Schedule for Early Number Assessment (SENA 1)

Student's name: _____

Class: _____ [   ] **Date of initial assessment**

D.O.B: _____ [   ] **Date of second assessment**

Numeral identification

(1)	**3**	(2)	**6**	(3)	**10**	(4)	**2**
(5)	**9**	(6)	**8**	(7)	**5**	(8)	**0**
(9)	**7**	(10)	**4**	(11)	**23**	(12)	**15**
(13)	**12**	(14)	**43**	(15)	**13**	(16)	**20**
(17)	**100**	(18)	**66**				

Forward number word sequences

Start counting from …   I'll tell you when to stop.

(19)	**1...............32**	(20)	**62.................73**	(21)	**96.................113**

What is the next number after …?

(22)	**5**	(23)	**9**	(24)	**13**	(25)	**19**
(26)	**27**	(27)	**46**	(28)	**69**	(29)	**80**

Backward number word sequences

Count backwards from … I'll tell you when to stop.

(30)	**10..............1**	(31)	**23..............16**	(32)	**103...............98**

What number comes before…?

(33)	**5**	(34)	**9**	(35)	**16**	(36)	**20**
(37)	**47**	(38)	**13**	(39)	**70**	(40)	**31**

Schedule for Early Number Assessment (SENA 1)

Subitising

How many dots are there?

(41) | **4**   (42) | **6**   (43) | **5**   (44) | **3**

(45) | **4 + 4**   (46) | **4 + 5**

Counting

(47)   Put out 5 blue counters. *How many blue counters are there?*

(48)   Put out a pile of red counters. *Get me 8 red counters.*

(49)   Put out 8 red counters and 5 blue counters in two groups.
How many counters altogether?

Addition

(50)   **4 + 3** *Here are four counters.* (Briefly display, then screen.)
Here are three more counters. (Briefly display, then screen.)
How many counters are there altogether?

(51)   *I have seven apples and I get another two apples.*
How many apples do I have altogether?

(52)   **9 + 4** *Here are nine counters.* (Briefly display, then screen.)
Here are four counters. (Briefly display, and then screen.)
How many counters are there altogether?

Subtraction

(53)   *I have 7 bananas and I eat 2. How many bananas do I have left?*

(54)   **12 remove 3** *I have 12 counters.* (Briefly display, then screen.)
I'm taking away 3 counters. (Remove 3.) *How many are left?*

(55)   **11 remove… = 7** *I have 11 counters.* (Briefly display, then screen.)
I'm taking away some counters and there are 7 left. (Remove 4 counters.) *How many did I take away?*

Multiplication and division

(56)   Present a pile of counters, more than 12, to the student. (Randomly spaced, not in a line. Do not count them out.) *Using these counters, make three groups with four in each group. How many counters are there altogether?*

Schedule for Early Number Assessment 1

Interview guidelines

General

- Have an assessment sheet for each student being interviewed.
- Place the assessment sheet to the side of the work space and, if possible, out of the student's view. (A small screen is useful for this purpose.)
- Note incorrect responses and any useful comments on the assessment sheet.
- Where useful, ask students *how* they solved the tasks.
- The interviewer should decide if it is necessary to give additional tasks or to abandon some of the set tasks.

Numeral identification (Tasks 1 – 18)

- Show the numeral cards in the order indicated.

Forward number word sequence (Tasks 19 – 29)

Tasks 19 – 21

- Stop if the student encounters difficulties.

Tasks 22 – 29

- For these "number after" tasks, the interviewer needs to decide if the student finds the "number after" by counting from one or can give the answer immediately.
- If necessary, give additional tasks (e.g. the number after 4, after 7, etc.)

Backward number word sequence (Tasks 30 – 40)

Tasks 30 – 32

- Don't give Task 31 if the student has difficulty with Task 30.

Tasks 33 – 40

- For these "number before" tasks, the interviewer needs to decide if the student finds the "number before" by counting from one or can give the answer immediately.

Tasks 41 – 46

- Each of the domino patterns appears on a separate card.

- Display each card for approximately one second.

- If the student correctly identifies (45) and (46) ask, "How did you know there were… (9) dots?

Counting (Tasks 47 – 49)

Task 47

- Place the group of five blue counters in a random group (i.e. not in line or in the dice pattern of five).

- Don't count the counters when placing them on the work space.

- When this task is completed, put the five counters to one side (to be used again in Task 49).

Task 48

- Place a collection of red counters (more than eight) on the work space.

Task 49

- If the student was successful with Tasks 47 and 48, place the eight red counters and the five counters in separate groups and ask: *How many are there altogether*?

- If the student was unsuccessful with Tasks 47 and 48, place 13 counters of the same colour in one group and ask: *How many counters are there*?

Addition (Tasks 50 – 52)

- Pay close attention to *how* the student solves these tasks.

- The interviewer is seeking to determine the student's counting stage and will need to ask what the student did to achieve the answer.

- Specifically, the interviewer is seeking to see if the student:

  - can't count visible items (stage 0 – emergent)

  - can't solve hidden tasks (stage 1 – perceptual)

  - solves hidden task by counting from one (stage 2 – figurative)

  - counts-on (stage 3 – counting-on-and-back)

  - uses a more advanced strategy, e.g. making the ten and adding 3 (stage 4 – facile)

Subtraction (Tasks 53 – 55)

- Task 53 is verbal – no counters.

Tasks 54 – 55

- Present the counters as a group. Do not count them out in front of the student.

- These tasks are designed to elicit at least figurative counting strategies.

Multiplication and division (Task 56)

Present more than 12 counters, randomly placed, to the student. The first instruction is designed to indicate if the student is able to form equal groups. Note how the student forms the groups. Does he or she drag the counters one at a time or many at a time to form a group? The follow-up question is intended to show the counting strategy which the student uses to find the total. A student using a less sophisticated strategy will count by ones, ignoring the structure of the groups. A more advanced strategy would be to use skip counting or repeated addition.

Individual analysis sheet (SENA 1)

Student's name: _____

D.O.B: _____   **Initial interview date:** _____

Numeral identification (Tasks 1 – 18)

Emergent (Level 0)	**1–10** (Level 1)	**1–20** (Level 2)	**1–100** (Level 3)

Forward number word sequences (Tasks 19 – 29)

Emergent (Level 0)	**Initial (10)** (Level 1)	**Intermediate (10)** (Level 2)	**Facile (10)** (Level 3)	**Facile (30)** (Level 4)	**Facile (100)** (Level 5)

Backward number word sequences (Tasks 30 – 40)

Emergent (Level 0)	**Initial (10)** (Level 1)	**Intermediate (10)** (Level 2)	**Facile (10)** (Level 3)	**Facile (30)** (Level 4)	**Facile (100)** (Level 5)

Subitising (Tasks 40 – 46)

Emergent (Level 0)	**Perceptual** (Level 1)	**Conceptual** (Level 2)

Early arithmetical strategies (Tasks 47 – 55)

Emergent (Stage 0)	**Perceptual** (Stage 1)	**Figurative** (Stage 2)	**Counting-on and back** (Stage 3)	**Facile** (Stage 4)

Multiplication and division (Task 56)

Unable to form groups	**Able to form groups**	**Able to find the total by:**

Class summary sheet (SENA 1)

Class: _____

Date: initial interview _____   **Date: final interview:** _____

	Age at initial interview		Numeral identififation (Levels 0-3)		FNWS (Levels 0-5)		BNWS (Levels 0-5)		Subitising (Levels 0-2)		Early arithmetical strategies (Stages 0-4)	
Student	Years	Mths	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final

Summary of materials needed for implementing *SENA 1*

✓ Twenty counters (all of one colour) and ten counters of a second colour

✓ One set of numeral cards:
0 2 3 4 5 6 7 8 9 10 12 13 15 20 23 43 66 100

✓ One set of dot pattern cards for 3 4 5 6, double 4 and 9

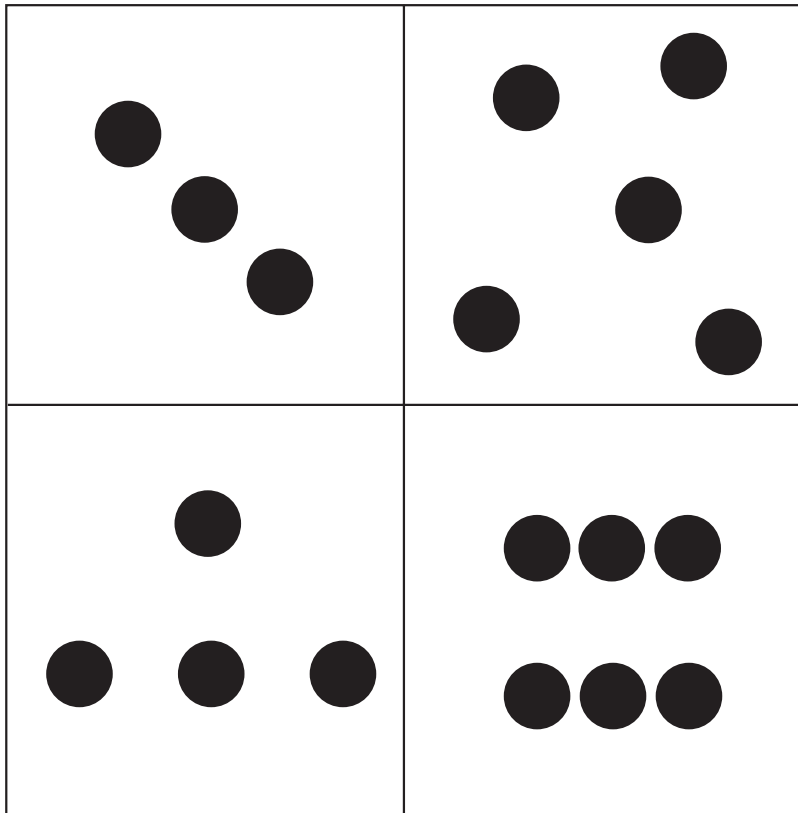✓ Two sheets of A4 cardboard to cover counters

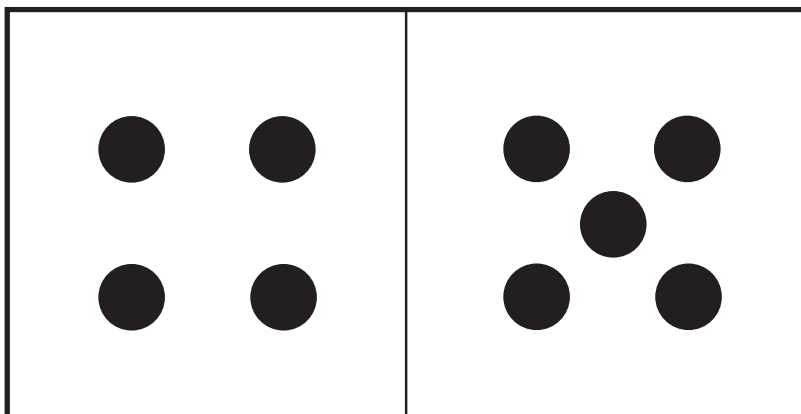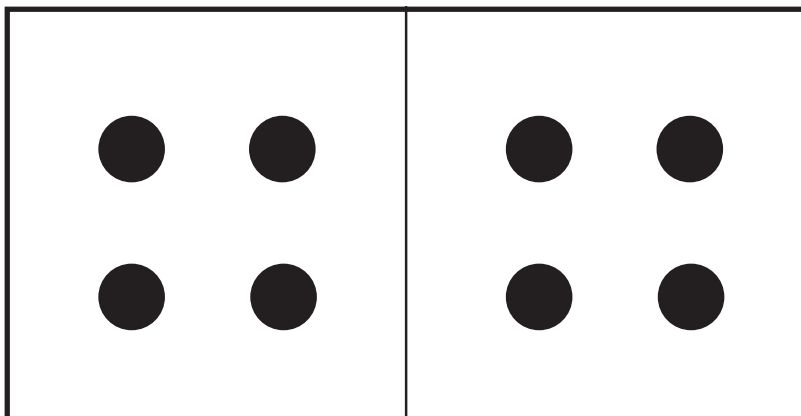✓ Photocopiable material follows

SENA 1: Tasks 1 – 18

0	2	3
4	5	6
7	8	9
10	12	13

SENA 1: Tasks 1 – 18

SENA 1: Tasks 1 – 18

15	20	23
43	66	100

SENA 1: Tasks 41 – 44

SENA 1: Tasks 45 – 46

Class analysis sheet (SENA 1)

School: _____ **Date: Initial Interview** _____

Class: _____ **Date: Final Interview** _____

* Please use a black or blue pen

ATSI ● Yes ○ No	Student	Numeral identification (Levels 0-3)		FNWS (Levels 0-5)		BNWS (Levels 0-5)		Subitising (Levels 0-2)		Early arithmetical strategies (Stages 0-4)	
		Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final

Row 1 — ATSI: ○

DOB — Month: ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ — Year: 99 98 97 96 95 94 93 92 91 90

Numeral identification: Initial 0 1 2 3 / Final 0 1 2 3; FNWS: Initial 0 1 2 3 4 5 / Final 0 1 2 3 4 5; BNWS: Initial 0 1 2 3 4 5 / Final 0 1 2 3 4 5; Subitising: Initial 0 1 2 / Final 0 1 2; Early arithmetical strategies: Initial 0 1 2 3 4 / Final 0 1 2 3 4

Row 2 — ATSI: ○

DOB — Month: ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ — Year: 99 98 97 96 95 94 93 92 91 90

(sample markings shown)

Row 3 — ATSI: ○

DOB — Month: ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ — Year: 99 98 97 96 95 94 93 92 91 90

Row 4 — ATSI: ○

DOB — Month: ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ — Year: 99 98 97 96 95 94 93 92 91 90

Reference guide (SENA 1)

Numeral identification (Tasks 1 – 18) [+ extra numeral cards to determine Level 4]

Emergent (Level 0)	1-10 (Level 1)	1-20 (Level 2)	1-100 (Level 3)	1-1000 (Level 4)
Does not recognise all numbers 1-10	Recognises numerals 1-10	Recognises numerals 1-20	Recognises numerals to 100	*Not in SENA 1 materials. Use some numeral cards from SENA 2 if needed.

Forward number word sequences FNWS (Tasks 19-29)

Emergent (Level 0)	Initial (10) (Level 1)	Intermediate (10) (Level 2)	Facile (10) (Level 3)	Facile (30) (Level 4)	Facile (100) (Level 5)
Cannot count to 10	Can count to 10 but cannot give number after	Can count to 10 and give number after, but counts from one	Can count to 10 and give number after	As with Facile (10) but with numbers up to 30	As with Facile (10) but with numbers up to 100

Backward number word sequences BNWS (Tasks 30-40)

Emergent (Level 0)	Initial (10) (Level 1)	Intermediate (10) (Level 2)	Facile (10) (Level 3)	Facile (30) (Level 4)	Facile (100) (Level 5)
Cannot count backwards from 10	Can count backwards from 10 but cannot give number before	Can count backwards from 10 and give number before, but counts from one	Can count backward from 10 and give number before	As with Facile (10) but with numbers up to 30	As with Facile (10) but with numbers up to 100

Subitising (Tasks 41-46)

Emergent	Perceptual	Conceptual
May be able to recognise dot patterns for very small numbers, say 2. Needs to count the dot pattern by ones for larger numbers	Students can instantly recognise dice patterns in questions 40-44	Student is able to see the eight-dot & nine-dot domino pattern as both two groups and as "a whole"

Early arithmetic strategies EAS (Tasks 47-55)

Emergent (Stage 0)	Perceptual (Stage 1)	Figurative (Stage 2)	Counting On (Stage 3)	Facile (Stage 4)
Unable to coordinate number words with items when counting	Needs to see, touch or hear items to work out answer. Counts from one	Can complete concealed items tasks but counts from one	Uses larger number and counts on to find the answer	Uses known facts and other non-count-by-one strategies (e.g. doubles, partitioning) to solve problems

Schedule for Early Number Assessment (SENA 2)

Student's name: _____

Class: _____ [   ] **Date of initial assessment**

D.O.B: _____ [   ] **Date of second assessment**

Addition and subtraction

(1) _I had 8 cards and was given another 7. How many do I have now?_

(2) _I have 17 grapes. I ate some and now have 11 left. How many did I eat?_

Numeral identification

(3) **90** (4) **59** (5) **101** (6) **400** (7) **263**

(8) **607** (9) **310** (10) **1000** (11) **4237** (12) **3060**

Counting by 10s and 100s

(13) _Start from 110 and count backwards by 10s._ (110, 100, 90 … 50)

(14) _Start from 7 and count on by 10s._ (7, 17, 27 ... 97)

(15) _Start from 924 and count down by 100 each time._ (924, 824, 724 ... 524)

(16) _Start from 367 and count on by 10s._ (367, 377, 387 ... 417)

Combining and partitioning

(17) _Can you tell me two numbers that add up to 10?_
Tell me two other numbers that add up to 10.
Can you tell me another two that add up to 10?

(18) _Can you tell me two different numbers that add up to 19?_
Can you tell me another two?

Schedule for Early Number Assessment (SENA 2)

Place value

(19) Uncovering task

Cover the card with two cardboard sheets. Uncover each section as described in the interview guidelines

- Uncover the first 4 dots.

  How many dots are there?

- Slide the covers to the right so that the first 4 dots and the next 10 dots are visible.
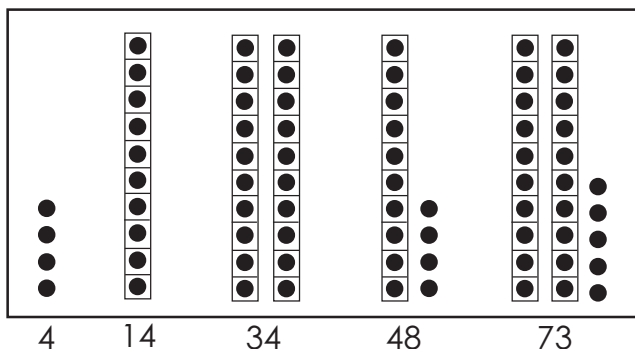
  Each time you see one of these long strips, you know it has 10 dots.

  How many dots are there altogether?

- Slide the cover across so that the next 20 dots are also visible.

  How many dots are there altogether?

- Slide one cover to the left to cover these 34 dots. Slide the second cover to the right to reveal the next 14 dots.

  How many dots are there altogether now?

- Slide the second cover to the left to reveal the last 25 dots.

  How many dots are there altogether now?

- Cover all dots.

  How many more dots would I need to make 100?

(20) Display this card:

| **43 + 21** |

What is the answer to this?

(21) Display this card:

| **37 + 19** |

What is the answer to this?

(22) Display this card:

| **50 - 27** |

What is 50 minus 27?

Can you tell me how you worked it out?

Schedule for Early Number Assessment (SENA 2)

Multiplication and division

(23) Present a pile of counters, more than 12, to the student. Randomly spaced, not in a line. Do not count them out.

Using these counters, make three groups with four in each group.

How many counters are there altogether?

(24) Without the student seeing, put out six cardboard circles, each with 3 dots face down and cover them.

I have 6 circles each with 3 dots under this cover. How many dots altogether?

Remove the cover if the student is unsuccessful. If necessary, turn the circles over to reveal the dots.
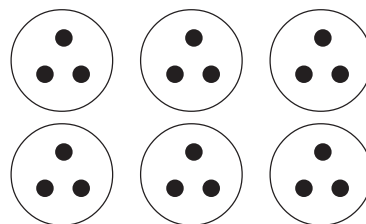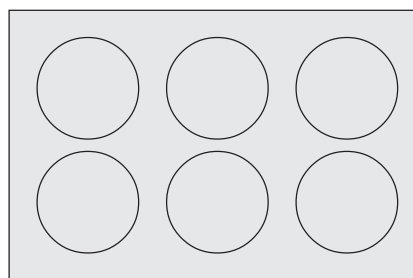
(25) *There are twelve biscuits and the children are given two biscuits each. How many children are there?*

(26) *The dots on this card are in rows and columns.* Briefly show the complete array, then cover.

Some of the dots have been covered. How many dots are there altogether?
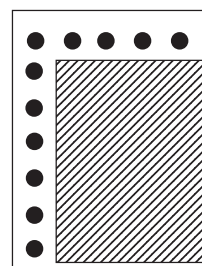
Schedule for Early Number Assessment (SENA 2)

(27) (a) *What is the answer to this?*
      If the student is correct ask part (b):

8 x 4

    (b) *If you know the answer to that question is 32, what would 32 divided by 4 equal?*

32 ÷ 4

    (c) *If you know the answer to this (point to card displaying 8 x 4) what is the answer to this?*

9 x 4

(28) *I made 27 cakes. 6 cakes fit in a box. How many boxes will I need?*

How did you work that out?

Additional prompt questions may be needed.

Area multiplication

(29) Show the cardboard unit square and the "7 x 3" rectangle.

How many squares like this would you need to cover the rectangle completely?

Provide the student with a copy of the grid and ask: *Can you draw what the squares would look like?*
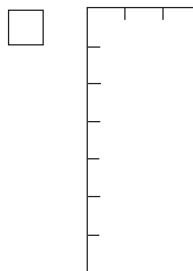
Schedule for Early Number Assessment 2

Interview guidelines

General

- Have an assessment sheet for each student being interviewed.

- Place the assessment sheet to the side of the work space and, if possible, out of the students' view. A small screen is useful for this purpose.

- Note incorrect responses and any useful comments on the assessment sheet.

- Where useful, ask students to explain their strategies.

Addition & subtraction   (Tasks 1 – 2)

- These tasks are designed to elicit facile counting strategies. It is recommended that the student be operating at least at the counting on and back stage before administering SENA 2.

- Administer the tasks verbally. Do not provide material.

- Determine the strategies the student uses to solve each task.

Numeral identification   (Tasks 3 – 12)

- Show the numeral cards in the order indicated.

Counting by 10s and 100s   (Tasks 13 – 16)

- Stop if the student encounters difficulty.

Combining and partitioning   (Tasks 17 – 18)

Task 17

- See if the student can produce at least three different number combinations that total 10.

Task 18

- See if the student can produce both standard (10 + 9) and non-standard (e.g. 11 + 8) partitionings of 19.

Place value (Tasks 19 – 22)

Task 19

- Stop if the student counts on by ones. (The student would be determined to be at level 0).

Uncovering task: Cover the dots and then uncover as follows:
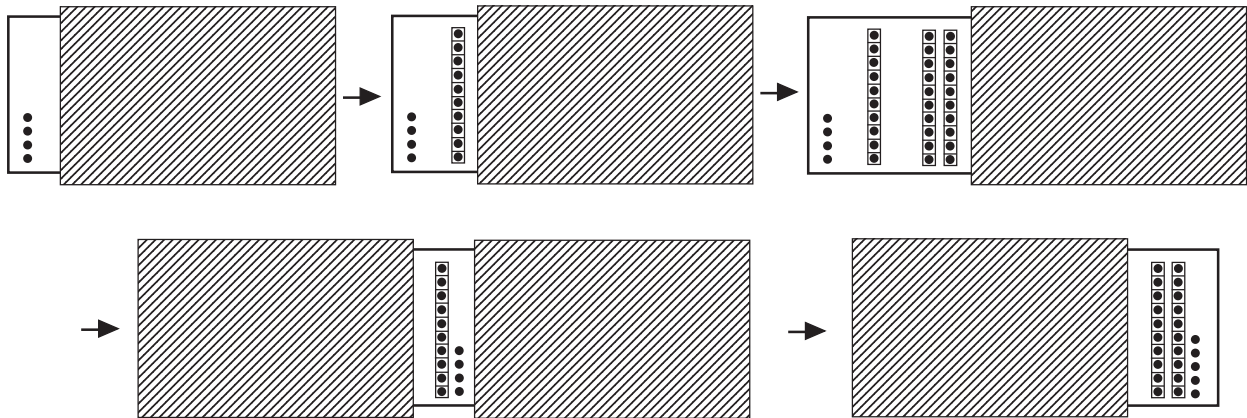
Then cover all the dots and ask: *How many more dots would I need to make 100*?

Students are determined to be at Level 1 (Ten as a unit) if they successfully manipulate tens and ones in this task. If students successfully answer the final question, they would be at Level 2 (Tens and ones).

Tasks 20 – 22

- Ask the student to explain the strategy used.
- Success with these tasks may indicate Level 2 (Tens & ones).

- Identify if the student used a split or jump method to solve the tasks.

Multiplication & division (Tasks 23 – 28)

Task 23

Present more than 12 counters, randomly placed to the student. The first instruction is designed to indicate if the student is able to form equal groups. The follow-up question is designed to show the counting strategy which the student uses to find the total.

Task 24

- If the student is able to recreate the groups and keep track of the count, he or she is typically demonstrating Level 4.
- Note the strategy used. Does the student multiply, use repeated addition, use a double count or need to recreate the individual units using finger strategies?

- If the student is unsuccessful with the circles screened, remove the screen to make the markers for the units visible. This reduces the question to Level 3.
- If necessary, reduce to a lower level by turning the circles over for a Level 2 or Level 1 response.

Task 25

- This is an oral question.

- Try to discover the student's strategy.

- This task is designed to indicate:

  - Level 4 strategy (solving a quotitive division where the number of groups are not apparent)

  - a more advanced strategy (6 x 2 or 12 ÷ 2).

Task 26

- Place a cover over the array as indicated and then display.

- Try to discover the student's strategy.

- This task is designed to indicate:

  - Level 3 strategy (counting hidden items by fives)

  - a more advanced strategy (7 x 5).

Task 27

- This task is designed to elicit students' Level 5 strategies (known facts, understanding multiplication and division as inverses, etc.).

- Part (c) can be done by adding 4 to the answer to part (a). Note whether the student is able to treat the question as multiplication or derives the result by addition.

Task 28

- This task deals with "Fair share with remainder".

- Ask the student to explain his or her answer.

- Note how the student deals with the "remainder".

- Additional prompt questions may be needed, for example:

    If the student answers "5" ask, *Are they all full*?

    If the student answers "4" ask, *Were there any left over*?

Area multiplication (Task 29)

- This task is designed to investigate the relationship between spatial structure and multiplication.

- Note whether the student counts by ones, attempting to visualise the implicit structure, counts in multiples or uses multiplication.

- Note the spatial structuring which the student uses to complete the drawing task.

- Does the student:

  - see the outside structure, but "lose" the middle structure?

  - see the rows, but not the column structure?

  - use a row by column structure?

Individual analysis sheet (SENA 2)

Student's name: _____

D.O.B: _____   **Initial interview date:** _____

Early arithmetical strategies (Tasks 1 – 2)

Stage 0 Emergent	Stage 1 Perceptual	Stage 2 Figurative	Stage 3 Counting-on-and-back	Stage 4 Facile

Numeral identification (Tasks 3 – 12)

Level 1 1– 10	Level 2 1 – 20	Level 3 1 –100	Level 4 1–1000	Level 5 > 1000

Counting by 10s and 100s (Tasks 13 – 16)

Level 1 Initial counting by 10s and 100s	Level 2 Off decade by 10s	Level 3 Off hundred and off decade by 100s

Combining and partitioning (Tasks 17 – 18)

Level 1 To 10	Level 2 To 20

Place value (Tasks 19 – 22)

Level 0 Counts by ones	Level 1 Ten as a unit	Level 2 Tens & ones

Multiplication and division (Tasks 23 – 28)

Level 1 Forming equal groups (Perceptual counting by ones)	Level 2 Perceptual counting in multiples	Level 3 Figurative units (Repeated numerical composites)	Level 4 Repeated abstract composites	Level 5 Multiplication & division as operations

Area multiplication (Task 29)

Level 1 Counts by ones Inconsistent structure	Level 2 Forms a composite unit	Level 3 Coordinates units

Comments:

Class summary sheet (SENA 2)

Class: _____

Date initial interview:_____   **Date final interview:** _____

ATSI ✓ (if yes)	Student	Age at initial interview		Numeral identification (Levels 0-5)		Counting by 10s and 100s (Levels 1-3)		Early arithmetical strategies (Stages 0-4)		Combining & partitioning (Levels 1-2)		Place value (Levels 0-2)		Multiplication & division (Levels 1–5)		Area multiplication (Levels 1–3)	
		Years	Mths	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final

Summary of materials needed for implementing *SENA 2*

☑ One set of numeral cards: 59 90 101 263 310 400 607 1000 3060 4237

☑ One card displaying the ten strip and arrangement of units, as shown in Task 19

☑ Two pieces of cardboard for covering task

☑ One card displaying 43 + 21, one card displaying 37 + 19, one card displaying 50 - 27, one card displaying 8 x 4, one card displaying 32 ÷ 4, one card displaying 9 x 4

☑ 20 counters

☑ One card displaying 5 x 7 array

☑ One sheet of paper per student showing 7 x 3 rectangle grid and one cardboard unit square

☑ Six circles displaying three dots on each

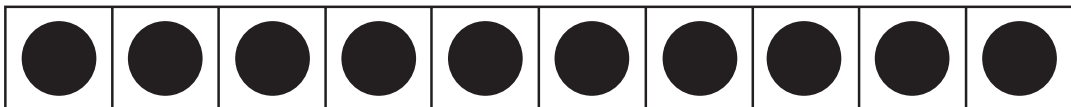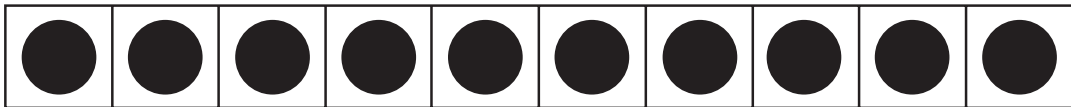☑ One cloth or piece of cardboard large enough to cover six circles

☑ Photocopiable material follows

SENA 2: Tasks 3 – 12

59	90	101
263	310	400
607	1000	3060
4237		

SENA 2: Task 19

SENA 2: Task 20

$$43 + 21$$

SENA 2: Task 21

$$37 + 19$$

SENA 2: Task 22

$$50 - 27$$

SENA 2: Task 24
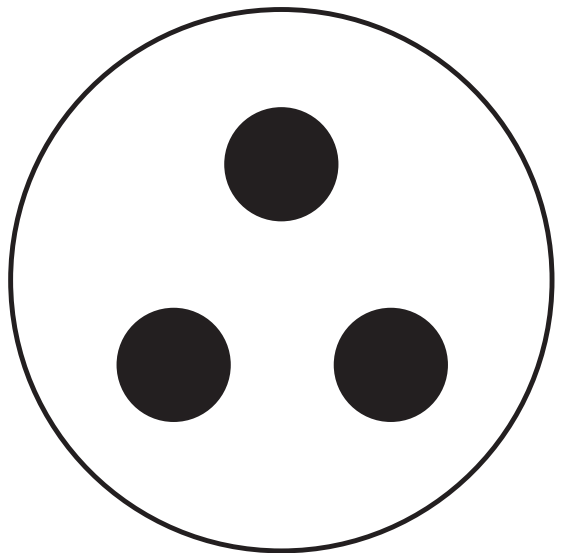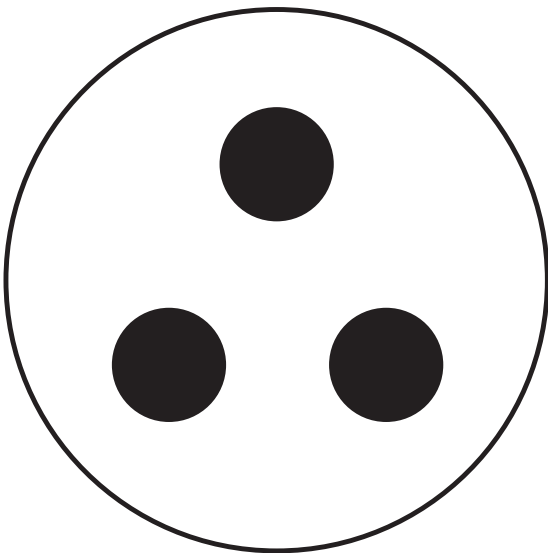
SENA 2: Task 26

SENA 2: Task 27
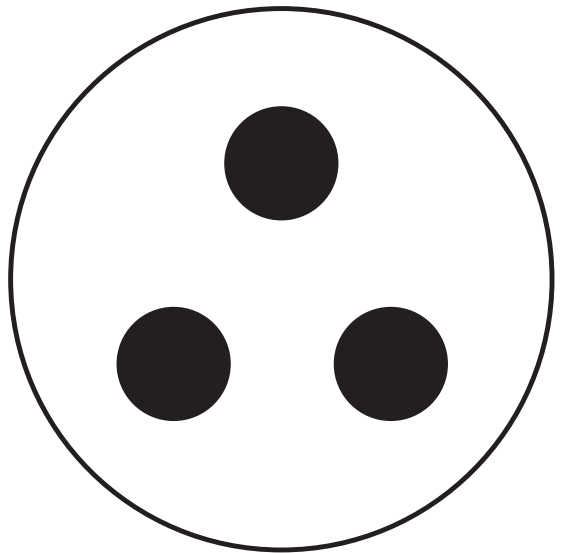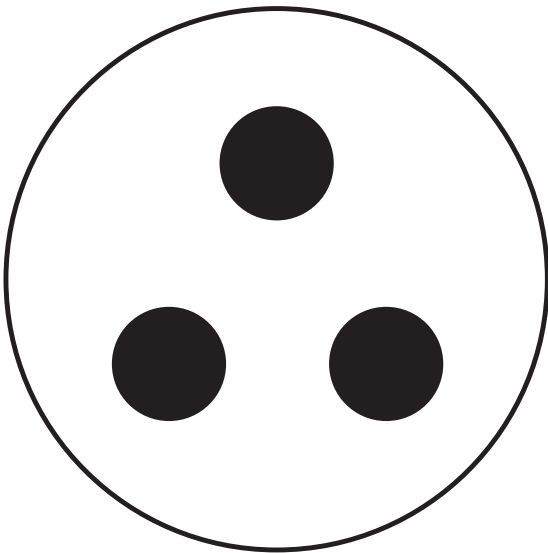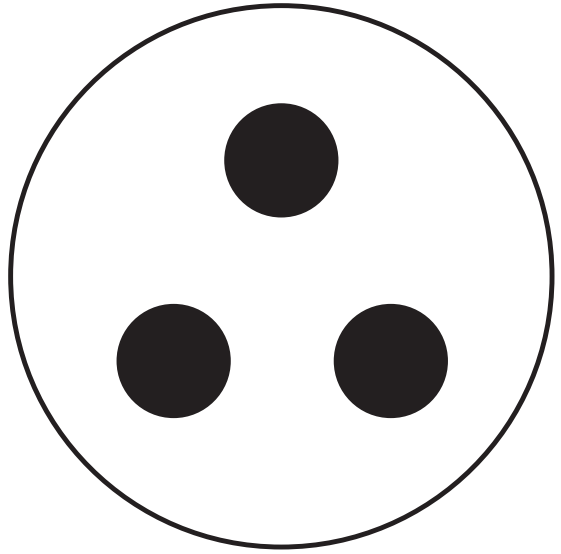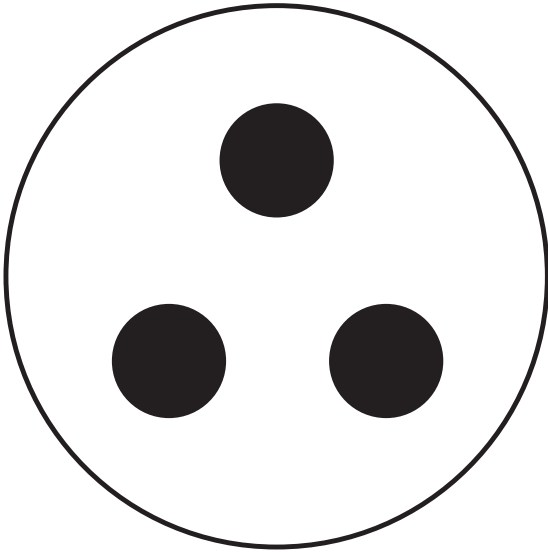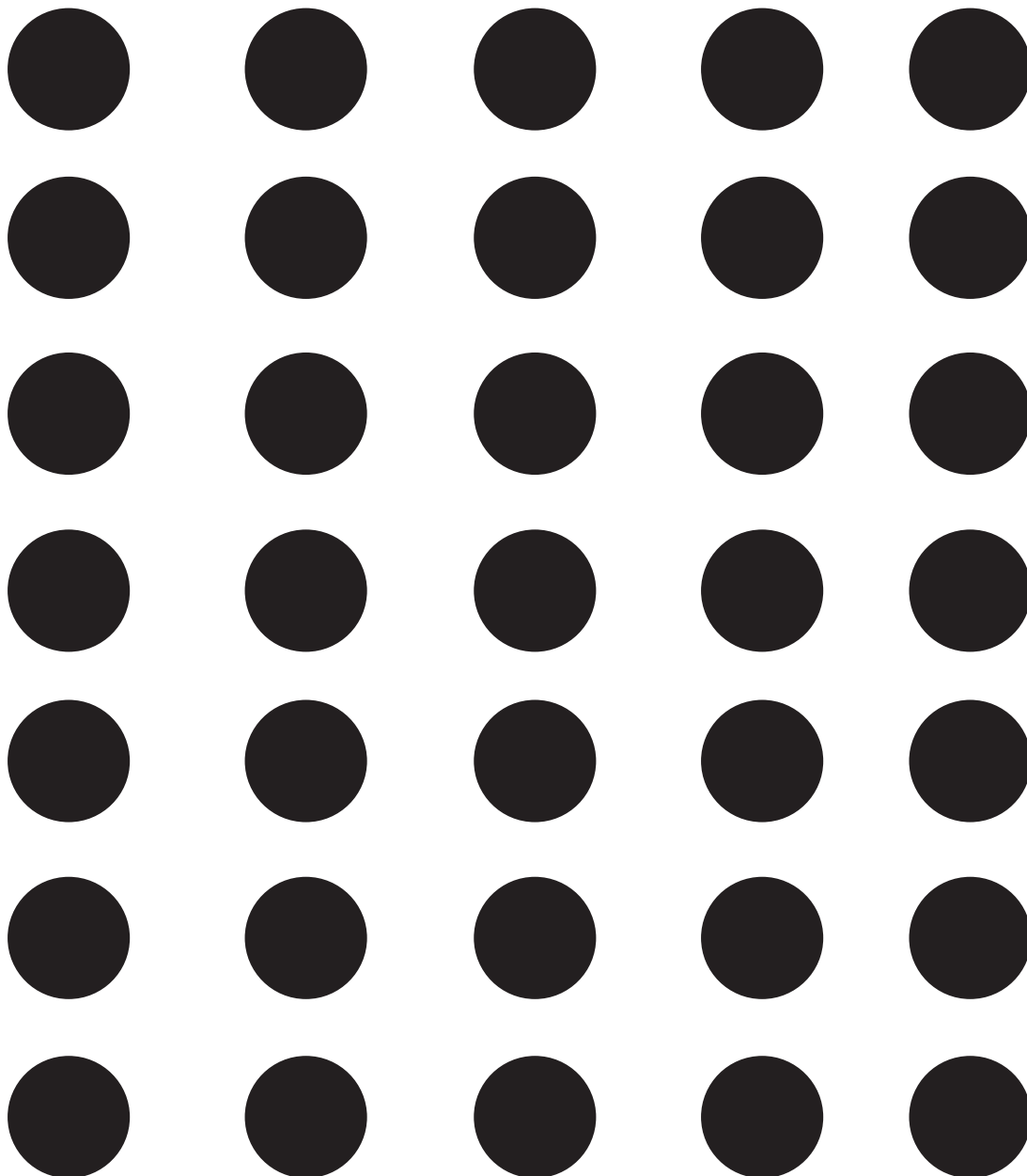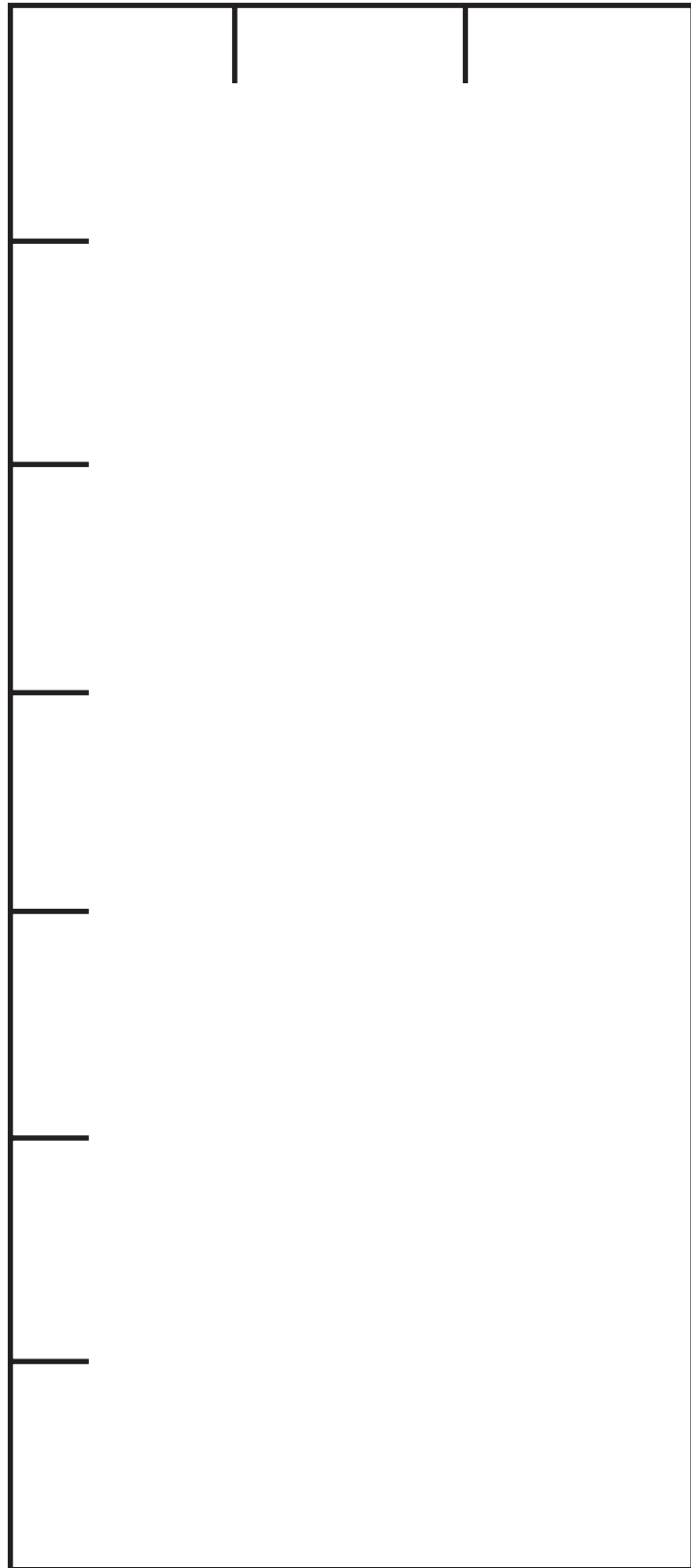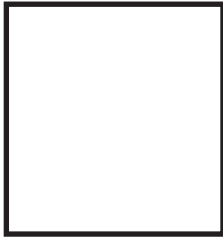
(a)

$$8 \times 4$$

(b)

$$32 \div 4$$

(c)

$$9 \times 4$$

SENA 2: Task 29

Class analysis sheet (SENA 2)

School: _____ **Date: Initial Interview** _____

Class: _____ **Date: Final Interview** _____

* Please use a black or blue pen

ATSI ●Yes ○No		Early arithmetical strategies (Stages 0-4)		Numeral identification (Levels 0-5)		Counting by 10s and 100s (Levels 1-3)		Combining & partitioning (Levels 1-2)		Place value (Levels 0-2)		Multiplication & division (Levels 1-5)		Area multiplication (Levels 1-3)	
	Student	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
○	DOB Month ①②③④⑤⑥ ⑦⑧⑨⑩⑪⑫ Year 99 98 97 96 95 94 93 92 91 90	⓪①②③④	⓪①②③④	⓪①②③④⑤	⓪①②③④⑤	①②③	①②③	①②	①②	⓪①②	⓪①②	①②③④⑤	①②③④⑤	①②③	①②③
○	DOB Month ①②③④⑤⑥ ⑦⑧⑨⑩⑪⑫ Year 99 98 97 96 95 94 93 92 91 90	⓪①②③④	⓪①②③④	⓪①②③④⑤	⓪①②③④⑤	①②③	①②③	①②	①②	⓪①②	⓪①②	①②③④⑤	①②③④⑤	①②③	①②③
○	DOB Month ①②③④⑤⑥ ⑦⑧⑨⑩⑪⑫ Year 99 98 97 96 95 94 93 92 91 90	⓪①②③④	⓪①②③④	⓪①②③④⑤	⓪①②③④⑤	①②③	①②③	①②	①②	⓪①②	⓪①②	①②③④⑤	①②③④⑤	①②③	①②③
○	DOB Month ①②③④⑤⑥ ⑦⑧⑨⑩⑪⑫ Year 99 98 97 96 95 94 93 92 91 90	⓪①②③④	⓪①②③④	⓪①②③④⑤	⓪①②③④⑤	①②③	①②③	①②	①②	⓪①②	⓪①②	①②③④⑤	①②③④⑤	①②③	①②③

Reference guide (SENA 2)

Early arithmetic strategies EAS (Tasks 1-2)

Stage 0 Emergent	Stage 1 Perceptual	Stage 2 Figurative	Stage 3 Counting on	Stage 4 Facile
Cannot count to 10. Either does not know the names of the numbers or does not know the correct order	Needs to see,touch or hear to work out answer. Counts from one	Can complete tasks involving concealed items but counts from one	Uses larger number and counts on to find the answer	Uses known facts and other non-count-by-one strategies, e.g. doubles, partitioning, to solve problems

Numeral identification (Tasks 3-12)

Level 1 (1-10)	Level 2 (1-20)	Level 3 (1-100)	Level 4 (1-1000)	Level 5 (1-10 000)
Recognises numerals 1-10	Recognises numerals 1-20	Recognises numerals to 100	Recognises numerals to 1000	Recognises numerals to 10 000

Counting by 10s and 100s (Tasks 13-16)

Level 1 Initial counting by 10s and 100s	Level 2 Off decade counting by 10s	Level 3 Off hundred and off decade counting by 100s
Counts forwards and backwards by 10s and 100s	Counts forwards and backwards by 10s, off the decade	Counts forwards and backwards by 100s off the hundred and by 10s off the decade

Combining and partitioning (Tasks 17-18)

Level 1 To 10	Level 2 To 20
Knows number combinations to 10 and how many more needed to make 10	Can provide standard and non-standard partitioning of a number to 20

Place value (Tasks 19-22)

Level 0 Counts by ones	Level 1 Tens as a unit	Level 2 Tens & ones
Counts the dots on the ten strips individually. Does not see ten as an iterable (countable) unit	Ten is seen as a unit composed of ten ones. Student is dependent on representations of units of ten.	Student can mentally solve 2-digit written number sentences by adding or subtracting units of ten and ones. Does not need materials or representations

Multiplication and division (Tasks 23-28)

Level 1 Perceptual counting by ones (Forming equal groups)	Level 2 Perceptual counting in multiples	Level 3 Repeated numerical composites (Figurative units)	Level 4 Repeated abstract composites	Level 5 Multiplication & division as operations
Student does not see equal groups as composite units and thus counts each item by ones	Uses groups or multiples in perceptual counting and sharing, e.g. rhythmic or skip counting	Equal grouping and counting without individual items visible. Uses group markers or organisers	Constructs composites and coordinates the count. Uses repeated addition or subtraction	Uses known facts and inverse operations to derive answers.

Area multiplication (Task 29)

Level 1 Counts by ones, inconsistent structure	Level 2 Forms a composite unit	Level 3 Coordinates units
Tries to visualise structure, counts by ones	Counts in multiples	Uses multiplication (7x3, 3x7)

Department of Education and Training

Permission to videotape student work

Dear parent or caregiver

The NSW Department of Education and Training is developing materials to support teaching and learning in schools. As part of this project, students will be videotaped working on mathematics tasks. These videotapes will be used to assist teachers in understanding and documenting the range of strategies which students use in solving mathematical tasks. An edited version of the material may also be used to assist other teachers.

Not every videotape recording made will be kept. The video materials will contain a general acknowledgement of students' work, but no specific acknowledgement of any individual student will be made.

Please complete the form below.

Student's name: _____

Class: _____

I give permission for my child to be videotaped while working on mathematics tasks and for use of edited versions of these tapes in professional development courses for teachers.

Signature of parent of caregiver: _____

Date: _____