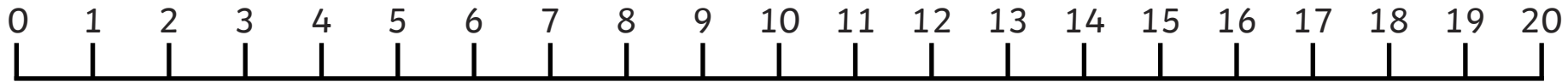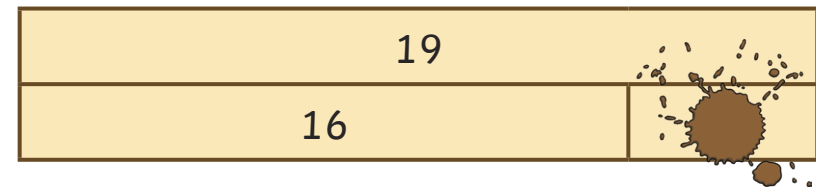# A Muddy Mess

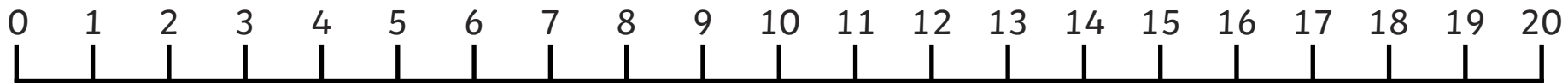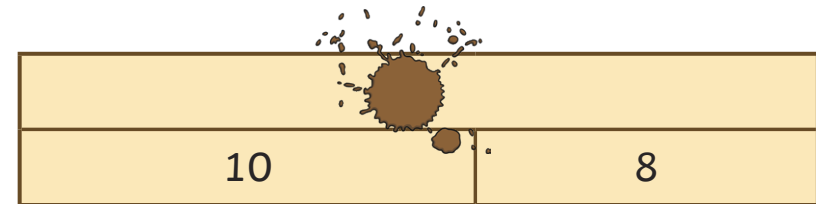To use inverse relationships to solve missing number problems.

Ben has splashed mud on his work again!

Use inverses to help uncover the muddy numbers. Use equipment to check that your answer makes sense and draw the jumps on the number line.

1. 16 + ☐ = 19 _____

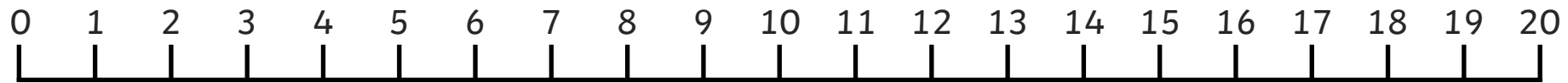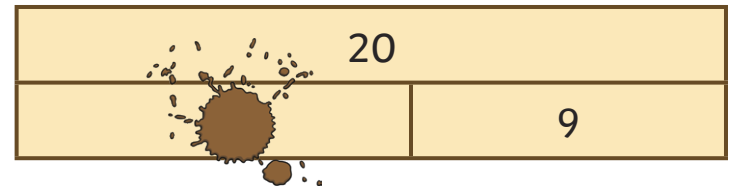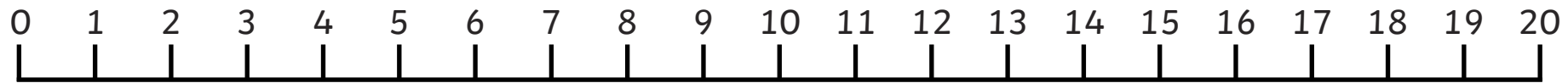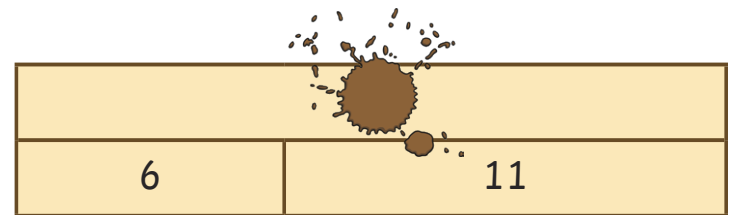|	19	
16		

```
0  1  2  3  4  5  6  7  8  9  10 11 12 13 14 15 16 17 18 19 20
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
```

2. ☐ - 8 = 10 _____

10		8

```
0  1  2  3  4  5  6  7  8  9  10 11 12 13 14 15 16 17 18 19 20
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
```

A Muddy Mess

3. ☐ + 9 = 20 _____

20	
	9

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

4. ☐ - 6 = 11 _____

6	11

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Answers

1. 16 + 3 = 19 **19 - 16 = 3**

+3

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

19	
16	**3**

2. 18 - 8 = 10 **10 + 8 = 18**

-8

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

18	
10	8

3. 11 + 9 = 20 **20 - 9 = 11**

+9

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

20	
11	9

4. 17 - 6 = 11 **6 + 11 = 17**

-6

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
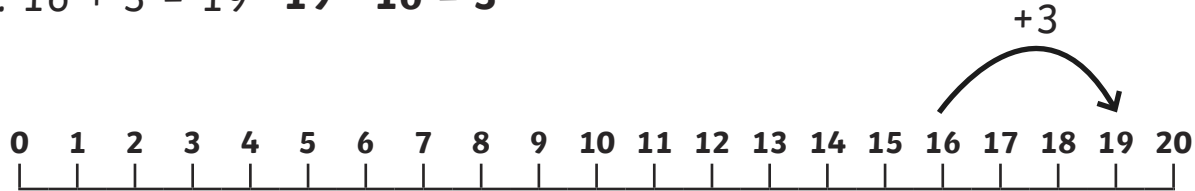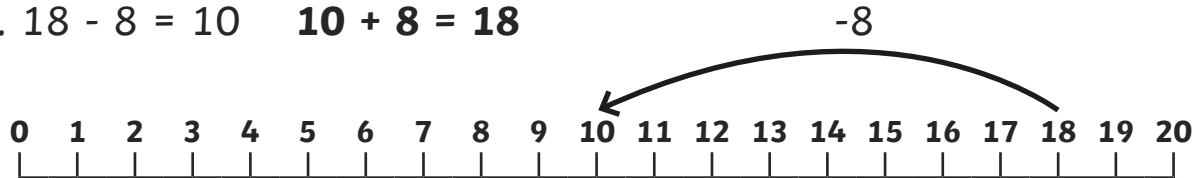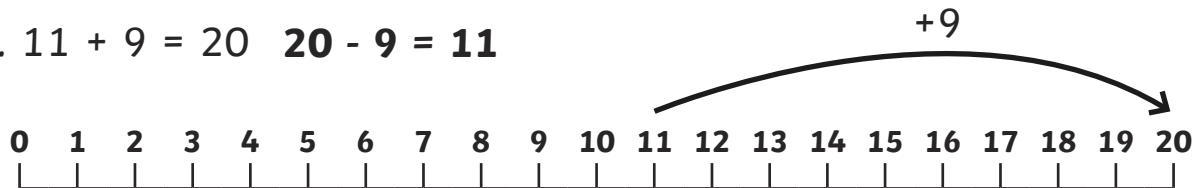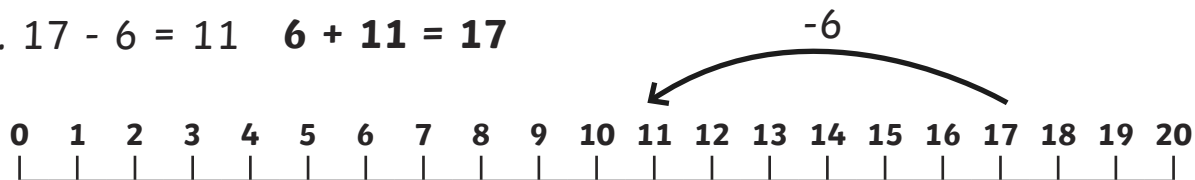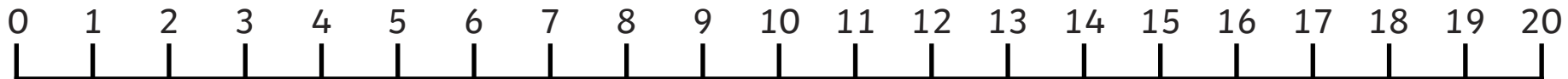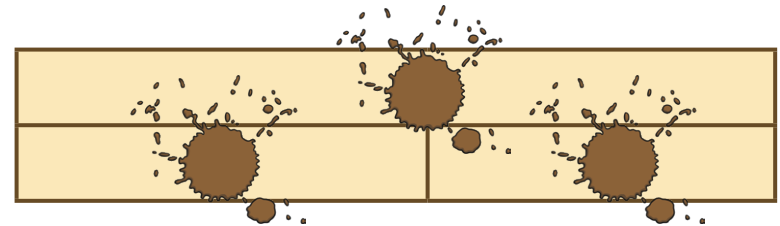
17	
6	11

A Muddy Mess

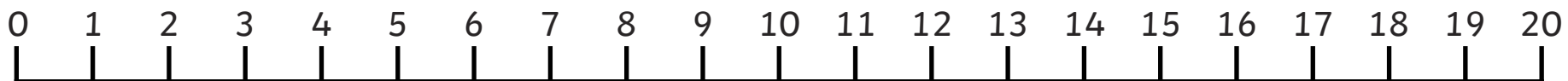To use inverse relationships to solve missing number problems.
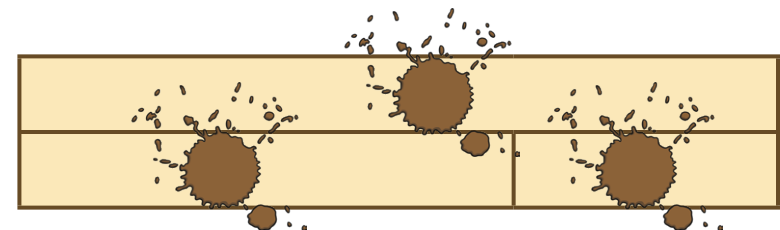
Ben has splashed mud on his work again! Use equipment to check that your answer makes sense and complete the bar model and draw jumps on the number line to show how you worked it out.

1. 8 + ☐ = 12 _____

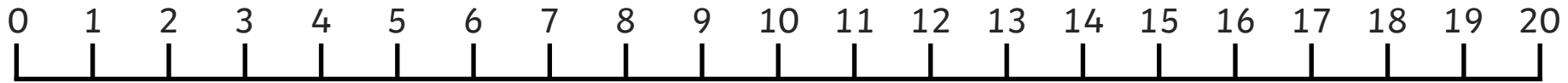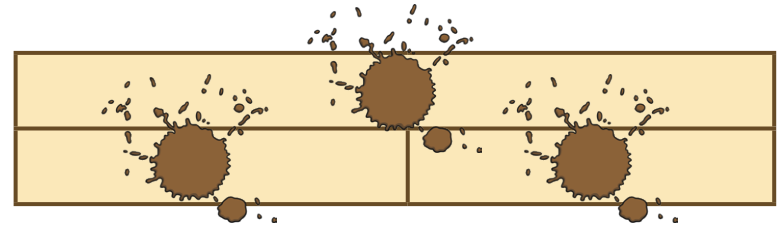0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

2. ☐ - 9 = 8 _____

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

A Muddy Mess

3. ☐ + 5 = 16 _____

```
0   1   2   3   4   5   6   7   8   9   10  11  12  13  14  15  16  17  18  19  20
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
```

4. ☐ - 7 = 8 _____

```
0   1   2   3   4   5   6   7   8   9   10  11  12  13  14  15  16  17  18  19  20
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
```

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Answers

1. 8 + 4 = 12   **12 - 8 = 4**

+2 +2

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

12	
8	4

2. 17 - 9 = 8   **8 + 9 = 17**

-2   -7

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

17	
9	8

3. 11 + 5 = 16   **16 - 5 = 11**

+5

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

16	
11	5

4. 15 - 7 = 8   **7 + 8 = 15**

- 2   - 5

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
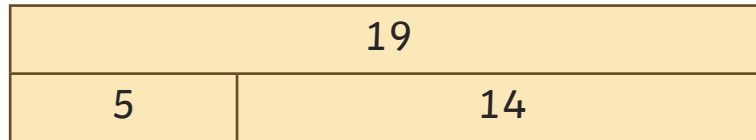
15	
7	8

A Muddy Mess

To use inverse relationships to solve missing number problems.

Ben has splashed mud on his work again! Use inverses to help uncover the muddy numbers. Use equipment or number lines to help you, if needed.

Example:
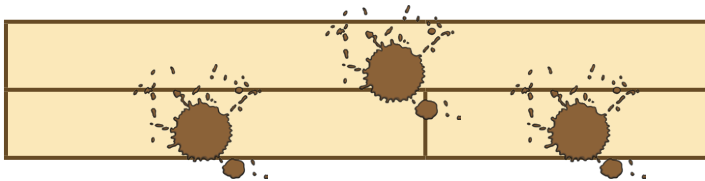
$14 + \boxed{} = 19$ I know $19 - 14 = 5$.

19	
5	14

I can check this with facts families:

$14 + 5 = 19,$
$5 + 14 = 19,$
$19 - 5 = 14.$

1. $8 + \boxed{} = 17$ _____

2. $\boxed{} + 11 = 19$ _____

3. $\boxed{} - 7 = 5$ _____
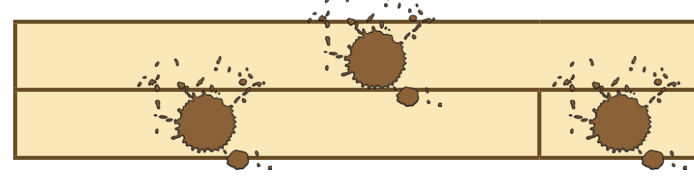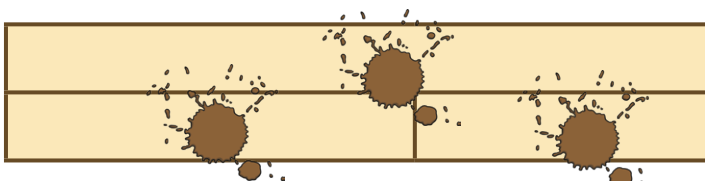
4. $\boxed{} - 8 = 4$ _____
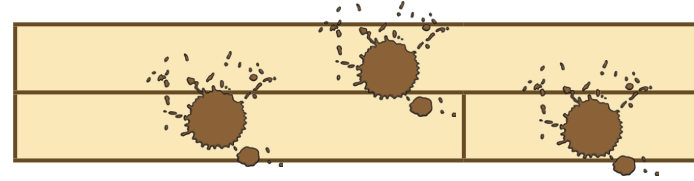
Answers

1. 8 + 9 = 17   **17 - 8 = 9**

17	
9	8

17 - 9 = 8

17 - 8 = 9

9 + 8 = 17

8 + 9 = 17

2. 8 + 11 = 19   **19 - 11 = 8**

19	
11	8

19 - 11 = 8

19 - 8 = 11

8 + 11 = 19

11 + 8 = 19

3. 12 - 7 = 5   **5 + 7 = 12**

12	
7	5

7 + 5 = 12

5 + 7 = 12

12 - 7 = 5

12 - 5 = 7

4. 12 - 8 = 4   **4 + 8 = 12**

12	
8	4

8 + 4 = 12

4 + 8 = 12

12 - 4 = 8

12 - 8 = 4

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