

Reasoning and Problem Solving

Step 3: Compare Mass

National Curriculum Objectives:

Mathematics Year 1: (1M1) [Compare, describe and solve practical problems for: lengths and heights \[for example, long/short, longer/shorter, tall/short, double/half\]mass/weight \[for example, heavy/light, heavier than, lighter than\] capacity and volume \[for example, full/empty, more than, less than, half, half full, quarter\] Time \[for example, quicker, slower, earlier, later\]](#)

Mathematics Year 1: (1M2) [Measure and begin to record: lengths and heights mass/weight capacity and volume time \(hours, minutes, seconds\)](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Choose from two options when comparing the mass of two objects; using number bonds to ten and one type of non-standard unit. Includes images in the statements.

Expected Choose from three options when comparing the mass of two objects; using addition and subtraction within 20 and various non-standard units. Statements in words only.

Greater Depth Choose from three options when comparing the mass of two objects; using various non-standard units. Not all weights given explicitly, requiring half and double knowledge.

Questions 2, 5 and 8 (Reasoning)

Developing Explain how many more is needed to balance scales when comparing the mass of two objects, no more than 5 more or 5 less.

Expected Explain how to balance the scales when comparing the mass of two objects; using a given number of units.

Greater Depth Explain what is needed to balance the scales when comparing the mass of two objects; using various non-standard units where the weight of an object is sometimes doubled or halved.

Questions 3, 6 and 9 (Problem Solving)

Developing Arrange objects to balance using one type of non-standard unit; where two out of three objects are equal.

Expected Arrange objects to balance using various non-standard units; where more than one object may be needed.

Greater Depth Arrange objects to balance using various non-standard units; combinations of objects are needed to find the answer. Not all masses given explicitly.

More [Year 1 Weight and Volume](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

Compare Mass

1a. A bottle weighs 10 cubes.
An apple weighs 6 cubes.



How many  are needed to make the scales balance?

4

2



PS

Compare Mass

1b. The keys weigh 3 cubes.
A pear weighs 10 cubes.



How many  are needed to make the scales balance?

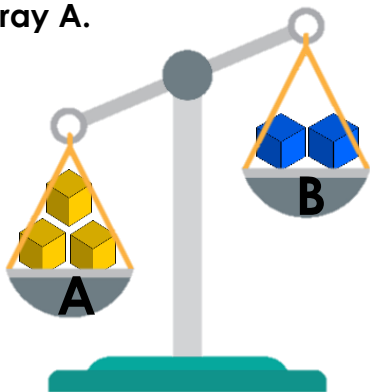
3

7



PS

2a. Mandeep wants the scales to balance. He says he needs to add 1 more cube to tray A.

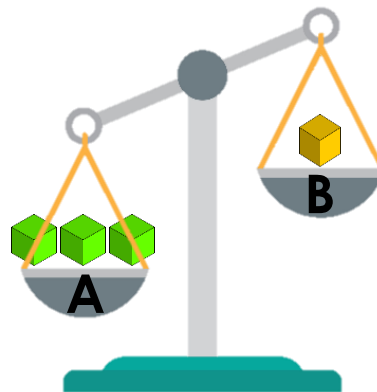


Is he correct? Explain your answer.



R

2b. Razia wants the scales to balance. She says she needs to add 2 more cubes to tray B.



Is she correct? Explain your answer.



R

3a. Which two objects will balance the scales?



4 blocks



6 blocks



6 blocks



PS

3b. Which two objects will balance the scales?



4 blocks



8 blocks



4 blocks



PS

Compare Mass

4a. A ball weighs 15 marbles.
A banana weighs 5 marbles.



How many marbles lighter is the banana than the ball?

5

10

20

PS

Compare Mass

4b. An egg weighs 20 pencils.
A bun weighs 4 pencils.



How many pencils heavier is the egg?

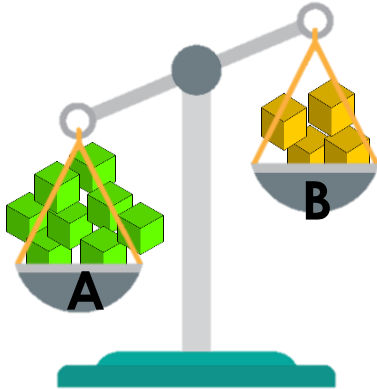
20

16

8

PS

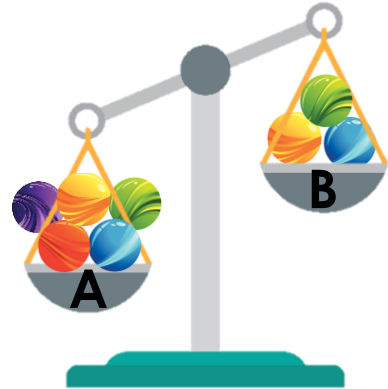
5a. Dotty wants the scales to balance.
She thinks she could move some cubes to do this.



Is she correct? Explain your answer.

R

5b. Hettie wants the scales to balance.
She thinks she could move some marbles to do this.



Is she correct? Explain your answer.

R

6a. Draw an arrow to show how you could position the objects on the scales to make them balance.



6 blocks



4 blocks



2 blocks

PS

6b. Draw an arrow to show how you could position the objects on the scales to make them balance.



3 blocks



2 blocks



5 blocks

PS

Compare Mass

7a. Glue weighs 10 buttons.
An orange weighs half of the glue.



How many buttons are needed to make the scales balance?



10

5

3

PS

Compare Mass

7b. A ball weighs double the weight of a carrot.
A carrot weighs 10 pencils.



How many pencils are needed to make the scales balance?



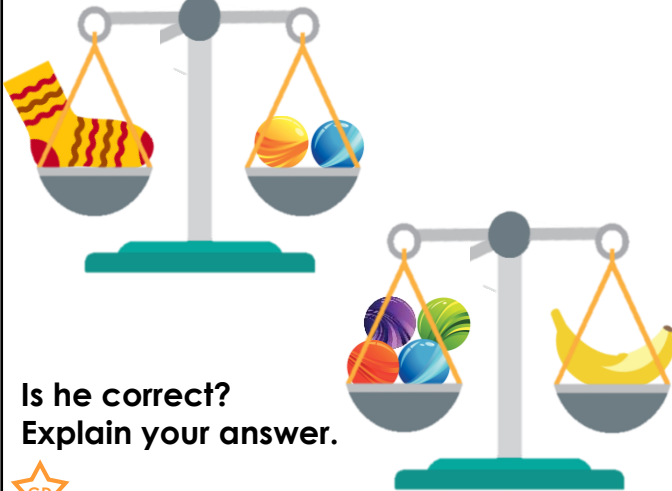
20

10

5

PS

8a. Jonah says the sock weighs half as much as banana.

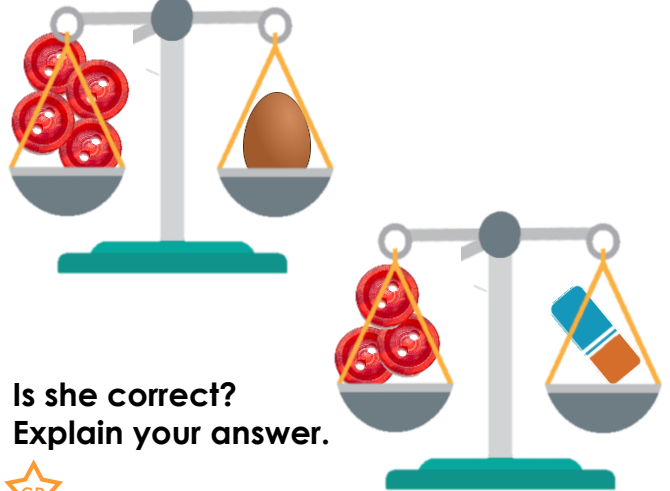


Is he correct?
Explain your answer.



R

8b. Lileth says the egg is twice as heavy as the rubber.



Is she correct?
Explain your answer.



R

9a. Draw an arrow to show how you could position the objects on the scales to make them balance.



12 blocks



Half the blocks of the paint palette



8 blocks



PS

9b. Draw an arrow to show how you could position the objects on the scales to make them balance.



9 blocks



Half the blocks of the clock



6 blocks



PS

Reasoning and Problem Solving Compare Mass

Developing

- 1a. 4
- 2a. No, he needs to add one more cube to scale B.
- 3a. The egg and the football boot.

Expected

- 4a. 10
- 5a. Yes, she could take 2 cubes off tray A and add them to tray B.
- 6a. Toy tractor on one side, toy dinosaur and ball on the other side.

Greater Depth

- 7a. 5
- 8a. Yes, because the sock weighs 2 marbles and the banana weighs 4 marbles; 2 is half of 4.
- 9a. Music player on one side; paint palette and scissors on the other side.

Reasoning and Problem Solving Compare Mass

Developing

- 1b. 7
- 2b. Yes, both scales will have 3 cubes and will balance.
- 3b. The scissors and the sweetcorn.

Expected

- 4b. 16
- 5b. Yes, she could take 1 marble off tray A and add it to tray B.
- 6b. Pepper and apple on one side, banana on the other side.

Greater Depth

- 7b. 10
- 8b. No, because the egg only weighs 4 buttons. The rubber weighs 3 buttons so the egg would have to weigh 6 buttons to be twice as heavy.
- 9b. Pineapple on one side; toy tractor and clock on the other side.