

## Add and subtract mass

### Notes and guidance

This step is the final step on mass in this block. In this small step, children add and subtract mass. They transition from writing, for example, 2 kg and 300 g to writing 2 kg 300 g as this makes it easier to read many of the calculations, and makes it easier for children to distinguish between the two quantities.

They use their understanding of kilograms and grams to add and subtract quantities of both. Concrete resources and bar models support their understanding. When a mass that is a mixture of kilograms and grams is added to another mass, the children partition the mass into kilograms and grams, then add the separate parts.

This is a good opportunity for children to practise their mental addition and subtraction, as many of the numbers involved will not necessitate the written method. As children have not yet explored numbers beyond 1,000, there will be no requirement to bridge 1 kg with addition or subtraction.

### Things to look out for

- Children may not be clear on which operation is needed.
- Children may ignore the units, for example calculating  $300\text{ g} + 2\text{ kg} = 302\text{ g}$ .
- Children may forget to include units in their answers.

### Key questions

- How can you add using kilograms and grams?
- Which part did you work with first? Why?
- What method could you use to add \_\_\_\_\_ to \_\_\_\_\_?
- What method could you use to subtract \_\_\_\_\_ from \_\_\_\_\_?
- How can you show this question using a bar model?
- What objects can you use to help complete this calculation?
- Do you need to add or subtract to answer this question?

### Possible sentence stems

- The total of \_\_\_\_\_ g/kg and \_\_\_\_\_ g/kg is \_\_\_\_\_ g/kg.
- The difference between \_\_\_\_\_ g/kg and \_\_\_\_\_ g/kg is \_\_\_\_\_ g/kg.
- \_\_\_\_\_ kg add/subtract \_\_\_\_\_ kg is equal to \_\_\_\_\_ kg.  
\_\_\_\_\_ g add/subtract \_\_\_\_\_ g is equal to \_\_\_\_\_ g.  
The total/difference is \_\_\_\_\_ kg \_\_\_\_\_ g.

### National Curriculum links

- Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)

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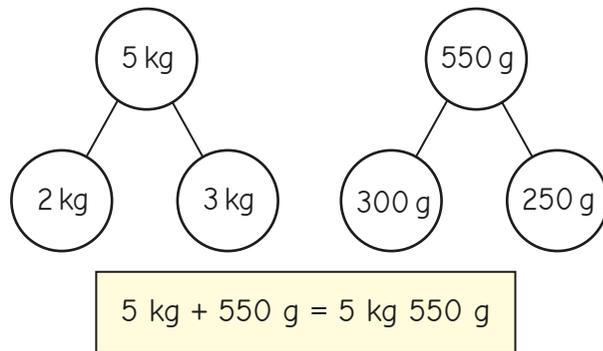
## Key learning

- A jar of cookies has a mass of 800 g.  
The empty jar has a mass of 350 g.  
What is the mass of the cookies?



- Rosie has 600 g of sweets.  
Jack has 1 kg and 200 g of sweets.  
What is the total mass of their sweets?

- Huan uses part-whole models to add 2 kg 300 g to 3 kg 250 g.

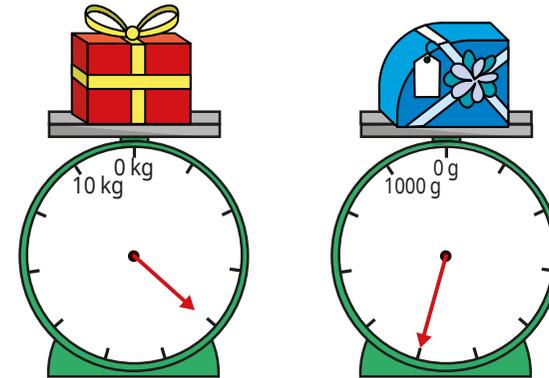


Use Huan's method to work out the totals.

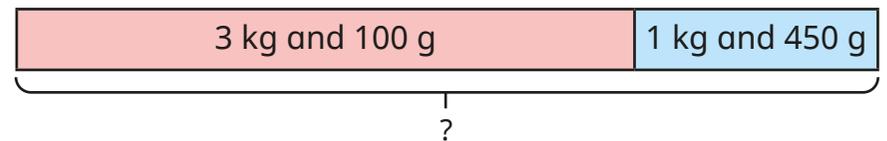
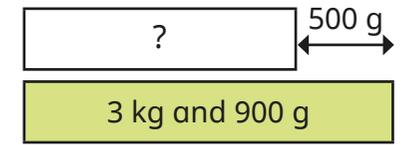
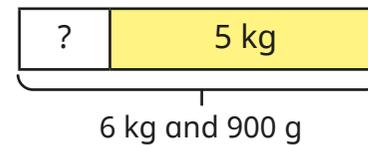
$$3 \text{ kg } 450 \text{ g} + 4 \text{ kg } 200 \text{ g}$$

$$4 \text{ kg } 105 \text{ g} + 2 \text{ kg } 300 \text{ g}$$

- What is the total mass of the two presents?



- Complete the bar models.



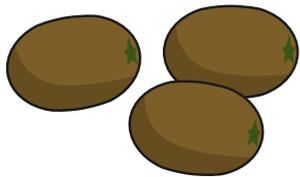
- Brett and Esther each have 1 kg 200 g of pasta.  
They put their pasta together.  
They then cook a meal using 300 g of the pasta.  
How much pasta do they have left?

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## Reasoning and problem solving

Dora has 3 kiwi fruit.

The mass of each kiwi fruit is 70 g.



Mo has a pear.



The mass of my pear is half the total mass of Dora's kiwi fruit.

How much heavier is the pear than a kiwi fruit?

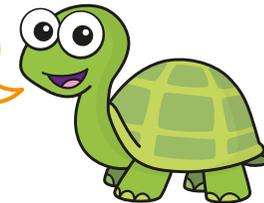
How did you work it out?

35 g

A box has a mass of 1 kg.

A bucket has a mass of 230 g.

The bucket is 229 g heavier than the box.



Explain the mistake that Tiny has made.

Which is heavier, the box or the bucket?

How much heavier is it?

A bag is 320 g lighter than the box.

What is the total mass of the box, the bucket and the bag?

How did you work it out?

The box is heavier by 770 g.

1 kg 910 g