

Lesson 3 – Addition & Subtraction – Add by Counting On

NC Objective:

Add and subtract one-digit and two-digit numbers to 20, including zero

Resources needed:

Differentiated Sheets
Teaching Slides, number lines, cubes

Vocabulary:

Addition, commutativity, represent, counting on, represent

Children explore adding by counting on from a given number. They begin to understand that addition is commutative and that it is more efficient to start from the largest number. It is important that children see that they are not just adding two separate numbers or items, they are adding to what they already have. Ensure children do not include their start number when counting on.

Key Questions:

What number did you start with? Then what happened? Now what do I have?

What does each number represent? What do the counters represent?

How can I represent counting on using practical equipment?

How can I represent counting on using a bar model or a number line?



Working Towards

Add by Counting On $20 \geq 10 \geq 0$ Reasoning & Problem Solving 1

Show your calculations on a number line.

Tia has 7 blocks.
She puts on 4 more.
How many blocks does Tia have now?

Tia has 12 blocks.
She puts on 2 more.
How many blocks does Tia have now?

Tia has 5 blocks.
She puts on 8 more.
How many blocks does Tia have now?

Tia has 11 blocks.
She puts on 6 more.
How many blocks does Tia have now?

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Working Within

Add by Counting On $20 \geq 10 \geq 0$ Reasoning & Problem Solving 1

Show your calculations on a number line.

Tia has 8 blocks.
She puts on 7 more.
How many blocks does Tia have now?

Tia has 12 blocks.
She puts on 6 more.
How many blocks does Tia have now?

Tia has 5 blocks.
She puts on 4 more.
How many blocks does Tia have now?

Tia has 11 blocks.
She puts on 9 more.
How many blocks does Tia have now?

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Greater Depth

Add by Counting On $20 \geq 10 \geq 0$ Reasoning & Problem Solving 1

Can you count on from the larger number in your head?

Tia has 8 blocks.
She puts on 7 more.
How many blocks does Tia have now?

Tia has 12 blocks.
She puts on 6 more.
How many blocks does Tia have now?

Tia has 5 blocks.
She puts on 4 more.
How many blocks does Tia have now?

Tia has 11 blocks.
She puts on 9 more.
How many blocks does Tia have now?

Then she adds 3 more.
What could her blocks look like? Draw a picture.

Then she adds 3 more.
What could her blocks look like? Draw a picture.

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Children on this sheet have an example to follow. Numbers are underlined and in bold to help the process of counting on.

Children on this sheet use a number line and count on from the larger number.

Children on this sheet are able to count on mentally. They answer word problems and count on twice. They use reasoning skills to identify what the final shape could look like.

Reasoning & Problem Solving

Add by Counting On $20 \geq 10 \geq 0$ Reasoning & Problem Solving 1

Mal starts at 7 and adds on 5.
Tia starts at 5 and adds on 7.

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

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

Leanna and Rosie are working out $10 + 5$.

Leanna: 10, 11, 12, 13, 14, 15

Rosie: 11, 12, 13, 14, 15

Use a number line to show who is correct.

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Add by Counting On $20 \geq 10 \geq 0$ Reasoning & Problem Solving 1

Mal starts at 11 and adds on 5.
Tia starts at 5 and adds on 11.

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

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

Leanna and Rosie are working out twelve add six.

Leanna: 12, 13, 14, 15, 16, 17

Rosie: 13, 14, 15, 16, 17, 18

Use a number line to show who is correct.

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Add by Counting On $20 \geq 10 \geq 0$ Reasoning & Problem Solving 1

Mal starts at twelve and adds on five.
Tia starts at one more than four and adds on $13 - 1$.

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

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

Leanna and Rosie are working out twelve more than six.

Leanna: 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18

Rosie: 13, 14, 15, 16, 17, 18

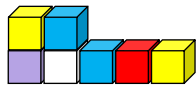
Use a number line to show who is correct.

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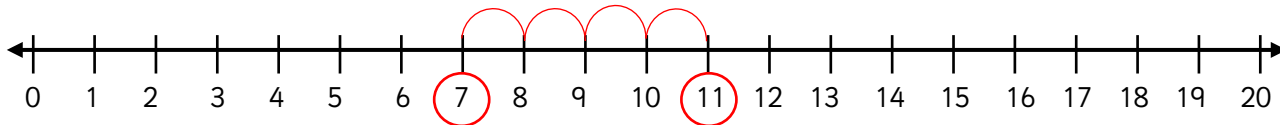
Show your calculations on a number line.

Tia has 7 blocks.



She puts on 4 more.
How many blocks does Tia have now?

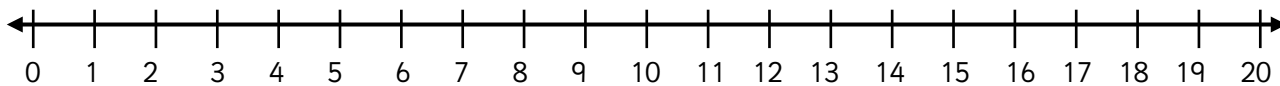
11



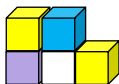
Tia has 12 blocks.



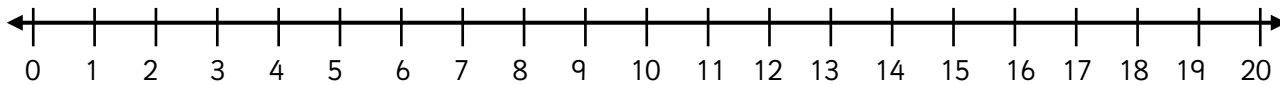
She puts on 2 more.
How many blocks does Tia have now?



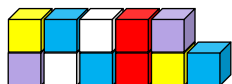
Tia has 5 blocks.



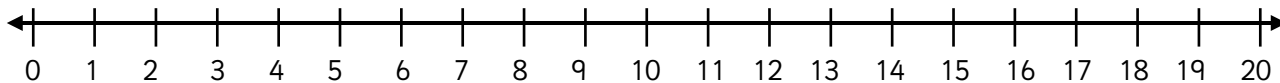
She puts on 3 more.
How many blocks does Tia have now?



Tia has 11 blocks.



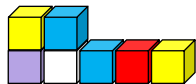
She put on 4 more.
How many blocks does Tia have now?





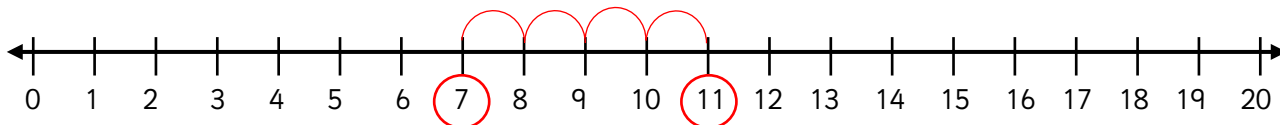
Show your calculations on a number line.

Tia has 7 blocks.

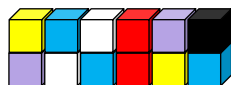


She puts on 4 more.
How many blocks does Tia have now?

11

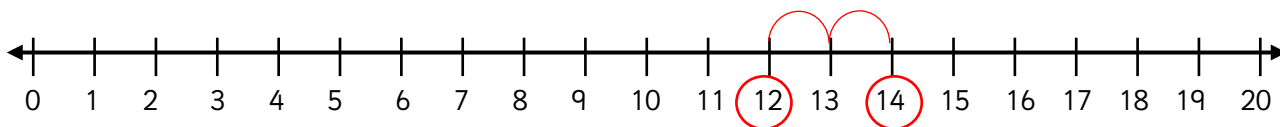


Tia has 12 blocks.

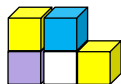


She puts on 2 more.
How many blocks does Tia have now?

14

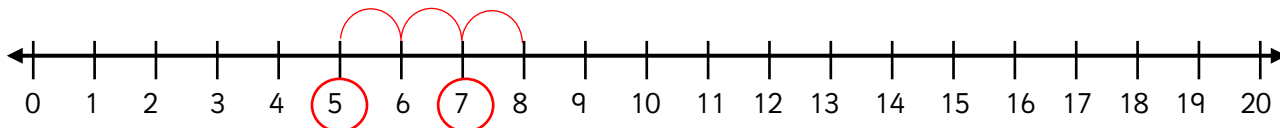


Tia has 5 blocks.

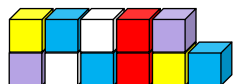


She puts on 3 more.
How many blocks does Tia have now?

8

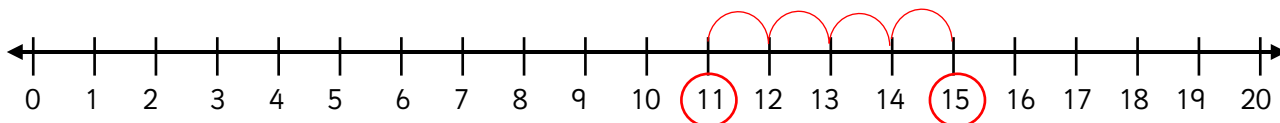


Tia has 11 blocks.



She put on 4 more.
How many blocks does Tia have now?

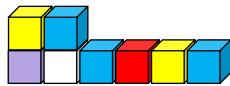
15



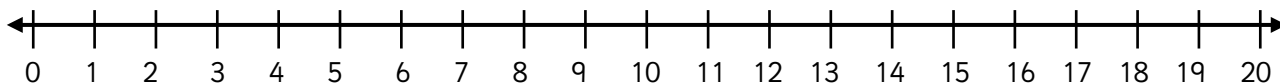


Show your calculations on a number line.

Tia has 8 blocks.



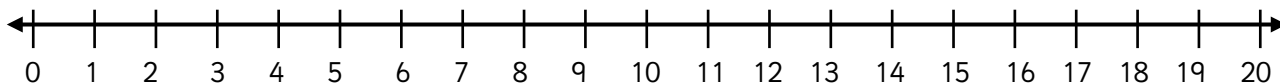
She puts on 7 more.
How many blocks does Tia have now?



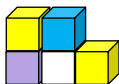
Tia has 12 blocks.



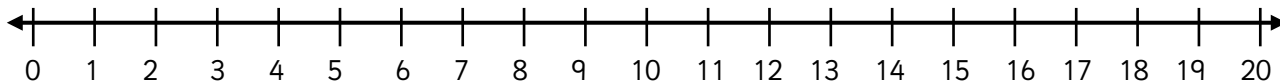
She puts on 6 more.
How many blocks does Tia have now?



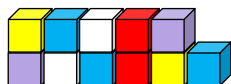
Tia has 5 blocks.



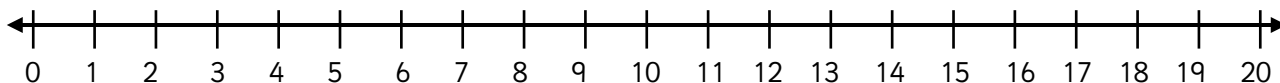
She puts on 4 more.
How many blocks does Tia have now?



Tia has 11 blocks.



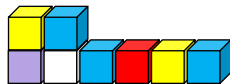
She put on 9 more.
How many blocks does Tia have now?





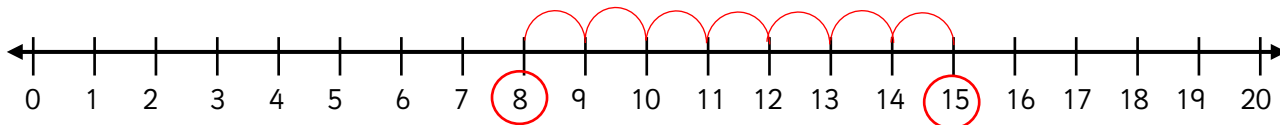
Show your calculations on a number line.

Tia has 8 blocks.

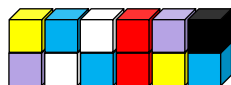


She puts on 7 more.
How many blocks does Tia have now?

15

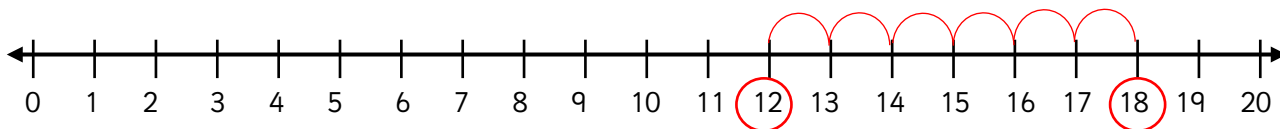


Tia has 12 blocks.

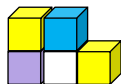


She puts on 6 more.
How many blocks does Tia have now?

18

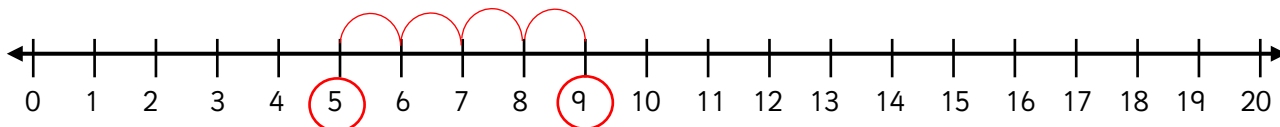


Tia has 5 blocks.

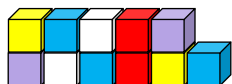


She puts on 4 more.
How many blocks does Tia have now?

9

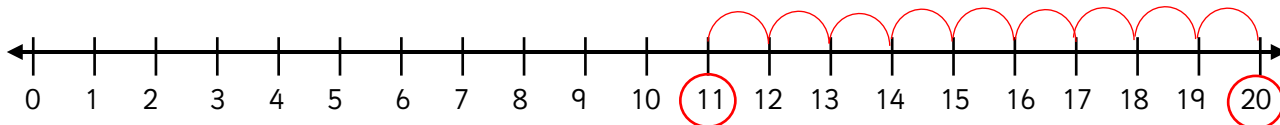


Tia has 11 blocks.



She put on 9 more.
How many blocks does Tia have now?

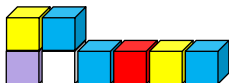
20





Can you count on from the larger number in your head?

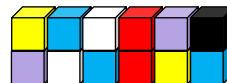
Tia has 8 blocks.



She puts on 7 more.
How many blocks does Tia have now?

Then she adds 2 more.
What could her blocks look like?
Draw a picture.

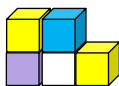
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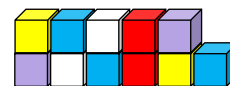
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Draw a picture.

Tia has 11 blocks.



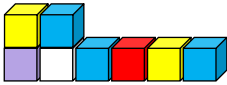
She put on 6 more.
How many blocks does Tia have now?

Then she adds 3 more.
What could her blocks look like?
Draw a picture.



Can you count on from the larger number in your head?

Tia has 8 blocks.



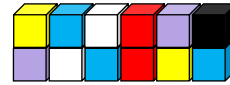
She puts on 7 more.
How many blocks does Tia have now?

17

Then she adds 2 more.
What could her blocks look like?
Draw a picture.

Blocks that have a total of 19.

Tia has 12 blocks.



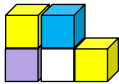
She puts on 4 more.
How many blocks does Tia have now?

16

Then she adds 3 more.
What could her blocks look like?
Draw a picture.

Blocks that have a total of 19.

Tia has 5 blocks.



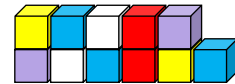
She puts on 4 more.
How many blocks does Tia have now?

9

Then she adds 6 more.
What could her blocks look like?
Draw a picture.

Blocks that have a total of 15.

Tia has 11 blocks.



She put on 6 more.
How many blocks does Tia have now?

17

Then she adds 3 more.
What could her blocks look like?
Draw a picture.

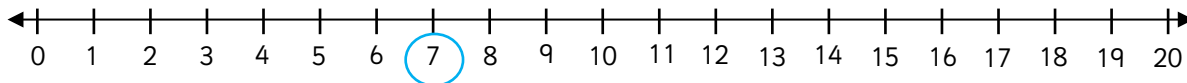
Blocks that have a total of 20.



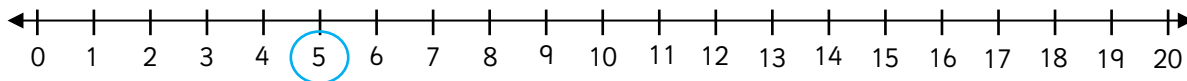
Mal starts at 7 and adds on 5.

Tia starts at 5 and adds on 7.

Mal



Tia



Show their calculations on the number lines.
What do you notice? Does this always happen?

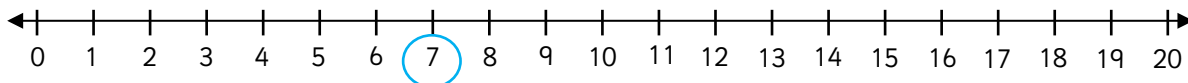
Which method do you like best? Why?



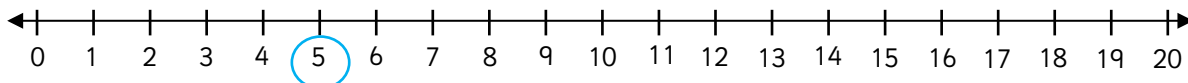
Mal starts at 7 and adds on 5.

Tia starts at 5 and adds on 7.

Mal



Tia



Show their calculations on the number lines.
What do you notice? Does this always happen?

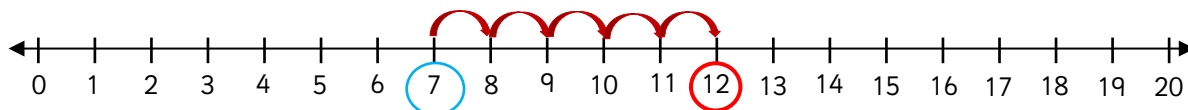
Which method do you like best? Why?



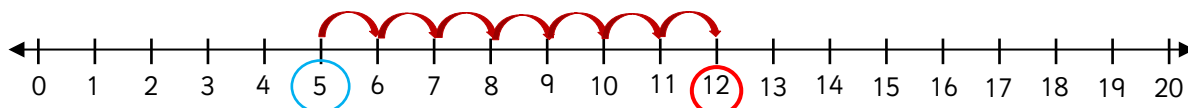
Mal starts at 7 and adds on 5.

Tia starts at 5 and adds on 7.

Mal



Tia



Show their calculations on the number lines.
What do you notice? Does this always happen?

Which method do you like best? Why?

Both children end on 12.

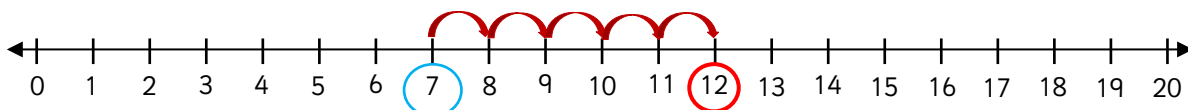
This is because $7 + 5$ is equivalent to $5 + 7$.
The children can explore their own calculations to understand that addition is always commutative.
They see that Mal's method is quicker because there is less to count on.



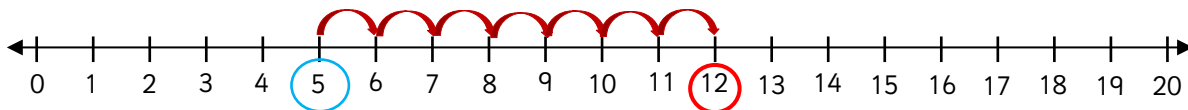
Mal starts at 7 and adds on 5.

Tia starts at 5 and adds on 7.

Mal



Tia



Show their calculations on the number lines.
What do you notice? Does this always happen?

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Both children end on 12.

This is because $7 + 5$ is equivalent to $5 + 7$.
The children can explore their own calculations to understand that addition is always commutative.
They see that Mal's method is quicker because there is less to count on.

Leanna and Rosie are working out $10 + 5$.

Leanna



10, 11, 12, 13, 14, 15

Rosie



11, 12, 13, 14, 15

Use a number line to show who is correct.

Leanna and Rosie are working out $10 + 5$.

Leanna



10, 11, 12, 13, 14, 15

Rosie



11, 12, 13, 14, 15

Use a number line to show who is correct.

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11, 12, 13, 14, 15

Use a number line to show who is correct.

Leanna and Rosie are working out $10 + 5$.

Leanna



10, 11, 12, 13, 14, 15

Rosie



11, 12, 13, 14, 15

Rosie is correct as she has counted on 5 steps from 10.

Leanna has incorrectly included 10 when counting.

Both have the correct sum ($15 = 10 + 5$).

Use a number line to show who is correct.

Leanna and Rosie are working out $10 + 5$.

Leanna



10, 11, 12, 13, 14, 15

Rosie



11, 12, 13, 14, 15

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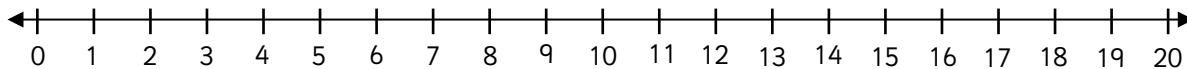
Both have the correct sum ($15 = 10 + 5$).

Use a number line to show who is correct.

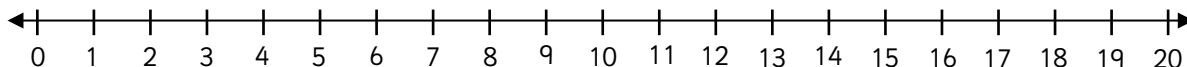


Mal starts at 11 and adds on 5.
Tia starts at 5 and adds on 11.

Mal



Tia



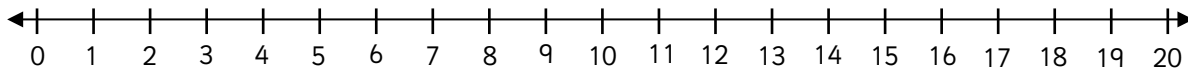
Show their calculations on the number lines.
What do you notice? Does this always happen?

Which method do you like best? Why?

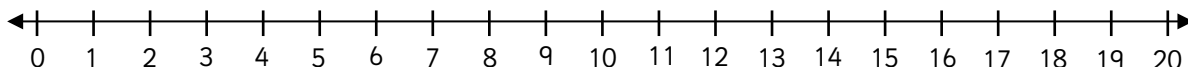


Mal starts at 11 and adds on 5.
Tia starts at 5 and adds on 11.

Mal



Tia



Show their calculations on the number lines.
What do you notice? Does this always happen?

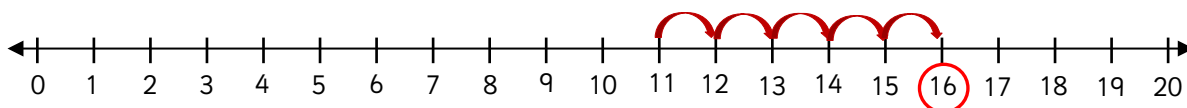
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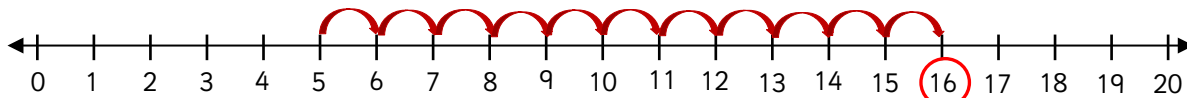
Mal starts at 11 and adds on 5.

Tia starts at 5 and adds on 11.

Mal



Tia



Show their calculations on the number lines.
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Which method do you like best? Why?

Both children end on 16.

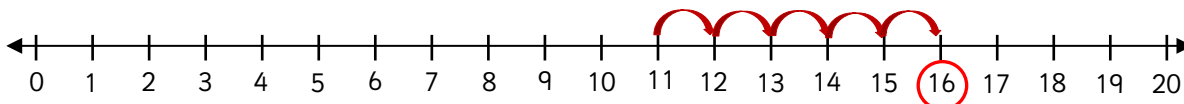
This is because $11 + 5$ is equivalent to $5 + 11$.
The children can explore their own calculations to understand that addition is always commutative.
They see that Mal's method is quicker because there is less to count on.



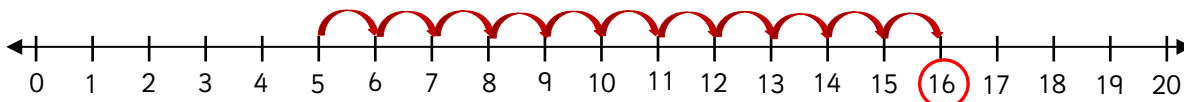
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Tia



Show their calculations on the number lines.
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Both children end on 16.

This is because $11 + 5$ is equivalent to $5 + 11$.
The children can explore their own calculations to understand that addition is always commutative.
They see that Mal's method is quicker because there is less to count on.

Leanna and Rosie are working out
twelve add six.

Leanna



12, 13, 14, 15, 16, 17

Rosie



13, 14, 15, 16, 17, 18

Use a number line to show who is correct.

Leanna and Rosie are working out
twelve add six.

Leanna



12, 13, 14, 15, 16, 17

Rosie



13, 14, 15, 16, 17, 18

Use a number line to show who is correct.

Leanna and Rosie are working out
twelve add six.

Leanna



12, 13, 14, 15, 16, 17

Rosie



13, 14, 15, 16, 17, 18

Use a number line to show who is correct.

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Leanna



12, 13, 14, 15, 16, 17

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12, 13, 14, 15, 16, 17

Rosie



13, 14, 15, 16, 17, 18

Rosie is correct as she has counted on 6 steps from 12.

Leanna has incorrectly included 12 when counting.

Use a number line to show who is correct.

Leanna and Rosie are working out twelve add six.

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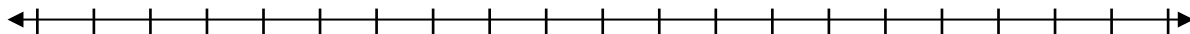
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Use a number line to show who is correct.

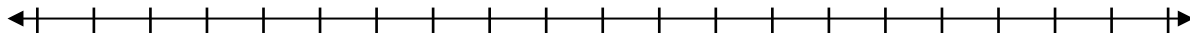


Mal starts at twelve and adds on five.
Tia starts at one more than four and adds on $13 - 1$.

Mal



Tia



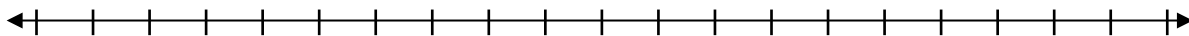
Show their calculations on the number lines.
What do you notice? Does this always happen?

Which method do you like best? Why?

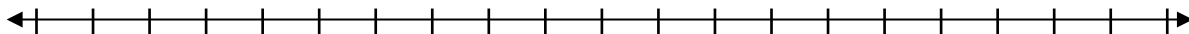


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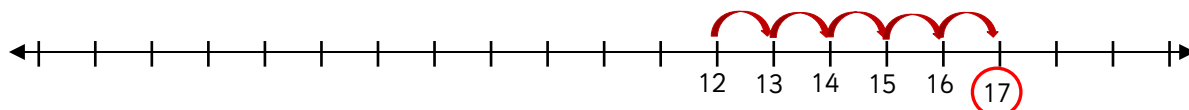
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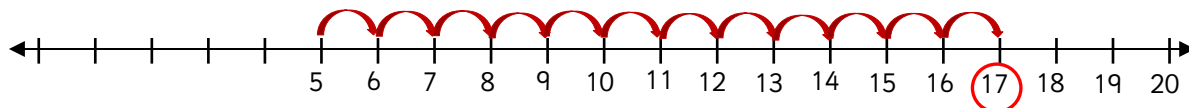
Mal



5

12

Tia



Both children end on 17.

This is because $12 + 5$ is equivalent to $5 + 12$.

The children can explore their own calculations to understand that addition is always commutative.

They see that Mal's method is quicker because there is less to count on.

Show their calculations on the number lines.
What do you notice? Does this always happen?

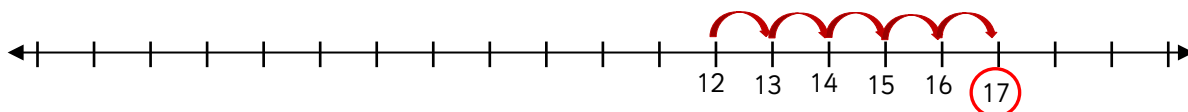
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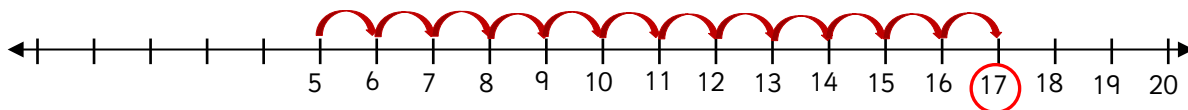
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Leanna and Rosie are working out twelve more than six.



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Both are correct.

Leanna has counted on 12 steps from 6.

Rosie has counted on 6 steps from 12.

Rosie's method is quicker because there is less to count on.

Use a number line to show who is correct.

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