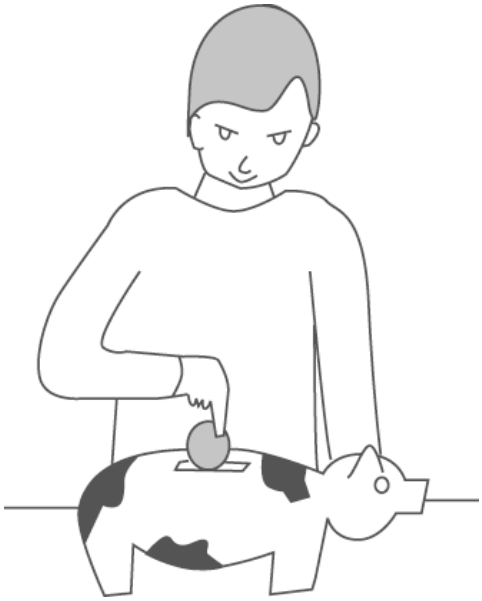
SAY: Mei-ling saved $40 in 16 weeks.
She saved the same amount each week.
How much had she saved after 6 weeks?

Stage	Strategy observed
7	**Cannot solve the problem** or **Uses an earlier numeracy stage** **Uses inappropriate additive strategy** (Stage 5) **e.g.,** 16 – 6 = 10; 40 – 10 = 30 **or** 6 + 10 = 16; 30 + 10 = 40 **Uses estimation** (Stage 6–7) **e.g.,** 6 ≤ $\frac{1}{2}$ of 16; 15 ≤ $\frac{1}{2}$ of 40; so an estimate is 15
Early 8 or higher	**Use a proportional approach e.g.,** - Equivalent fractions or ratios e.g., $\frac{6}{16} = \frac{3}{8}$; $\frac{3}{8}$ × 40 = 15 **or** 40:16 = 20:8 = 10:4 = 5:2; (10 + 5):(4 + 2) = 15:6 so the answer is 15 **or** 40:16 = 20:8 = 15:6 (using $\frac{3}{4}$ of 20 and $\frac{3}{4}$ of 8) so the answer is 15 **or** 40:16 (8 as a factor) = 5:2 = 15:6 so the answer is 15

Stop the interview

INTERVIEW 3 TASK 22

Mei-ling saved $40 in 16 weeks.
She saved the same amount each week.



How much had she saved after 6 weeks?