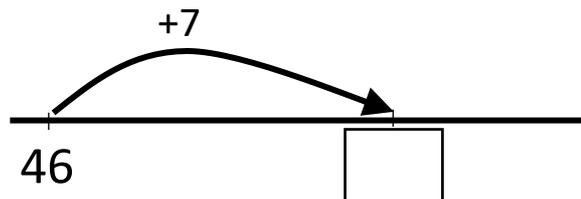# BRIDGING THROUGH TEN

Day 1

1 minute mental warm up

Pop Fizz bonds to 10 (can also play to other multiple of tens – to 20; 30 etc.)

What's the **next** ten **after**… (e.g. 47; 58; 32?) – this is not rounding to the nearest ten but jumping to the next ten on the number line

Activity sequence
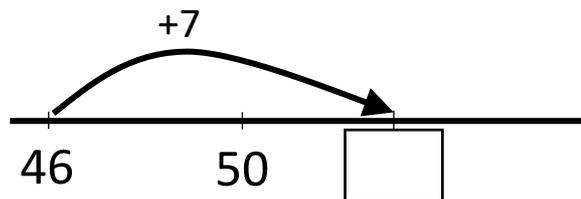
Problem: 46 + 7 =

"We can show this on a number line."

"We have to jump 7 forwards. Let's jump to the next ten rather than jumping in 1s. What is the next ten after 46?"
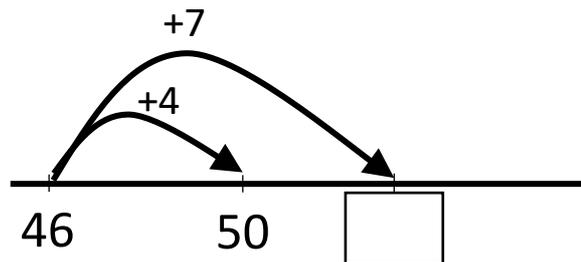
Learners to answer

Add to earlier number line:

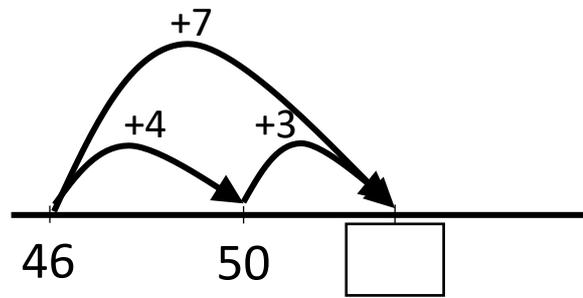"46 plus what gives 50?"

Learners to answer

Add to earlier number line:

"We have added 4. We need to add 7. How many do we need to add?"

Learners to answer

Add to earlier number line:

"What is 50 + 3 = ☐ ?"

"So 46 + 7 = 46 + 4 + 3 = 53"

_____

Children should be encouraged to do these steps in their heads, with a quick number line sketched to help them if needed.

The idea is to 'bridge through 10' rather than count on in ones

Children should be encouraged to explain their thinking:

e.g. "For 37 + 8, I add 3 to get 40, then add 5, so the answer is 45."

_____

INDIVIDUAL TASKS:

58 + 6

63 + 8

Children to work out the answer by bridging through 10.

Encourage the saying/writing of a sentence explaining what they did, or using a number line sketch to help.

_____

BRIDGING THROUGH TEN

Day 2

1 minute mental warm up

Pop Fizz bonds to 10 (can also play to other multiple of tens – to 20; 30 etc.)

What's the **next** ten **after**… (e.g. 47; 58; 32?) – this is not rounding to the nearest ten but jumping to the next ten on the number line

Activity sequence

Remember from yesterday – how did we solve

46 + 7?

Let learners say the method and how it works or show on the board

INDIVIDUAL TASKS

Now try these mentally

(if learner are struggling you can ask them to show their working on a number line – emphasise rough drawings versus using a ruler for the number line)

37 + 8

68 + 5

77 + 6

Encourage mental working method of jumping NOT counting in 1s.

Encourage exploring of bridging through 10 in sentences.

BRIDGING THROUGH TEN

Day 3

1 minute mental warm up

Give me two numbers that add to 10! (learners can also show bonds on fingers – e.g. 3 down and 7 up make ten fingers)

Give me two different numbers that add to 10! (continue till all bonds to 10 are done i.e. 5&5; 6&4; 7&3; 8&2; 9&1; 10&0 and of course vice versa are the same)

Activity sequence – a focus on representations

1. Bonds of 10 representations
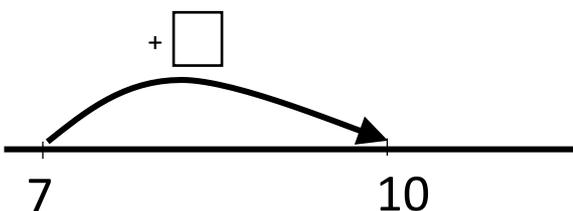
If we start with 7 what do we add to get 10?

So we can write the sum:

Write: $\boxed{7 + \square = 10}$ and fill in the missing number

"Another way to show this is in a <u>part-whole bar diagram</u>."

Write:

7	$\square$
10	

"We can also write: $10 = 7 + \square$ or

Ask for other number sentences that go with this bar diagram and number line.

There are eight possibilities, and all of them are linked to the 7 / 3 / 10 number triple.

$7 + \boxed{} = 10$ $10 - 7 = \boxed{}$

$\boxed{} + 7 = 10$ $10 - \boxed{} = 7$

$10 = \boxed{} + 7$ $\boxed{} = 10 - 7$

$10 = 7 + \boxed{}$ $7 = 10 - \boxed{}$

Similarly do another one together like guiding students through drawing a bar graph and number line to represent it and generating the 7 other sums:

$\boxed{} + 8 = 10$?

Individual Tasks

Draw a part-whole bar diagram and number line to go with:

$$\boxed{} + 4 = 10$$

So 6 + 4 = 10

Now find another 7 sums that use 6; 4 and 10 in different ways.

BRIDGING THROUGH TEN

Day 4

1 minute mental warm up

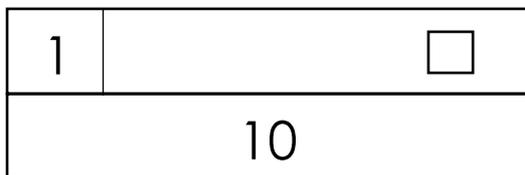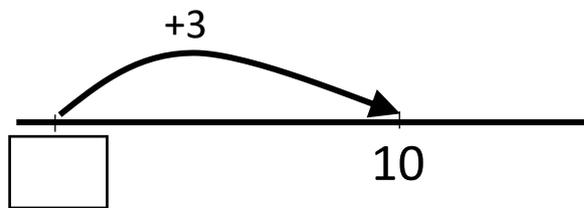What is 23 plus 10? Plus another 10?; plus another 10?....

What is 67 + 10? Plus another 10?; plus another 10?....

And a few other starting numbers adding ten each time

Activity sequence:

Draw matching part-whole bar diagram, a number line sketch and write some equivalent number sentences for each of the tasks below:

$$10 = \boxed{} + 2$$

Optional extension (if students are ready for it)

Remember we did 46 + 7 =   as 46 + 4 + 3 (show number line method)

How could we work out 46 + 17? With this method

Guide learners to add the ten first then the 7 by breaking down to:

46 + 10 + 7 – show on number line 46 to 56 to 60 to 63

What about 46 + 37? (again do 46 + 30 -three jumps of 10 if need be or one jump of 30) + 4 + 3 on the number line

Give learners the exemplar testlet

No timing required, rather the aim is to allow learners to get some written practice of work done mentally.

Name:

1. $6 + 4 = \boxed{}$
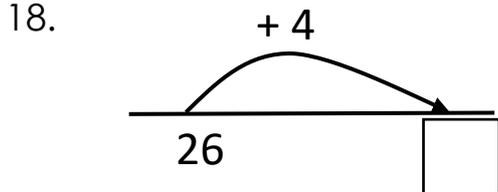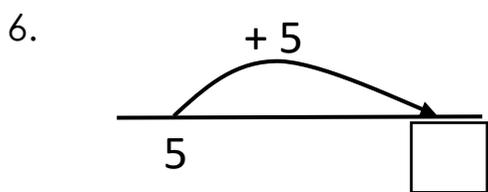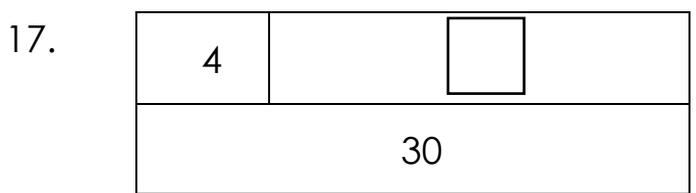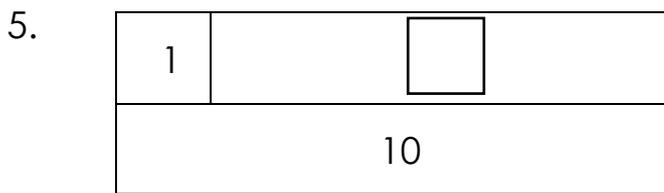
2. $1 + 9 = \boxed{}$

3. 7 less than 10 is $\boxed{}$

4. $10 = 3 + \boxed{}$

5.

1	$\boxed{}$
10	

6.

$\overset{+\ 5}{\underset{5 \qquad \boxed{}}{\frown}}$

7. $10 - 5 = \boxed{}$

8. $10 - 8 = \boxed{}$

9.

3	7
$\boxed{}$	

10. $\boxed{} + 4 = 10$

11. $8 + \boxed{} = 10$

12.

$\overset{+\ 5}{\underset{\boxed{} \qquad 10}{\frown}}$

13. $50 + 6 = \boxed{}$

14. $50 + 4 = \boxed{}$

15. 8 less than 30 is $\boxed{}$

16. $20 = 19 + \boxed{}$

17.

4	$\boxed{}$
30	

18.

$\overset{+\ 4}{\underset{26 \qquad \boxed{}}{\frown}}$

19. $60 - 4 = \boxed{}$

20. $60 - 7 = \boxed{}$

21.

39	1
$\boxed{}$	

22. $\boxed{} + 3 = 23$

23. $30 + \boxed{} = 36$

24.

$\overset{+\ 7}{\underset{\boxed{} \qquad 40}{\frown}}$

Naam:

1. $6 + 4 = \boxed{}$

2. $1 + 9 = \boxed{}$

3. 7 minder as 10 is $\boxed{}$

4. $10 = 3 + \boxed{}$

5.

1	$\boxed{}$
10	

6.

$$\overset{+\,5}{\underset{5 \qquad \boxed{}}{\frown}}$$

7. $10 - 5 = \boxed{}$

8. $10 - 8 = \boxed{}$

9.

3	7
$\boxed{}$	

10. $\boxed{} + 4 = 10$

11. $8 + \boxed{} = 10$

12.

$$\overset{+\,5}{\underset{\boxed{} \qquad 10}{\frown}}$$

13. $50 + 6 = \boxed{}$

14. $50 + 4 = \boxed{}$

15. 8 minder as 30 is $\boxed{}$

16. $20 = 19 + \boxed{}$

17.

4	$\boxed{}$
30	

18.

$$\overset{+\,4}{\underset{26 \qquad \boxed{}}{\frown}}$$

19. $60 - 4 = \boxed{}$

20. $60 - 7 = \boxed{}$

21.

39	1
$\boxed{}$	

22. $\boxed{} + 3 = 23$

23. $30 + \boxed{} = 36$

24.

$$\overset{+\,7}{\underset{\boxed{} \qquad 40}{\frown}}$$
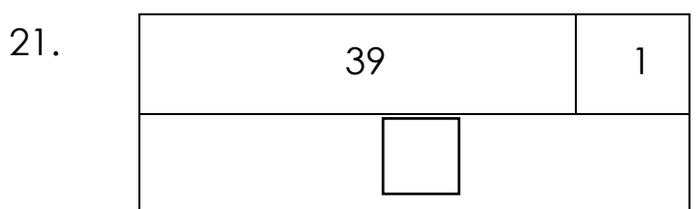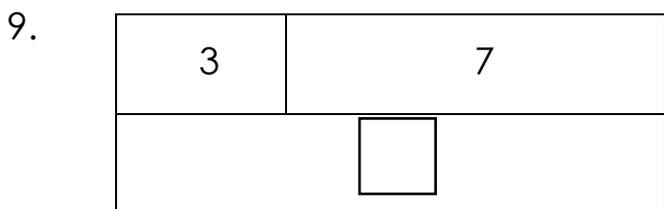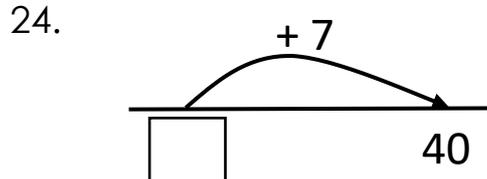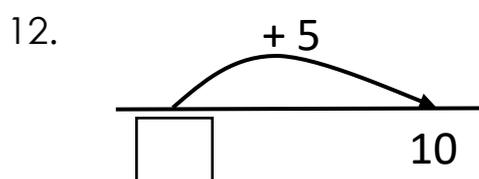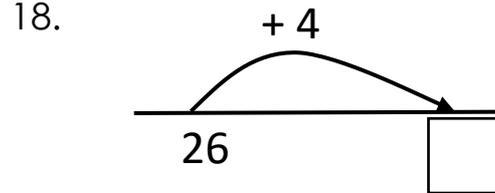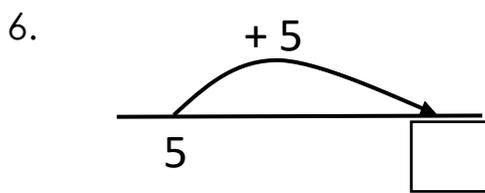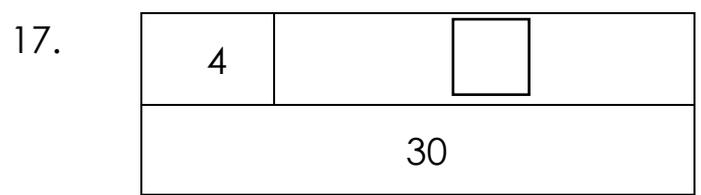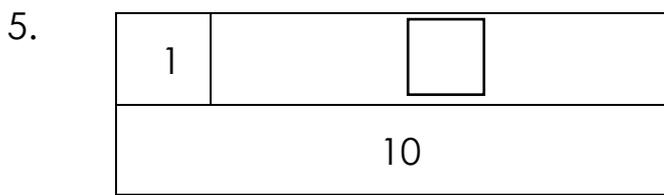
BRIDGING THROUGH TEN

Day 5

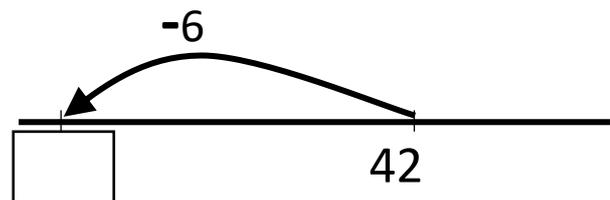**1 minute mental warm up**

Give me the ten that comes **before** 53?; 65; 78; 92; etc.

(not rounding to the nearest ten but finding the ten that comes just before the number)

Problem: 42 - 6 =
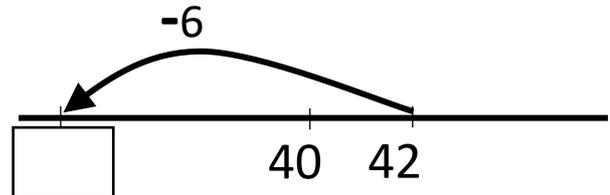
"We can show this on a number line."

"We have to jump 6 backwards. Let's jump to the ten before 42, rather than jumping back in 1s."

"What is the ten that comes before 42?"
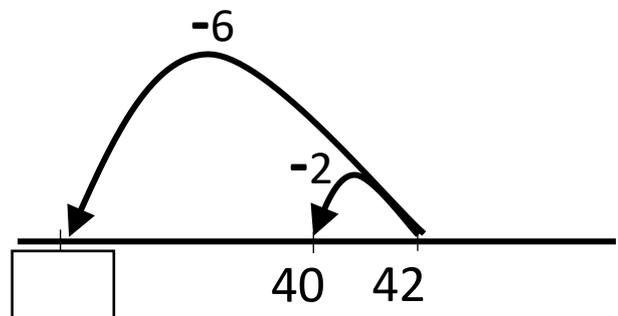
Learners to answer.

Add to earlier number line:

"42 minus what gives 40?"
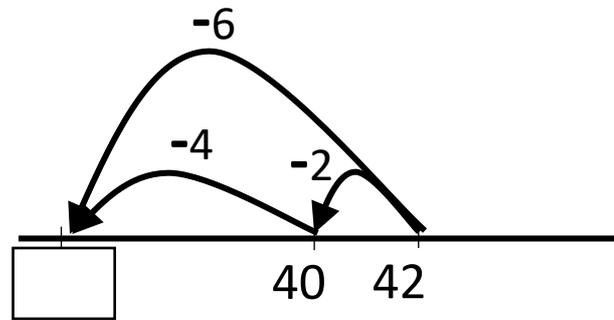
Learners to answer.

Add to earlier number line:

"We have jumped back two, but we need to minus 6. How many more to jump?"

Learners to answer.

Add to earlier number line:

"What is 40 – 4 = ☐ ?"

"So 42 – 6 = 42 – 2 – 4 = 36"

_____

As before, children should be encouraged to do these steps in their heads by bridging through the 10, rather than counting in 1s.

Children should be encouraged to explain their thinking orally or using a sentence written down, or using a number line to help their thinking:

e.g. "For 63 – 5, I subtract 3 and get 60, I then subtract 2 more. The answer is 58."

_____

INDIVIDUAL TASKS

34 – 6 = ☐

choose another task e.g. 45 - 8

Children to work out the task by bridging through 10. Encourage children to explain their thinking orally or using a sentence written down, or using a number line to help them.

BRIDGING THROUGH TEN

Day 6

1 minute mental warm up

Mix up asking learners for the ten before and the ten after different numbers. Encourage them to visualise the number line in thinking about their answers.

e.g. give me the ten that comes **before/after** 53?; 65; 78; 92; etc.

Also practice subtracting single digit from a multiple of ten

e.g. 60 – 4 is? 60 – 9 is? 60 – 7 is ?... 80 – 3 is? 80 – 5 is? …

Activity sequence

Remember from yesterday – how did we solve

42-6?

Let learners say the method and how it works or show on the board

INDIVIDUAL TASKS (learner should try mentally if they struggle they can use rough number line drawings and they can use these to explain how they got their answers)

83 – 8

101 – 5

67 + 6

45 - 6

79 + 8

Encourage mental working using bridging through tens.

Encourage explaining of bridging through tens in sentences or on number line.

BRIDGING THROUGH TEN

Day 7 (finding what was added or subtracted)

1 minute mental warm up

Pop Fizz bonds to multiples of ten and practice subtracting single digit from a multiple of ten e.g. 50 – 6 is? 50 – 9 is? 50 – 7 is ?...

Activity sequence

Use number lines with bridging through tens to fill in the missing number/s in these number sentences:

$56 + \boxed{} = 62$

Working out:

$$56 + 4 + 2 = 62$$

So,　$56 + \boxed{6} = 62$

$81 - \boxed{} = 74$

Working out:

$$81 - 1 - 6 = 74$$

So,　$81 - \boxed{7} = 74$

Make up more 'what was added?' 'what was subtracted?' sums
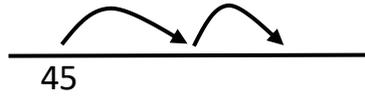
e.g. $26 + \underline{} = 32$;　$54 - \underline{} = 49$

Give learners the exemplar testlets

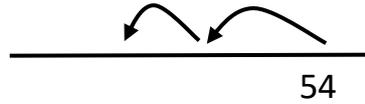No timing required, rather the aim is to allow learners to get some written practice of work done mentally.

1. $45 + 8 = \boxed{}$

2. $54 - 6 = \boxed{}$

3. $26 + \boxed{} = 34$

4. $\boxed{} + 7 = 42$

5. $32 + 9 = 32 + 8 + \boxed{}$

6. $67 + 6 = 67 + 3 + \boxed{}$

7. $44 + \boxed{} = 44 + 6 + 23$

8. $27 + \boxed{} = 27 + 3 + 15$

9. $36 + 25 = 36 + 4 + \boxed{}$

10. $57 + 36 = 57 + 3 + \boxed{}$

11. $+\boxed{a} \qquad +\boxed{b}$

    97   100   144

    $97 + \boxed{} + \boxed{} = 144$

12. $+\boxed{a} \qquad +\boxed{b}$

    95   100   153

    $95 + \boxed{} + \boxed{} = 153$

BRIDGING THROUGH TEN

Day 8

Recall from yesterday

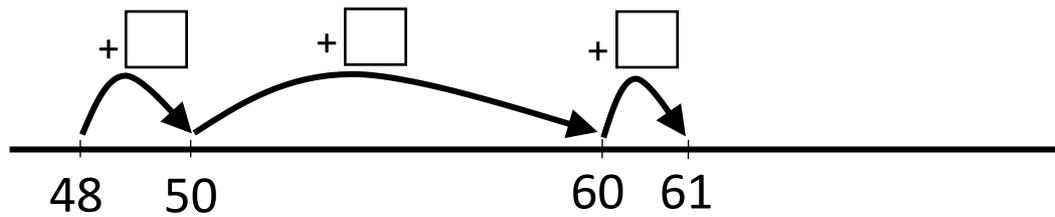56 + ___ = 62 was solved by thinking of this as 56 + 4 + 2 = 62 so 56+6 = 62

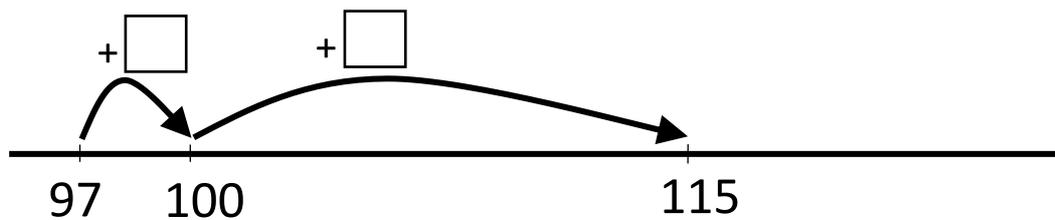81 - ___ = 74 was solved by thinking of this as 81 – 1 – 6 = 74 so 81 – 7 =74

INDIVIDUAL TASKS

1.   83 – ☐ – ☐ = 76

So,   83 – ☐ = 76

2.   48 + ☐ = 61


```
        +☐          +☐              +☐

    48    50                    60  61
```

3.


```
        +☐          +☐

    97    100                    115
```

97 + ☐ + ☐ = 115

So,   97 + ☐ = 115

Retest

Watch to see if learners are still using fingers to count and on which sums they do this

Mark

Focus feedback to learners on improvements versus learner marks

Note:
There is a chance that because learners are using new non-count by ones strategies, which they have not yet developed speed and fluency in, that their marks stay the same or go down.

In such cases discuss with learners that even while counting up or down in ones is a strategy they were very quick and good at understanding different strategies is important for developing mathematical thinking and understanding the relationship between numbers. This they need for working with much bigger numbers and for algebra in high school.