

Reasoning and Problem Solving

Step 2: Measure 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 Draw the correct number of non-standard units from the given information. Weighing two of the same objects.

Expected Draw the correct number of non-standard units from the given information. Weighing two different objects of differing mass.

Greater Depth Draw the correct amount of non-standard units from the given information. Weighing two different objects of differing mass. One object weighs double the other.

Questions 2, 5 and 8 (Problem Solving)

Developing Use the information to work out the possible mass of 2 items. Mass of one object is given. One type of non-standard units used. Using knowledge of number bonds to 10.

Expected Use the information to work out the possible mass of 2 items. No mass given. Variety of non-standard units used. Using knowledge of number bonds to 10 and 20.

Greater Depth Use the information to work out the possible mass of 2 items. No mass given. The mass of an object is sometimes doubled or halved to find an answer. Children choose their own non-standard units of measurement.

Questions 3, 6 and 9 (Reasoning)

Developing Explain whether a statement comparing mass with a given number of blocks is correct. One type of non-standard units used.

Expected Explain whether a statement suggesting adding or removing units to balance a scale is correct. Variety of non-standard units used.

Greater Depth Explain whether a statement comparing predicted mass of a given number of units is correct. Variety of non-standard units used where the mass of an object is sometimes doubled or halved to find an answer.

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

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Measure Mass

1a. The apples weigh 2 blocks each.



Draw the blocks to balance the scale.



PS

Measure Mass

1b. The carrots weigh 4 blocks each.



Draw the blocks to balance the scale.



PS

2a. If the plum weighs 4 blocks, how much does the pear weigh?



PS

2b. If the grapes weigh 3 blocks, how much does the kiwi weigh?



PS

3a. Kim weighs objects. She says,



The toy is heavier than 5 blocks.

Is she correct? Explain your answer.



R

3b. Tom weighs objects. He says,



The book is heavier than 6 blocks.

Is he correct? Explain your answer.



R

Measure Mass

4a. The kiwi weighs 6 blocks and the plum weighs 4 blocks.



Draw the blocks to balance the scale.



PS

Measure Mass

4b. The apple weighs 4 blocks and the pear weighs 5 blocks.



Draw the blocks to balance the scale.



PS

5a. The apple and the grapes weigh 10 buttons altogether.

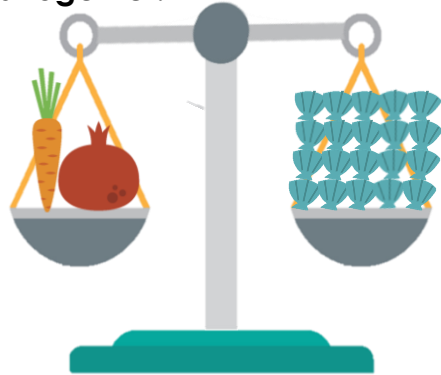


Find 3 possible combinations for the mass of the apple and the grapes.



PS

5b. The carrot and the onion weigh 20 shells altogether.



Find 3 possible combinations for the mass of the carrot and the onion.



PS

6a. Ted weighs objects. He says,



I think adding another jewel will balance the scale.

Is he correct? Explain your answer.



R

6b. Lin weighs objects. She says,



I think taking away an acorn will balance the scale.

Is she correct? Explain your answer.



R

Measure Mass

7a. The carrot weighs 4 blocks and the onion is double the mass of the carrot.



Draw the blocks to balance the scale.



PS

Measure Mass

7b. The grapes weigh 10 blocks and the kiwi is half the mass of the grapes.



Draw the blocks to balance the scale.



PS

8a. The plum weighs half the mass of the orange.



Find 3 possible combinations for the mass of the apple and the grapes. Choose your own units of measurement.



PS

8b. The pear weighs double the mass of the apple.

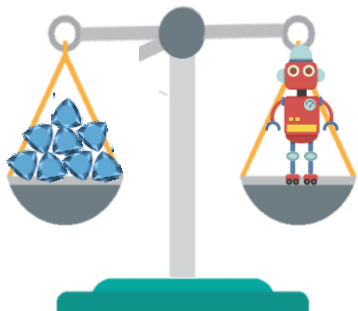


Find 3 possible combinations for the mass of the carrot and the onion. Choose your own units of measurement.



PS

9a. Ava weighs objects. She says,



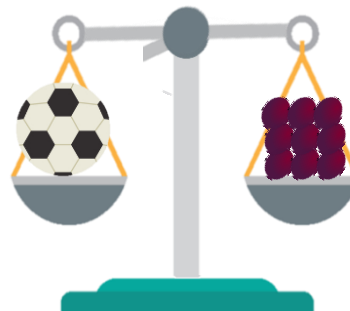
I think two robots will weigh 15 jewels.

Is she correct? Explain your answer.



R

9b. Stan weighs objects. He says,



I think two footballs will weigh 20 grapes.

Is he correct? Explain your answer.



R

Reasoning and Problem Solving Measure Mass

Developing

- 1a. 4 blocks should be drawn.
- 2a. 6 blocks
- 3a. No, the toy is lighter than 5 cubes.

Expected

- 4a. 10 blocks should be drawn.
- 5a. Various possible answers, for example: 8 buttons and 2 buttons, 1 button and 9 buttons, 7 buttons and 3 buttons
- 6a. No, adding another jewel will not balance the scale as the jewels are already heavier than the pencil.

Greater Depth

- 7a. The onion weighs 8 blocks. There should be 12 blocks drawn in total.
- 8a. Children choose their own non-standard units. Various possible answers, for example: orange 4 acorns, plum 2 acorns, or orange 6 buttons, plum 3 buttons
- 9a. No, two robots will weigh 16 jewels.

Reasoning and Problem Solving Measure Mass

Developing

- 1b. 8 blocks should be drawn.
- 2b. 7 blocks
- 3b. True

Expected

- 4b. 9 blocks should be drawn.
- 5b. Various possible answers, for example: 8 shells and 12 shells, 11 shells and 9 shells, 10 shells and 10 shells
- 6b. No, taking away another acorn will not balance the scale as the pen is already heavier than 4 acorns.

Greater Depth

- 7b. The kiwi weighs 5 blocks. There should be 15 blocks drawn in total.
- 8b. Children choose their own non-standard units. Various answers, for example: pear 6 buttons, apple 3 buttons, or pear 10 jewels, apple 5 jewels
- 9b. No, two footballs will weigh 18 grapes.