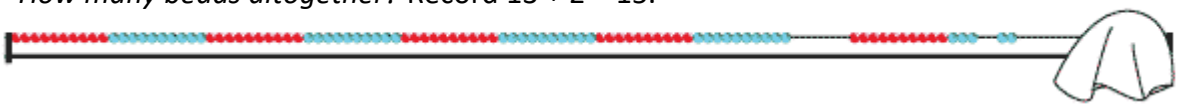
Sum patterns

Activity 1

Focus of activity: Using pattern and number bonds to work out related additions, e.g. 3 + 2 = 5, so 13 + 2 = 15, 23 + 2 = 25, 33 + 2 = 35…

Working together: conceptual understanding

- Push the first 90 beads on the bead bar to the left as children see it. Slide a group of 3 beads and group of 2 slightly to the left, and cover the 5 remaining beads with a cloth. *How many beads? 3 and 2 is 5*. Record 3 + 2 = 5.
- Slide a group of 10 beads from the left to join the 3 beads. *Now we have 13 beads, and 2 more. How many beads altogether?* Record 13 + 2 = 15.



- Slide another 10 beads to join the 13 beads. *Now we have 23 beads and 2 more. How many beads?* Record the addition 23 + 2 = 25.
- Slide another 10 beads across to join the 23 beads. *Now we have 33 beads and 2 more. How many beads?* Record the addition.
- Repeat until you have 93 + 2.
- Do children see that the answer always ends in 5? *Anythingty-three add two is always anythingty-five!*

Up for a challenge?

What is 5 take away 2? Show this at the right end of the bead bar. *And 15 take away 2? 25 take away 2?* Show each on the bead bar.

Now it's the children's turn:

- Children use a 1-100 grid to work out 5 + 2, 15 + 2, 25 + 2… 95 + 2.
- Go round the group and mark their additions as they do them, e.g. initially after three examples.

S-t-r-e-t-c-h:

If children cope well, ask them to work out 5 – 2 and then 15 – 2, 25 – 2 and 35 – 2.

Things to remember:

Remember that if we know a fact like 4 add 3 is 7, we can use this to work out the answers to lots of other sums! Show 4, count on 3 to get to 7 on the top row of a large 1-100 grid. Repeat for 14 + 3 = 17. Point to 24, this time not counting on 3. *What is 24 add 3?* Point to 34. *And 34 add 4?* Repeat for 44 + 3, 54 + 3… 94 + 3, all the way down the grid.

You may want to add something that has emerged from the activity. This may refer to misconceptions or mistakes made.

Resources	**Outcomes**
• 100-bead bar and cloth • Large 1-100 grid	1. Children can use pattern and number bonds to work out related additions, e.g. 3 + 2 = 5, so 13 + 2 = 15, 23 + 2 = 25, 33 + 2 = 35… 2. Children begin to use pattern and number bonds to work out related subtractions, e.g. 5 – 2 = 3, so 15 – 2 = 13, 25 – 2 = 23 and 35 – 2 = 33.

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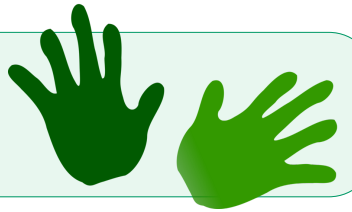
Activity 1

Things you will need:

- A pencil



What to do:

What is 5 + 2? Use this answer to work out the answer to as many of these additions as you can!

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

5 + 2 = ☐

15 + 2 = ☐

25 + 2 = ☐

35 + 2 = ☐

45 + 2 = ☐

55 + 2 = ☐

65 + 2 = ☐

75 + 2 = ☐

85 + 2 = ☐

95 + 2 = ☐

S-t-r-e-t-c-h:

What is 5 – 2?

Use this to work out 15 – 2, 25 – 2 and 35 – 2.

Learning outcomes:

- I can use pattern and number bonds to work out related additions, e.g. 3 + 2 = 5, so 13 + 2 = 15, 23 + 2 = 25, 33 + 2 = 35...
- I am beginning to use pattern and number bonds to work out related subtractions, e.g. 5 – 2 = 3, so 15 – 2 = 13, 25 – 2 = 23 and 35 – 2 = 33.