



MINISTRY OF EDUCATION

Te Tāhuhu o te Mātauranga

GloSS

INTERVIEW 2





Instructions

- Commence the interview with the section targeted just below the Number Framework stage you think the student is at. Be willing to move on quickly, or even jump some sections if this level is too low. However, if the student finds the first section they are given too hard, go back to a previous section that they can answer.
- Ask the student **all** the tasks within a section. Generally these are three tasks on two face-to-face pages.
- Read each task to the student and show them the related Task Card.
- Give the student time to answer the question (you may need to wait for a few minutes).
- Prompt the student if you need to. For example, ask “*How did you work that out?*” or “*Can you talk me through what you were thinking?*” Do not ask these questions if the student answers quickly and it is obvious that they “just knew” it.
- Allow the student the opportunity to demonstrate **higher level strategies**. If they use a simple strategy (e.g., counting) ask “*Can you do it another way?*”
- Use the scoring guide below each task to determine the Number Framework Stage associated with the student’s response.
- Circle the relevant stage on the recording sheet.
- Record their strategy in the space under “Observations”.
- Use the decision rule provided at the end of each section to decide whether to continue the interview. If there is any doubt or if you think the student may be capable of showing higher strategies, **continue** the interview.
- Questions are designed so that they can be answered mentally.

MATERIALS NEEDED

- 20 counters.
- Two A5 sized cards to cover counters and isolate tasks.
- Set of Task Cards.
- One recording sheet per student.

INTERVIEW SCHEDULE



Section 1 TARGET: Stage 1 One-to-one counting

TASK 1

ACTION: Place 9 counters of the same colour on the table.

SAY: How many counters are there?

Stage	Strategy observed
0	Student cannot count 9 objects
1	Correctly counts the 9 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.



Section 2 TARGET: Stages 2–3 or 4 Counting from one or Advanced counting

TASK 2

INTERVIEW 2 TASK 2

$$2 + 5 = \square$$

SAY: Please hold out your hands for me.

SAY: Here are 2 counters.

SAY: Here are another 5 counters.

SAY: How many counters have you got altogether?

ACTION: Place 2 counters in the student's hand.

ACTION: Place 5 counters in their other hand.

ACTION: Close the student's hands to encourage imaging.

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 23)
4 or higher	Counts on e.g., 3, 4, 5, 6, 7 or 6, 7 Knows 2 + 5

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.



Section 3 TARGET: Stages 4 or Early 5

Advanced counting or Early additive part-whole

Do all **three** tasks on these two pages.

TASK 3

ACTION: Place 8 counters under a card then place 6 under another card.

SAY: Here are 8 counters, and here are 6 counters.
How many counters are there altogether?

INTERVIEW 2 TASK 3

$$8 + 6 =$$

Stage	Strategy observed
3	<p>Cannot solve the problem (After removing the cards – Stage 1)</p> <p>Counts all objects from 1 on materials (Stage 2) e.g., 1, 2, 3, ..., 14</p> <p>Counts all objects from 1 by imaging (Stage 3) e.g., 1, 2, 3, ..., 14</p>
4	Counts on (Stage 4) e.g., 9, 10, 11, 12, 13, 14 or 7, 8, ..., 13, 14
Early 5 or higher	<p>Uses a part-whole strategy e.g.,</p> <ul style="list-style-type: none"> - Making to ten e.g., $8 + 2 = 10$; $10 + 4 = 14$ - Doubling with compensation e.g., $6 + 6 = 12$; $12 + 2 = 14$ or $7 + 7 = 14$ or $8 + 8 = 16$; $16 - 2 = 14$ - Addition fact e.g., $8 + 6 = 14$

TASK 4

INTERVIEW 2 TASK 4

There are 5 motorbikes in each row.
There are 5 rows of motorbikes.

How many motorbikes are there altogether?

SAY: There are 5 motorbikes in each row.

ACTION: Sweep one row with your finger

SAY: There are 5 rows of motorbikes.

ACTION: Point to each row one by one

SAY: How many motorbikes are there altogether?

Stage	Strategy observed
3	<p>Cannot solve the problem</p> <p>Counts all objects from 1 on materials (Stage 2) e.g., 1, 2, 3, 4, 5, 6, ..., 25</p> <p>Counts all objects from 1 by imaging (Stage 3) e.g., 1, 2, 3, 4, 5, 6, ..., 25</p>
4	Skip counting (Stage 4) e.g., 5, 10, 15, 20, 25
Early 5 or higher	<p>Uses an additive or multiplicative strategy e.g.,</p> <ul style="list-style-type: none"> - Repeat addition e.g., $5 + 5 + 5 + 5 + 5 = 25$ - Additive strategies e.g., $5 + 5 = 10$; $10 + 10 = 20$; $20 + 5 = 25$ - Multiplication strategies e.g., $4 \times 5 = 20$; $20 + 5 = 25$ - Multiplication fact e.g., $5 \times 5 = 25$

TASK 5

- ACTION:** Provide 15 counters (players).
Allow the student access to these counters if necessary.
- SAY:** These 15 players have to spread out evenly on the court.
How many players should be in each third of the court?



Stage	Strategy observed
2–4	<p>Cannot solve the problem</p> <p>Equally shares the players, on materials or by imaging (Stage 2–4)</p>
Early 5 or higher	<p>Uses an additive or multiplicative strategy e.g.,</p> <ul style="list-style-type: none"> - Additive partitioning e.g., $5 + 5 = 10$; $5 + 5 + 5 = 15$ - Multiplication or division strategies e.g., $3 \times 4 = 12$; $12 + 3 = 15$ - Multiplication or division fact e.g., $3 \times 5 = 15$ or $15 \div 3 = 5$

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.



Section 4 TARGET: Stage 5

Early additive part-whole

Do all **three** tasks on these two pages.

TASK 6

SAY: I have 84 cards.
I give 7 cards to my friend.
How many cards do I have left?

INTERVIEW 2 TASK 6

I have 84 cards.
I give 7 cards to my friend.



How many cards do I have left?

Stage	Strategy observed
Early 5	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Counting back (Stage 4) e.g., 83, 82, 81, 80, 79, 78, 77</p> <p>Mix of counting and part-whole strategies (Stage E5) e.g., $84 - 4 = 80$; 79, 78, 77</p>
5 or higher	<p>Uses a part-whole strategy e.g.,</p> <ul style="list-style-type: none"> - Making to tens e.g., $84 - 4 = 80$; $80 - 3 = 77$ - Take off tidy number and compensates e.g., $84 - 10 = 74$; $74 + 3 = 77$ - Uses doubles e.g., $7 + 7 = 14$ or $14 - 7 = 7$ so $84 - 7 = 77$

TASK 7

SAY: You have 30 balls to put into bags.
Each bag can hold 5 balls.
How many bags do you need?

INTERVIEW 2 TASK 7

You have 30 balls to put into bags.
Each bag can hold 5 balls.



How many bags do you need?

Stage	Strategy observed
Early 5	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Skip counting (Stage 4) e.g., 5, 10, 15, ..., 30</p> <p>Repeated addition (Stage E5) e.g., $5 + 5 + 5 + \dots + 5 = 30$</p>
5 or higher	<p>Uses an additive or multiplicative strategy e.g.,</p> <ul style="list-style-type: none"> - Additive strategies e.g., $5 + 5 = 10$; $10 + 10 + 10 = 30$; $2 + 2 + 2 = 6$ - Derive from multiplication facts e.g., $4 \times 5 = 20$; $2 \times 5 = 10$; $4 + 2 = 6$ or $5 \times 5 = 25$; $25 + 5 = 30$; $5 + 1 = 6$ - Multiplication or division facts e.g., $6 \times 5 = 30$ or $30 \div 5 = 6$

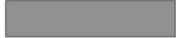
TASK 8

SAY: The white piece is one-quarter of a strip.
What fraction is the grey piece?

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

INTERVIEW 2 TASK 8

The white piece is one-quarter of a strip.



What fraction is the grey piece?

Stage	Strategy observed
Early 5	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Answer other than three quarters (Stage 3–4)</p> <p>Answer of three quarters without reasonable justification (Stage E5)</p>
5 or higher	<p>Maps one quarter three times and says three quarters e.g., $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$</p>

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.



Section 5 TARGET: Early Stage 6

Advanced additive part-whole

Do all **three** tasks on these two pages.

TASK 9

SAY: Miriama scored 476 points on a video game.
 Deb scored 123 points on the same game.
 How many more points did Miriama score than Deb?

INTERVIEW 2 TASK 9

Miriama scored 476 points on a video game.
 Deb scored 123 points on the same game.



How many more points did Miriama score than Deb?

Stage	Strategy observed
5	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Repeat addition or skip counting in hundreds, tens and ones (Stage E5) e.g., [123] 223, 323, 423, 433, 443, ..., 473, 474, 475, 476; $300 + 50 + 3 = 353$</p> <p>Mix of counting and part-whole strategies (Stage E5/5) e.g., [123] 223, 323, 423; $423 + 50 + 3 = 476$; $300 + 50 + 3 = 353$</p>
Early 6 or higher	<p>Uses a part-whole strategy e.g.,</p> <ul style="list-style-type: none"> - Place value partitioning e.g., $(400 - 100) + (70 - 20) + (6 - 3) = 300 + 50 + 3 = 353$ - Adding on or subtracting in parts e.g., $123 + 300 = 423$; $423 + 50 = 473$; $473 + 3 = 476$; $300 + 50 + 3 = 353$

TASK 10

SAY: A pack of felt pens cost \$8.
 How many packs of felt pens can you buy for \$88?

INTERVIEW 2 TASK 10

A pack of felt pens cost \$8.



How many packs of felt pens can you buy for \$88?


Stage	Strategy observed
5	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Uses an additive strategy e.g.,</p> <ul style="list-style-type: none"> - Skip counting (Stage 4) e.g., 8, 16, 24, ..., 88 - Repeated addition e.g., (Stage E5) e.g., $8 + 8 + \dots + 8 = 88$ - Doubling additively (Stage 5) e.g., $8 + 8 = 16$; $16 + 16 = 32$; $32 + 32 = 64$; $64 + 16 + 8 = 88$
Early 6 or higher	<p>Uses a multiplicative strategy e.g.,</p> <ul style="list-style-type: none"> - Derives from multiplication facts e.g., $10 \times 8 = 80$; $11 \times 8 = 80 + 8 = 88$ - Multiplication facts e.g., $11 \times 8 = 88$ or $88 \div 8 = 11$

TASK 11

SAY: Which is more money:
one-half of \$20 **or** one-quarter of \$40?

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

INTERVIEW 2 TASK 11



Which is more money:
one-half ($\frac{1}{2}$) of \$20 or one-quarter ($\frac{1}{4}$) of \$40?

Stage	Strategy observed
5	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Gets both unit fractions from addition facts (Stage E5) e.g., $10 + 10 + 10 + 10 = 40$ so $\frac{1}{4}$ of 40 is 10 and $10 + 10 = 20$ so $\frac{1}{2}$ of 20 is 10</p>
Early 6 or higher	<p>Uses multiplication or division facts e.g., $\frac{1}{4}$ of 40 is 10 because $10 \times 4 = 40$ or $40 \div 4 = 10$ and $\frac{1}{2}$ of 20 is 10 because $10 \times 2 = 20$ or $20 \div 2 = 10$</p>

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.



Section 6 TARGET: Stage 6

Advanced additive part-whole

Do all **three** tasks on these two pages.

TASK 12

SAY: Leeana counted 82 penguins on the beach.
Later there were only 44.
How many penguins had left the beach?

INTERVIEW 2 TASK 12

Leeana counted 82 penguins on the beach.
Later there were only 44.



How many penguins had left the beach?

Stage	Strategy observed
Early 6	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Mix of counting and part-whole strategies (Stage E5) e.g., [82] 72, 62, 52; $52 - 2 = 50$; $50 - 6 = 44$; $30 + 2 + 6 = 38$</p> <p>Attempts part-whole strategy with error (Stage 5) e.g., $82 - 50 = 32$; $32 - 6 = 26$ (compensates in the wrong direction)</p>
6 or higher	<p>Uses a part-whole strategy e.g.,</p> <ul style="list-style-type: none"> - Place value partitioning e.g., $(80 - 40) + (2 - 4) = 40 - 2 = 38$ - Making to tens e.g., $82 - 2 = 80$; $80 - 30 = 50$; $50 - 6 = 44$; $2 + 30 + 6 = 38$ or $44 + 6 = 50$; $50 + 30 = 80$; $80 + 2 = 82$; $6 + 30 + 2 = 38$ - Rounding and compensation e.g., $82 - 40 = 42$; $42 - 4 = 38$ - Equal additions e.g., $82 - 44 = 88 - 50 = 38$

TASK 13

SAY: Tom has 8 times as many stickers as Sarah.
Tom has 72 stickers.
How many stickers does Sarah have?

INTERVIEW 2 TASK 13

Tom has 8 times as many stickers as Sarah.
Tom has 72 stickers.



How many stickers does Sarah have?


Stage	Strategy observed
Early 6	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Adding strategies e.g.,</p> <ul style="list-style-type: none"> - Doubling additively (Stage 5) e.g., $8 + 8 = 16$; $16 + 16 = 32$; $32 + 32 = 64$; $64 + 8 = 72$; $8 + 1 = 9$
6 or higher	<p>Uses a multiplicative strategy e.g.,</p> <ul style="list-style-type: none"> - Derived from a known fact e.g., $8 \times 10 = 80$; $80 - 8 = 72$; $10 - 1 = 9$ - Multiplication fact e.g., $8 \times 9 = 72$ or $72 \div 8 = 9$

TASK 14

SAY: There are 8 swans on the lake.
The other two-thirds of the birds on the lake are ducks.
How many ducks are there on the lake?

INTERVIEW 2 TASK 14

There are 8 swans on the lake.
The other two-thirds ($\frac{2}{3}$) of the birds on the lake are ducks.



How many ducks are there on the lake?

Stage	Strategy observed
Early 6	Cannot solve the problem or Uses an earlier numeracy stage Uses additive strategies only (Stage 5) e.g., $8 + 8 + 8 = 24$ so 24 birds in total; $8 + 8 = 16$
6 or higher	Uses multiplicative strategies e.g., $3 \times 8 = 24$ so 24 birds in total then multiplies (or adds) to get i.e., $2 \times 8 = 16$ [or $8 + 8 = 16$] or $1 - \frac{2}{3} = \frac{1}{3}$; $\frac{1}{3} = 8$; $\frac{2}{3} = 2 \times 8 = 16$

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.



Section 7 TARGET: Early Stage 7


Advanced multiplicative part-whole

Do all **three** tasks on these two pages

TASK 15

SAY: The world record for men's shot put is 23.12 metres.
The world record for women is 22.63 metres.
What is the difference in metres between the two records?

INTERVIEW 2 TASK 15



The world record for men's shot put is 23.12 metres.
The world record for women is 22.63 metres.


What is the difference in metres between the two records?

Stage	Strategy observed
6	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Subtraction misconception (Stage 5) e.g.,</p> <ul style="list-style-type: none"> - Subtracts the whole number then subtracts the smaller decimal from the larger e.g., $23 - 22 = 1$; $0.63 - 0.12 = 0.51$ so the answer is 1.51
Early 7 or higher	<p>Uses part-whole strategies with decimal place value understanding e.g.,</p> <ul style="list-style-type: none"> - Place value partitioning e.g., $(23 - 22) + (0.1 - 0.6) + (0.02 - 0.03) = 1 - 0.5 - 0.01 = 0.49$ - Making to ones e.g., $22.63 + 0.37 = 23$; $23 + 0.12 = 23.12$; $0.37 + 0.12 = 0.49$ - Rounding and compensation e.g., $22.63 + 0.5 = 23.13$; $23.13 - 0.01 = 23.12$; $0.5 - 0.01 = 0.49$ - Equal addition e.g., $(23.12 + 0.37) - (22.63 + 0.37) = 23.49 - 23.00 = 0.49$

TASK 16

SAY: I have 6 boxes filled with books.
Each box has 36 books.
How many books are there altogether?

INTERVIEW 2 TASK 16



I have 6 boxes filled with books.
Each box has 36 books.

How many books are there altogether?


Stage	Strategy observed
6	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Uses additive strategies (Stage 5) e.g.,</p> <ul style="list-style-type: none"> - Doubling additively e.g., $36 + 36 = 72$; $72 + 72 = 144$; $144 + 72 = 216$ <p>Uses a mix of multiplicative and additive strategies (Stage 6) e.g.,</p> <ul style="list-style-type: none"> $6 \times 10 = 60$; $60 + 60 + 60 = 180$; $6 \times 6 = 36$; $180 + 36 = 216$
Early 7 or higher	<p>Uses a multiplicative strategy e.g.,</p> <ul style="list-style-type: none"> - Place value partitioning with basic facts e.g., $(6 \times 30) + (6 \times 6) = 180 + 36 = 216$ - Rounding and compensation e.g., $(6 \times 40) - (6 \times 4) = 240 - 24 = 216$ - Doubling and halving e.g., $6 \times 36 = 3 \times 72 = 216$

TASK 17

SAY: There are 24 students in the class.
Three-eighths of them are boys.
How many boys are in the class?

INTERVIEW 2 TASK 17

There are 24 students in the class.
Three-eighths ($\frac{3}{8}$) of them are boys.



How many boys are in the class?

Stage	Strategy observed
6	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Uses additive strategies (Stage 5) e.g., $\frac{1}{8}$ of 24 is 3 because $3 + 3 + 3 + \dots + 3 = 24$; $\frac{3}{8}$ of 24 = $3 + 3 + 3 = 9$</p>
Early 7 or higher	<p>Uses a multiplicative strategy e.g., $\frac{1}{8}$ of 24 is 3 because $8 \times 3 = 24$ or $24 \div 3 = 8$ then multiplies (or adds) to get $\frac{3}{8}$ i.e., $3 \times 3 = 9$ [or $3 + 3 + 3 = 9$]</p> <p>Obtains from a known fraction e.g., $\frac{4}{8}$ of 24 = 12; $\frac{3}{8}$ of 24 = $12 - 3 = 9$</p>

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.



Section 8 TARGET: Stage 7

Advanced multiplicative part-whole

Do all **three** tasks on these two pages.

TASK 18

SAY: On a hot day the tomato plants used 1.5 litres of water.
 On a cold day they used 0.885 litres.
 How much more water did the plants use on the hot day than the cold day?

INTERVIEW 2 TASK 18

On a hot day the tomato plants used 1.5 litres of water.
 On a cold day they used 0.885 litres.



How much more water did the plants use on the hot day than the cold day?


Stage	Strategy observed
Early 7	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Misinterprets or ignores decimal place value (Stage 6) e.g., $1.5 - 0.885 = 1 + (0.5 - 0.885) = 1 - 0.88 = 0.12$</p>
7 or higher	<p>Uses part-whole strategies e.g.,</p> <ul style="list-style-type: none"> - Place value partitioning e.g., $(1 - 0) + (0.5 - 0.885) = 1 - 0.385 = 0.615$ - Other partitioning e.g., $1.5 - 0.885 = 0.5 + (1 - 0.885) = 0.5 + 0.115 = 0.615$ - Making to tenths and ones e.g., $0.885 + 0.015 = 0.9$; $0.9 + 0.1 = 1$; $0.015 + 0.1 + 0.5 = 0.615$ - Rounding and compensation e.g., $1.5 - 0.9 = 0.6$; $0.6 + 0.015 = 0.615$

TASK 19

SAY: There are 12 eggs in a dozen.
 Jess needs 180 eggs.
 How many dozens does Jess need?

INTERVIEW 2 TASK 19

There are 12 eggs in a dozen.
 Jess needs 180 eggs.



How many dozens does Jess need?

Stage	Strategy observed
Early 7	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Uses a mix of additive and multiplicative strategies (Stage 6) e.g., $10 \times 12 = 120$; $120 + 12 + 12 + 12 + 12 + 12 = 180$ or $12 + 12 + 12 + 12 + 12 = 60$; $60 \times 3 = 180$; $5 \times 3 = 15$</p>
7 or higher	<p>Uses multiplicative strategies e.g.,</p> <ul style="list-style-type: none"> - Derive from basic facts with adjustment e.g., $12 \times 10 = 120$; $12 \times 5 = 60$ - Successive halving e.g., $180 \div 12 = 90 \div 6 = 45 \div 3 = 15$ or $180 \div 6 = 30$ so $180 \div 12 = 15$ <p>Uses proportional strategies e.g.,</p> <ul style="list-style-type: none"> - Proportionality e.g., $10 \times 12 = 120$; $\frac{1}{2} \times 120 = 60$; $120 + 60 = 180$; $\frac{1}{2} \times 10 = 5$; $10 + 5 = 15$ or 180 is half way between $120 (= 10 \times 12)$ and $240 (= 20 \times 12)$; and 15 is half way between 10 and 20 so the answer is 15

TASK 20

SAY: In a big lolly packet there are 24 reds and 16 blacks.
A smaller packet with the same mix has a total of 10 lollies.
How many black lollies are in that packet?

INTERVIEW 2 TASK 20

In a big lolly packet there are 24 reds and 16 blacks.
A smaller packet with the same mix has a total of 10 lollies.



How many black lollies are in that packet?

Stage	Strategy observed
Early 7	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Uses proportions inappropriately (Stage 6) e.g., $24 = 1.5 \times 16$, so the answer is $10 \times 1.5 = 15$ or $16 + \frac{1}{2}$ of $16 = 24$; $10 + \frac{1}{2}$ of $10 = 15$</p>
7 or higher	<p>Evaluates the whole and then partitions it proportionally e.g., $16 \div (24 + 16) = \frac{16}{40} = \frac{2}{5}$; $\frac{2}{5}$ of $10 = 4$ or $16:(24 + 16) = 16:40 = 4:10$ so the answer is 4 or $24:16$ is 40 in total; 40 in total is four times 10; $24:16 = (24 \div 4):(16 \div 4)$ $= 6:4$ so the answer is 4</p>

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.



Section 9 TARGET: Early Stage 8 Advanced proportional

Do both tasks on this page.

TASK 21

SAY: Each netball bib takes 0.38 metres of cloth to make.
You have 9.6 metres of cloth.
Is that enough cloth to make 25 bibs?

INTERVIEW 2 TASK 21

Each netball bib takes 0.38 metres of cloth to make.
You have 9.6 metres of cloth.



Is that enough cloth to make 25 bibs?


Stage	Strategy observed
7	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Attempts multiplication strategy e.g., $25 \times 0.4 = 10$</p>
Early 8 or higher	<p>Uses multiplication strategies e.g.,</p> <ul style="list-style-type: none"> - Doubling e.g., $0.38 \times 20 = 7.6$; $\frac{1}{2}$ of 3.8 = 1.9; $7.6 + 1.9 = 9.5$; so 9.5m can make 25 or $0.38 \times 20 = 7.6$; $9.6 - 7.6 = 2$; $2 \div 0.4 = 5$ (and 0.4 is more than 0.38) - Facts of 25 e.g., $25 \times 3 = 75$ so $25 \times 0.3 = 7.5$; $25 \times 0.08 = 2$; so $25 \times 0.38 = 7.5 + 2 = 9.5$ or $38 \times 100 = 38$ metres; $25 = \frac{1}{4} \times 100$; $\frac{1}{4} \times 38 = \frac{1}{4} \times 36 + \frac{1}{4} \times 2 = 9 + 0.5 = 9.5$ so 9.5m enough to make 25 bibs.

TASK 22

SAY: To make 8 aprons, it takes 6 metres of cloth.
How many metres would you need to make 20 aprons?

INTERVIEW 2 TASK 22

To make 8 aprons, it takes 6 metres of cloth.



How many metres would you need to make 20 aprons?

Stage	Strategy observed
7	<p>Cannot solve the problem or Uses an earlier numeracy stage</p> <p>Uses inappropriate additive strategy (Stage 5) e.g., $8 + 12 = 20$; $6 + 12 = 18$ or $8 - 6 = 2$; $20 - 2 = 18$</p> <p>Uses estimation (Stage 6/7) e.g., Less than 1 metre to make 1 apron so about 15 or 16 metres</p>
Early 8 or higher	<p>Uses a proportional approach e.g.,</p> <ul style="list-style-type: none"> - Multiplicative strategies e.g., $8 \times 2.5 = 20$; $6 \times 2.5 = 15$ - Unitising e.g., 8 aprons take 6 metres so 1 apron takes $\frac{6}{8}$ metre = $\frac{3}{4}$ metre; $\frac{3}{4}$ of 20 = 15 - Equivalent fractions or ratios e.g., $20:8 = 10:4 = 5:2 = 15:6$ so the answer is 15

Stop the interview