

10 COMMON MATHS MISTAKES seen by SATs examiners



Before becoming LbQ's maths Subject and Curriculum Advisor, Darryl Keane worked in education for over 10 years and also marked the maths SATs papers of students from all over England and Wales. We spoke to him about the most common pupil mistakes and misconceptions on the maths SATs tests and have provided some handy links to LbQ sets that can help.

'JUST ADD ZERO'

This classic shortcut may work for children – until they reach decimal numbers! Children need to have a secure understanding of scaling and place value to be able to multiply or divide by 10, 100 and 1,000.

Multiply and Divide Numbers Including Decimals by 10, 100 and 1,000

COLUMN SUBTRACTION

Column subtraction – a minefield of misconceptions! When using column subtraction, children may find the difference between the digits in a column instead of regrouping. Errors also commonly occur when there are place-holding zeros in the larger number. Children often take the exchanged digit straight to the column they are working on, missing interim exchanges.

Subtract Numbers up to 3 Digits Using the Column Method

$$\begin{array}{r} 2302 \\ - 184 \\ \hline 188 \end{array}$$

'HOW MANY MORE...' and 'FIND THE DIFFERENCE...'

Children are frequently asked to find the difference between two values, but many children struggle to recognise these questions as requiring subtraction, especially in an out-of-lesson context. Bar models are particularly useful at helping children to see that they need to use subtraction.

Subtract Numbers Mentally

UNFAMILIAR REPRESENTATIONS OF FRACTIONS

Children may be securely able to recognise $\frac{3}{4}$ in the context of simple shapes. However, when an unfamiliar shape or pattern is presented, they will often attempt to draw horizontal or vertical lines or just shade in 3 parts of whatever shape they are presented with. Children need to securely understand the concept of the denominator representing 'equal parts' to be able to apply their knowledge.

Understand Unit and Non-Unit Fractions

CONFUSION WITH CARRIED DIGITS

When performing written calculations, children may not add carried digits. Children also commonly reverse the two digits, so if the ones column totals 37, they carry the 7 instead of the 3.

Add Numbers up to 4 Digits Using the Column Method



PIE CHARTS

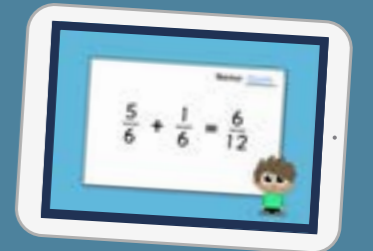
Pie charts present a challenge due to the lack of numeric scales. Children need to recognise that the circle represents a whole set of data, then use their secure knowledge of fractions, angles and percentages to solve problems.

Interpret Pie Charts

ADDING FRACTIONS

Another classic – children add the numerators and the denominators. This misconception is challenged in all of our adding fractions sets, such as the one below:

Add Fractions with the Same Denominator



CONVERTING UNITS OF MEASURE

This links to number 1 on the list, but with the additional difficulty of knowing how many mm are in a cm. Children need to know the equivalences, then know whether to multiply or divide.

Convert Between Different Units of Length

PICTOGRAMS

A favourite on tests – the pictogram! Children enjoy them as they are often perceived as 'easy' questions. However, many children come unstuck on these questions if they don't correctly interpret the value of one symbol. As this is located under or next to the main data table, children often miss it and consequently get the questions wrong.

Read and Interpret Data Using Pictograms

SHAPE STRUGGLES

Many Year 6 children still only identify regular shapes in standard orientations. A great example of this is the rotated square. Even though it is exactly the same shape with 4 right angles, children often see it as a kite. The sets below give children lots of opportunities and feedback to secure their understanding of shape.

Compare and Classify Quadrilaterals

Practise 2D Shapes

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