AIMSSEC

GREATER THAN OR LESS THAN

5.☐☐   ☐   5.☐☐

Use the symbols >   <   1   1   2   3 in the boxes to make correct number sentences.

For example 5.12 < 5.13 is correct and 5.21 > 5.31 is wrong.

How many different correct sentences can you make using each symbol only once?

How will you know when you have found them all?

SOLUTION

5.11 < 5.23
5.11 < 5.32

5.12 < 5.13
5.12 < 5.31

5.13 > 5.12
5.13 < 5.21

5.21 > 5.13
5.21 < 5.31

5.23 > 5.11
5.32 > 5.11

We know that this is the complete set of solutions because we have used all the permutations of 2 digits to follow the 5 on the left (11. 12, 13, 21, 23, 32) and compared each one to all possible permutations of the remaining two digits to follow the 5 on the right. We have written the correct inequality sign in each expression.

NOTES FOR TEACHERS

Why do this activity?
This challenge encourages the class to think about the value of digits in decimal numbers and use symbols < and > to compare them. It also encourages them to think about finding all possible solutions to a problem.

Intended learning outcomes
Understanding of '<' and ">".
Review of place value and decimal notation.

Possible Approach
It may be useful to begin the lesson by reminding the learners about place value and sharing models and images to support this understanding.

The activity could be introduced using a similar challenge but with whole numbers, for example:

☐☐   ☐   ☐☐   <   >   4   4   5   6

And the class could be encouraged to come up with possible solutions to the problem. This will be an opportunity to review understanding of the symbols < and > as well as to introduce the idea of there being more than one possible solution to the problem.

Discuss with the learners how they were comparing the numbers. Remind them that they look at the most significant digit first (10s) and then the next digit (1s).

As you take ideas from the class, their responses could be organised in a systematic way. It might look like this:

44<56
44<65
45<46
45<64
46>45
46<54
54>46
54<64
56>44
64>45
64>54
65>44

Ask the class to identify how you have organised the work. What system did you use?

You can then move on to the problem using decimal points. You might use a comparison with how we record sums of money.

Key questions
Which number is greater? How do you know?
Have you found all of the possible options? How do you know?

Possible extensions
Extension 1: As well comparing the numbers, find the difference between them.
Extension 2: Try the activity again using different digits. You could roll a dice to generate these. How many solutions do you think there will be this time? Does it make a difference if the digits are unique?
Extension 3: Include a 0 in the digits. Does that make it harder or easier to compare the numbers?
Extension 4: Change the number of digits and/or the position of the decimal point. For example, try

or

Possible support
A place value chart may be helpful as the learners consider the value of each digit.