Fraction quilt

Support materials for teachers

Year 6

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Year 6 Reasoning in the classroom – Fraction quilt

These Year 6 activities focus on fractions.

Activity 1

Fraction quilt
This short Year 6 activity requires learners to interpret a diagram.
They use their understanding of area (informally) to work out
the proportion that is shaded red.
Includes:
- Fraction quilt question
- Markscheme

Activity 2

Wolfie eats fractions
Working with fractions is continued in this activity in which learners create their own
fraction additions for a wolf to 'eat'.
Includes:
- Explain and question – instructions for teachers
- Whiteboard – Wolfie
- Whiteboard – Wolfie's food
- Resource sheet – Wolfie eats
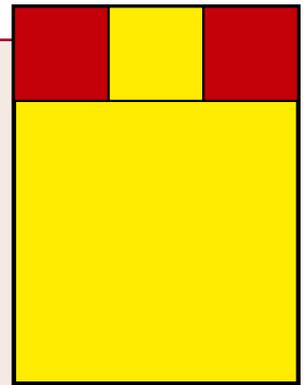
Reasoning skills required

Identify	**Communicate**	**Review**
Learners bring together different aspects of mathematics to solve problems.	They explain their work.	They reflect on work done and apply checking strategies.

Procedural skills

- **Fractions, including simple addition and subtraction**
- **Area (informal)**

Numerical language

- **Fraction**
- **Total**
- **Numerator/denominator**
- **Mixed number**

Fraction quilt

Activity 1 – Fraction quilt

Outline

This short Year 6 activity requires learners to use their spatial reasoning and understanding of area and fractions to solve a simple problem.
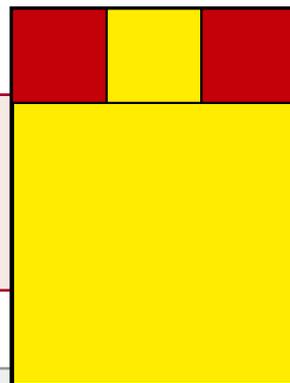
You will need

**Fraction quilt question**
One page for each learner

Markscheme

This quilt cover is made from

two red and two yellow squares.
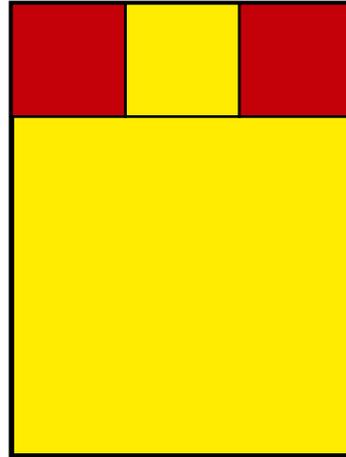
What fraction of the quilt cover is red?
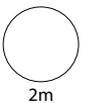
Activity 1 – Fraction quilt – Markscheme and exemplars

Marks	Answer
2m	One-sixth, or equivalent fraction
Or 1m	Shows that the large yellow square contains nine of the smaller yellow squares, e.g. •

The big yellow square has 9 little squares because it is a square so it is the same up and across. So there are 10 little yellow squares and 2 red so that is 12 because 10 + 2 = 12 and 2 are red so now I know that $\frac{2}{12}$ is red.

Correct; **2 marks**

• $\frac{2}{12}$ is equivalent to $\frac{1}{6}$.
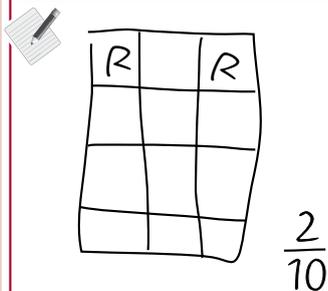
The large yellow square contains nine smaller squares; **1 mark**

• Although the drawing is not accurate, this learner shows sufficient understanding for 1 mark. However, this learner needs support to understand that the denominator of a fraction must refer to the whole.

$\frac{2}{4}$

Incorrect; **0 marks**

Common error — This learner has not understood that each 'part' of a fraction must be the same size.

Wolfie eats fractions

Activity 2 – Wolfie eats fractions

Outline

Learners continue working with fractions in this Year 6 activity.

They use simple addition of fractions to find how much a fraction-eating wolf consumes in one week.

Wolfie eats fractions can be adapted to meet individual need by simplifying the 'rules' (and the fractions) or by making them more challenging.

You will need

WB **Whiteboard – Wolfie**

WB **Whiteboard – Wolfie's food**

R **Resource sheet – Wolfie eats**
Several pages for each pair/group

Activity 2 – Wolfie eats fractions

Explain

Show **Wolfie** on the whiteboard and tell learners that Wolfie eats very horrid things *(too horrid to talk about)*. However, Wolfie refuses to eat anything whole – he only eats fractions. So he might eat half a mouldy pie, or a quarter of an absolutely disgusting something – any fraction, just not a whole of anything. But learners don't need to be scared of him – children give him indigestion!

They are going to explore what Wolfie eats in one week. *(Explain that he eats so much from Monday to Friday he can't squeeze another thing in on Saturday and Sunday.)* Show **Wolfie's food** *(although he is fierce, he does like pretty pink plates)*. Explain 'censored' then draw attention to how much unmentionable food he has eaten each day. Ask learners to work out in their pairs/groups how much he has eaten altogether *($2\frac{1}{4}$ censored things)*. Write the total on the whiteboard.

Now they are going to work out different fractions for Wolfie to eat. Give each pair/group a **Wolfie eats** sheet *(have plenty available as they will need more than one)*.

They write fractions on the sheet, and work out the total. Then they check their work with another pair. Let them practise this if necessary, then tell them they are going to set challenges for other pairs/groups.

Ask them to show the total and some of the fractions but leave one (or two) of the fractions blank. Other pairs then have to work out the missing fraction(s).

The **Wolfie eats** sheets can then be displayed in the classroom.

Or
Give them the total and ask them to write fractions showing how much Wolfie can eat each day.

Question

- What fraction pairs with $\frac{1}{8}$ to make a whole? What about with $\frac{5}{8}$?

- Does $\frac{3}{4}$ pair with $\frac{2}{8}$ to make a whole? How do you know?

- How are you adding fractions? Would a diagram help?

- What is a denominator? What is a numerator? Some people think that when we add fractions, we add the numerators and add the denominators. How would you show them that that method doesn't work? *(If it did, $\frac{1}{2} + \frac{1}{2}$ would equal $\frac{2}{4}$ which is $\frac{1}{2}$.)*

- Which denominators are easy to work with? Which are harder? Why?

- Have you remembered to work out your missing fraction(s) before you give your sheet to another group? And have you checked your work? How?

Extension

- Tell learners that Wolfie has decided to eat a different fraction each day, so they cannot repeat any fraction. And he wants the total to be a whole number, not a mixed number.

Gotcha!
Your fraction
or your life!

Yummy! This week I'm eating **CENSORED**

Monday **Tuesday** **Wednesday** **Thursday** **Friday**

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

Altogether he eats [ ] s**CENSORED**s.

Give me slimy, smelly things. Yeah!

Monday	Tuesday	Wednesday	Thursday	Friday
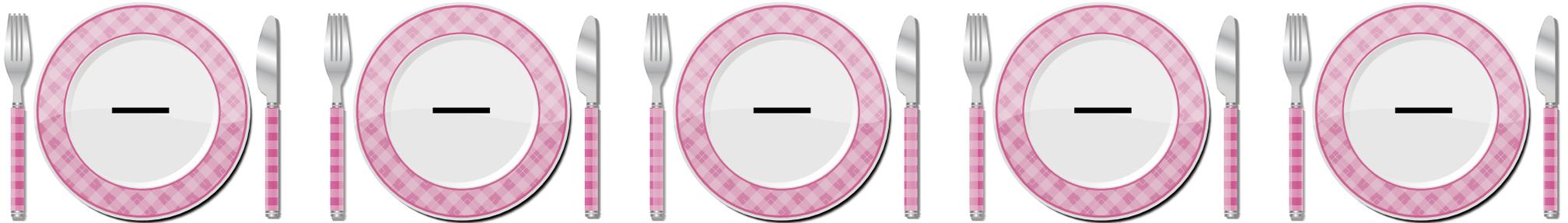
Altogether he eats [ ] **slimy, smelly things.**