Addition Prior Learning Assessment : Question 7

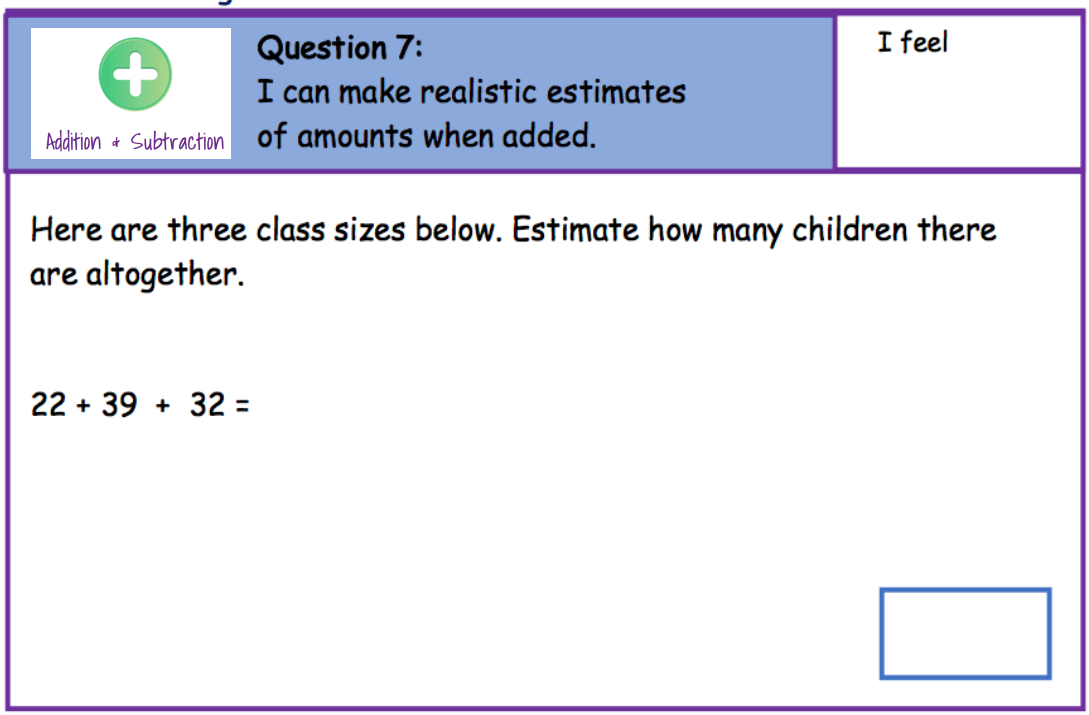
LO: I use estimation to check answers for addition questions.

I can use a written method to add sets of numbers together

NS3: estimate the answer to a calculation and use inverse operations to check answers

Assessment Question:

Prior Learning:



Teacher Input Ideas:

Starter suggestion: counting in hundreds and tens.

The activities and input require a large amount of practical resources. Similar activities are suggested in the lesson for place value Question 5 therefore you may have collected a central store of objects from this lesson. If not buttons, paper clips, pasta shapes, lentils, rice or milk lids are affordable suggestions of resources to use.

Recap with the children the word estimate. What does this mean? When is it used? Can you estimate how many objects are here? Why do you think this?

Show the children a group of objects of around 200. Ask the children to estimate. Discuss the children's different estimations.

Place another amount of objects for the children to estimate. Again discuss the children's estimations. Model to the children that you want to estimate the total of objects for the 2 groups. I estimate that there are 200 in this group and 300 in this group. That means there are around 500 objects in total. Model how estimating 200 and 300 is easier to add quickly rather than estimating 189 and 312. Discuss why this helped you and what an estimate is. Also discuss how your estimations should be realistic to the amount of objects there are.

Now show the children the amounts that are there, such as 194 and 315. Ask the children for suggestions of working out the total. So I estimated the answer was going to be around 500, as there are around 200 items and 300 items in each group. When I calculated the answer I got 509. So my calculation and my estimate were suitable.

Repeat with other amounts encouraging the children to estimate different amounts in the groups. You may want to encourage the children to estimate numbers that are a multiple of hundred and discuss why. Once children have estimated, provide the children with the actual amount in the group. Model that 378 is quite close to 400 so for me to estimate a total, I will say that there are around 400 in this group and 200 in this group. So I know that there are around 600 objects altogether.

How does this estimate help me? Now let's add the actual amounts. Ask the children to select a strategy to use. Encourage the children to apply either written or mental methods.

Practice Activities

Purple Practice: Most suited for children who will benefit from developing their understanding of estimating amounts of objects over one hundred.

Practical : Provide the children with large groups of objects organised in trays. Below are some examples of amounts that can be placed in trays:

206	105	198	289
215	310	390	401

Ask the children to estimate the amount in one group. How many are there? Explain how have you made this estimate. Why do you think this is a sensible estimate? If this is what a hundred of the objects look like, how many groups of hundred do you think are here? Then ask the children to repeat with another group of the same object. Once the children have estimated how many items are in each group (encouraging them to think about an estimate which is a multiple of hundred) ask the children to estimate how many of the items there are altogether.

<u>Green Practice:</u> Most suited for children who demonstrate errors in Question 7 of the prior learning assessment and will benefit from developing their understanding of using estimates when calculating.

Practical: As above however once the children have made their estimates, inform the children of the actual amount in each group. Then encourage the children to discuss if their estimate was a sensible one and will help them to calculate how many objects altogether. For example, some children may have estimated 400 objects in one group but there was actually 203 objects. Discuss how 200 would be a sensible estimate for that group. Then repeat with the other group of objects. So I now estimate that there will be 500 items altogether rather than 700. Is this a sensible estimation? How do you know?

Let's now calculate the answer to 203 + 294. What method are you going to use? Are you happy with the answer? Does it match what you estimated?

<u>Yellow Practice</u> Most suited for children who show some understanding of estimating in Question 7 and are ready to select mental and written methods to calculate.

Practical: The same as the green activity however provide the children with trays of amounts with less than hundred objects as well so that the children can think about estimating objects near to hundreds and tens. For example, children may estimate 30 for 26 objects and 50 for 45 objects. Then the children should mentally calculate that there will be 80 objects altogether. The children should also discuss when calculating if they need to use a written or mental method to work out the answer. Below are some examples of amounts of objects that can be placed in trays:

45	68	95	17
120	205	189	71

<u>Mastery</u> : Reasoning For this task the children are presented with a sum .They are to look at the estimations 3 children have made and discuss if these are sensible estimates to help them to calculate the total and explain why.

Key questions: How has this child estimated the answer? Is this number close to the first amount in the sum? Do you think there is a multiple of hundred that is closer? What about the second amount? Now let's calculate the answer. What is the answer? Are these sensible estimates?

Answers Mastery:

Children should show through their discussion and explanation that Zain and Theo have made sensible estimations however Samia has not.

BRICKWORK Mathematics

Mastery

Reasoning

Three children estimate the total to this sum:

$$256 + 310$$

Zain

I estimate the first number in the sum as 200 and the second number as 300
So 200 + 300 = 500

Theo

I estimate the first number in the sum as 300 and the second number as 300
So 300 + 300 = 600

Samia

I estimate the first number in the sum as 400 and the second number as 500
So 400 + 500 = 900

Which children do you agree with?