Feedback and Marking Policy – Mathematics

This policy should be used in conjunction with the school's general Assessment and Feedback and Marking policies.

"The most important activity for teachers is the teaching itself, supported by the design and preparation of lessons. Marking and evidence-recording strategies should be efficient, so that they do not steal time that would be better spent on lesson design and preparation."

Marking and Evidence Guidance for Primary Mathematics Teaching
NCETM April 2016

"Effective marking is an essential part of the education process. At its heart, it is an interaction between teacher and pupil: a way of acknowledging pupils' work, checking the outcomes and making decisions about what teachers and pupils need to do next, with the primary aim of driving pupil progress."

Eliminating Unnecessary Workload Around Marking March 2016

Essentials for effective feedback and marking

Subject knowledge of the teacher and teaching assistant

↓

For the teacher to have a clear understanding of the new learning and expectations for the lesson (how a child can demonstrate understanding of the learning)

↓

Effective AfL (pitch and challenge determined by previous learning; striking the right balance between struggle and support)

↓

Quality task / variation / intelligent practice

↓

Teachers circulating effectively during lessons to check progress of children

Subject knowledge involves:

- Knowing how to develop children's conceptual understanding;
- The ability to break down mathematical learning into smaller steps of progression;
- The ability to predict possible misconceptions before a lesson begins.

Understanding new learning involves:

- Knowing what the expectations are;
- Knowing how a child can demonstrate understanding of the new learning.

Effective AfL involves:

- Identifying children's starting points within the learning (assessing prior learning, checking back in books to check previous success);
- Knowing where children's learning needs to go next; (see progression chart below);
- Ensuring children have to think, grapple and possibly struggle with the new learning:
  "When we make mistakes, our brains spark and grow. Mistakes are not only opportunities for learning, as students consider the mistakes, but also times when our brains grow, even if we don't know we have made a

mistake. The power of mistakes is critical information, as children and adults everywhere often feel terrible when they make a mistake in math. They think it means they are not a math person, because they have been brought up in a performance culture in which mistakes are not valued—or worse, they are punished. We want students to make mistakes, yet many classrooms are designed to give students work that they will get correct."

Mathematical Mindsets
Boaler (2016)

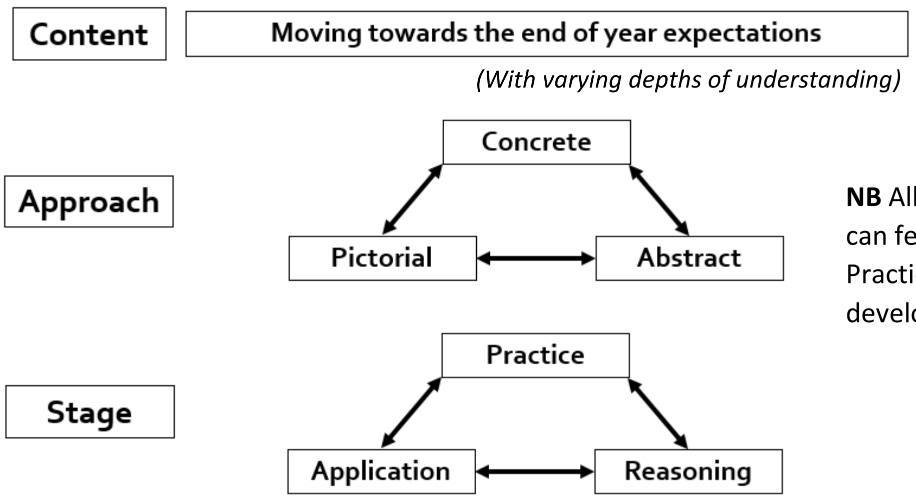
Quality tasks involve:

- Intelligent practice in which carefully structured variation allows children to explore the learning in different ways resulting in deeper understanding;
- Opportunities for children to identify and use patterns and relationships and develop the skills of mathematical reasoning;
- Opportunities for children to apply their learning in different ways, including solving a wide range of different types of problems.

Teachers circulating effectively involves:

- Monitoring children's progress towards the expectations within the new learning:
  - providing thinking prompts, scaffolding or taking learning back to the appropriate prior steps where it is necessary to support a child's progression in learning.
  - identifying when children have achieved the expectations of the lesson and providing a next step which develops a greater depth of understanding. This includes any group who are supported by a teaching assistant.

Progression



NB All or some of these aspects can feature in one activity. Practice activities should be about developing understanding.

The diagram above illustrates how progression can be in the form of:

- extending children's learning of the mathematical content towards an end of year expectation;
- moving **between** different representations of the mathematics, from concrete to pictorial to abstract representations. The diagram shows that children should continue to experience different concrete and pictorial representations even when they have progressed to abstract ways of working;
- moving **between** different stages of working from practice (with conceptual and/or procedural variation) to application or reasoning, which may be in the form of 'intelligent practice'.

Next steps in learning will be based on one or more of these forms of progression.

Feedback and Marking

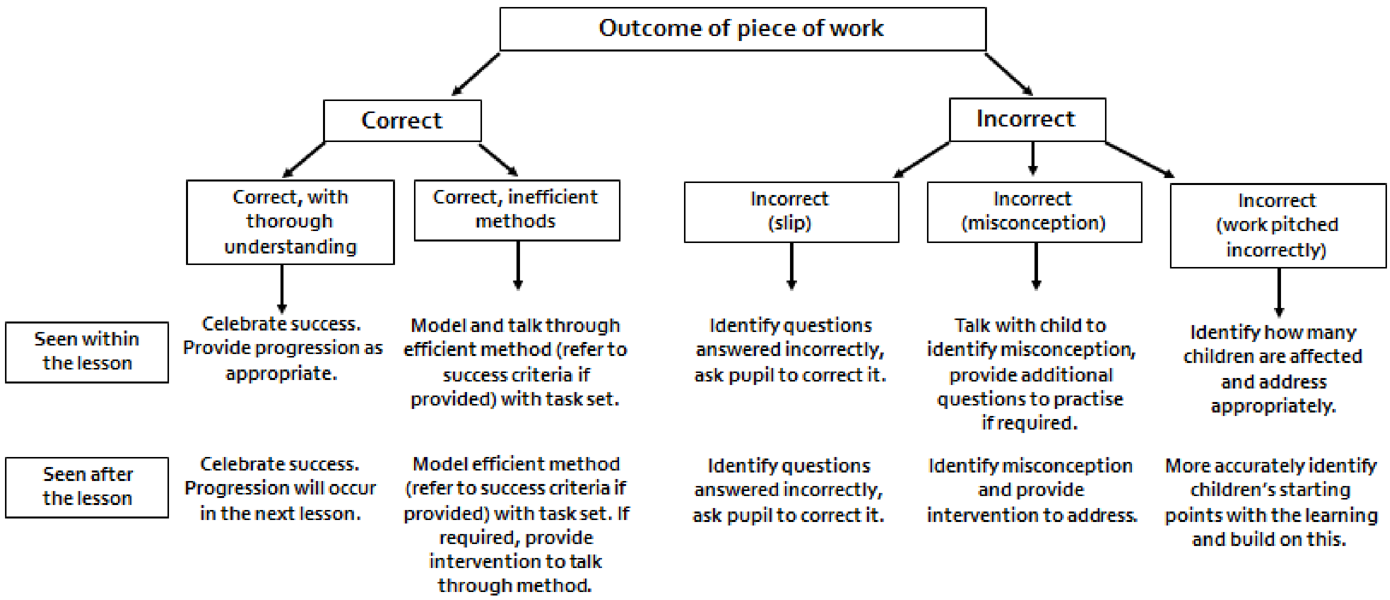
Children's work must be marked (by the teacher) in order to inform future teaching and learning. This may happen within the lesson, not just after the lesson has finished.

Teachers will identify children's success with the learning and ensure children make progress towards meeting end of year expectations, either by:

- moving children on within the lesson
- moving children on in the next lesson
- moving children on the next time the unit is covered during the year.

Where children have made mistakes, teachers will identify whether the errors are caused by slips/lack of concentration or an underlying misconception.
Errors that are the result of slips may be corrected by the child.
Errors that are the result of a misconception will be addressed immediately in the lesson or (where this is not possible) through timely intervention that fits into the unit of work.

The table below summarises the possible outcomes of children's work in mathematics and the likely responses from the teacher.



When marking children's work it can be useful to annotate it to reflect how and when it has taken place. **Possible** annotations could include:

I work that has been completed independently or where the teacher/TA has prompted the child to think independently about their learning
S work that has been completed with the support of an adult (the original pitch of the learning must be carefully considered so that the supporting adult does not have to 'over-scaffold' the work)
P work that has been completed with the support of practical equipment
Int work that has been completed as a result of intervention (within or outside the lesson)
VF work that has been completed following verbal feedback

Appendix

Myths

"Children need to be told what their next steps are when you are marking."

A child's next step in learning should be the focus of the next lesson within the unit of work, or the next time the learning is revisited, and therefore there is no need for the teacher to write what the next step is.

NCETM guidance suggests, "If interaction between teacher and pupils is good, then efficient marking strategies can be deployed."

Marking and Evidence Guidance for Primary Mathematics Teaching
NCETM April 2016

"Quality marking one group each day means all children get detailed feedback once a week."

Quality marking children's work cannot be timetabled. Feedback must be responsive to the needs of the children and more detailed feedback should be provided only when necessary.

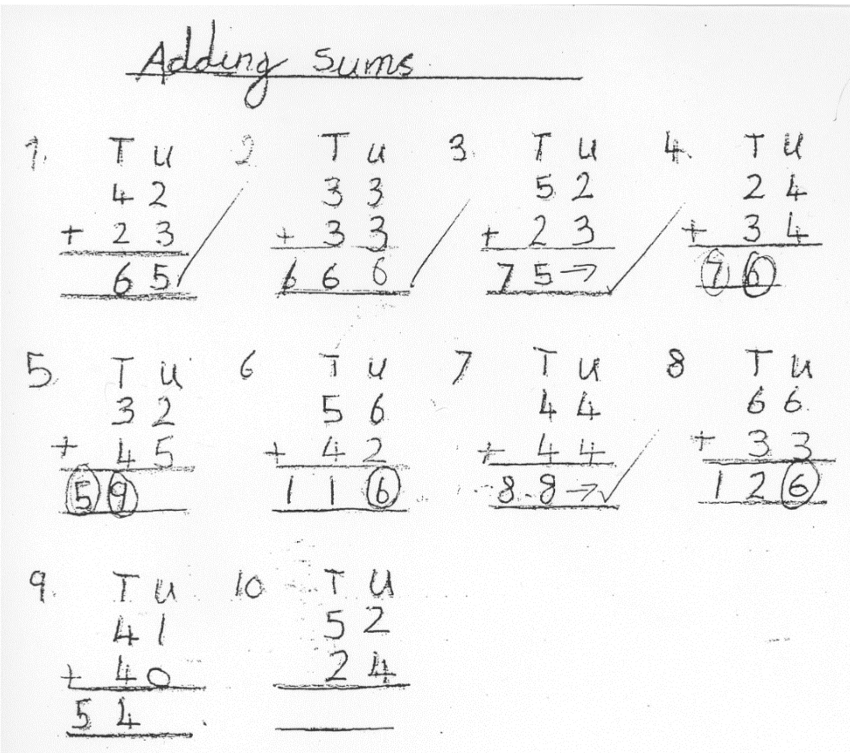
"Every piece of work needs to be detail/next step marked".
Quality marking **IS NOT** a comment or a challenge on every piece of work after every lesson. Many of these comments are often lacking in purpose because it has become an expectation, rather than a valuable part of the teaching and learning process.

"It should not be a routine expectation that next-steps or targets be written into pupils' books. The next lesson should be designed to take account of the next steps."

Marking and Evidence Guidance for Primary Mathematics Teaching
NCETM April 2016

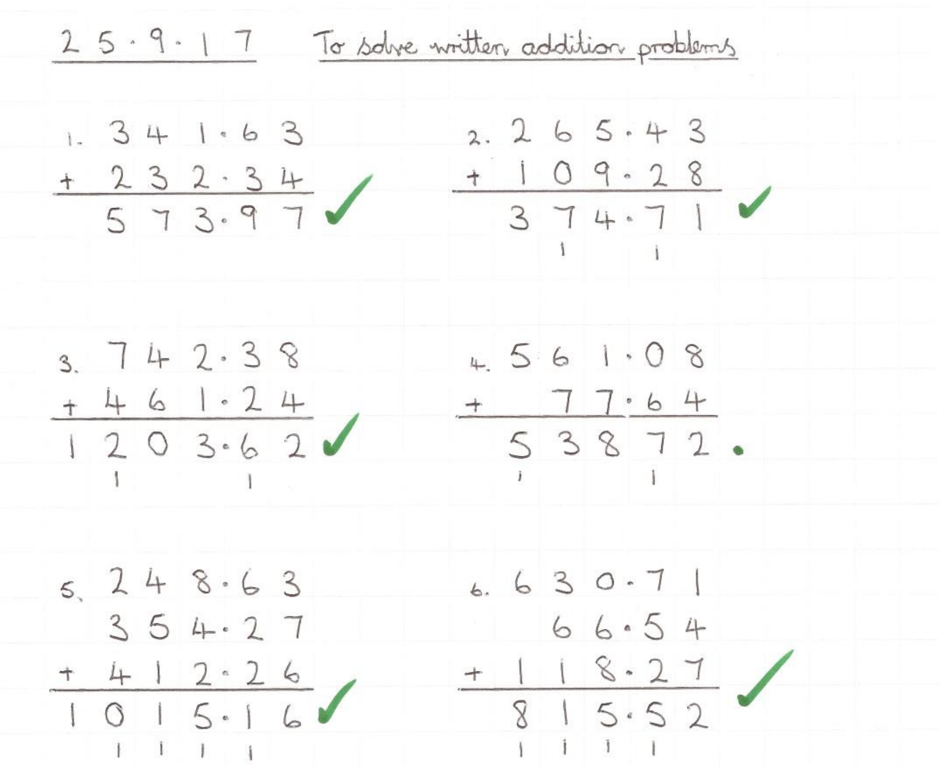
A next step should only be part of the marking / dialogue with a child when there is a purpose to it.

Slips versus Misconceptions



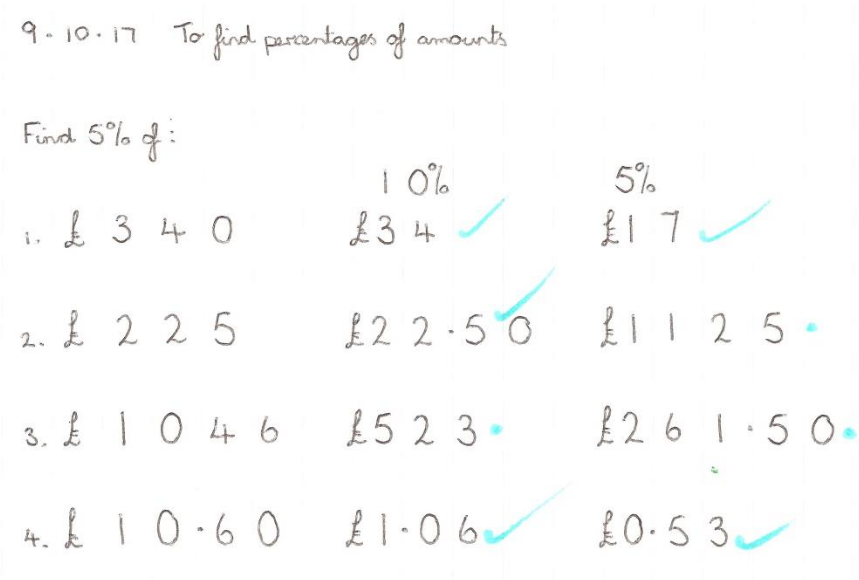
Misconception
The child has been adding the digits on the same horizontal line to obtain the answer e.g. Question 4 the child has calculated 2 + 4 (top line) and then 3 + 4 (bottom line) to get the answer of 76

There is a clear misconception regarding place value of two digit numbers and the algorithm for column addition which needs to be addressed immediately through reverting back to a concrete or pictorial model alongside the written calculation.



Slip
The child has made an error in calculation by not adding in the 'carried' one in the hundreds column and has omitted the decimal point in the answer.

As this error has not occurred in any of the other calculations, the child can simply be asked to make a correction.



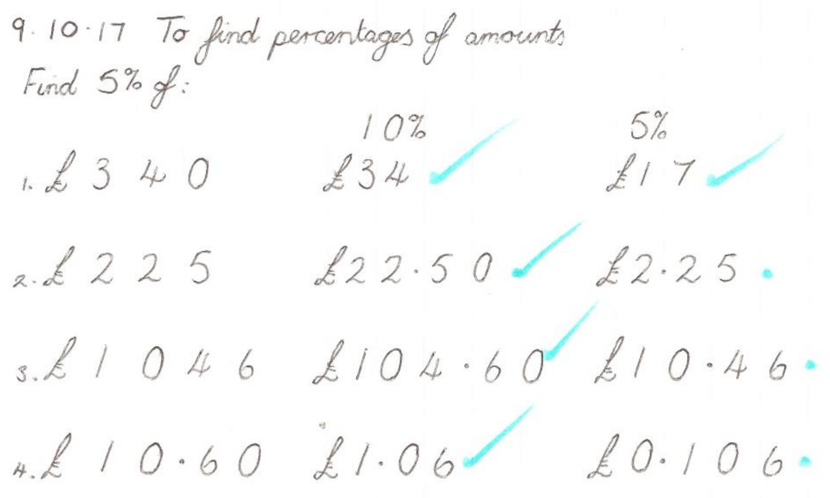
Slip

The child has made two separate slips here, but as they are not repeated it is not a misconception.

In question 2, the child has omitted the decimal point in the answer for 5%.

In question 3, the child has halved the original amount and halved it again, when they should have divided the original amount by 10 and then halved this answer.

The child may be provided with another to check that these slips were isolated.



Misconception

The child has completed the first question correctly (though this may have been scaffolded) but for all the subsequent questions has divided by 10 (the correct first step) and then divided by 10 again.

This has resulted in an impossible answer in question 4 which hasn't been recognised by the child.

This misconception is likely to have occurred through an over-emphasis on the process without the understanding of the link between 10% and 5% of an amount.

Intervention is likely to be required following a discussion with the child.

Rounding After Division

23 eggs packed in boxes of 6.
How many boxes are needed?

23 ÷ 6 = 3 r 5 4 boxes ✓

26 apples packed in bags of 5.
How many bags are needed?

26 ÷ 5 = 5 r 1 5 bags •

One tent can hold 4 children.
How many tents are needed for 15 children?

15 ÷ 4 = 3 r 3 4 tents ✓

There are 7 children in each team.
How many teams can be made from 34 children?

34 ÷ 7 = 4 r 6 5 teams •

Misconception

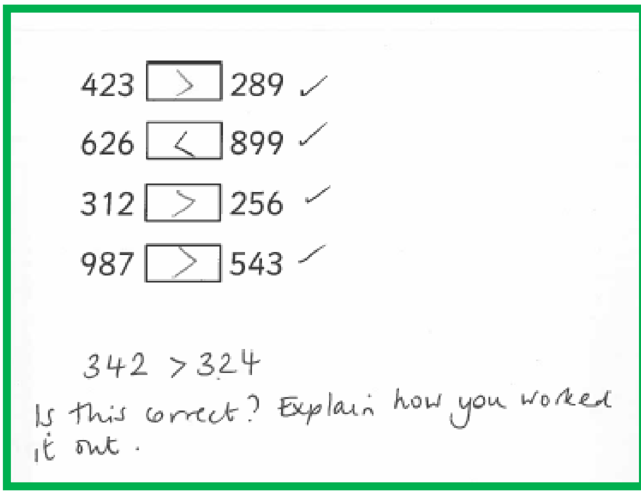
The child understands that there needs to be adjustment of the answer with a remainder to account for the context of the problem.

It would appear, however, that they are incorrectly applying the rounding rule so if the remainder is more than half of the divisor, they are rounding the answer up; if it is less than half, they are rounding the answer down.

To confirm the misconception, the child should be asked to explain their thinking.

Intervention is likely to be required following a discussion with the child. Reverting back to a concrete or pictorial method to represent the problem will help to address this issue.

Examples of marking (which may happen within the lesson)

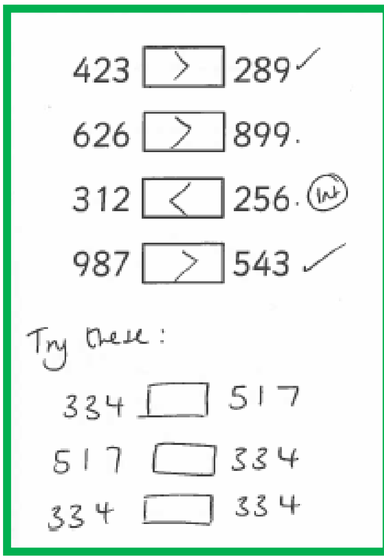


423 [>] 289 ✓
626 [<] 899 ✓
312 [>] 256 ✓
987 [>] 543 ✓

342 > 324
Is this correct? Explain how you worked it out.

This example of marking is acceptable.

The child has shown success with the examples (although these do not present much difficulty). The example in the marking is more difficult as the numbers have the same three digits and the same hundreds digit, as well as asking for an explanation.

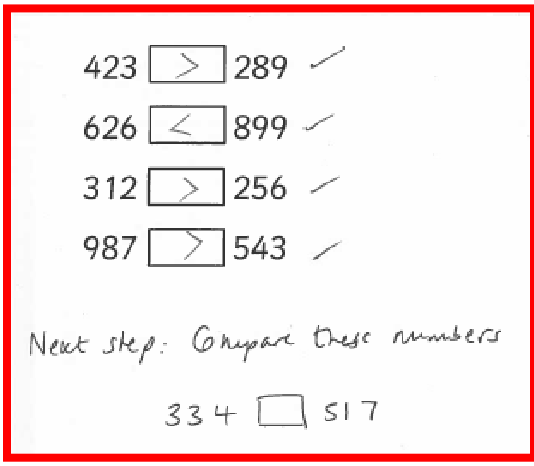


423 [>] 289 ✓
626 [>] 899.
312 [<] 256. (W)
987 [>] 543 ✓

Try these:
334 [ ] 517
517 [ ] 334
334 [ ] 334

This example of marking is effective.

The child has shown difficulties with the second and third questions. Intervention has taken place at this point and the fourth question has been completed.
The teacher has decided to provide more examples for the child to practise independently with the same numbers used but in a different order and to also consider use of the equals sign alongside this learning.

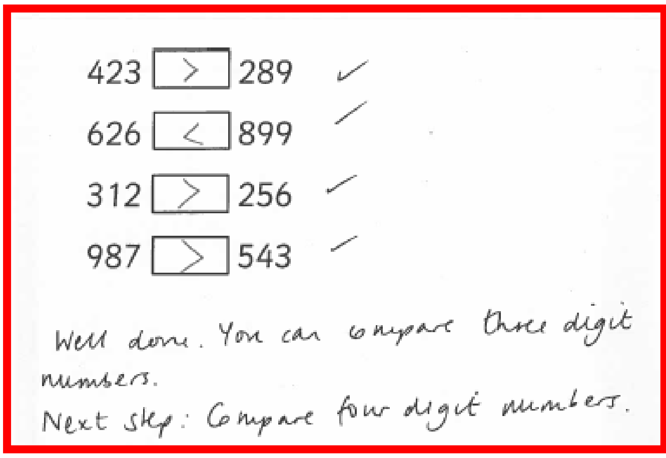


423 [>] 289 ✓
626 [<] 899 ✓
312 [>] 256 ✓
987 [>] 543 ✓

Next step: Compare these numbers
334 [ ] 517

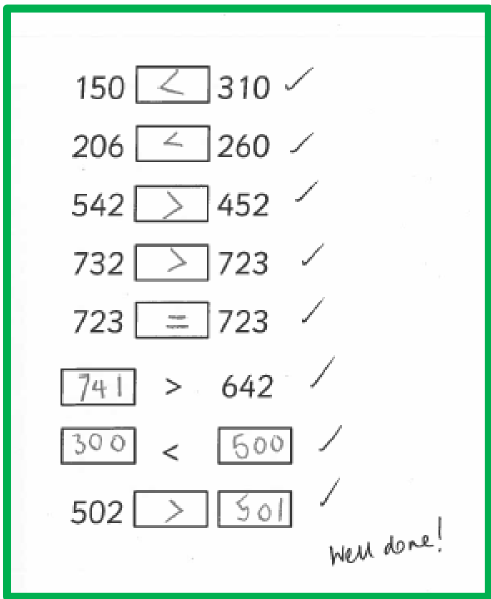
This example of marking is unnecessary and has no impact on learning.

The child has shown success with the four questions. The 'next step' identified is no more difficult than the original four questions and does not support progress.



This example of marking is unnecessary and has no impact on learning.

The child has shown success with the four questions. The first comment tells the child something they already know from the ticks and the next step is not appropriate as it is acceleration rather than deepening learning. Further challenge could be provided by still comparing three-digit numbers e.g. 246 < 2_4



This example of marking is ideal for the learning that has taken place.

The child has shown success with the range of questions in the task. The careful variety and progression of questions (*intelligent practice*) allows the teacher to employ efficient marking.
Question 1 – different most significant digit.
Question 2 to 4 – have the same digits in both numbers and sometimes the same most significant digit.
Question 5 – the = sign can also be used to compare numbers.
Question 6 – sign and one number given so child has to write a number to make the statement correct.
Question 7 – sign given so child has to write two numbers to make the statement correct.
Question 8 – one number given so child has to write sign and another number to make the statement correct.