Year 2 Maths
2017 National Curriculum Tests

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KS 1 Maths Tests – key changes

- Previous test and tasks replaced by a new set of tests this year too.
- Tests include a KS 1 Arithmetic Paper
- No set days for the administration of the tests
- To be administered during May 2017

Key Stage 1 tests

- Pupils will sit an Arithmetic paper and a Reasoning paper
- All pupils will take one set of tests
- Tests will include a small number of questions that will stretch the most able pupils
- Structured apparatus (tens and ones) are not permitted in any of the tests

2 Papers

Paper 1 - Arithmetic paper – assessing confidence and fluency with whole numbers, place value and counting

25 Marks – Approximate timing 20 Minutes

Paper 2 - Mathematical reasoning paper – assessing fluency, solving mathematical problems and mathematical reasoning

35 Marks – Approximate timing 35 minutes

Total Marks 60 – Total recommended time – 55 minutes

Content Domain

From the 2014 National Curriculum Programme of Study the test will, over time, sample from each area of the content domain.

7 Stands:

Number and Place Value

Addition, subtraction, multiplication, division (calculation)

Fractions

Measurement

Geometry – properties of shapes

Geometry – position and direction

Statistics

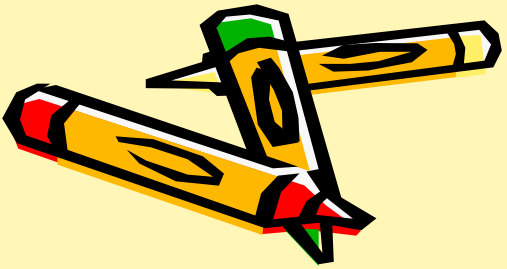
Profile of Content Domain

Content area	Percentage of marks
Number Number and place value (N) Addition, subtraction, multiplication, division (calculations) (C) Fractions (F)	80–90%
Measurement, geometry and statistics Measurement (M) Geometry – properties of shapes (G) Geometry – position and direction (P) Statistics (S)	10–20%

KS 1 Arithmetic Paper

There is a significant increase in expectations of knowledge in **number** and **calculations**, with children expected to know some **multiplication facts** and be more familiar with a number of **fractions.**

All questions are worth one mark



KS 1 Arithmetic Paper

- Each question is presented as a context-free calculation using only digits and symbols.

- Some questions have grids in the answer or working out spaces – these are provided with questions where pupils may benefit from using more formal methods for calculations

- No equipment other than pen, pencil, ruler and rubber are permitted for the test.

KS 1 Arithmetic Paper

Some examples of content expected of those working at the expected standard include:

- Count in steps of 10 both forwards and backwards, starting at any two-digit number (e.g. 56, 46, 36 …).
- Know and use multiplication facts for 2x, 5x and 10x tables, and division facts for the 10x table.
- Use the < > and = signs to compare and order numbers up to 100.

KS 1 Arithmetic Paper

- Find ¼ , ¾ and ⅓ of a shape.
- Use inverse operations to solve missing number problems.
- Solve two-step problems using addition and subtraction.

KS 1 Arithmetic Paper

- Choose and use appropriate standard units for measurement.
- Recognise, write and tell the time to the quarter hour, and begin to tell the time to the nearest 5 minutes.

KS 1 Arithmetic Paper

preparation:

✔ Focus on fluency in the basics:

ensure that children are confident with the relevant addition bonds – and make sure they can use the related inverse facts, too!

✔ Focus on learning recall of simple x tables and related division facts:

ensure the children practice with manipulatives and use models and images to support a deeper conceptual understanding of what they represent

KS 1 Arithmetic Paper

preparation:

✔ Practise and model recording calculations regularly to ensure that children can identify how to use them quickly and confidently.

✔ Make sure that your maths curriculum includes plenty of practice on the development of numbers, counting and calculating – these areas have seen the greatest increase in expectations.

KS 1 Arithmetic Paper

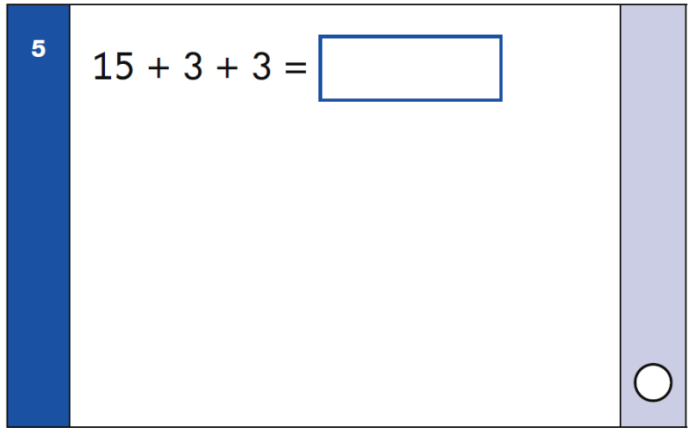
preparation:

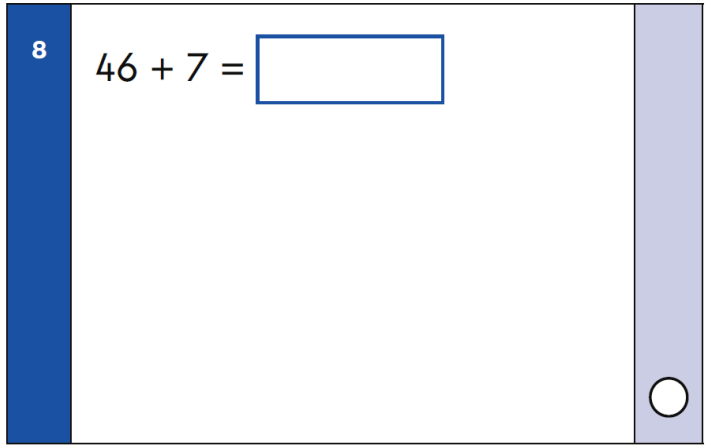
✔ Don’t throw out your old practice papers or samples:

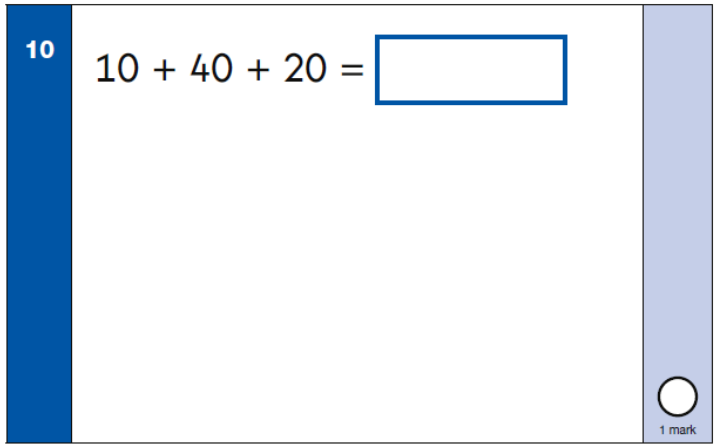
many of the skills taught for the old maths test papers are great for practising fluency and recall for all sorts of questions and tasks.

Arithmetic Paper
sample and past Questions

- Straight forward Addition



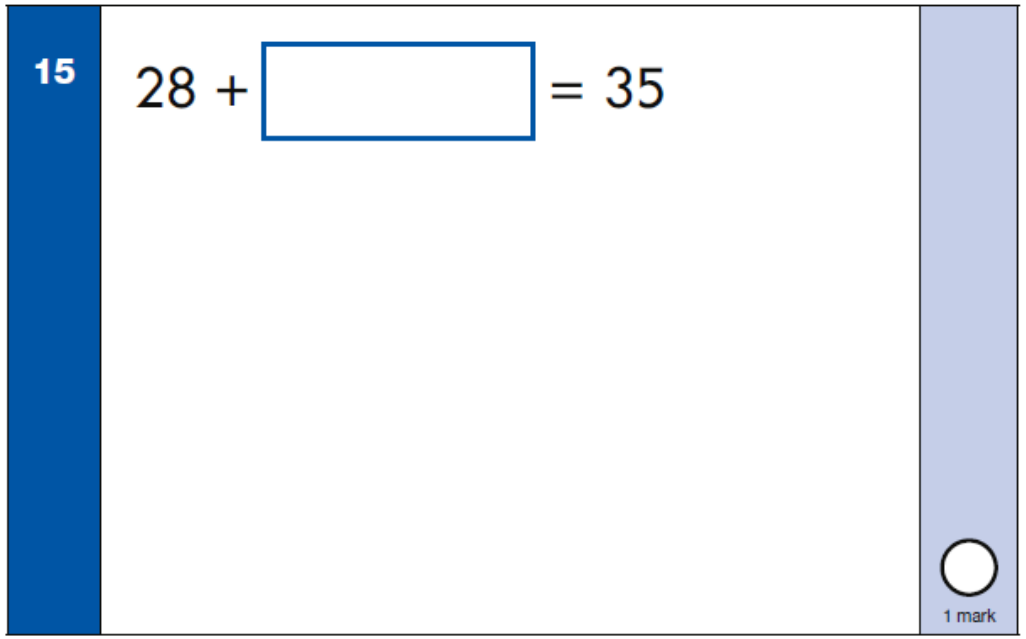


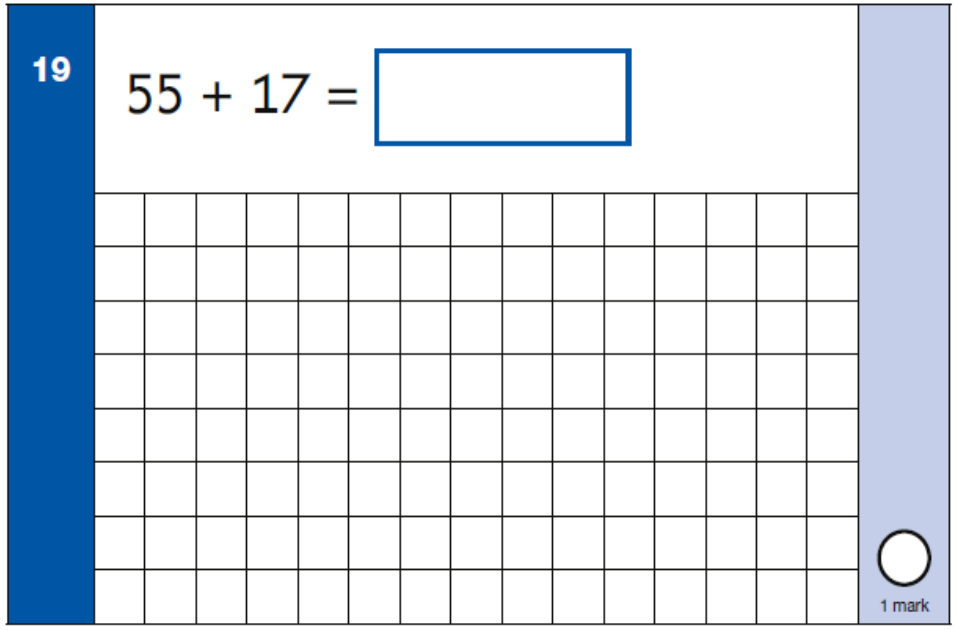


Requires … understanding of crossing the tens boundary and the beginnings of place value

Arithmetic Paper
sample and past Questions

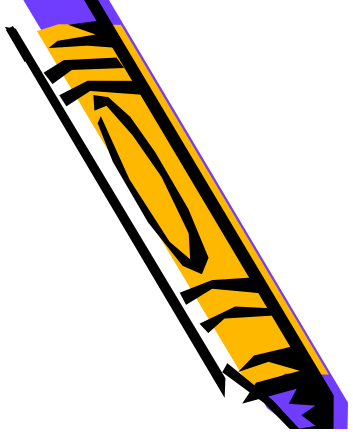
- More complex Addition



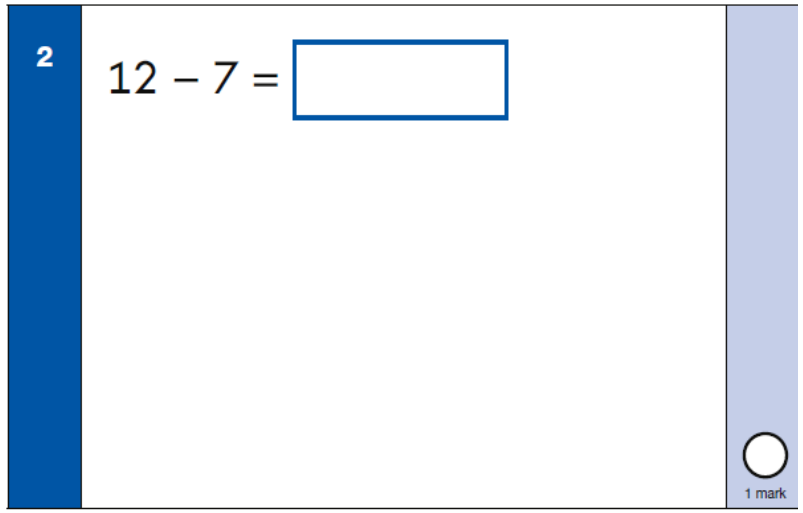


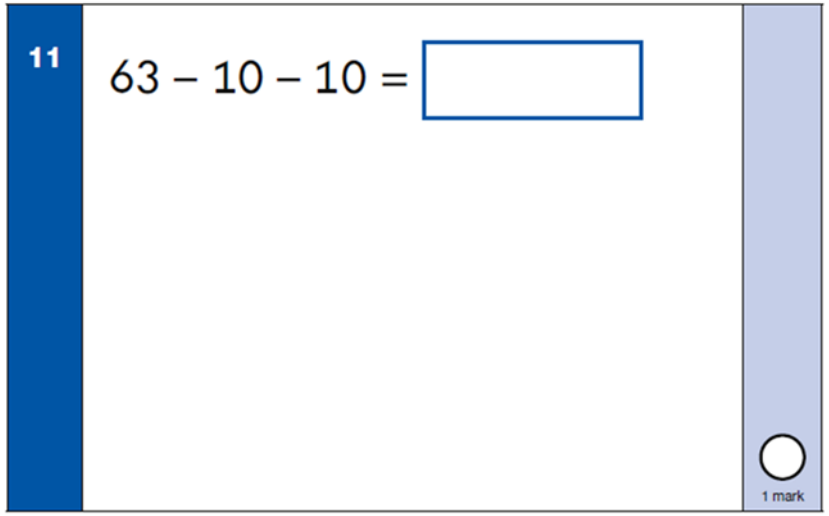
Requires knowledge of counting on? ……of partitioning?

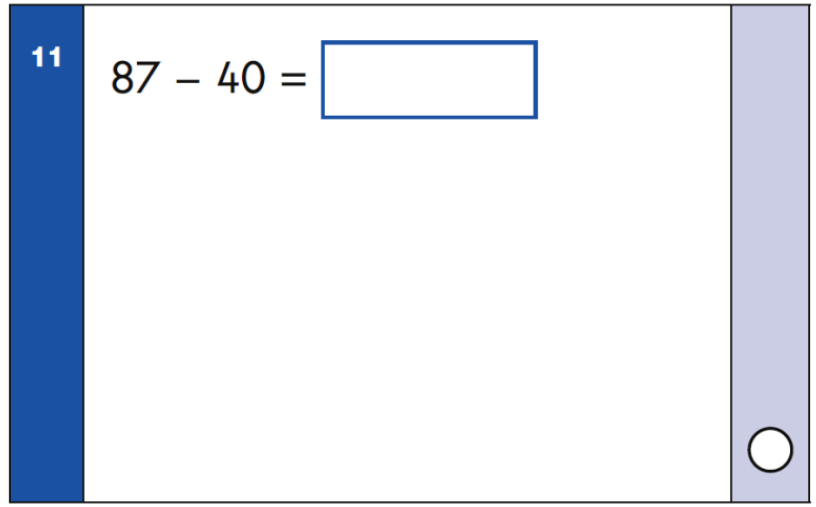
Arithmetic Paper
sample and past Questions



- Straight forward Subtraction



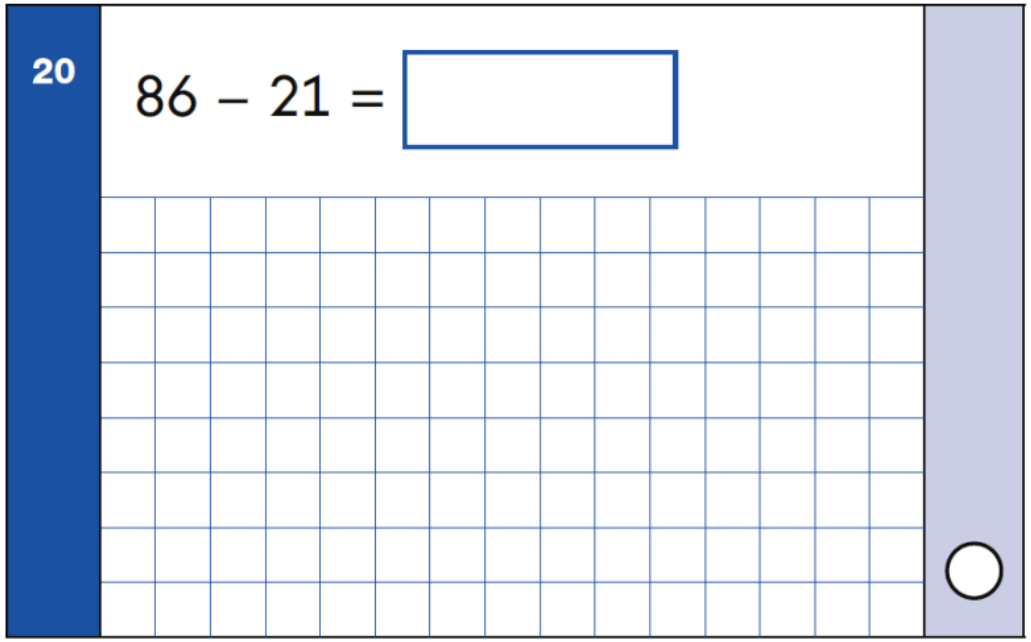


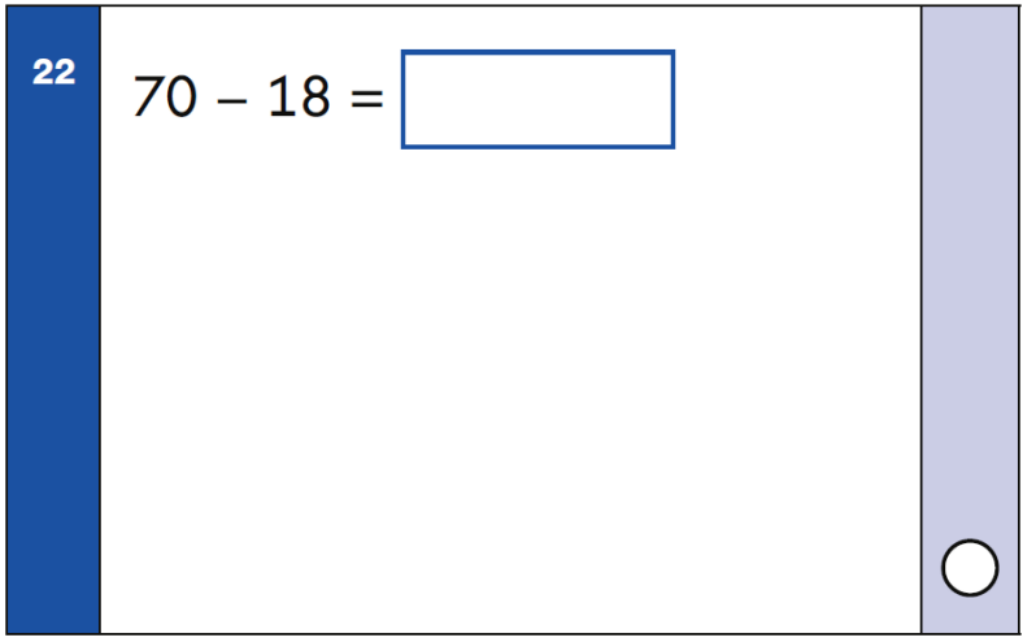


Requires… counting back in ones and tens.

Arithmetic Paper
sample and past Questions

- More complex Subtraction

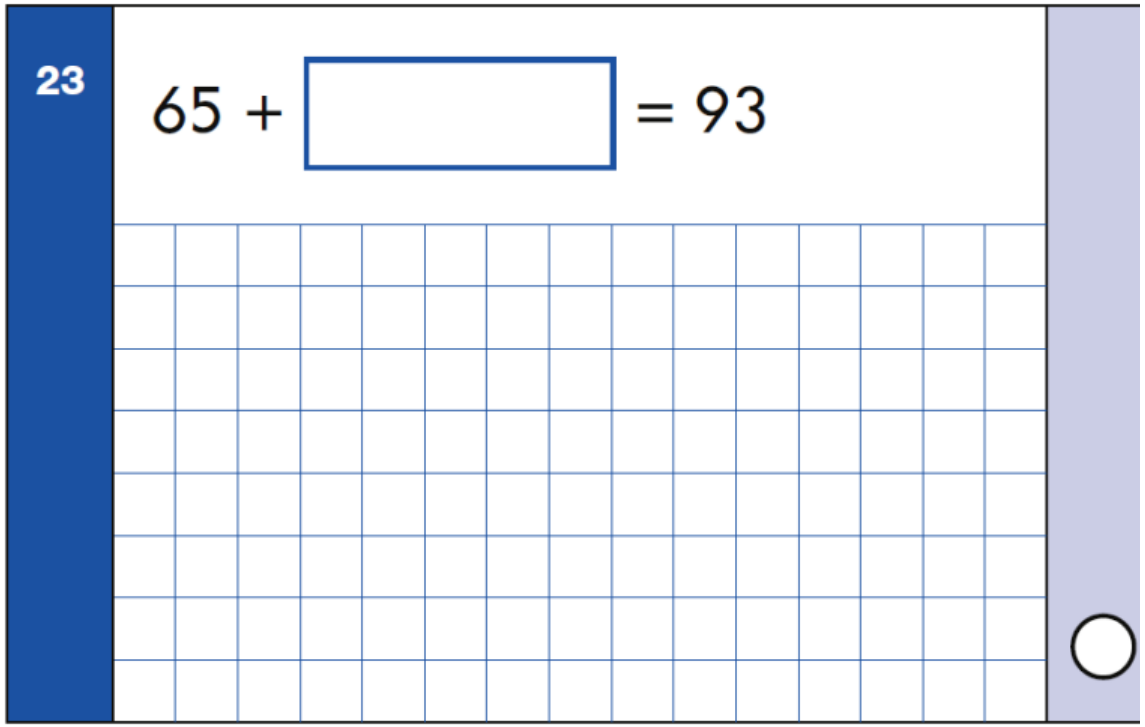


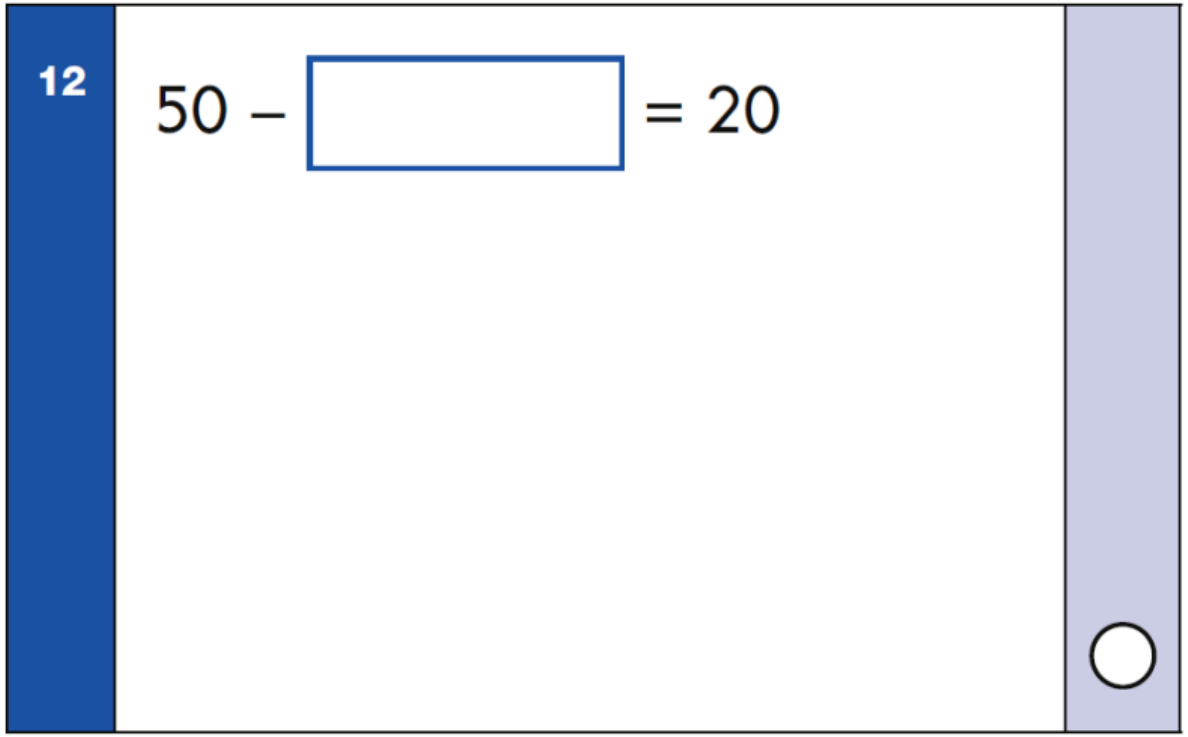


Requires… Recording – what informal/ formal written methods?

Arithmetic Paper
sample and past Questions

- Missing Box Questions

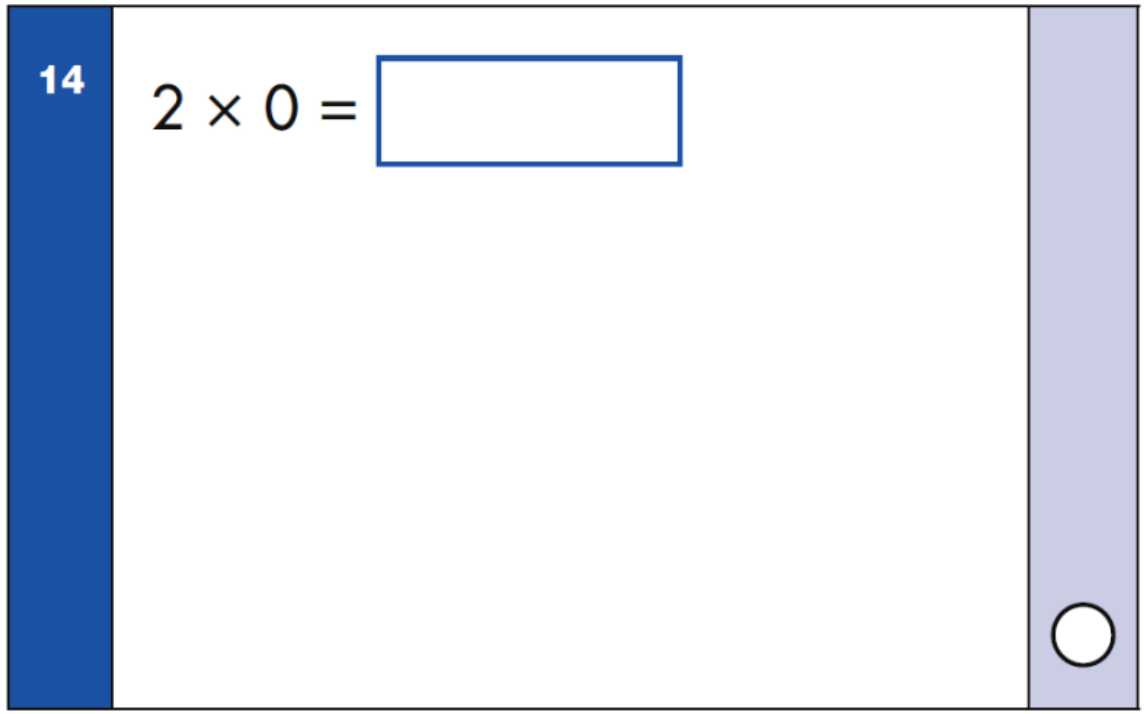


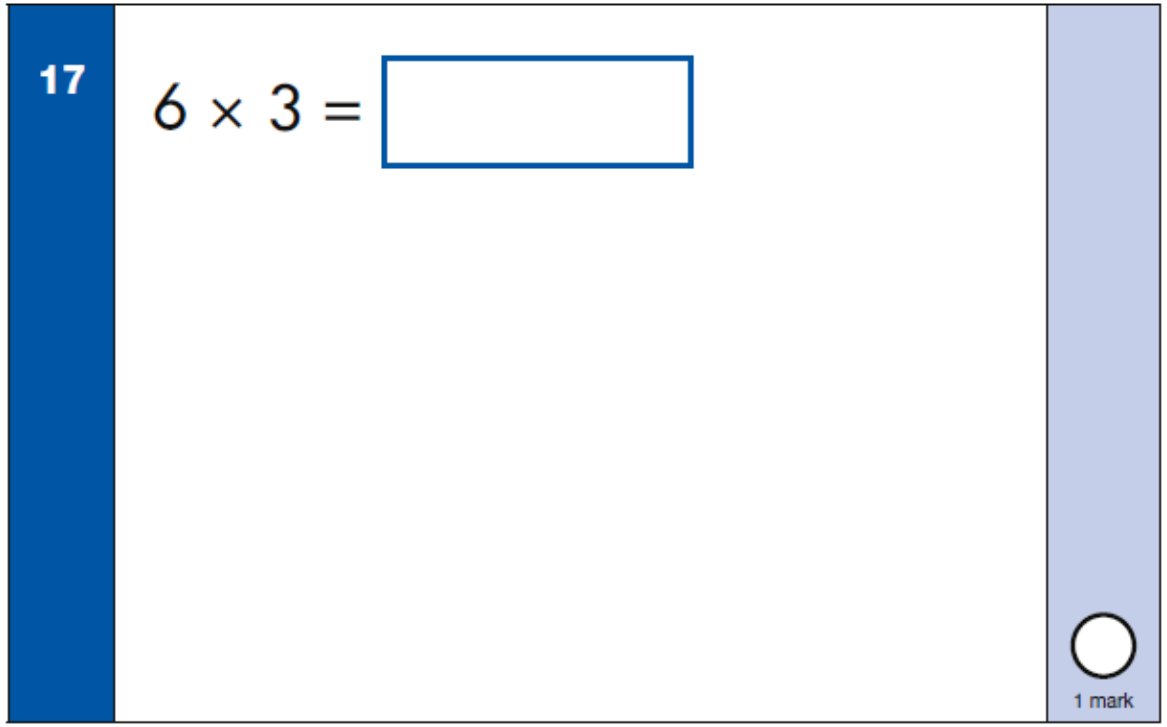


What are you going to do to ensure children will be able to attempt this type of question?

Arithmetic Paper
sample and past Questions

- Multiplication

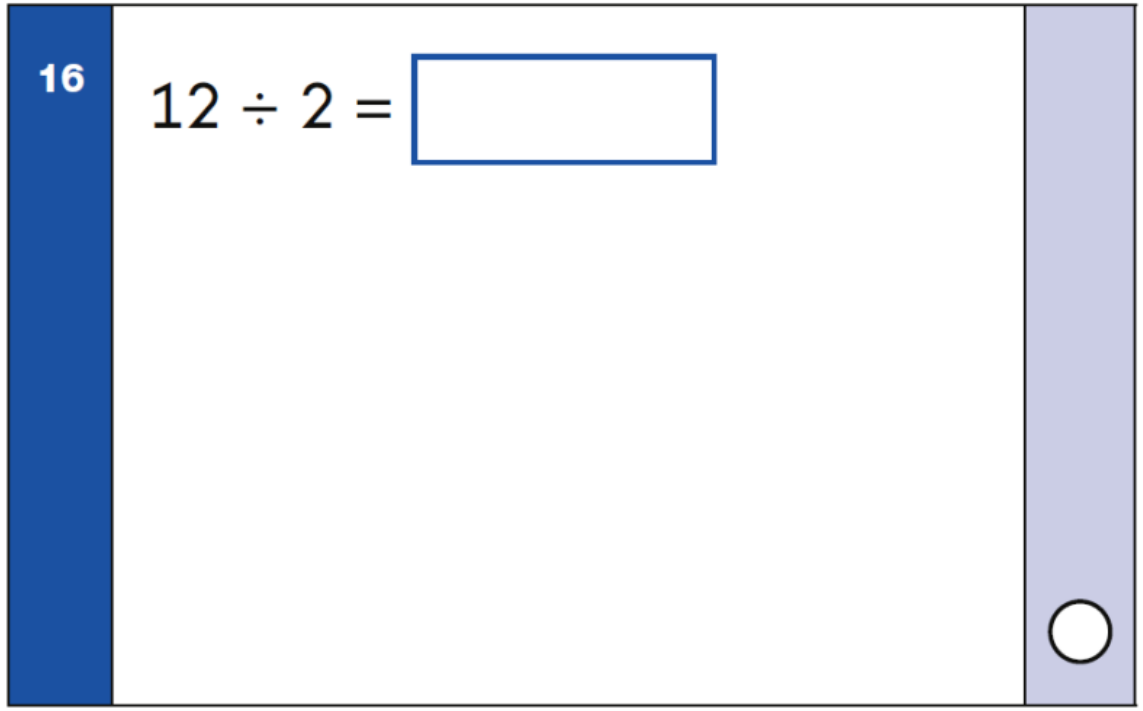


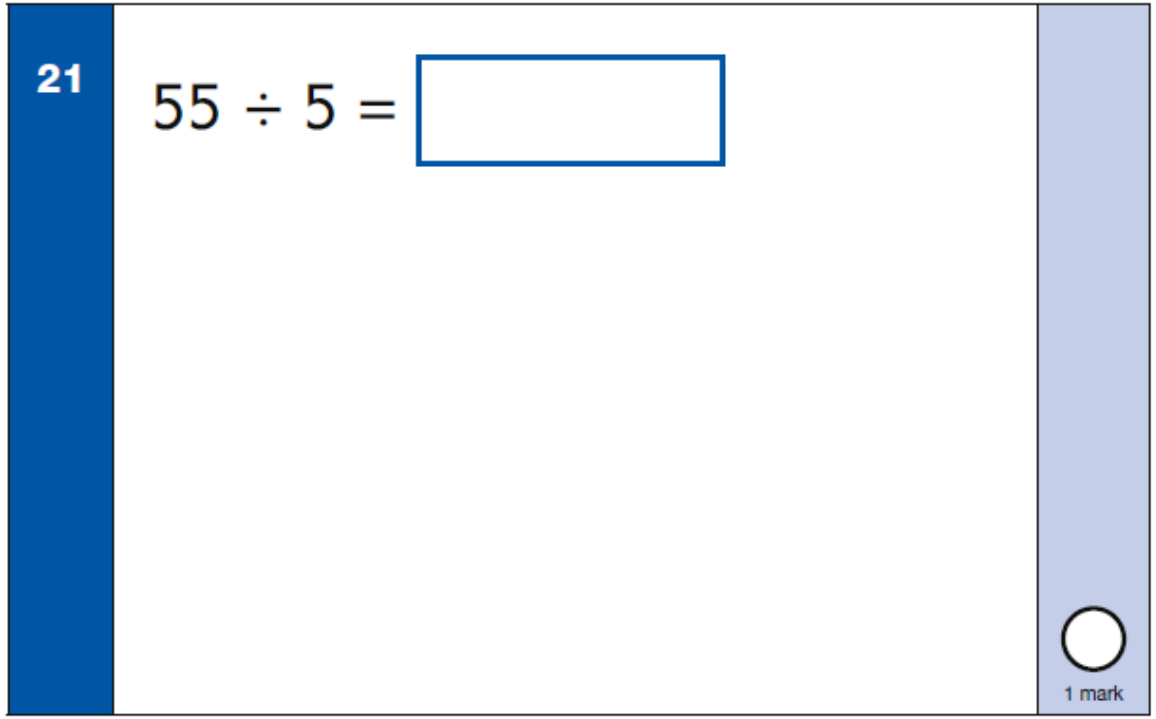


Do your pupils understand the effect of multiplying by zero?
Will they be proficient in counting in simple multiples?
Will they be able to visualise arrays?

Arithmetic Paper
sample and past Questions

- Division

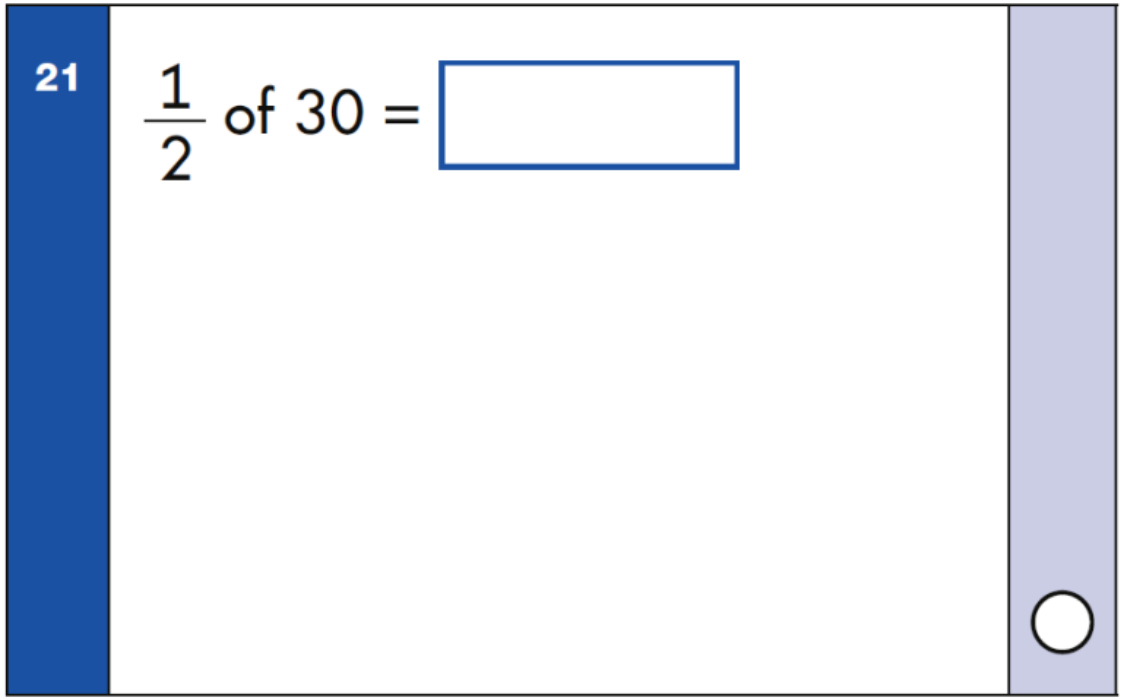


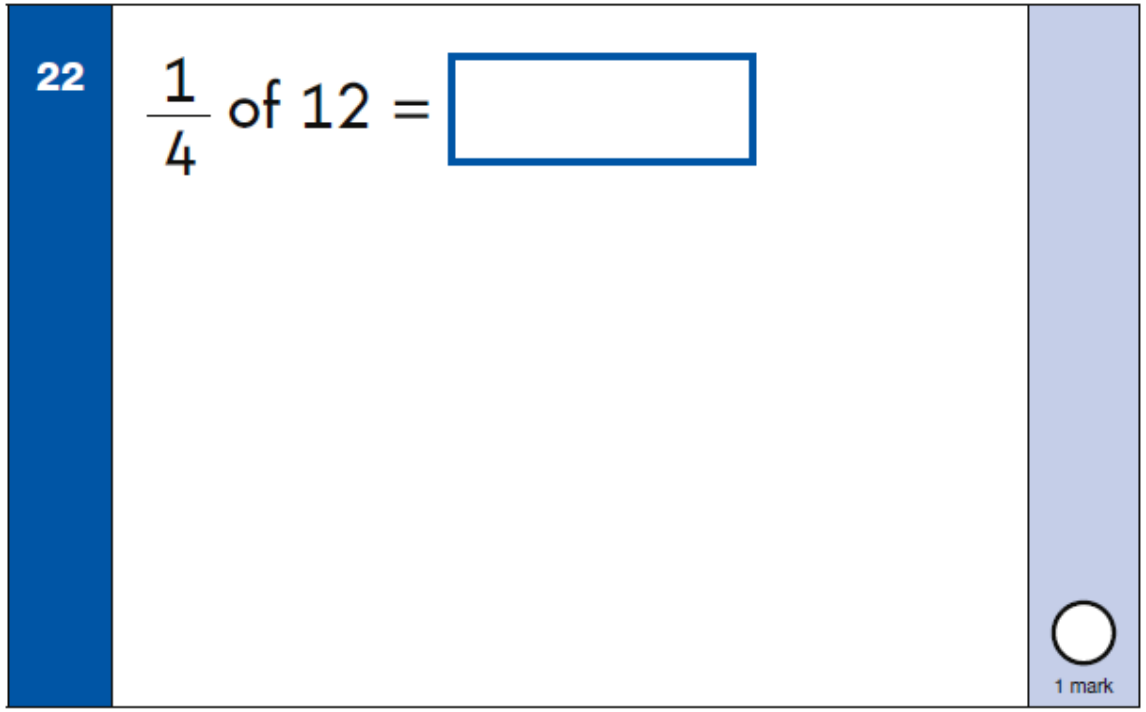


Requires deep understanding of division as grouping as well as sharing and understanding inverse of multiplication facts

Arithmetic Paper
sample and past Questions

- Fractions



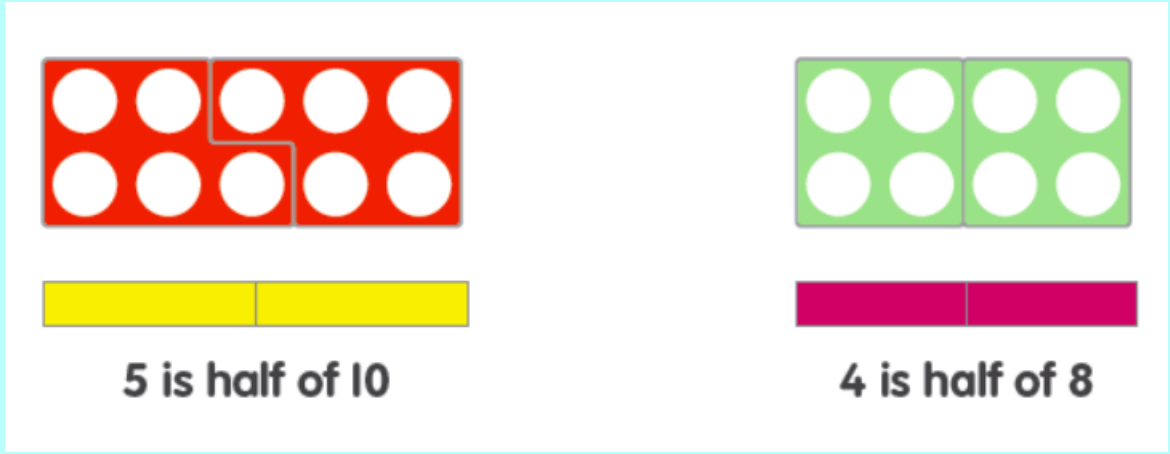


What concrete representations and visual images can support a deeper conceptual understanding of fractions?

Understanding whole/part relationship in Fractions

Children need support to understand that fractions:

- are equal parts of a whole thing or amount
- are found in different ways (e.g. quarter is a half of a half)
- link closely with dividing
- look different depending on the context



Arithmetic Paper
sample and past Questions

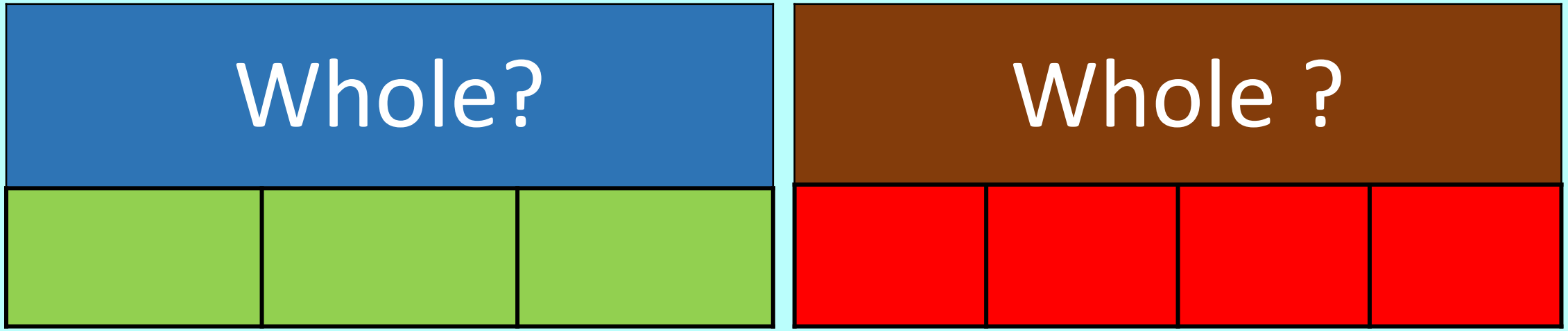
- Fractions

24 $\frac{1}{3}$ of 21 = ☐ ○

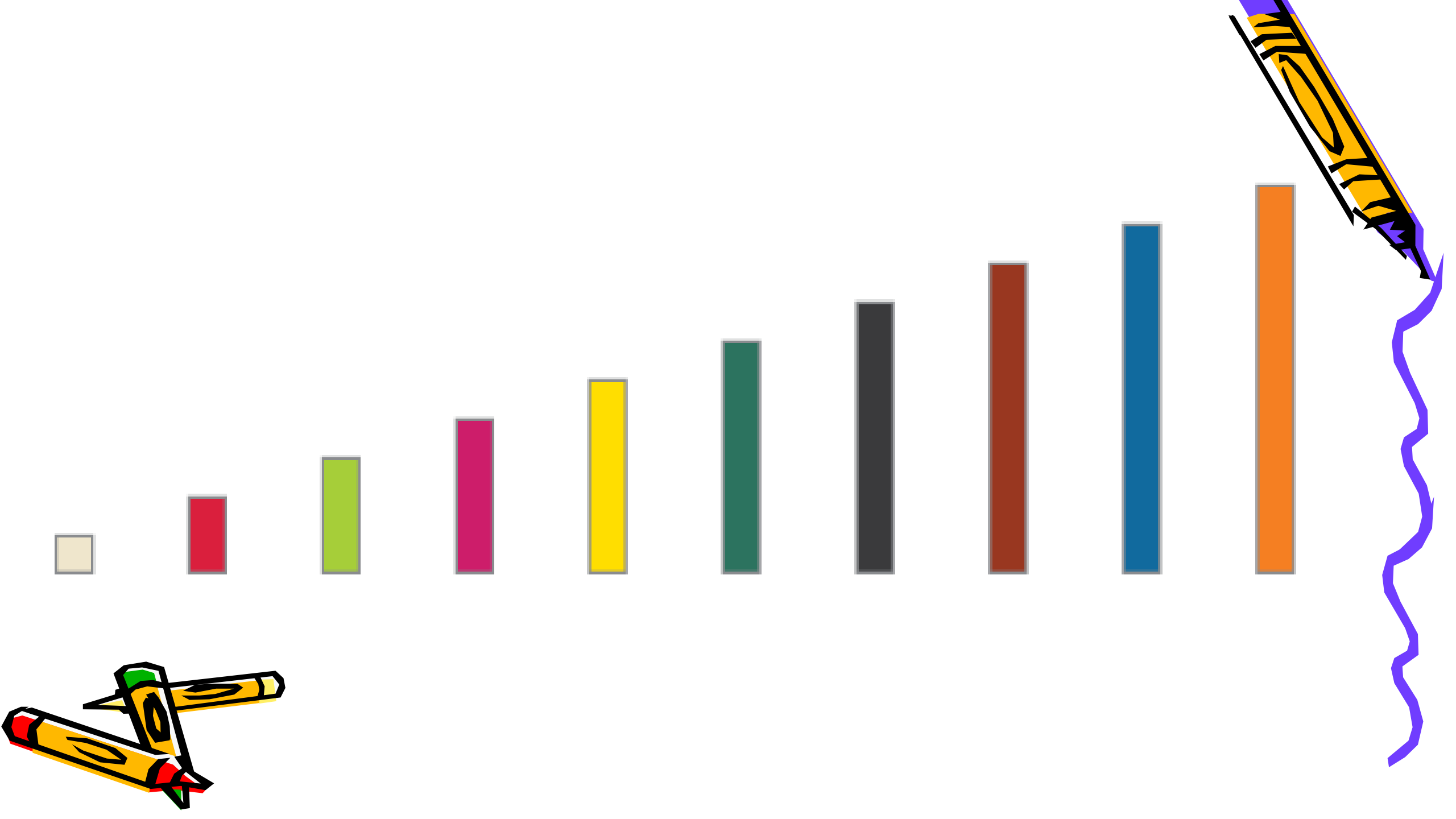
25 $\frac{3}{4}$ of 20 = ☐ ○ 1 mark

What concrete representations and visual images can support a deeper conceptual understanding of fractions?

Understanding whole/part relationship



Division and fractions are inextricably linked - Thirds is ÷ 3 equal parts
Quarters is ÷ 4 equal parts



Mathematical Reasoning Paper

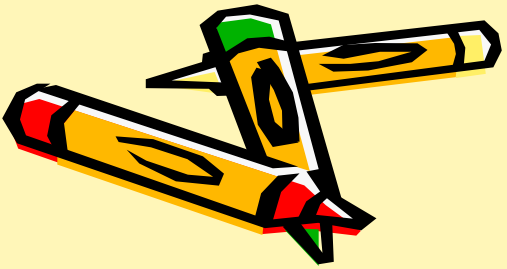
Assessing fluency,

solving mathematical problems

and

mathematical reasoning

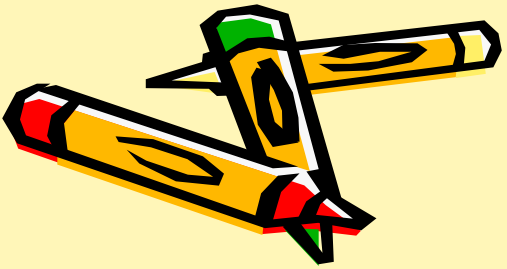
Questions in this paper will comprise items in context and out of context



Mathematical Reasoning Paper

Five questions at the start will be read by the teacher and the children will be required to fill in answers in the appropriate box in the test booklet

Give children many opportunities to practise Questions like this.



Resources permitted

Pencil/ black pen, eraser(optional), ruler (mm and cm),
a sharp dark pencil for mathematical drawing (paper 2 only),
a mirror (paper 2 only)

Gridded paper will be provided in some answer spaces

Number Apparatus e.g. ten base materials, number squares, number lines etc are NOT permitted!

Mathematical Reasoning

- Paper 2 will include both

selected response and constructed response questions

Selected response questions

Here pupils will be required to select which option satisfies the constraint given in the question.

This will include question types:

- Multiple choice
- Matching
- True/false or yes/no questions

Constructed response questions

- Here pupils will be required to construct an answer rather than simply select one or two options.

These will include:

- Constrained questions – pupils are required to provide a single or best answer e.g. give answer to a calculation, complete a chart or table, draw a shape.

- Less constrained questions – pupils are required to communicate their approach to evaluating a statement or problem.

Constrained questions

8 Complete the table.

words	digits
thirty-eight	38
	40
ninety-four	

9 On these cards, the word should match the number.

One of these cards is wrong.

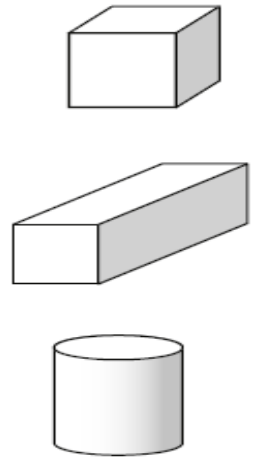
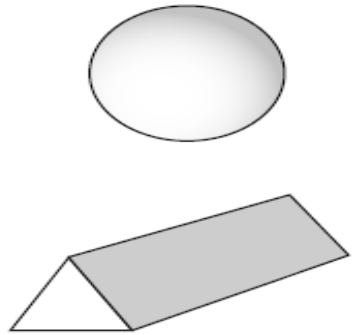
Draw a cross on the card that is wrong.

15 fifteen	19 ninety
49 forty-nine	51 fifty-one

1 mark

14 **One** shape is in the **wrong** place on the sorting grid.

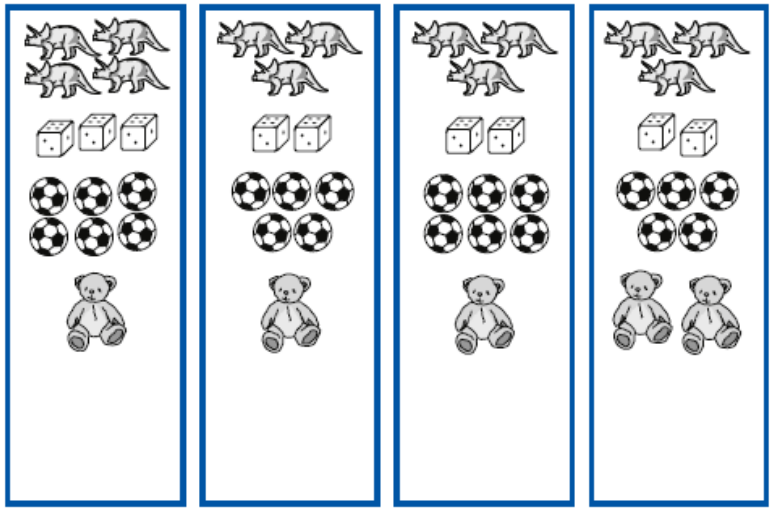
Draw a cross (**X**) on it.

Shapes **with** a square face	Shapes **without** a square face
	

10 Ben makes a tally chart of his toys.

Toys in my box	Tally
	III
	II
	IIII I
	I

Tick **one** box below that shows all of Ben's toys.



1 mark

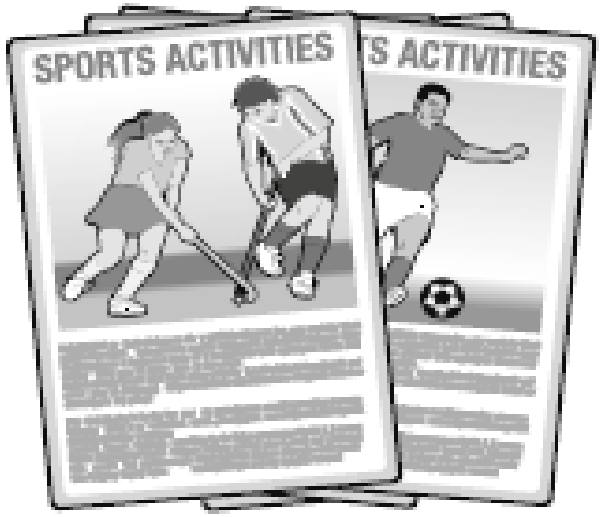
Basic maths... wordy instructions

17 Sam is collecting cards.

He wants to collect **100** cards altogether.

Last week he collected **50** cards.

This week he collects **30** cards.

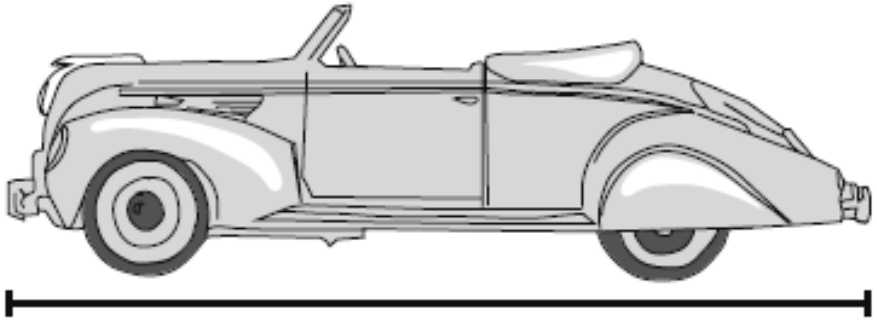


How many **more** cards does he need?

cards

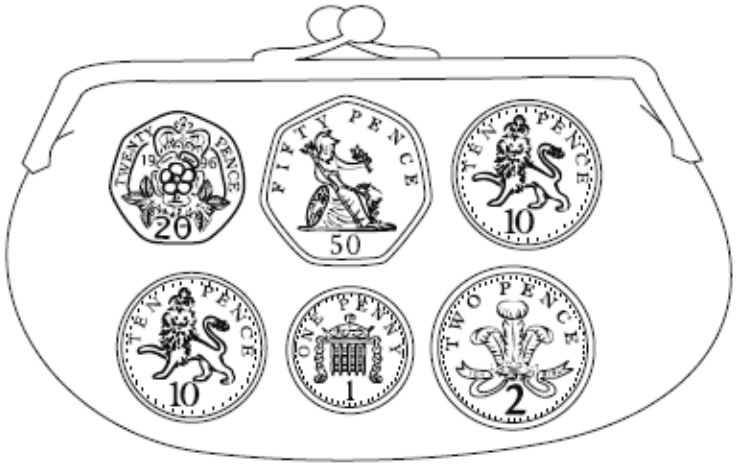
Answer in the units requested

11 Use a ruler to measure the length of the toy car.



cm

15 Sita has these coins in her purse.



How much money does she have?

p

1 mark

Less constrained questions

28

There are **40** crayons in a box.

Sam takes **17** crayons.

Kemi takes **10** crayons.

How many crayons are left?

Show your working

crayons

2 marks

More than one possible solution

23 Amy writes an answer to the calculation below.

$$57 - 31 = \boxed{26}$$

Now write an addition **to check Amy's answer**.

$$\square + \square = \square$$

Common errors

Train children to avoid these pitfalls:

Ticking more than one answer when directed to only tick one

Missing out the correct form eg ¼ or unit of measurement in the answer

Using rulers incorrectly – not starting at zero

General presentation – final answer not being clear

Numbers not clearly formed e.g. ‘0’ looking like a ‘6’

Multi-step problems – make sure children follow the whole question through

Supporting Resources

Sample Question Papers

Kangaroo Maths "Got it" sheets

NCETM Mastery Assessments

Year 1 and 2 Reasoning Materials – Wales

Year 1 and 2 Probing Questions (old NC!)

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m^a+h^s

know(how)

by Tracy Bolton

Making a difference in a number of ways