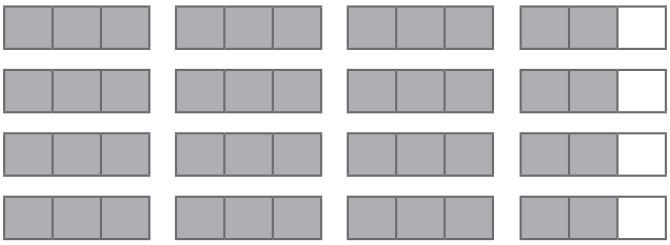
1) a)



b) $3\frac{2}{3} \times 4 = 3\frac{2}{3} + 3\frac{2}{3} + 3\frac{2}{3} + 3\frac{2}{3} = 12\frac{8}{3} = 14\frac{2}{3}$

c) $3 \times 4 = 12$

$\frac{2}{3} \times 4 = \frac{8}{3}$

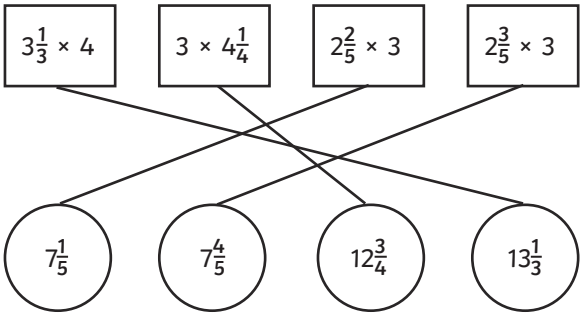
$12 + \frac{8}{3} = 12\frac{8}{3} = 14\frac{2}{3}$

d) $3\frac{2}{3} \times 4 = \frac{11}{3} \times 4 = \frac{44}{3} = 14\frac{2}{3}$

2) a) $5\frac{1}{5}$

b) 7

3)



1) *Accept any methods that children have correctly used to find the answer. Here is one method that they could have used:*

a) $2\frac{1}{4} \times 4 =$

$2 \times 4 = 8$

$\frac{1}{4} \times 4 = 1$

$8 + 1 = 9$ *litres of water*

b) $4\frac{2}{3} \times 4 =$

$4 \times 4 = 16$

$\frac{2}{3} \times 4 = \frac{8}{3} = 2\frac{2}{3}$

$16 + 2\frac{2}{3} = 18\frac{2}{3}$ *tablespoons of bubble mixture*

2) a) $2\frac{3}{5} \times 3 \quad < \quad 2\frac{5}{10} \times 4$

$7\frac{4}{5} < 10$

b) $4\frac{3}{4} \times 2 \quad < \quad 3\frac{5}{6} \times 3$

$9\frac{1}{2} < 11\frac{1}{2}$

c) $2\frac{3}{4} \times 4 \quad > \quad 5\frac{1}{4} \times 2$

$11 > 10\frac{1}{2}$

1) Here are two possible solutions:

$3\frac{3}{4} \times 3 = 2\frac{3}{12} \times 5$

$1\frac{3}{4} \times 3 = 2\frac{5}{8} \times 2$

2) $72\frac{3}{8} \times 3 =$

$72 \times 3 = 216$

$\frac{3}{8} \times 3 = \frac{9}{8} = 1\frac{1}{8}$

$80\frac{3}{4} \times 3 =$

$80 \times 3 = 240$

$\frac{3}{4} \times 3 = \frac{9}{4} = 2\frac{1}{4}$

$240 + 2\frac{1}{4} = 242\frac{1}{4}$

3 baths a week would use between $217\frac{1}{8}$ and $242\frac{1}{4}$ litres of water.

$217\frac{1}{8} \times 52 =$

$217 \times 52 = 11\,284$

$\frac{1}{8} \times 52 = \frac{52}{8} = 6\frac{4}{8} = 6\frac{1}{2}$

$11\,284 + 6\frac{1}{2} = 11\,290\frac{1}{2}$

$242\frac{1}{4} \times 52 =$

$242 \times 52 = 12\,584$

$\frac{1}{4} \times 52 = \frac{52}{4} = 13$

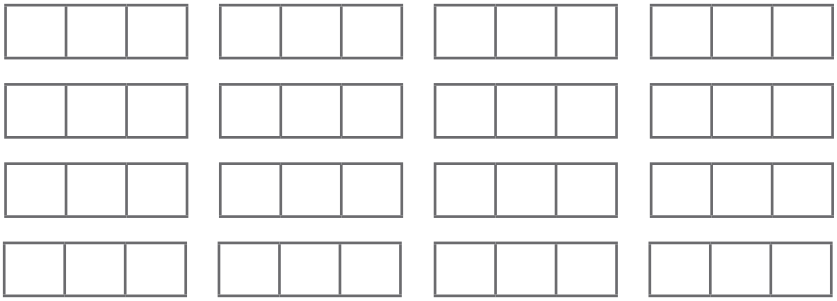
$12\,584 + 13 = 12\,597$

$12\,597 - 11\,290\frac{1}{2} = 1306\frac{1}{2}$ litres

Taking a deep bath would use $1306\frac{1}{2}$ more litres of water than taking a shallow bath.

1) Class 5 are exploring different methods of multiplying mixed numbers.

a) Shade the bar models to represent $3\frac{2}{3} \times 4$.



b) Complete Theo's repeated addition calculation, giving the answer in its simplest form.

$3\frac{2}{3} \times 4 =$ _____ + _____ + _____ + _____ = _____ = _____

c) Isha is using a different method. She has partitioned the whole and the fraction to multiply them separately. Complete her calculation, giving the answer in its simplest form.

$3 \times 4 =$ _____ $\quad \frac{2}{3} \times 4 =$ _____ $\quad$ _____ + _____ = _____

d) Vicky converted the mixed number to an improper fraction to multiply. Show her calculation, giving the answer in its simplest form.

_____

2) Now choose a method to answer each question.

a) $2\frac{3}{5} \times 2 =$

_____

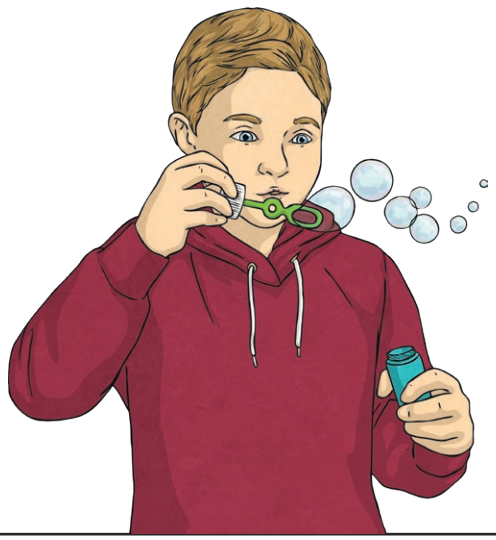
b) $4 \times 1\frac{3}{4} =$

_____

3) Match the calculation to the correct answer.

$3\frac{1}{3} \times 4$ $\quad 3 \times 4\frac{1}{4}$ $\quad 2\frac{2}{5} \times 3$ $\quad 2\frac{3}{5} \times 3$

$7\frac{1}{5}$ $\quad 7\frac{4}{5}$ $\quad 12\frac{3}{4}$ $\quad 13\frac{1}{3}$



1) Ted is making bubble mixture for his bubble machine. To make one portion, he mixes $2\frac{1}{4}$ litres of water with $4\frac{2}{3}$ tablespoons of washing-up liquid.

Ted makes one portion of bubble mixture for himself and one each for his three friends.

a) How much water will he need?

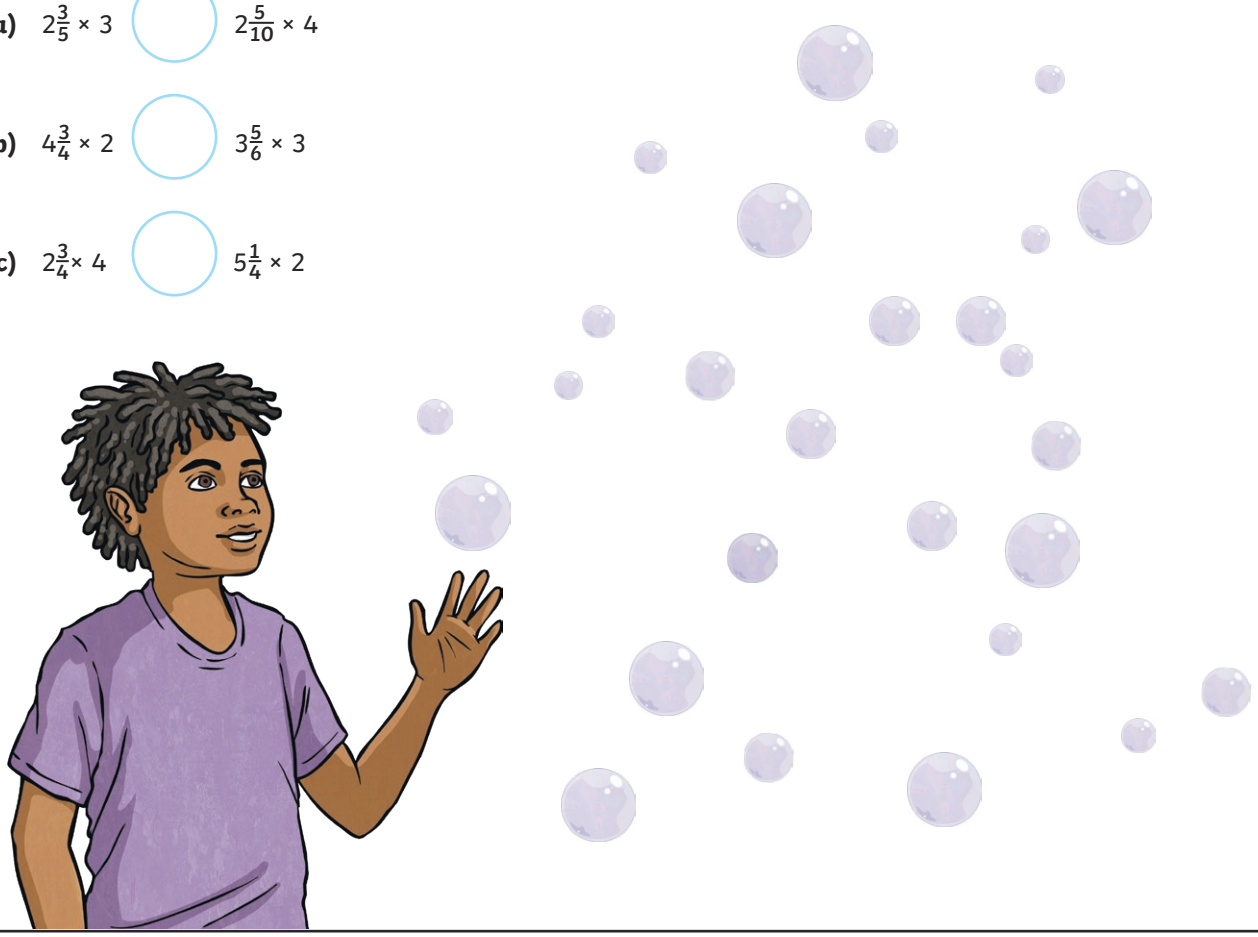
b) How many tablespoons of washing-up liquid will he need?

2) Complete the statements using the symbols <, > or =.

a) $2\frac{3}{5} \times 3$ ◯ $2\frac{5}{10} \times 4$

b) $4\frac{3}{4} \times 2$ ◯ $3\frac{5}{6} \times 3$

c) $2\frac{3}{4} \times 4$ ◯ $5\frac{1}{4} \times 2$



1) What could the value of the missing digits be? Find two possible solutions.

$\square\frac{\square}{4} \times 3 = 2\frac{3}{\square} \times \square$ $\qquad$ $\square\frac{\square}{4} \times 3 = 2\frac{3}{\square} \times \square$

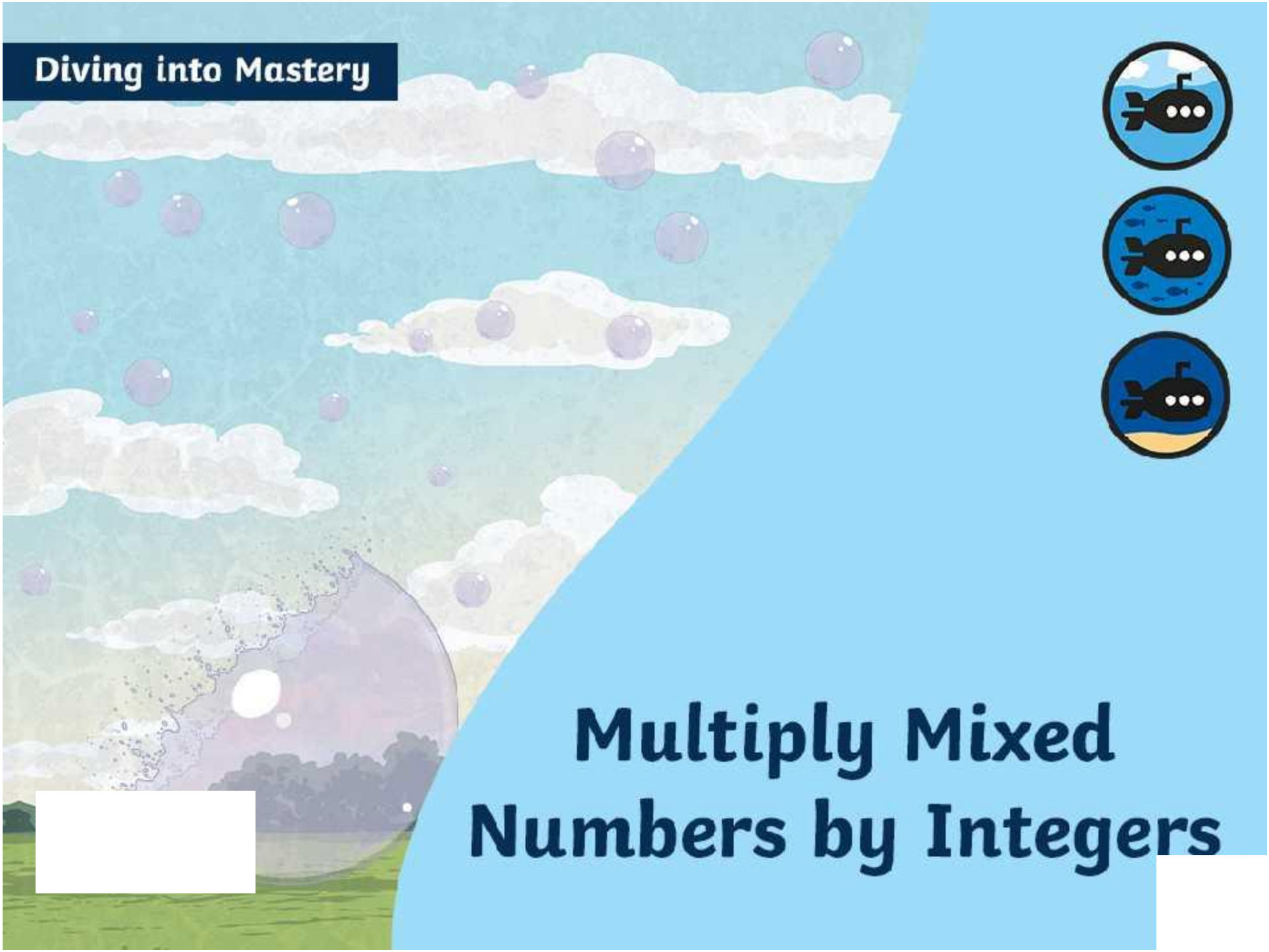
2) On average, a shallower bath uses $72\frac{3}{8}$ litres of water, whereas a deeper bath uses $80\frac{3}{4}$ litres of water.

In one year, how much more water would always taking a deep bath use than always taking a shallow bath, if someone had 3 baths a week?

Show your working out.

Taking a deep bath would use _____ more litres of water than taking a shallow bath.

3) Write a problem that involves multiplying mixed numbers for your partner to solve.


Diving into Mastery
Multiply Mixed Numbers by Integers

Diving into Mastery Guidance for Educators

Each activity sheet is split into three sections, diving, deeper and deepest, which are represented by the following icons:

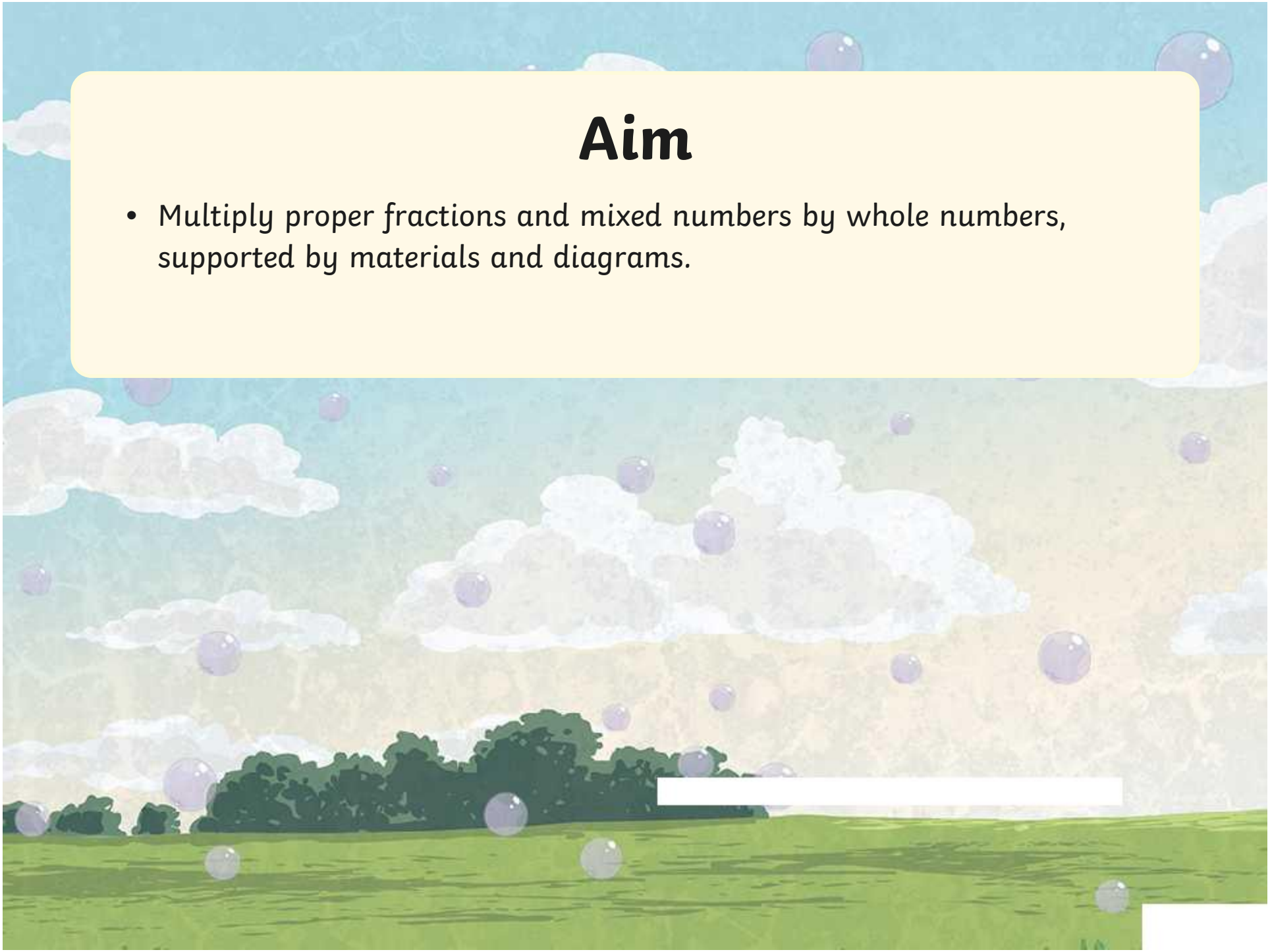

Diving


Deeper


Deepest

These carefully designed activities take your children through a learning journey, initially ensuring they are fluent with the key concept being taught; then applying this to a range of reasoning and problem-solving activities.

These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding.



Aim

- Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.

Multiply Mixed Numbers by Integers | Diving

1) Match each calculation to the correct answer.

$3\frac{4}{5} \times 4$

$4\frac{2}{10} \times 3$

$4\frac{3}{4} \times 3$

$2\frac{5}{8} \times 4$

$12\frac{3}{5}$

$10\frac{1}{2}$

$15\frac{1}{5}$

$14\frac{1}{4}$

Multiply Mixed Numbers by Integers | Deeper

Ted is making bubble mixture for his bubble machine. To make one portion, he mixes $3\frac{3}{8}$ litres of water with $2\frac{3}{5}$ tablespoons of washing-up liquid.

Ted makes one portion of bubble mixture for himself and one each for his three friends.

How much water will he need?

$3\frac{3}{8} \times 4 =$

$3 \times 4 = 12$

$\frac{3}{8} \times 4 = \frac{12}{8} = 1\frac{4}{8} = 1\frac{1}{2}$

$12 + 1\frac{1}{2} = 13\frac{1}{2}$ litres of water

How many tablespoons of washing-up liquid will he need?

$2\frac{3}{5} \times 4 =$

$2 \times 4 = 8$

$\frac{3}{5} \times 4 = \frac{12}{5} = 2\frac{2}{5}$

$8 + 2\frac{2}{5} = 10\frac{2}{5}$ tablespoons of washing-up liquid

Multiply Mixed Numbers by Integers | Deeper

Complete the statements using the symbols <, > or =.

$2\frac{7}{10} \times 6$ **>** $3\frac{4}{5} \times 4$

$16\frac{1}{5}$ $15\frac{1}{5}$

$5\frac{7}{8} \times 2$ **<** $4\frac{1}{4} \times 3$

$11\frac{3}{4}$ $12\frac{3}{4}$

Multiply Mixed Numbers by Integers | Deepest

What could the value of the missing digits be?

Find one possible solution.

$$\boxed{2}\frac{\boxed{2}}{5} \times 3 = 3\frac{6}{\boxed{10}} \times \boxed{2}$$

$$7\frac{1}{5} = 7\frac{2}{10}$$

Did you find a different answer?

Multiply Mixed Numbers by Integers | Deepest

On average, a shower uses $50\frac{3}{5}$ litres of water, and people shower 3 or 4 times a week.

How much more water every year does showering 4 times a week use than showering 3 times a week?

3 showers a week $50\frac{3}{5} \times 3 = 151\frac{4}{5}$ litres of water a week

$151\frac{4}{5} \times 52 = 7893\frac{3}{5}$ litres per year

4 showers a week $50\frac{3}{5} \times 4 = 202\frac{4}{5}$ litres of water a week

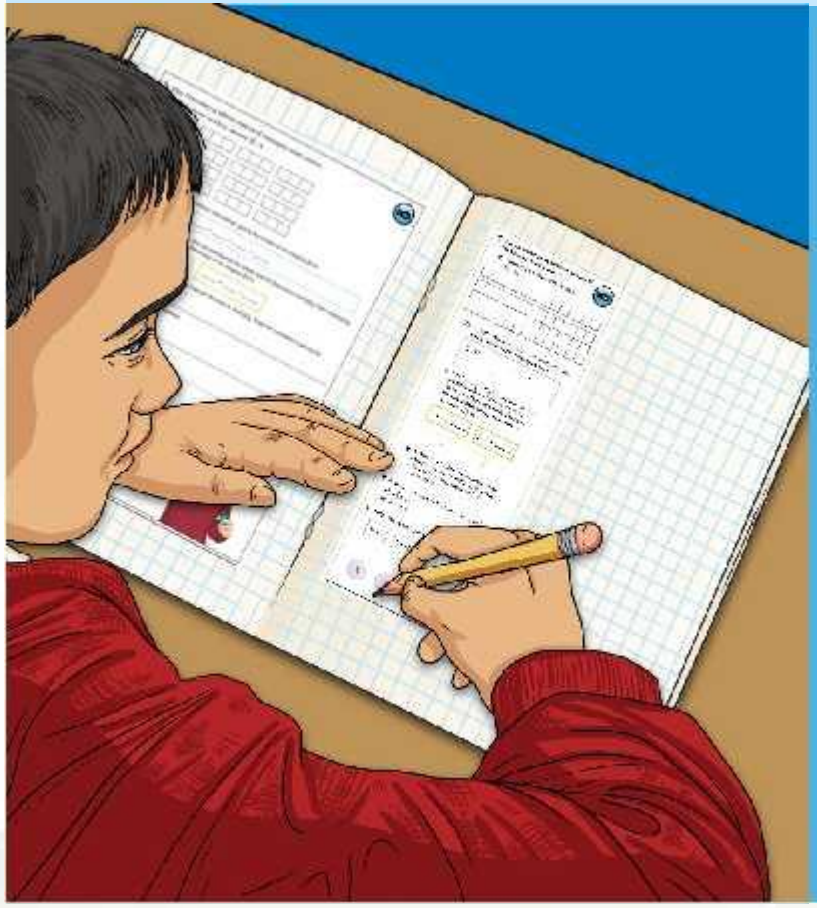
$202\frac{2}{5} \times 52 = 10\ 524\frac{4}{5}$ litres per year

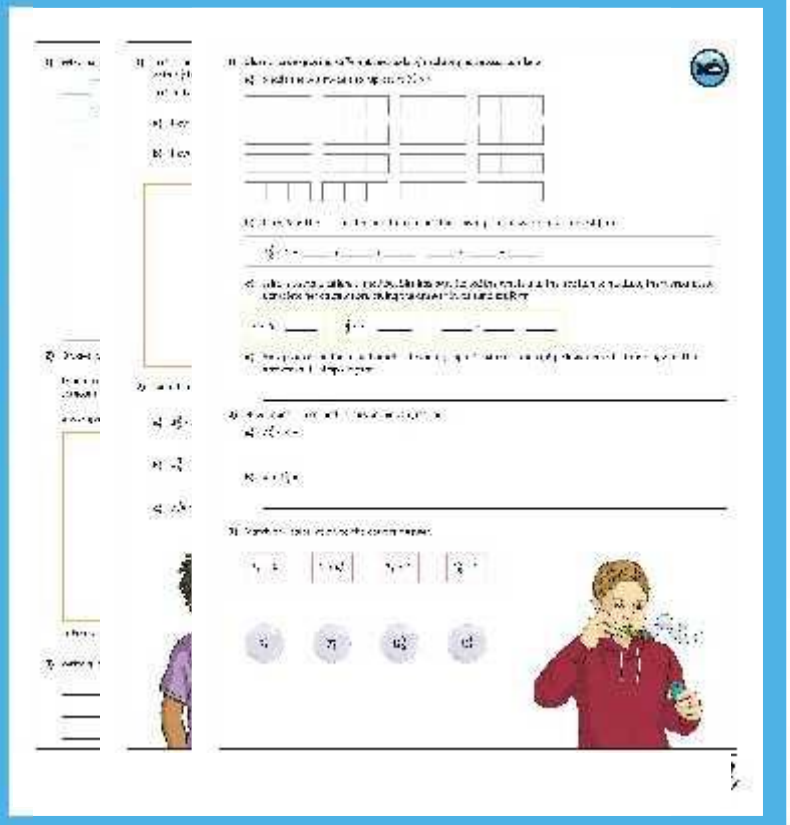
$10\ 524\frac{4}{5} - 7893\frac{3}{5} = 2631\frac{1}{5}$ litres

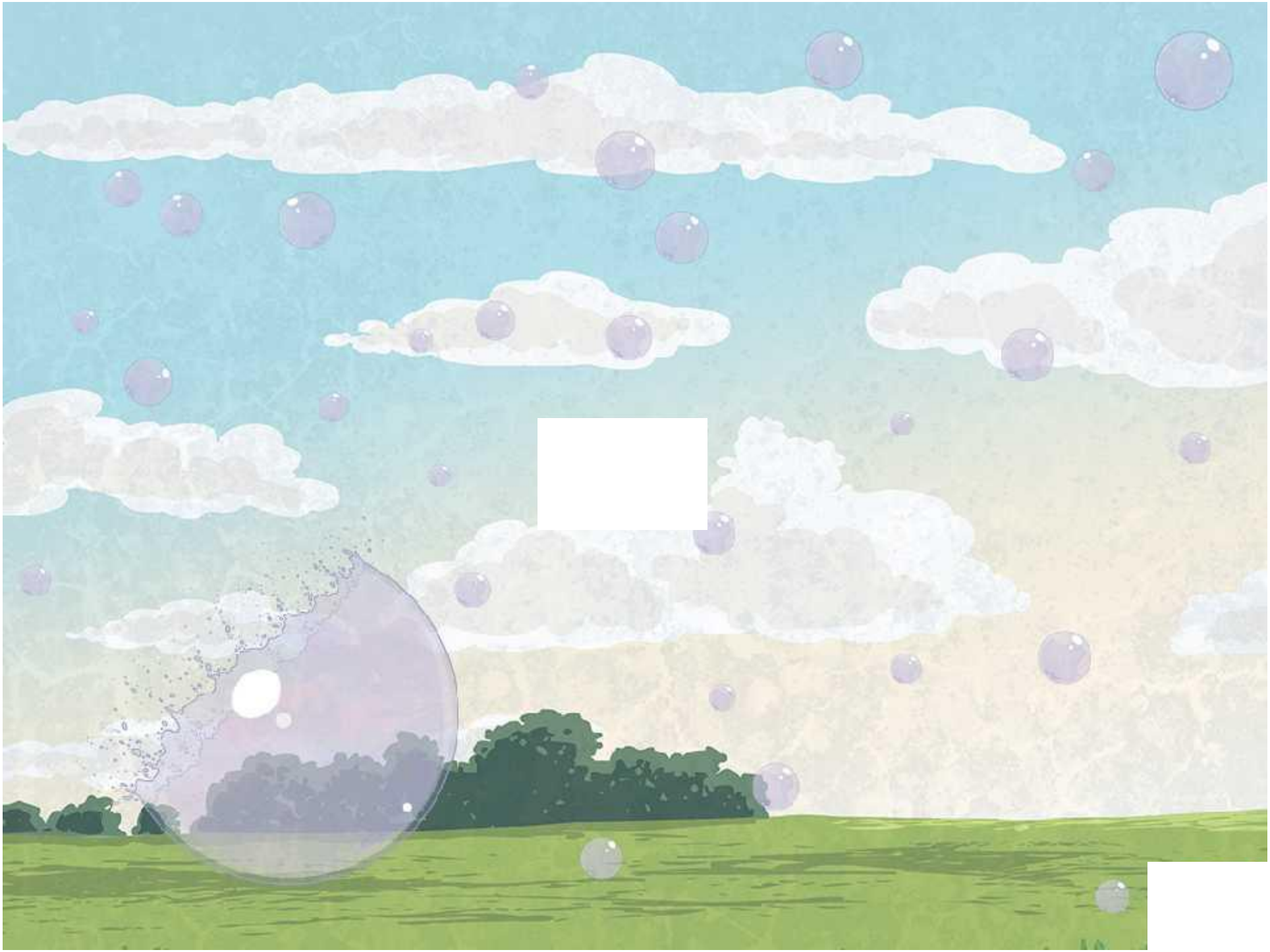
Showering 4 times a week uses $2631\frac{1}{5}$ litres of water more per year than showering 3 times a week.

Multiply Mixed Numbers by Integers

Dive in by completing your own activity!

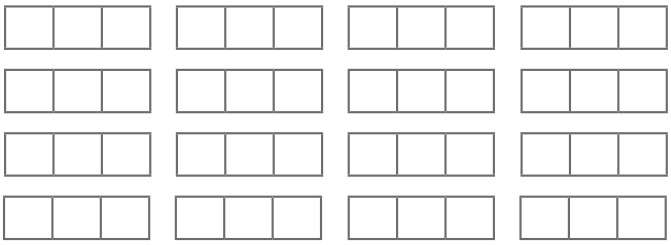






1) Class 5 are exploring different methods of multiplying mixed numbers.

a) Shade the bar models to represent $3\frac{2}{3} \times 4$.



b) Complete Theo's repeated addition calculation, giving the answer in its simplest form.

$3\frac{2}{3} \times 4 =$ _____ + _____ + _____ +

_____ = _____ = _____

c) Isha is using a different method. She has partitioned the whole and the fraction to multiply them separately. Complete her calculation, giving the answer in its simplest form.

$3 \times 4 =$ _____ $\frac{2}{3} \times 4 =$ _____

_____ + _____ = _____

d) Vicky converted the mixed number to an improper fraction to multiply. Show her calculation, giving the answer in its simplest form.

2) Now choose a method to answer each question.

a) $2\frac{3}{5} \times 2 =$

b) $4 \times 1\frac{3}{4} =$

3) Match the calculation to the correct answer.

$3\frac{1}{3} \times 4$	$3 \times 4\frac{1}{4}$	$2\frac{2}{5} \times 3$	$2\frac{3}{5} \times 3$

$7\frac{1}{5}$	$7\frac{4}{5}$	$12\frac{3}{4}$	$13\frac{1}{3}$

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Ted makes one portion of bubble mixture for himself and one each for his three friends.

a) How much water will he need?

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2) Complete the statements using the symbols <, > or =.

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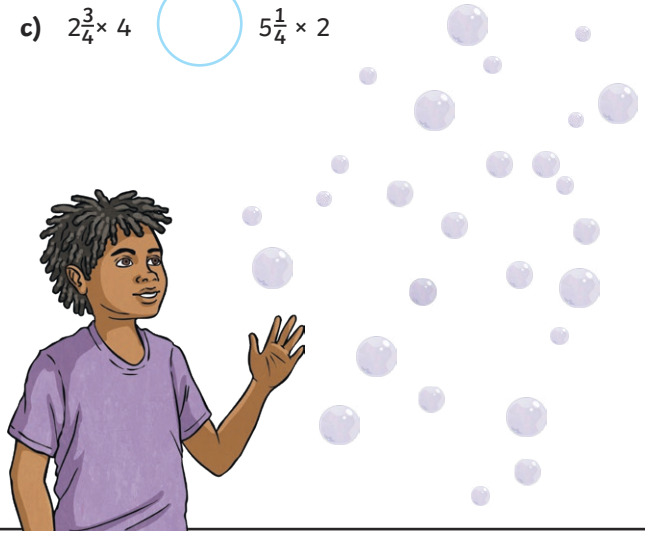
c) $2\frac{3}{4} \times 4$ ◯ $5\frac{1}{4} \times 2$



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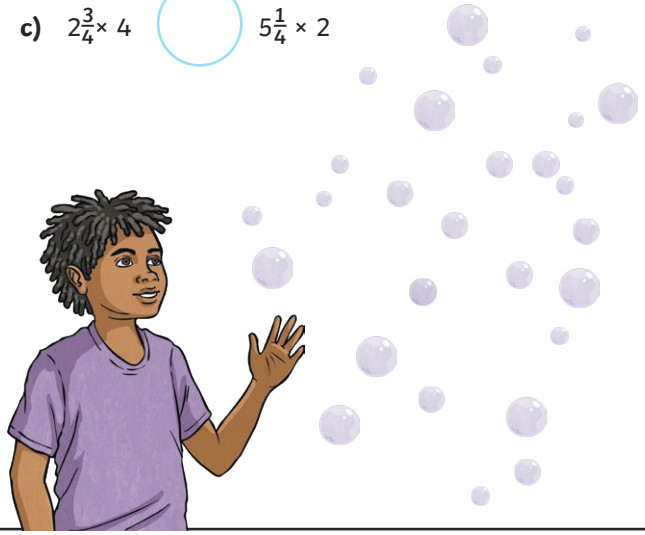
c) $2\frac{3}{4} \times 4$ ◯ $5\frac{1}{4} \times 2$



1) What could the value of the missing digits be? Find two possible solutions.

$$\square\ \frac{\square}{4} \times 3 = 2\ \frac{3}{\square} \times \square$$

On average, a shallower bath uses $72\frac{3}{8}$ litres of water, whereas a deeper bath uses $80\frac{3}{4}$ litres of water.

In one year, how much more water would always taking a deep bath use than always taking a shallow bath, if someone had 3 baths a week?

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