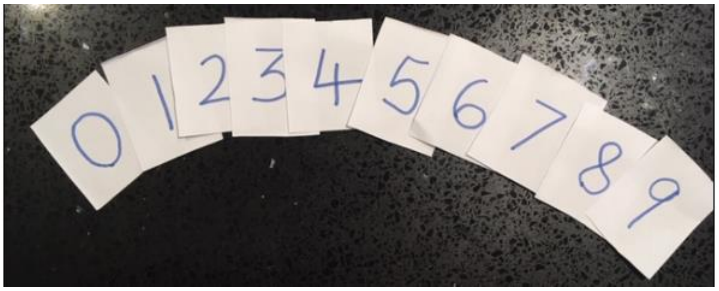
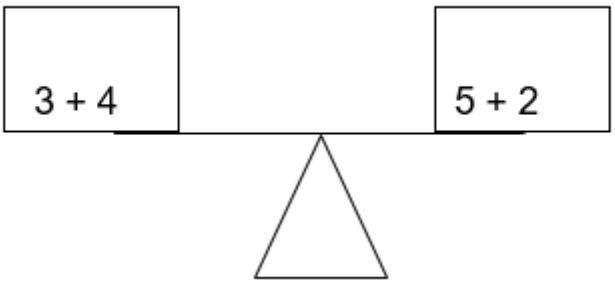
Balancing Numbers Week – Additive Reasoning Y1/2

This week you will need:

- Paper and pencil/ pen
- To record and keep your work each day. You could use the sheet provided or just record on paper.
- Small objects you can move around to help your thinking, such as stones or Lego bricks. You might also find it useful to cut a piece of paper into eleven small pieces and number them 0 to 10, to use during the tasks.



This week we will be balancing numbers using balance scales like this one.



These scales balance because the numbers on both sides add up to the same value: **3 + 4 = 5 + 2**

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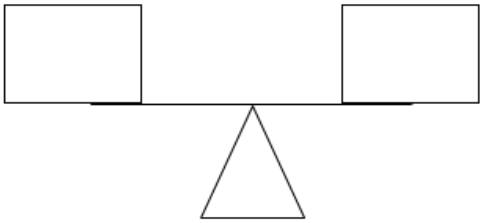
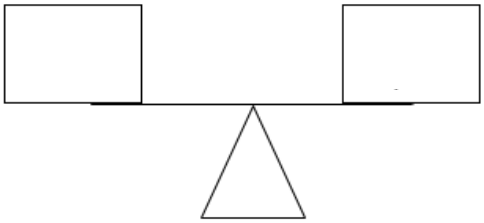
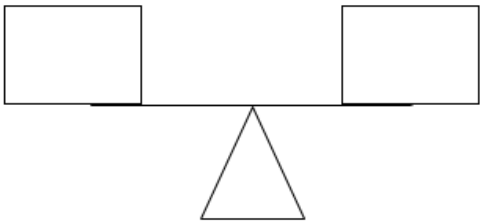
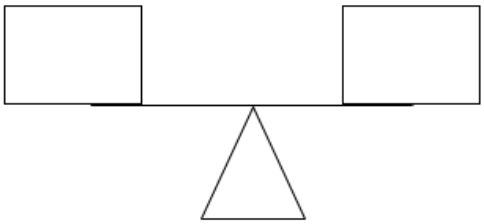
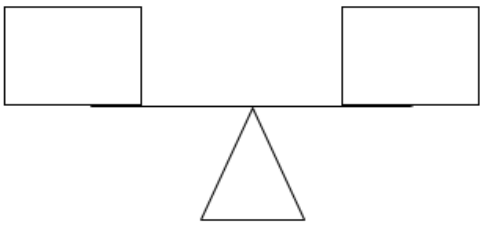
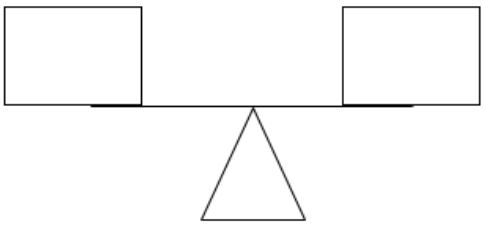
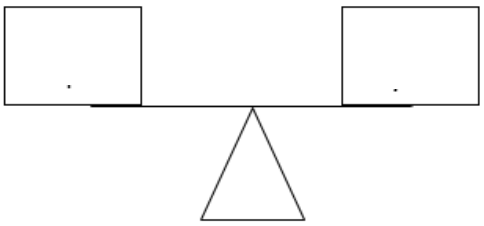
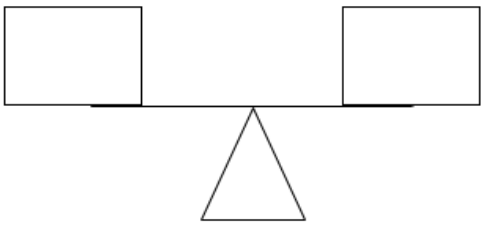

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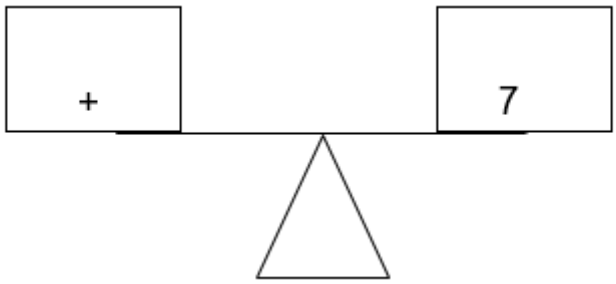
Balancing Numbers Week – Additive Reasoning Y1/2

Day 1

- Look at these balance scales. Which pairs of numbers could you put in the empty pan on the left to balance the scales?



- How many different pairs of numbers can you find?
- How do you know you have found them all?
- Write your answers as number sentences. For example: 1 + 6 = 7
- What if the number was 17 instead of 7? Can you find pairs of numbers to put in the left hand pan now to make the scales balance?
- Look at the pairs of numbers you have used to balance with 7 and the pairs you have used to balance with 17. What do you notice is the same about these pairs of numbers?

Notes for adults working with groups of children

- Using seven objects will allow the children to explore all possible pairs of numbers by moving the objects around. Support them to work systematically in order to find all the pairs. For example, for 7 they might start with 1 and pair this, then 2 etc.
- Some children might find Numicon helpful; if you are using Numicon, try and match it to the number sentences they are writing. The Numicon plates are weighted so that they will balance in a pan balance if you have one available. Numicon could be used to support the children to use what they know about 7 to help them think about 17.
- Support the children to record their balances as equations.

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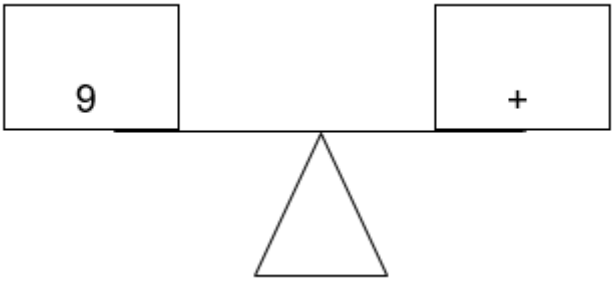
Balancing Numbers Week – Additive Reasoning Y1/2

Day 2

- Look at these scales. Which pairs of numbers could you put in the empty pan on the right to balance the scales? For example 8 + 1.



- How many different pairs of numbers can you find?
- How do you know you have found them all?
- Write your answers as number sentences. For example: 9 = 8 + 1
- What if you could have three numbers in the empty pan? For example: 9 = 1 + 3 + 5
- How many ways using three numbers can you find?

Notes for adults working with groups of children

- Using nine objects will allow the children to explore all possible pairs of numbers by moving the objects around. Support them to record their balances as equations and to work systematically in order to find all the pairs. For example, they might start with 1 and pair this, then 2 etc.
- When trying to find three numbers to balance the scales working systematically could mean keeping one number the same, for example 1, and changing the other two numbers until all the possible pairs of numbers to go with 1 have been found, then keeping a different number the same, for example 2 and repeating. You may need to encourage the children to notice if any of the trios of numbers are the same but just in a different order, for example 1 + 2 + 6 and 2 + 1 + 6.
- Some children might find Numicon or similar apparatus helpful. If you are using Numicon, try and match it to the number sentences they are writing. The Numicon plates are weighted so that they will balance in a pan balance if you have one available.

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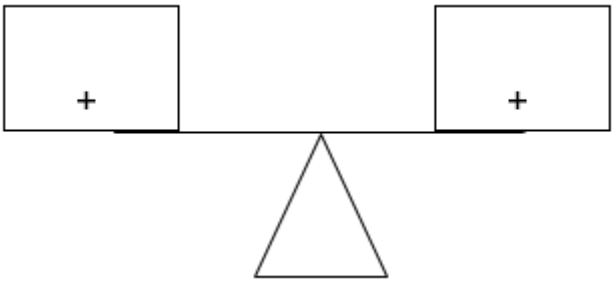
Balancing Numbers Week – Additive Reasoning Y1/2

Day 3

- Can you make these scales balance by putting a pair of numbers in each side that equal 12?



- Try to do this in five different ways.
- Now make the scales balance by putting a pair of numbers in each side that equal 13?
- Try to do this in five different ways.
- Hint: It can help to use your pairs for 12.
- What do you notice about the pairs of numbers for 12 and the pairs of numbers for 13?

Notes for adults working with groups of children

- Some children might find Numicon or similar apparatus helpful. If you are using Numicon, try and match it to the number sentences they are writing. The Numicon plates are weighted so that they will balance in a pan balance if you have one available.
- Support the children to record their balances as equations and to work systematically in order to find all the pairs.
- Support the children to see the relationship between pairs of numbers that total 12 and pairs of numbers that total 13. It might help to put them side by side, for example:

1 + 11	1 + 12
2 + 10	2 + 11 etc.

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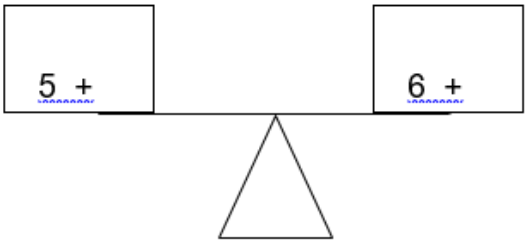
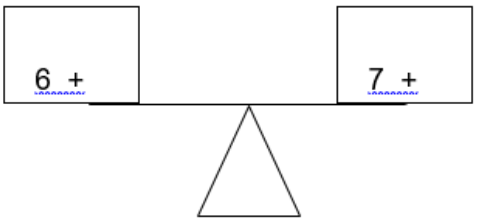
Balancing Numbers Week – Additive Reasoning Y1/2

Day 4

- Look at these scales.



- Can you find five different ways to make these scales balance? For example, 5 + 2 will balance with 6 + 1.
- Write your answers as number sentences. For example: 5 + 2 = 6 + 1
- What do you notice about the numbers in each pair?
- Look at these scales.



- Can you find five different ways to make these scales balance? Write your answers as number sentences.
- What did you do the same to make the two scales balance?

Notes for adults working with groups of children

- Some children might find Numicon or similar apparatus helpful. If you are using Numicon, try and match it to the number sentences they are writing. The Numicon plates are weighted so that they will balance in a pan balance if you have one available.
- Support the children to record their balances as equations.
- Support the children to notice and understand why there is a difference of one between the numbers added to 5 and the numbers added to 6 in order to make the scales balance.

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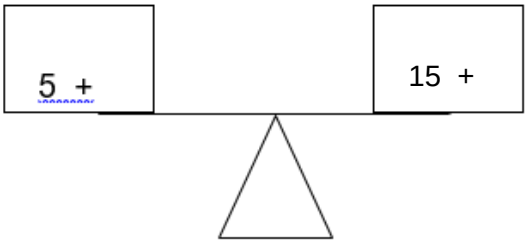
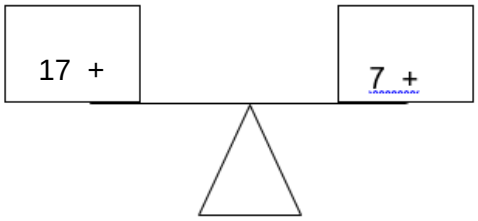
Day 5

- Look at these scales.



- Can you find five different ways to make these scales balance? For example, 5 + 12 will balance with 15 + 2.
- Write your answers as number sentences.
  For example: 5 + 12 = 15 + 2
- What do you notice about the numbers in each pair?
- Look at these scales.



- Can you find five different ways to make these scales balance? Write your answers as number sentences.
- What did you do the same to make the two scales balance?

Notes for adults working with groups of children

- Use structured equipment such as Numicon or Base 10 to support understanding of why the number added to 5 needs to be ten greater than the number added to 15 and that the same applies to 7 and 17.
- Support the children to record their balances as equations.

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