Reasoning and Problem Solving
Step 5: Imperial Measures

National Curriculum Objectives:

Mathematics Year 6: (6M5) Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places
Mathematics Year 6: (6M9) Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Explain whether a statement is true or false. Converting using whole numbers, doubling or halving.
Expected Explain whether a statement is true or false. Converting numbers with up to 2 decimal places and using direct fractions of the conversions, e.g. 1/8 when converting ounces to pounds.
Greater Depth Explain whether a statement is true or false. Converting numbers with up to 2 decimal places, percentages and using equivalent fractions of the conversions, e.g. 2/16 when converting ounces to pounds.

Questions 2, 5 and 8 (Reasoning)
Developing Explain a conversion error. Converting using whole numbers, doubling or halving.
Expected Explain a conversion error. Converting numbers with up to 2 decimal places and using direct fractions of the conversions, e.g. 1/8 when converting ounces to pounds.
Greater Depth Explain a conversion error. Converting numbers with up to 2 decimal places, percentages and using equivalent fractions of the conversions, e.g. 2/16 when converting ounces to pounds.

Questions 3, 6 and 9 (Problem Solving)
Developing Convert various imperial measures to find a total. Converting using whole numbers, doubling or halving.
Expected Convert various imperial measures to find a total. Converting numbers with up to 2 decimal places and using direct fractions of the conversions, e.g. 1/8 when converting ounces to pounds.
Greater Depth Convert various imperial measures to find a total. Converting numbers with up to 2 decimal places, percentages and using equivalent fractions of the conversions, e.g. 2/16 when converting ounces to pounds.

More Year 6 Converting Units resources.

Did you like this resource? Don't forget to review it on our website.

Imperial Measures

1a. True or false?

$\frac{1}{2}$ of a gallon is the same as 16 pints.

Explain your answer.

D R

Imperial Measures

1b. True or false?

32 ounces is the same as 4 pounds.

Explain your answer.

D R

2a. Millie is converting from pints to gallons.

She says,

1 gallon is the same as 8 pints, so 2 gallons is the same as 4 pints.

Is Millie correct? Explain your answer.

D R

2b. Zane is converting from feet to inches.

He says,

12 inches is the same as 1 foot, so 2 feet is the same as 24 inches.

Is Zane correct? Explain your answer.

D R

3a. Han is ordering some wallpaper; each colour costs £1 per inch.

Amount Needed
2 feet blue
1 foot pink
2 feet yellow

What is the total cost of the wallpaper?

D PS

3b. Isaac is ordering some paint; each colour costs £1 per pint.

Amount Needed
1 gallon blue
1 gallon green
2 gallons white

What is the total cost of the paint?

D PS

Imperial Measures

4a. True or false?

$\frac{1}{8}$ of a pound is the same as 4 ounces.

Explain your answer.

E R

Imperial Measures

4b. True or false?

2 inches is the same as 0.5cm.

Explain your answer.

E R

5a. Ivy is converting from feet to inches.

She says,

1ft is the same as 12 inches, so 4.2ft is the same as 50.4 inches.

Is Ivy correct? Explain your answer.

E R

5b. Zac is converting from pounds to ounces.

He says,

1lb is the same as 16oz, so 0.25lb is the same as 64lb.

Is Zac correct? Explain your answer.

E R

6a. Jake is building a shed; each material costs £1 per inch.

Amount Needed
10 foot wood panel
3 foot felt strip
5 foot laminate panel

What is the total cost of the materials?

E PS

6b. Sophia is ordering baking ingredients; each ingredient costs 10p per ounce.

Amount Needed
0.5 pounds flour
0.25 pounds sugar
1 pound butter

What is the total cost of the ingredients?

E PS

7a. True or false?

75% of 10 pounds is the same as 7.5 ounces.

Explain your answer.

GD R

Imperial Measures

7b. True or false?

80% of a pint is the same as 0.56 gallons.

Explain your answer.

GD R

8a. Lucy is converting from feet and inches to cm.

She says,

1 foot is the same as 12 inches, so 6 feet 5 inches is approximately the same as 77cm.

Is Lucy correct? Explain your answer.

GD R

8b. Jude is converting from stone to ounces.

He says,

1 stone is the same as 14lb, so 8 stone 9lb is the same as 121oz.

Is Jude correct? Explain your answer.

GD R

9a. Casey is ordering some paint; each colour costs £10 per pint.

Amount Needed
0.25 gallons white
3 gallons blue
0.5 gallons wood stain

What is the total cost of the paint?

GD PS

9b. Felix is ordering food for his party; each food item costs £10 per 100oz.

Amount Needed
2 pounds sausages
0.5 pounds bread rolls
1 pound ketchup

What is the total cost of the food?

GD PS

Reasoning and Problem Solving
Imperial Measures

Developing

1a. False because 1 gallon = 8 pints, so half a gallon = 4 pints, not 16 pints.

2a. Millie has converted incorrectly. She has doubled the number of gallons, but halved the number of pints. She should have doubled the number of pints and gallons. 2 gallons is the same as 16 pints.

3a. Blue: 24 inches = £24; Pink: 12 inches = £12; Yellow: 24 inches = £24. The total cost = £60.

Expected

4a. False because 1 pound = 16 ounces, so 16 ÷ 8 = 2 ounces, not 4 ounces.

5a. Ivy has converted incorrectly. She has multiplied the number of feet by 4.2, and done the same to the inches. She should have multiplied the feet by 4 and then added on the 2 inches. (4 x 12 = 48. 48 + 2 = 50).

6a. Wood panel: 120 inches = £120; Felt: 36 inches = £36; Laminate panels: 60 inches = £60. The total cost = £216.

Greater Depth

7a. False because 10 pounds = 160 ounces, so 75% of 160 ounces is 120 ounces, not 7.5 ounces.

8a. Lucy has converted incorrectly. 6 feet and 5 inches is the same as 77 inches, not cm. She should have converted 77 inches to cm by multiplying by 2.5 to get an approximate answer. 6ft 5" is the same as 77 inches, which is approximately 192.5cm.

9a. White: 2 pints = £20; Blue: 24 pints = £240; Wood stain: 4 pints = £40. The total cost = £300.

Reasoning and Problem Solving
Imperial Measures

Developing

1b. False because 16 ounces = 1 pound, so 32 ounces = 2 pounds, not 4 pounds.

2b. Zane has converted correctly. He has doubled the number of feet, and doubled the number of inches.

3b. Blue: 8 pints = £8; Green: 8 pints = £8; White: 16 pints = £16. The total cost = £32.

Expected

4b. False because 1 inch ≈ 2.5cm, so 2 inches ≈ 5cm, not

5b. Zac has converted incorrectly. He has divided the number of pounds by 4, so he should do the same with ounces. 0.25lb is the same as 4oz (16 ÷ 4 = 4).

6b. Flour: 8 ounces = 80; Sugar: 4 ounces = 40p; Butter: 16 ounces = £1.60. The total cost = £2.80.

Greater Depth

7b. False because 1 pint = 0.125 gallons, so 80% of 1 pint = 0.1 gallons.

8b. Jude has converted incorrectly. 8 stone and 9 pounds is the same as 212 pounds, not ounces. He should have converted 121 pounds to ounces by multiplying by 16. This means that 8st 9lb is the same as 121 pounds, which is the same as 1,936 ounces.

9b. Sausages: 32 ounces = £3.20; Bread: 8 ounces = 80p; Ketchup: 16 ounces = £1.60. The total cost = £5.60.