Bringing fractions, decimals, percentages & ratios together

Name _____ Date _____

Question 1

Buffy the dog has fleas. He needs to be bathed with some flea shampoo but the label is hard to understand. The label states the following:

Recommended Amount:	
Small dogs	1:10 (Shampoo:Water)
Medium dogs	1:6 (Shampoo:Water)
Large dogs	1:4.3 (Shampoo:Water)

For each size of dog, state how much shampoo should be mixed with 0.3ltrs of water.

Show your workings in the box below

Question 2

a) Farmer Biddle wants to expand both sides of his barn. The barn is currently 20m x 10m.

What is the existing area of the barn?_____

b) He has gained planning permission to enlarge the *area* to the right of the barn by a ratio of 1:3. However, he can only enlarge to the left by 75% of the original area of the barn.

If he builds the barn to the maximum dimensions allowed by the planning permission, what will the area of the new barn be?

Show your answers in the box below:

c) What would the area be if he chose to only expand the total area of the barn by $\frac{6}{8}$?

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Answers and curriculum mapping

Question 1

Buffy the dog has fleas. He needs to be bathed with some flea shampoo but the label is hard to understand. For each size of dog, state how much shampoo should be mixed with 0.3 litres water.

Small dogs	1:10 (Shampoo:Water)	300/10 = 30ml (L1)
Medium dogs	1:6 (Shampoo:Water)	300/6 = 50ml (L1)
Large dogs	1:4.3 (Shampoo:Water)	300/4.3 = 70ml (L2)

Question 2

a) The barn is currently 20m x 10m. What is the existing area of the barn? 20 x 10 = 200m^2 (L1)

b) He has gained permission to expand the *area* to the right side of the barn by a ratio of 1:3. (L1-2) 200m^2 x 3 = 600m^2 However, he can only expand the area to the left of the barn by 75% of the area of the existing barn. 200m^2/4 = 50m^2 x 3 = 150m^2 Total area of new barn = 200 + 600 + 150 = 950m^2

c) What would the area be if he chose to only expand the barn by $\frac{6}{8}$? (L1)

$\frac{6}{8}$ Simplifies to $\frac{3}{4}$ 950/4=237.5m^2 x 3 = 712.5m^2

FUNCTIONAL MATHEMATICS Coverage and Range statements (indicative only)

Coverage and range statements provide an indication of the type of mathematical content candidates are expected to apply in functional contexts. Relevant content can also be drawn from equivalent National Curriculum levels and the Adult Numeracy standards. ✔ *indicates the main coverage and range skills covered in this resource, although these will vary with the student group and how the resource is used by the teacher.*

Level 1

a) Understand and use whole numbers and understand negative nos. in practical contexts
b) Add, subtract, multiply and divide whole numbers using a range of strategies
c) Understand and use equivalences between common fractions, decimals and percentages ✔
d) Add and subtract decimals up to two decimal places
e) Solve simple problems involving ratio, where one number is a multiple of the other ✔
f) Use simple formulae expressed in words for one- or two-step operations
g) Solve problems requiring calculation, with common measures, including money, time, length, weight, capacity and temperature
h) Convert units of measure in the same system ✔
i) Work out areas and perimeters in practical situations ✔
j) Construct geometric diagrams, models and shapes
k) Extract and interpret information from tables, diagrams, charts and graphs
l) Collect and record discrete data and organise and represent information in different ways
m) Find mean and range
n) Use data to assess the likelihood of an outcome

Level 2

a) understand and use positive and negative numbers of any size in practical contexts
b) carry out calculations with numbers of any size in practical contexts, to a given number of decimal places
c) understand, use and calculate ratio and proportion, including problems involving scale ✔
d) understand and use equivalences between fractions, decimals and percentages ✔
e) understand and use simple formulae and equations involving one or two operations
f) recognise and use 2D representations of 3D objects
g) find area, perimeter and volume of common shapes ✔
h) use, convert and calculate using metric and, where appropriate, imperial measures
i) collect and represent discrete and continuous data, using information and communication technology (ICT) where appropriate
j) use and interpret statistical measures, tables and diagrams, for discrete and continuous data, using ICT where appropriate.
k) use statistical methods to investigate situations
l) use probability to assess the likelihood of an outcome