Diving into Mastery – Diving

Adult Guidance with Question Prompts

Using their knowledge of place value, children add and subtract multiples of 10 from numbers within 100. Children may find a hundred square helpful with this activity.

What number would be next in this sequence?

How do you know?

Which digit changes?

Which stays the same?

Why does that happen?

What number does the abacus represent?

How many tens does the number have?

How many ones?

What operation is the symbol telling us to use?

How many tens do we need to add/subtract?

How will you represent that on the abacus?

Which rod will change?

Which rod will stay the same?

Can you draw the beads to show what number has been made?

Add and Subtract 10s

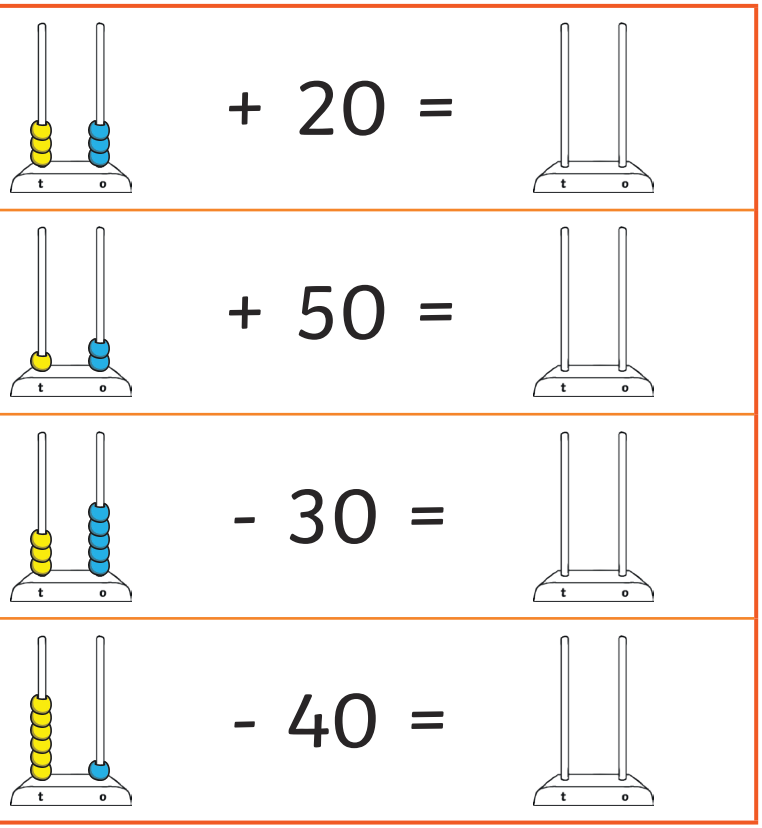
Continue this sequence adding 10 each time.

22							

Continue this sequence by subtracting 10 each time.

75							

Draw the answer on the abacus.



Diving into Mastery – Deeper

Adult Guidance with Question Prompts

Using their knowledge of place value, children add and subtract multiples of 10 from numbers within 100. Children reason about how adding and subtracting ones affects the place value of a number and the digits in the tens and ones columns.

What do you notice about James' calculations?

What is the same about them?

What is different?

Do you think all the answers will be in the same column of the hundred square?

Why do you think that?

How could you prove it?

Add and Subtract 10s

James has written these calculations:

14 + 20 54 - 10 84 + 10 74 - 30

The answers will all appear in the same column of the hundred square.

Do you agree? Explain your thinking.

Use the hundred square below to prove you are right.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Diving into Mastery – Deepest

Adult Guidance with Question Prompts

Using their knowledge of place value, children add and subtract multiples of 10 from numbers within 100. Children solve problems by adding and subtracting tens.

What number has Aneesha made with base ten blocks?

What answers has she ringed?

What do you notice about all her answers?

How are they the same?

How are they different?

How could she have made these numbers if she started with 43?

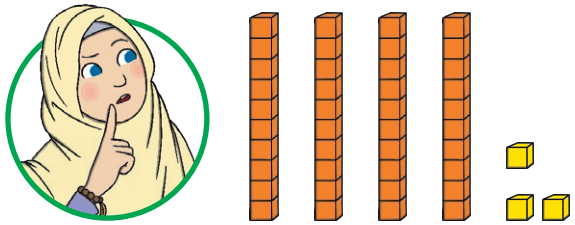
Are all her calculations additions?

How do you know?

What other calculations could she have done to get a different answer with three ones?

Add and Subtract 10s

Aneesha has this number.



She adds and subtracts some 10s and rings her answers.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

What calculations did Aneesha do?

What other calculations could she have done to make the other numbers in this column?

Multiples of Ten Maze

To add and subtract a multiple of 10 to and from any 2-digit number.

Each player starts on the centre number. When it is your turn, move your counter one space in any direction. Add or subtract the number on the tile. Keep track of your total by writing number sentences on your whiteboard. You may not go above 100 or below 0. The first person to land exactly on 0 or 100 is the winner.

100	+ 20	- 10	+ 20	- 10	- 20	- 10	0
+ 10	- 20	+ 20	- 20	+ 20	- 20	+ 20	- 10
+ 20	+ 10	+ 20	- 10	+ 10	- 20	+ 20	- 10
+ 20	- 20	- 10	60		+ 10	+ 20	+ 10
- 20	+ 20	+ 10			- 10	- 20	+ 20
- 10	- 20	- 10	- 10	- 10	+ 10	+ 20	- 10
- 10	- 10	- 20	- 10	- 20	+ 20	- 20	+ 20
0	- 10	- 10	+ 10	+ 20	+ 10	+ 10	100

Multiples of Ten Maze **Answers**

100	+ 20	- 10	+ 20	- 10	- 20	- 10	0
+ 10	- 20	+ 20	- 20	+ 20	- 20	+ 20	- 10
+ 20	+ 10	+ 20	- 10	+ 10	- 20	+ 20	- 10
+ 20	- 20	- 10	**60**		+ 10	+ 20	+ 10
- 20	+ 20	+ 10			- 10	- 20	+ 20
- 10	- 20	- 10	- 10	- 10	+ 10	+ 20	- 10
- 10	- 10	- 20	- 10	- 20	+ 20	- 20	+ 20
0	- 10	- 10	+ 10	+ 20	+ 10	+ 10	100

Multiples of Ten Maze

To add and subtract a multiple of 10 to and from any 2-digit number.

Each player starts on the centre number. When it is your turn, move your counter one space in any direction and colour the square. Keep track of your total by writing number sentences on your whiteboard. You may not go above 100 or below 0 and you may not land on a square which has been coloured. If you get stuck, go back to the middle square. The first person to land exactly on 7 or 97 is the winner.

97	+ 40	- 10	+ 30	- 30	- 20	- 10	7
+ 20	- 20	+ 20	- 20	+ 20	- 20	- 10	- 30
+ 20	- 10	+ 10	- 10	+ 10	- 10	+ 10	- 20
+ 20	+ 20	- 10	57		+ 10	+ 20	- 30
- 30	+ 20	+ 10			- 10	- 20	+ 40
- 40	+ 30	- 20	+ 10	- 10	+ 10	+ 20	+ 10
- 30	+ 40	- 20	+ 20	- 20	+ 30	- 20	+ 40
7	- 10	- 20	+ 10	+ 30	+ 10	+ 30	97

Multiples of Ten Maze **Answers**

97	+ 40	- 10	+ 30	- 30	- 20	- 10	7
+ 20	- 20	+ 20	- 20	+ 20	- 20	- 10	- 30
+ 20	- 10	+ 10	- 10	+ 10	- 10	+ 10	- 20
+ 20	+ 20	- 10	**57**		+ 10	+ 20	- 30
- 30	+ 20	+ 10			- 10	- 20	+ 40
- 40	+ 30	- 20	+ 10	- 10	+ 10	+ 20	+ 10
- 30	+ 40	- 20	+ 20	- 20	+ 30	- 20	+ 40
7	- 10	- 20	+ 10	+ 30	+ 10	+ 30	97

Multiples of Ten Maze

To add and subtract a multiple of 10 to and from any 2-digit number.

Each player starts on the centre number. When it is your turn, move your counter one space in any direction and colour the square. Keep track of your total by writing number sentences on your whiteboard. You may not go above 100 or below 0 and you may not land on a square which has been coloured. If you get stuck, go back to the middle square. The first person to land exactly on 6 or 96 is the winner.

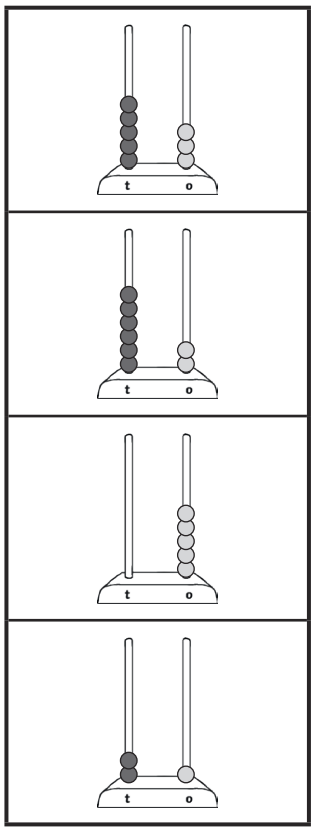
96	+ 60	- 0	+ 30	- 30	- 10	- 40	6
+ 40	- 20	+ 20	- 30	+ 50	- 20	+ 20	- 40
+ 60	- 30	+ 60	- 40	+ 20	+ 40	- 10	- 20
+ 20	- 40	- 20	46		+ 30	+ 30	- 30
- 30	- 60	+ 50			- 10	- 20	+ 40
- 30	+ 10	- 10	- 10	- 20	+ 30	+ 20	+ 60
- 10	- 10	- 30	+ 50	- 20	- 40	+ 30	+ 20
6	- 40	- 30	- 30	+ 20	+ 10	+ 60	96

Multiples of Ten Maze **Answers**

96	+ 60	- 0	+ 30	- 30	- 10	- 40	6
+ 40	- 20	+ 20	- 30	+ 50	- 20	+ 20	- 40
+ 60	- 30	+ 60	- 40	+ 20	+ 40	- 10	- 20
+ 20	- 40	- 20	**46**		+ 30	+ 30	- 30
- 30	- 60	+ 50			- 10	- 20	+ 40
- 30	+ 10	- 10	- 10	- 20	+ 30	+ 20	+ 60
- 10	- 10	- 30	+ 50	- 20	- 40	+ 30	+ 20
6	- 40	- 30	- 30	+ 20	+ 10	+ 60	96

22	32	42	52	62	72	82	92

75	65	55	45	35	25	15	5



James' answers would have been 34, 44, 94 and 44. These all appear in the column that starts with 4 and ends with 94. This happens because all James' calculations have a two-digit number with four ones and a multiple of ten. All the answers will have four in the ones column because no ones are being added or taken away.

Aneesha did:	She could have done:
43 − 30 = 13	43 − 40 = 3
43 − 10 = 33	43 − 20 = 23
43 + 20 = 63	43 + 10 = 53
43 + 50 = 93	43 + 30 = 73
	43 + 40 = 83