

2016 national curriculum assessments

Key stage 1

2016 teacher assessment exemplification: end of key stage 1

Mathematics

Working at the
expected standard

January 2016



Standards
& Testing
Agency

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2016 teacher assessment exemplification: end of key stage 1 mathematics

Key stage 1 (KS1) mathematics teacher assessment (TA) is statutory for 2016.

This document contains material that exemplifies all of the statements within the KS1 interim TA framework for 'working at the expected standard'.

Purpose of the exemplification materials

- Schools must use the interim TA frameworks and exemplification materials to ensure that their TA judgements are accurate.
- Schools must use the exemplification materials to ensure a secure understanding of national standards, as a point of reference for teachers when making their own TA judgements, and to validate judgements across the school.
- Local authorities (LAs) must use the exemplification materials to ensure their moderation team has a secure understanding of national standards and as a point of reference when validating a school's TA judgements.

How to use the exemplification materials

To meet a particular standard within the interim TA framework, a pupil must demonstrate attainment of **all** of the statements within that standard **and all** the statements in the preceding standard(s).

The judgement as to whether a pupil meets a statement is made across a collection of evidence and not on individual pieces. However, there needs to be sufficient evidence of consistent performance across several pieces of work, in order to demonstrate the pupil's understanding and application of the statement.

This document consists of pieces of work drawn from different pupils. However, teachers will have a considerably broader body of evidence for each pupil from across the curriculum on which to base their judgements.

When making their TA judgements, teachers must:

- be familiar with the interim TA frameworks and exemplification materials
- ensure that for each pupil they check and record whether there is sufficient evidence for each of the statements within the standards, starting with those for 'working towards the expected standard' and, where appropriate, moving on to the 'working at the expected standard' and 'working at greater depth within the expected standard'.

Interim teacher assessment framework at the end of key stage 1: mathematics

Key principles

- This statutory interim framework is to be used only to make a TA judgement at the end of the key stage, following the completion of the key stage 1 curriculum. It is not intended to be used to track progress throughout the key stage.
- The interim framework does not include full coverage of the content of the national curriculum, but focuses on key aspects for assessment. Pupils achieving the different standards within this interim framework will be able to demonstrate a broader range of skills than those being assessed.
- This interim framework is not intended to guide individual programmes of study, classroom practice or methodology.
- Teachers must base their TA judgements on a broad range of evidence, from across the curriculum, for each pupil.
- The evidence used must include the key stage 1 mathematics test, which does not focus solely on the key aspects listed in this interim framework.
- Individual pieces of work should be assessed according to a school's assessment policy and not against this interim framework.

Each of the three standards within the interim framework contain a number of 'pupil can' statements. To demonstrate that a pupil has met a standard within this interim framework, teachers will need to have evidence that a pupil demonstrates consistent attainment of **all** of the statements within that standard **and all** the statements in the preceding standard(s).

This framework is interim for the academic year 2015 to 2016 only.

Interim teacher assessment framework at the end of key stage 1: mathematics

Working towards the expected standard

- The pupil can demonstrate an understanding of place value, though may still need to use apparatus to support them (e.g. by stating the difference in the tens and ones between 2 numbers i.e. 77 and 33 has a difference of 40 for the tens and a difference of 4 for the ones; by writing number statements such as $35 < 53$ and $42 > 36$).
- The pupil can count in twos, fives and tens from 0 and use counting strategies to solve problems (e.g. count the number of chairs in a diagram when the chairs are organised in 7 rows of 5 by counting in fives).
- The pupil can read and write numbers correctly in numerals up to 100 (e.g. can write the numbers 14 and 41 correctly).
- The pupil can use number bonds and related subtraction facts within 20 (e.g. $18 = 9 + ?$; $15 = 6 + ?$).
- The pupil can add and subtract a two-digit number and ones and a two-digit number and tens where no regrouping is required (e.g. $23 + 5$; $46 + 20$), they can demonstrate their method using concrete apparatus or pictorial representations.
- The pupil can recall doubles and halves to 20 (e.g. pupil knows that double 2 is 4, double 5 is 10 and half of 18 is 9).
- The pupil can recognise and name triangles, rectangles, squares, circles, cuboids, cubes, pyramids and spheres from a group of shapes or from pictures of the shapes.

Working at the expected standard

- The pupil can partition two-digit numbers into different combinations of tens and ones. This may include using apparatus (e.g. 23 is the same as 2 tens and 3 ones which is the same as 1 ten and 13 ones).
- The pupil can add 2 two-digit numbers within 100 (e.g. $48 + 35$) and can demonstrate their method using concrete apparatus or pictorial representations.
- The pupil can use estimation to check that their answers to a calculation are reasonable (e.g. knowing that $48 + 35$ will be less than 100).
- The pupil can subtract mentally a two-digit number from another two-digit number when there is no regrouping required (e.g. $74 - 33$).
- The pupil can recognise the inverse relationships between addition and subtraction and use this to check calculations and work out missing number problems (e.g. $\Delta - 14 = 28$).
- The pupil can recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables to solve simple problems, demonstrating an understanding of commutativity as necessary (e.g. knowing they can make 7 groups of 5 from 35 blocks and writing $35 \div 5 = 7$; sharing 40 cherries between 10 people and writing $40 \div 10 = 4$; stating the total value of six 5p coins).
- The pupil can identify $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{2}{4}$, $\frac{3}{4}$ and knows that all parts must be equal parts of the whole.
- The pupil can use different coins to make the same amount (e.g. pupil uses coins to make 50p in different ways; pupil can work out how many £2 coins are needed to exchange for a £20 note).

Working at the expected standard *(continued)*

- The pupil can read scales in divisions of ones, twos, fives and tens in a practical situation where all numbers on the scale are given (e.g. pupil reads the temperature on a thermometer or measures capacities using a measuring jug).
- The pupil can read the time on the clock to the nearest 15 minutes.
- The pupil can describe properties of 2-D and 3-D shapes (e.g. the pupil describes a triangle: it has 3 sides, 3 vertices and 1 line of symmetry; the pupil describes a pyramid: it has 8 edges, 5 faces, 4 of which are triangles and one is a square).

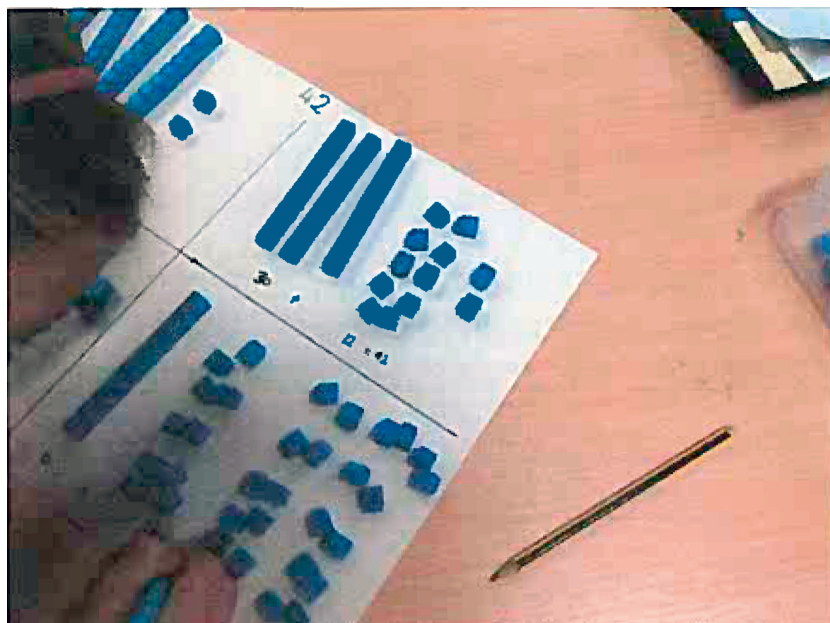
Working at greater depth within the expected standard

- The pupil can reason about addition (e.g. pupil can reason that the sum of 3 odd numbers will always be odd).
- The pupil can use multiplication facts to make deductions outside known multiplication facts (e.g. a pupil knows that multiples of 5 have one digit of 0 or 5 and uses this to reason that 18×5 cannot be 92 as it is not a multiple of 5).
- The pupil can work out mental calculations where regrouping is required (e.g. $52 - 27$; $91 - 73$).
- The pupil can solve more complex missing number problems (e.g. $14 + ? - 3 = 17$; $14 + \Delta = 15 + 27$).
- The pupil can determine remainders given known facts (e.g. given $15 \div 5 = 3$ and has a remainder of 0, pupil recognises that $16 \div 5$ will have a remainder of 1; knowing that $2 \times 7 = 14$ and $2 \times 8 = 16$, pupil explains that making pairs of socks from 15 identical socks will give 7 pairs and one sock will be left).
- The pupil can solve word problems that involve more than one step (e.g. which has the most biscuits, 4 packets of biscuits with 5 in each packet or 3 packets of biscuits with 10 in each packet?).
- The pupil can recognise the relationships between addition and subtraction and can rewrite addition statements as simplified multiplication statements (e.g. $10 + 10 + 10 + 5 + 5 = 3 \times 10 + 2 \times 5 = 4 \times 10$).
- The pupil can find and compare fractions of amounts (e.g. $1/4$ of £20 = £5 and $1/2$ of £8 = £4 so $1/4$ of £20 is greater than $1/2$ of £8).
- The pupil can read the time on the clock to the nearest 5 minutes.
- The pupil can read scales in divisions of ones, twos, fives and tens in a practical situation where not all numbers on the scale are given.
- The pupil can describe similarities and differences of shape properties (e.g. finds 2 different 2-D shapes that only have one line of symmetry; that a cube and a cuboid have the same number).

Exemplification

Statement

The pupil can partition two-digit numbers into different combinations of tens and ones. This may include using apparatus (e.g. 23 is the same as 2 tens and 3 ones which is the same as ten and 13 ones).



Alena worked independently and quickly became systematic in her use of the apparatus, by positioning the ones in a recognisable pattern of ten. When asked about this, Alena said that it made it easier to count and she explained that she was taking one ten away each time and putting ten ones down instead.

Context

Following work on place value, the pupils were asked to show their understanding by partitioning two-digit numbers in different ways, with a range of apparatus available to show their understanding.

The pupils were asked to select a two-digit number from the middle of the table and to partition it in different ways, using apparatus. Alena chose the base ten equipment and the photographs show her work.

Statement

The pupil can partition two-digit numbers into different combinations of tens and ones. This may include using apparatus (e.g. 23 is the same as 2 tens and 3 ones which is the same as ten and 13 ones).

48 $40 + 8 = 48$ $30 + 18 = 48$ $20 + 28 = 48$ $10 + 38 = 48$	65 $60 + 5 = 65$ $50 + 15 = 65$ $40 + 25 = 65$ $30 + 35 = 65$ $20 + 45 = 65$ $10 + 55 = 65$
61 $60 + 1 = 61$ $50 + 11 = 61$ $40 + 21 = 61$ $30 + 31 = 61$ $20 + 41 = 61$ $10 + 51 = 61$	59 $50 + 9 = 59$ $40 + 19 = 59$ $30 + 29 = 59$ $20 + 39 = 59$ $10 + 49 = 59$
46 $40 + 6 = 46$ $30 + 16 = 46$ $20 + 26 = 46$ $10 + 36 = 46$	52 $50 + 2 = 52$ $40 + 12 = 52$ $30 + 22 = 52$ $20 + 32 = 52$ $10 + 42 = 52$

Context

Pupils worked independently and were asked to select two-digit numbers from the centre of the table and to partition them in different ways.

The pupil worked fluently and systematically through the task, using tens and ones to model their thinking and represent the numbers. The pupil was able to explain their understanding of place value and the systematic pattern in the numbers.

Statement

The pupil can add 2 two-digit numbers within 100 (e.g. 48+35) and can demonstrate their method using concrete apparatus or pictorial representations.

Can I add?

$50 + 26 = 76$

$24 + 21 = 45$

$32 + 40 = 72$

$41 + 12 = 53$

$32 + 22 = 54$

$16 + 21 = 37$

$45 + 21 = 66$

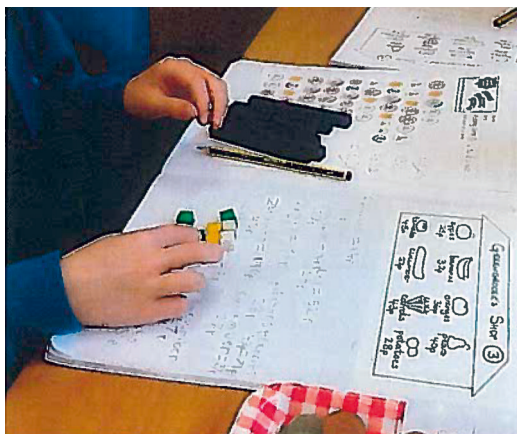
$25 + 33 = 58$

Context

The pupil understood the need to partition the number units into tens and ones. The pupil then re-combined the 2 numbers to record the answer. Pupils worked independently.

Statement

The pupil can add 2 two-digit numbers within 100 (e.g. $48+35$) and can demonstrate their method using concrete apparatus or pictorial representations.



Naya used tens and ones apparatus to solve her calculations.

GREENGROCER'S SHOP ③

 apples 25p	 bananas 32p	 oranges 36p	 pears 40p
 tomato 45p	 cucumber 27p	 carrots 43p	 potatoes 28p

$\begin{array}{r} \text{apples} + \text{banana} = 57p \\ 25p \quad 32p \end{array}$ ✓

$\begin{array}{r} \text{Pears} + \text{potatoes} = 68p \\ 40p \quad 28p \end{array}$ ✓

$\begin{array}{r} \text{tomato} + \text{cucumber} = 72p \\ 45p \quad 27p \end{array}$ ✓

$\begin{array}{r} \text{carrots} + \text{potatoes} = 71p \\ 43p \quad 28p \end{array}$ ✓

$\begin{array}{r} \text{Carrots} + \text{apples} = 68p \\ 43p \quad 25p \end{array}$ ✓

$\begin{array}{r} 2 \text{ potatoes} = 56p \\ 28p + 28p \end{array}$ ✓

$\begin{array}{r} \text{oranges} + \text{pears} = 76p \\ 36p \quad 40p \end{array}$ ✓

Context

The pupils had been learning to add amounts of money together, using coins to help them. They had to choose 2 items from the greengrocer's shop and find the total using either coins or tens and ones apparatus to help with their calculations.

Statement

The pupil can use estimation to check their answers to a calculation are reasonable (e.g. knowing that $48+35$ will be less than 100).

Prior to calculating an accurate answer, Sam stated "It's about 50 because $20+10+10=40$ and $5+5=10$."

Handwritten calculations on a whiteboard:

$$\begin{aligned}25 + 15 + 15 &= 55 \\20 + 10 + 10 &= 40 \\5 + 5 + 5 &= 15 \\40 + 15 &= 55\end{aligned}$$

Context

Pupils were asked to calculate the approximate answer to a series of word problems, prior to calculating the answer accurately. E.g. there were 25 buses parked in the bus station, 15 more buses parked, then 15 more. What is the total number of buses parked?

Prior to calculating the answer, the pupil states 'It's about 50 because $20+10+10=40$ and $5+5=10$.' The pupil calculated mentally and represented his calculations on a whiteboard. The pupil then demonstrated that he could estimate an answer.

Statement

The pupil can use estimation to check their answers to a calculation are reasonable (e.g. knowing that $48+35$ will be less than 100).

L.I. To use estimation to check calculation answers

Colour the raindrop you estimate to be correct in each example:

The image shows several clouds and raindrops with arithmetic problems and answers. The clouds contain the following problems: <20 , 50 , $23+18$, $65-21$, >50 , and $49+53$. The raindrops contain the following answers: $12+13$, $11+8$, $37+12$, $24+26$, 51 , 44 , 54 , 41 , 102 , 92 , $38+27$, and $24+15$. The raindrops containing $11+8$, $37+12$, 44 , 41 , 102 , and $38+27$ are colored blue.

Context

The pupil demonstrated the need to round numbers to a multiple of ten, making the calculation easier and quicker to manipulate.

The pupil was asked to estimate the answer to the following calculations:

$48+25$ – 'I think the total will be less than 100 because I know that $50+50=100$ but $40+20=60$. I think the answer will be nearer to 70 because 48 is nearly 50 and $50+25=75$.'

$32+29$ – 'I think the answer will be nearly 60 because I know that $30+30=60$ and both numbers are very close to 30.'

$41+57$ – 'I think the answer will be about 100 because $40+50=90$ and if you add 7 to 90 it will make 97.'

Statement

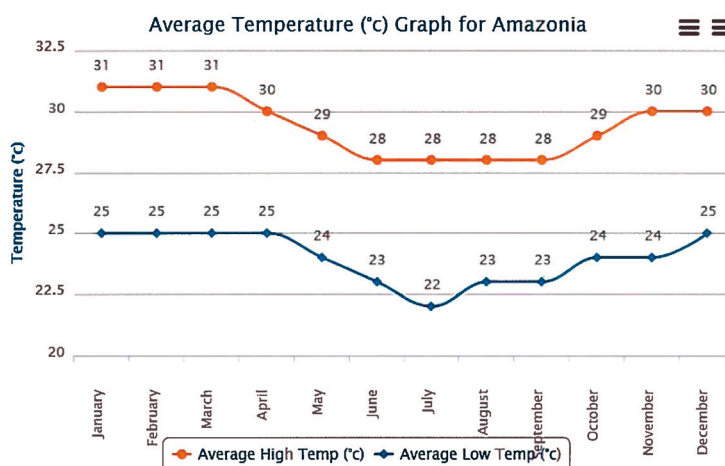
The pupil can subtract mentally a two-digit number from another two-digit number when there is no regrouping required (e.g. 74-33).

London	Amazonia	Difference
Jan 2	25	23
Feb 2	25	23
Mar 3	25	22
Apr 5	25	20
May 8	24	16
Jun 11	23	12
Jul 13	22	9
Aug 13	23	10
Sep 11	23	12
Oct 8	24	16
Nov 5	24	19
Dec 3	25	22

Handwritten notes on the table:

- Which month in the rainforest is the hottest? → Jan Feb Mar
- Which month in London is the coolest? → Jul, Aug, Sep
- Which month has a difference in temperature of 10°C? → Aug
- What is the number that is in the middle?

Average High/Low Temperature for Amazonia, Brazil



Context

Pupils independently worked out the difference in temperatures between London and the rainforest. Some pupils worked out the answers by mentally counting on/back.

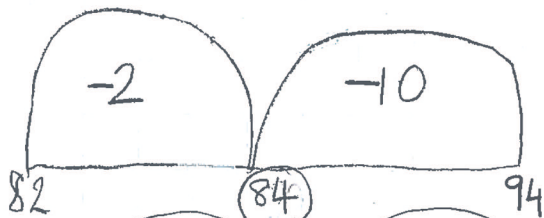
The pupil was able to mentally subtract a two-digit number from another two-digit number, where there was no regrouping required. However, apparatus was used to subtract when regrouping was required.

The pupil was able to read scales on measuring jugs.

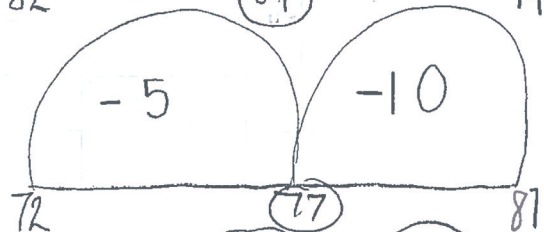
Statement

The pupil can subtract mentally a two-digit number from another two-digit number when there is no regrouping required (e.g. 74-33).

Can I subtract 2 digit numbers?



$$94 - 12 = 82 \checkmark$$



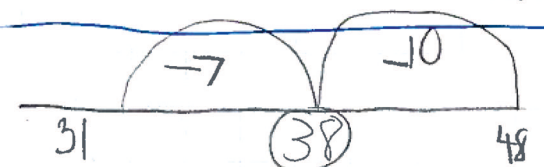
$$87 - 15 = 72 \checkmark$$



$$52 - 11 = 41 \checkmark$$



$$86 - 13 = 73 \checkmark$$



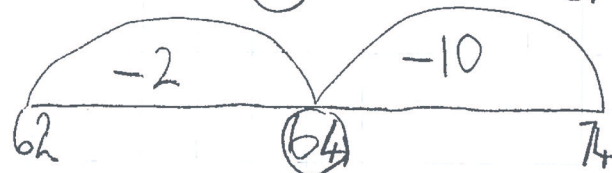
$$48 - 17 = 31 \checkmark *$$



$$66 - 14 = 52 \checkmark *$$



$$39 - 17 = 22 \checkmark$$



$$74 - 12 = 62 \checkmark$$

Context

The pupil was able to complete a mental calculation of $48 - 17$, by partitioning 17 into 10 and 7. They then subtracted in stages from 48, stating that '48 subtract 10 is 38, 38 subtract 7 is 31.'

'I can partition 24 into 20 and 4. 66 subtract 20 is 46, then subtract 4 is 42.'

Statement

The pupil can recognise the inverse relationships between addition and subtraction and use this to check calculations and work out missing number problems.

Missing numbers

$$6 + 8 = \boxed{14}$$

$$\text{So } \boxed{14} - 6 = 8$$

$$12 + 13 = \boxed{25}$$

$$\text{So } 25 - \boxed{13} = 12$$

$$19 + \boxed{7} = 26$$
$$\text{So } 26 - \boxed{7} = \boxed{19}$$

$$42 + 8 = \boxed{50}$$
$$\text{So } \boxed{50} - \boxed{8} = 42$$

$$\boxed{33} + 10 = 43$$
$$\text{So } 43 - \boxed{33} = 10$$

$$24 + \boxed{12} = \boxed{36}$$
$$\text{So } 36 - \boxed{12} = \boxed{24}$$

$$\boxed{20} + \boxed{10} = 30$$
$$\text{So } 30 - \boxed{20} = \boxed{10}$$

Missing numbers

$$6 + 8 = \boxed{14}$$

$$\text{So } 14 - \boxed{6} = 8$$

$$12 + 13 = 25$$
$$\text{So } 25 - \boxed{13} = 12$$

$$19 + \boxed{7} = 26$$
$$\text{So } 26 - \boxed{7} = \boxed{19}$$

$$42 + 8 = \boxed{50}$$
$$\text{So } \boxed{50} - 42 = \boxed{8}$$

$$\boxed{33} + 10 = 43$$
$$\text{So } 43 - \boxed{33} = 10$$

$$24 + \boxed{12} = 36$$
$$\text{So } 36 - \boxed{12} = \boxed{24}$$

$$\boxed{10} + \boxed{20} = 30$$
$$30 - \boxed{10} = \boxed{20}$$

Context

As a different number was missing from each calculation, the pupil demonstrated a thorough understanding of the concept.

Statement

The pupil can recognise the inverse relationships between addition and subtraction and use this to check calculations and work out missing number problems.

Addition and Subtraction

If I know....? What else do I know...?

For example;

If I know $3 + 7 = 10$

I also know...

$$30 + 70 = 100 \quad 13 + 7 = 20 \quad 10 - 3 = 7 \quad 100 - 30 = 70$$

If you know $6 + 4 = 10$

I also know... $4 + 6 = 10$ $60 + 40 = 100$ $10 - 6 = 4$
 $100 - 60 = 40$

If I know that $10 - 2 = 8$

I also know... $100 - 80 = 20$ $1000 - 800 = 200$
 $20 + 80 = 100$ $110 - 2 = 108$

If I know that $20 - 14 = 6$

I also know... $14 + 6 = 20$ $20 - \boxed{6} = \boxed{14}$
 $6 + 14 = 20$ $40 - 14 = 26$

Now write one of your own

If I know $8 - 3 = 5$

I also know...

$$50 + 30 = 80 \quad 80 - 30 = 50$$

$$80 - 30 = 50 \quad 800 - 300 = 500$$

$$80 - \boxed{30} = \boxed{50}$$

Context

The pupil was able to explain what they were doing and how they knew the following: 'If I know $6+4=10$, I also know that $4+6=10$ because you can add in any order'. The pupil also knew that $60+40=100$ because 'each digit has moved in to the tens and there is a zero in the ones'.

Statement

The pupil can recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables to solve simple problems, demonstrating an understanding of commutativity as necessary. (E.g. stating the total value of six 5p coins).

Can I do
inverse calculations

(12, 10, 120)
 $12 \times 10 = 120$
 $10 \times 12 = 120$ ✓
 $120 \div 12 = 10$
 $120 \div 10 = 12$ ✓

(10, 10, 100)
 $10 \times 10 = 100$
 $100 \div 10 = 10$ ✓

(100, 2, 50)
 $2 \times 50 = 100$
 $50 \times 2 = 100$ ✓
 $100 \div 2 = 50$
 $100 \div 50 = 2$ ✓

(40, 8, 5)
 $8 \times 5 = 40$
 $5 \times 8 = 40$ ✓
 $40 \div 5 = 8$
 $40 \div 8 = 5$ ✓

(8, 2, 16)
 $8 \times 2 = 16$
 $2 \times 8 = 16$ ✓
 $16 \div 8 = 2$
 $16 \div 2 = 8$ ✓

Can I do inverse calculations?

(8, 2, 16)
 $8 \times 2 = 16$
 $2 \times 8 = 16$ ✓

$16 \div 8 = 2$
 $16 \div 2 = 8$ ✓

(9, 10, 90)

$9 \times 10 = 90$
 $10 \times 9 = 90$ ✓
 $90 \div 10 = 9$
 $90 \div 9 = 10$ ✓

(3, 5, 15)

$3 \times 5 = 15$
 $5 \times 3 = 15$ ✓
 $15 \div 5 = 3$
 $15 \div 3 = 5$ ✓

(18, 3, 6)

$3 \times 6 = 18$
 $6 \times 3 = 18$ ✓
 $18 \div 3 = 6$
 $18 \div 6 = 3$ ✓

(6, 5, 30)

$6 \times 5 = 30$
 $5 \times 6 = 30$
 $30 \div 6 = 5$
 $30 \div 5 = 6$ ✓

(100, 10, 10)

$10 \times 10 = 100$
 $100 \div 10 = 10$ ✓
 $10 \times 10 = 100$
 $100 \div 10 = 10$ ✓

Context

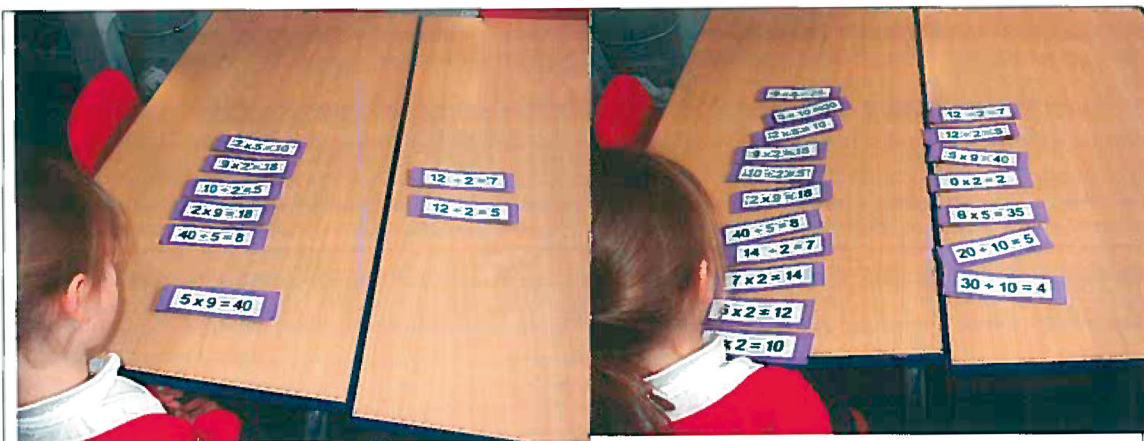
This was a practical exercise using a set number of cubes, e.g. 12 is 6 lots of 2, 2 lots of 6 is 12. The pupils were given a set of numbers and then were asked to write 4 number sentences using those numbers.

The pupil demonstrated a good understanding of the nature of multiplication/division.

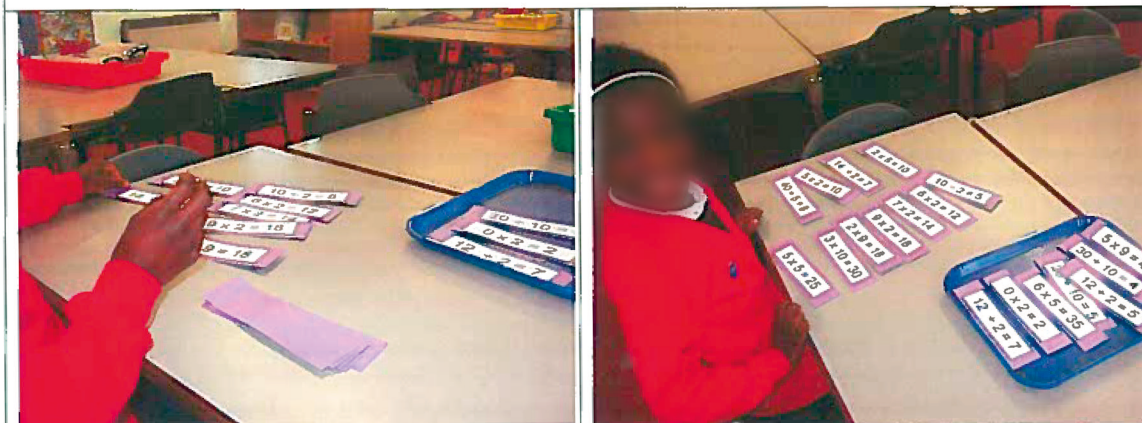
Statement

The pupil can recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables to solve simple problems, demonstrating an understanding of commutativity as necessary. (E.g. stating the total value of six 5p coins).

The children were asked to quickly sort the multiplication and division number sentences into two groups, those that were correct and those that were incorrect. The children worked independently and an adult only intervened to ask questions to confirm understanding, not to give support.



Anna approached the task carefully but confidently; she used her fingers only occasionally to double-check her calculations. She knew that $12 \div 2$ was not 7, she said, "You need 6 twos to get to 12." She quickly placed $2 \times 9 = 18$ on the 'correct' pile and when queried if she knew her 9 times tables, she said that it was just the same as 9×2 just 'swapped' around.



Chola sorted the cards confidently, she knew that any number multiplied by 0 must be zero; that to tackle 5×9 , she just had to 'swap it around so I can count in 5s'; she worked quickly and offered comments such as, "the answer is meant to be 3' - $30 \div 10$

Context

The exercise was a one-to-one assessment, where pupils worked independently outside the classroom. The pupils were given a selection of multiplication and division number sentences and asked to sort them quickly into 2 piles, those that were correct and those that were incorrect.

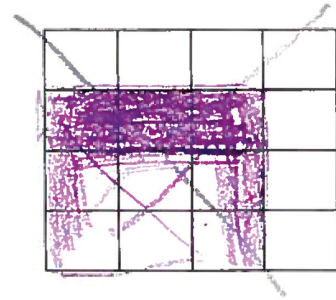
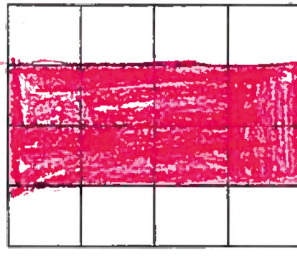
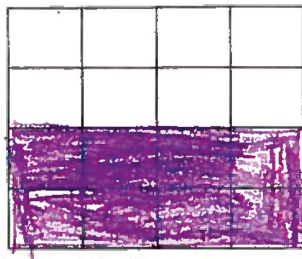
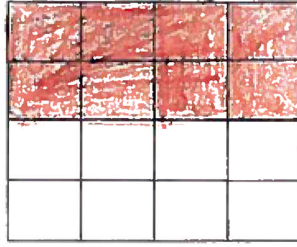
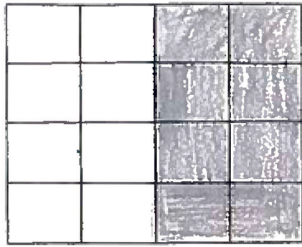
The pupils demonstrated that their mathematical vocabulary was correct (divide, multiply, equals etc.). The task also demonstrated the pupils ability in commutativity to quickly solve and check similar equations.

Statement

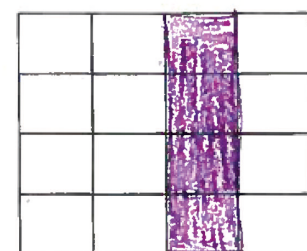
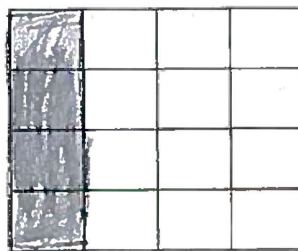
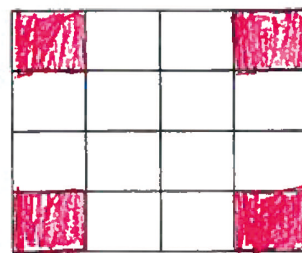
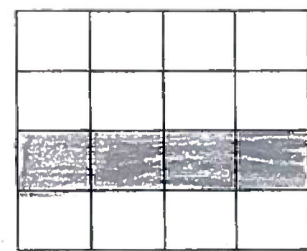
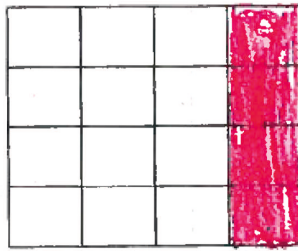
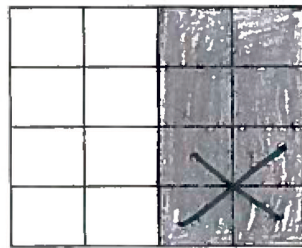
The pupil can identify $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{2}{4}$, $\frac{3}{4}$ and knows that all parts must be equal parts of the whole.

13.10.14 I am learning to understand fractions

Can you show one half of each shape in different ways?



Can you show one quarter of each shape in different ways?



Context

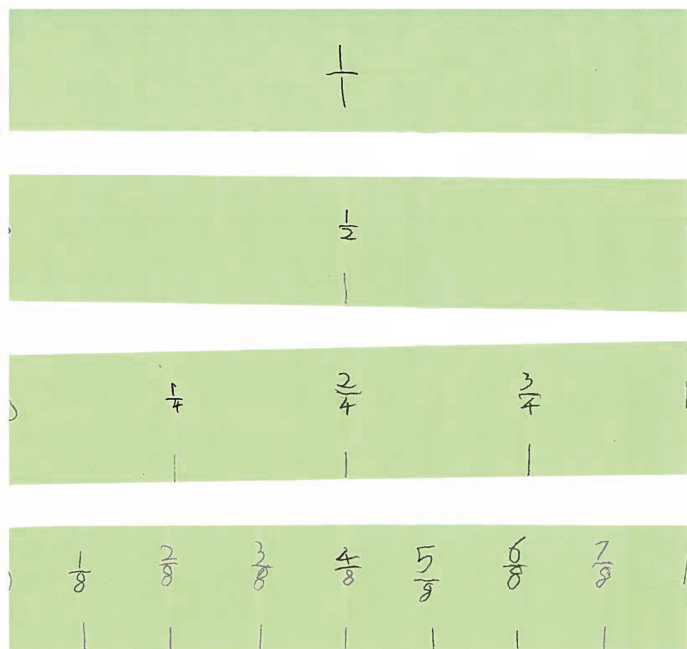
The pupils had explored what a fraction of a whole is. They then folded a variety of shapes into halves and quarters, identifying each fraction of the whole shape. This demonstrated an understanding that all parts of the whole must be equal, before they independently completed the activity.

The pupil had been asked to colour one half of each shape in one way and then one quarter of each shape in another way.

Through independently colouring halves and quarters in different ways, the pupil has shown an understanding of how many squares they needed to colour in to find one half and one quarter. Their work demonstrates their ability to share groups of equal size when finding fractions of a quantity.

Statement

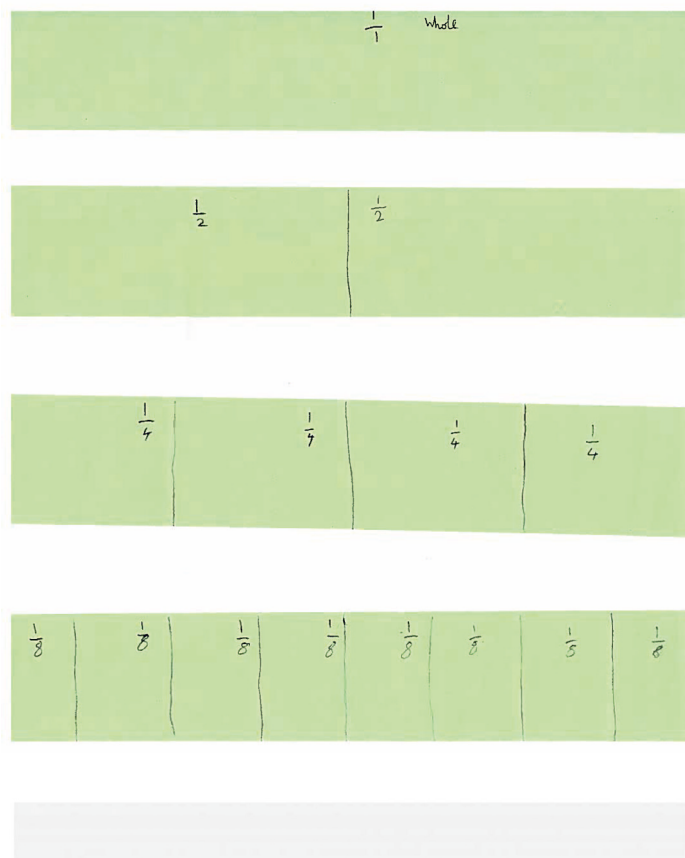
The pupil can identify $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{2}{4}$, $\frac{3}{4}$ and knows that all parts must be equal parts of the whole.



$\frac{2}{4} = \frac{1}{2}$
 $\frac{1}{1} = \frac{4}{4}$
 $\frac{2}{4} = \frac{4}{8}$
 $\frac{1}{1} = \frac{8}{8}$
 $\frac{1}{2} = \frac{2}{2}$
 $\frac{2}{8} = \frac{1}{4}$

$\frac{0}{8} = \frac{3}{4}$
 $\frac{1}{4} = \frac{2}{8}$
 $\frac{2}{4} = \frac{4}{8}$
 $\frac{3}{4} = \frac{6}{8}$

I used my strips to find equivalent fractions.



Equal fractions I can see using my strips

$\frac{1}{2} = \frac{2}{4}$
 $\frac{4}{8} = \frac{1}{2}$
 $\frac{2}{8} = \frac{1}{4}$
 $\frac{4}{8} = \frac{2}{4}$
 $\frac{2}{2} = \frac{1}{1}$
 $\frac{4}{4} = \frac{1}{1}$
 $\frac{4}{4} = \frac{1}{1}$
 $\frac{8}{8} = \frac{1}{1}$
 $\frac{8}{8} = \frac{2}{2}$

Context

The pupils were asked to take strips of paper and fold them to show halves and quarters, sticking them onto a sheet of paper. They then had to write what they noticed when looking at and comparing the strips.

The pupil worked independently, with confidence and fluency, folding strips and labelling the fractions represented by the folded sections of each strip. The pupil also commented that she was doubling the number of folds needed each time and independently went on to fold a further strip into eighths. The pupil then methodically used the strips to make comparisons between the fractions and recorded her work as equivalent statements. When talking to the teacher about the strips, the pupil was able to explain that to find quarters you needed 4 equal parts and one of those equal parts is a quarter, 2 of those equal parts is 2 quarters, 3 parts is 3 quarters and 4 parts is 4 quarters. When questioned about thirds, the pupil knew it would be 3 equal parts and one of those equal parts would be a third, 2 would be 2 thirds and 3 would be 3 thirds. The pupil also knew the terminology for numerator and denominator.

Statement

The pupil can use different coins to make the same amount (e.g. pupil uses coins to make 50p in different ways; pupil can work out how many £2 coins are needed to exchange for a £20 note).



The bag of sweets costs 45p

How many different ways can you find to pay for the sweets, using **only** silver coins?

$$\begin{aligned}10p + 10p + 10p + 10p + 5p &= 45p \\20p + 20p + 5p &= 45p \\5p + 5p + 5p + 5p + 5p + 5p + 5p + 5p + 5p &= 45p \\10p + 10p + 20p + 5p &= 45p \\10p + 10p + 5p + 5p + 5p + 5p + 5p &= 45p \\10p + 10p + 10p + 5p + 5p + 5p &= 45p \\10p + 20p + 5p + 5p + 5p &= 45p \\20p + 5p + 5p + 5p + 5p + 5p &= 45p \\10p + 5p + 5p + 5p + 5p + 5p + 5p + 5p &= 45p\end{aligned}$$

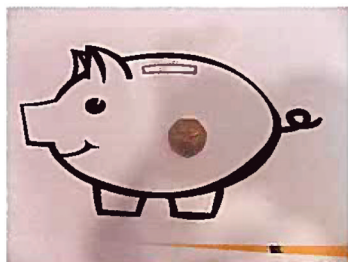
Context

Pupils had to find all the possible ways that the bag of sweets, costing 45p, could be paid for using only silver coins. They worked independently and had coins available to use if they wished.

The pupil followed the rule of the problem (using only silver coins) despite there being other coins available to use. They recorded, with a systematic approach, all the combinations they could make, remembering to represent each amount with 'p' for pence. They found all 9 different possibilities.

Statement

The pupil can use different coins to make the same amount (e.g. pupil uses coins to make 50p in different ways; pupil can work out how many £2 coins are needed to exchange for a £20 note).

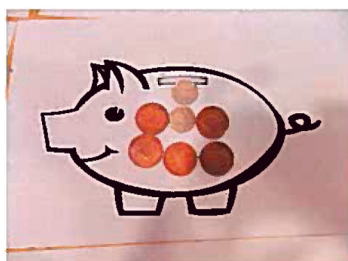


All pupils immediately collected a 50p coin, identifying that this was the most efficient method of making 50p. I then asked the pupils to find other combinations to make 50p.

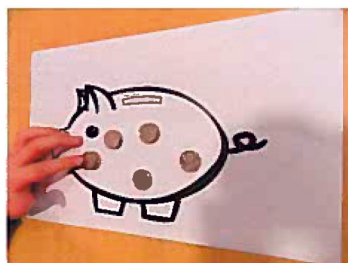


Lois: "We can get 5 lots of 10p because if you counted five times in 10 you would get to 50." The pupil demonstrated that she could recall x facts for 10 and apply this to solve problems relating to money.

The pupil arranged the coins in this pattern independently and when asked why she had arranged in this way stated "This is how you see 5 on dice and dominoes; you can see it's 5 straight away." (subitising)



One pupil made the combination $20p+20p+2p+2p+2p+2p+2p$. When asked why he had chosen this combination stated "I know that $20+20=40$ and then I could count in 2s to get to 50." The pupil demonstrated his recall knowledge of x facts for 2, relating $\times 2$ facts to multiples of 10.



Sam: "We can use 5ps to make 50p because $10 \times 5 = 50$." The pupil then proceeded to arrange the 5p coins in towers of 2 and when asked why stated " $2 \times 5 = 10$ and then 5 groups of $10p = 50p$; it's quicker to count". This demonstrated that the pupil could use an efficient method to calculate and represent the answer to a problem. As soon as the pupil reasoned why he had represented 5 in towers of 2, the other pupils started to group 1p and 2p in a similar way (see photos below).



The final result.

Context

The pupils were set the task of finding different ways of making 50p pocket money for the 'piggy banks' using real coins. They were then asked to discuss how they knew the different combinations totalled 50p.

The pupil collected a 50p coin, identifying that this was the most efficient method. The teacher then asked the pupils to find other combinations.

The pupil said 'We can get 5 lots of 10p because if you counted 5 times in 10 you would get to 50.' The pupil demonstrated that they could recall the multiplication facts for 10 and apply this to solve problems relating to money.

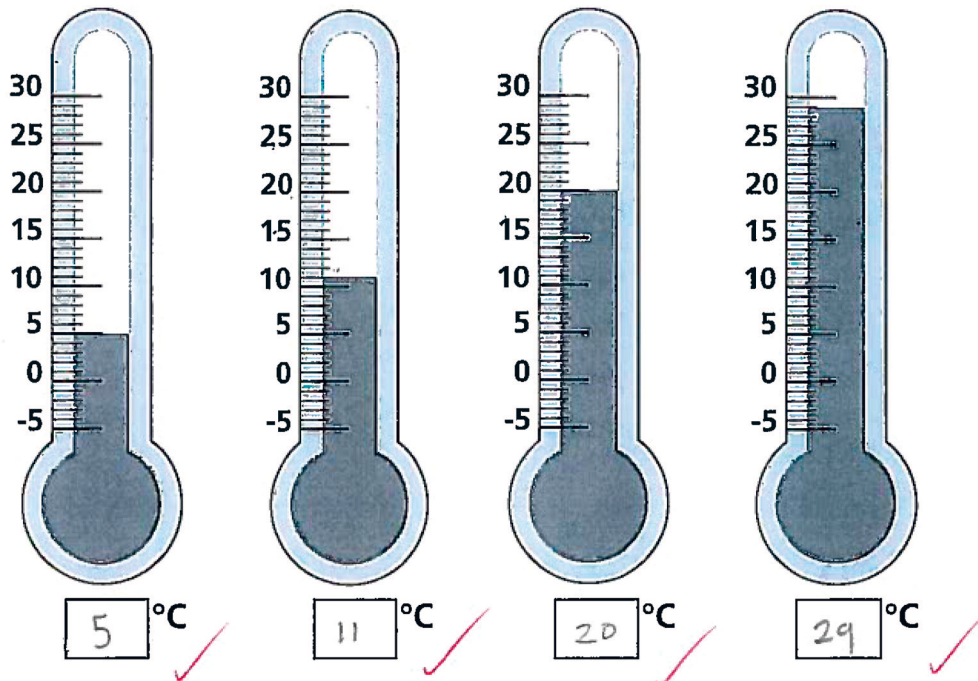
The pupil then made the combination $20p+20p+2p+2p+2p+2p+2p$. When asked why they had chosen the combination they said 'I know that $20+20=40$ and then I could count in 2's to get to 50.' The pupil demonstrated their recall knowledge of multiplication facts for 2, relating $\times 2$ facts of multiples of 10.

The pupil then said 'We can use 5ps to make 50p because $10 \times 5 = 50$.' The pupil then proceeded to arrange the 5p coins into towers of 2 and when asked why stated, ' $2 \times 5 = 10$ and then 5 groups of $10p = 50p$, it's quicker to count.' This demonstrated that the pupil could use an efficient method to calculate and represent the answer to a problem. As soon as the pupil reasoned why he had represented 10p in towers of 2 5p coins, the other pupils started to group 1p and 2p coins in a similar way.

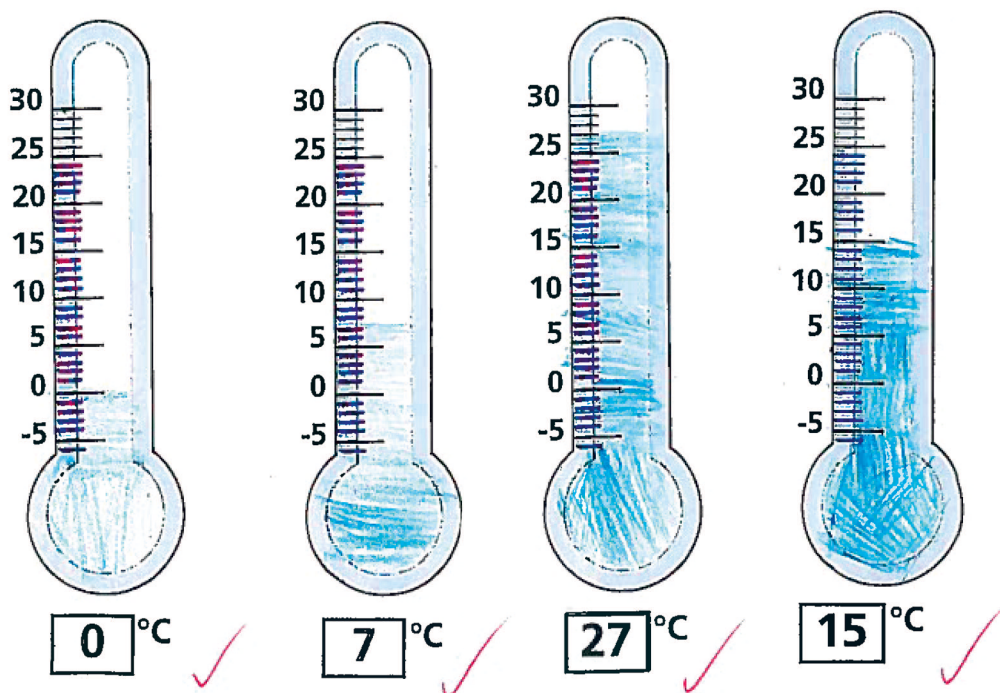
Statement

The pupil can read scales in divisions of ones, twos, fives and tens in a practical situation where all numbers on the scale are given. (E.g. pupil reads the temperature on a thermometer or measures capacities using a measuring jug.)

Can I read the temperature on a thermometer?



Can I draw the temperature on a thermometer?



Context

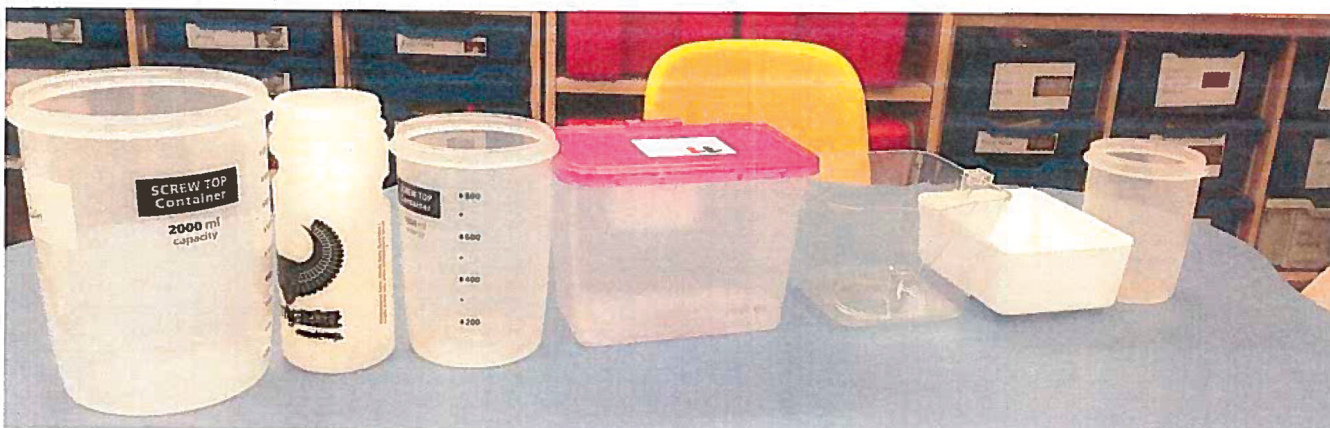
The pupils were asked to place thermometers around the school. They then followed this up by reading the temperature. This activity demonstrated the pupil's ability to use appropriate equipment and read a scale.

Statement

The pupil can read scales in divisions of ones, twos, fives and tens in a practical situation where all numbers on the scale are given. (E.g. pupil reads the temperature on a thermometer or measures capacities using a measuring jug.)

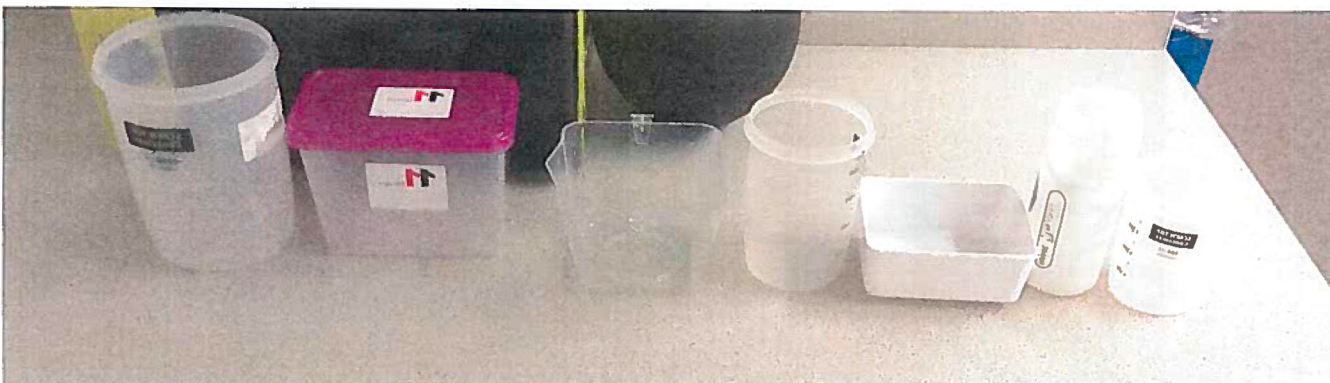
Estimate

Example ①



Actual

Eg ②



Context

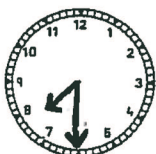
The pupils were asked as a small group what they could do with a selection of random containers. This was a pupil led task, but they were geared towards estimation.

When asked what they could do with the selection of containers, pupils responded, 'we can measure how much water is in there.' The pupils then checked the capacity of the containers by filling each one with water and pouring this into a marked measuring jug. The pupils then re-organised the containers into order of capacity, rather than size of container. The pupils used appropriate language relating to capacity, volume and estimators. They showed an understanding of litres and millilitres and together sorted the containers into what they believed was a plausible order.

Statement

The pupil can read the time on a clock to the nearest 15 minutes.

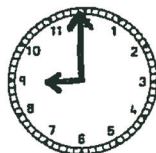
Can I order everyday events?



①

I get up at

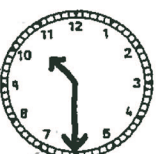
half past 7



②

start school at

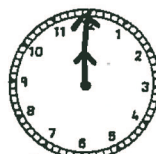
quarter to 9



③

Waking out at

half past 10



④

I eat my dinner at

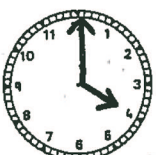
12 o'clock



⑤

I finish school at

quarter past 3



⑥

I watch TV at

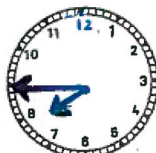
4 o'clock



⑦

I have my tea at

half past 5



⑧

I go to bed at

quarter to 8

- ~~eat dinner~~
- ~~have my tea~~
- ~~finish school~~
- ① get up
- ~~start school~~
- ~~play out~~
- watch T.V.
- go to bed

Context

Pupils had completed oral work on 'my day'.

The pupil was asked to read the time on the clock and match the time to the statements at the bottom of the worksheet, by working out what they would be doing at that time of the day.













The pupil could relate times on the pictures of the clocks to the events in their day.

Statement

The pupil can describe properties of 2-D and 3-D shapes (e.g. the pupil describes a triangle: it has 3 sides, 3 vertices and 1 line of symmetry; the pupil describes a pyramid: it has 8 edges, 5 faces, 4 of which are triangles and one is a square).

2D Shapes

Write the name of the shape in the box next to it and then write some of its properties, using the Star Words.

Shape	Name of shape	Properties
	Rectangle ✓	<ul style="list-style-type: none"> It has 4 sides ✓ It has 4 corners ✓ It has 2 short sides & 2 long sides ✓ It is not equal ✓ It is symmetrical ✓
	Triangle ✓	<ul style="list-style-type: none"> It is called ✓ It is symmetrical ✓ It has 3 corners ✓ It has 3 sides ✓ It is 2D ✓
	Square ✓	<ul style="list-style-type: none"> It is 2D ✓ It is not equal ✓ It is equal ✓ It is symmetrical ✓ It has 4 sides ✓ It has 4 corners ✓
	Circle ✓	<ul style="list-style-type: none"> It has 1 curved side ✓ It is 2D ✓ It is symmetrical ✓ It is equal ✓
Shape	Name of shape	Properties
	Pentagon ✓	<ul style="list-style-type: none"> It has 5 corners sides ✓ The pentagon is symmetrical ✓ It has 5 corners ✓ It has a blank outline ✓
	Hexagon ✓	<ul style="list-style-type: none"> The hexagon sides are equal ✓ The hexagon is symmetrical ✓ The hexagon has 6 sides ✓ The hexagon has 6 corners ✓
	Heptagon ✓	<ul style="list-style-type: none"> The heptagon has 7 sides ✓ The heptagon has 7 corners ✓ The heptagon is symmetrical ✓
	Oct ✓	Oct ✓
Shape	Name of shape	Properties
	quad relatable	<ul style="list-style-type: none"> it has 4 sides ✓ it has 4 corners ✓ it has 2 equal sides ✓ it is symmetrical ✓
	pentagon	<ul style="list-style-type: none"> it has 5 sides ✓ it has 5 corners ✓ it is symmetrical ✓
	quad relatable	<ul style="list-style-type: none"> it has 4 sides ✓ it has 4 corners ✓ It is not symmetrical ✓
	hexagon	<ul style="list-style-type: none"> it has 6 sides ✓ it has 6 corners ✓ it is not symmetrical ✓

Context

A cube, cuboid and cylinder were placed in the middle of the table. The pupils were asked to record what they noticed about the shapes, comparing them and thinking about 'what's the same, what's different about them'.

The pupils worked in a group to encourage interactive discussion about the shapes and then worked independently to record their statements. The teacher then observed pupils using shape language confidently and correcting each other if the wrong terminology was used. In addition to the recorded evidence, this shows a pupil's clear understanding of the shape properties.



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