Addition mission

Activity 1

Focus of activity: Adding pairs of 3-digit numbers using expanded addition.

Working together: conceptual understanding

- Explain that today we're going to be adding pairs of 3-digit numbers using expanded addition.
- Write 247 + 431. *Roughly predict what the answer will be.*
- *First, we need to partition the numbers into 100s, 10s and 1s. What does the 2 stand for?* Take chn's answers and if correct write 200 and so on as below, ensuring that the 100s, 10s and 1s columns are clearly lined up. As you write, explain the importance of the columns being very clearly lined up into 100s, 10s and 1s.

```
  200  40  7
+ 400  30  1
```

- *The next step is to leave a space before we draw our lines for the totals, so that we have a space to write any extra tens or hundreds*. Model this as below.

```
  200  40  7
+ 400  30  1
_____________

_____________
```

- *Now we do the addition. First, we add the 1s together.* Take answers and write 8 beneath the line in the 1s column.
- Repeat for the 10s. *Which column has the 10s?* Write 70 beneath the line in the 10s column.
- Repeat for the 100s and write 600 beneath the line.
- *What total does this give us? We have 600 and 70 and 8. When we put these together we have …?* Take answers. If they can't work out the answer is 678, model putting the 3-digit number together using place value cards.
- Repeat for 627 + 164. When adding 7 and 4, explain that we need to write the extra 10 in the 10s column, under the other 10s in the spare row we left. Explain that you can then add this extra 10 when you add the other 10s.

627 + 164

```
   600  20  7
+  100  60  4
       10
_____________
   700  90  1
_____________
```

- *Next we add the 10s together, not forgetting that extra 10.* Explain that we write the extra 10 above the line to ensure that it is easily seen, so not forgotten when we add the 10s up. Ask a child to add the 60, and 20, and the extra 10, reminding the chn that we can start with the 60 first as it is the largest number in the 10s column and addition can be done in any order. *Where do we write the answer?* Write 90 in the 10s column of the answer box.
- Add the 100s and make sure chn know where to write the answer.

- *We have our partitioned answer. What is the answer when it's put back together?* Again model with place value cards if necessary.
- Repeat for 368 + 474. This time an extra 10 and an extra 100 are added. Make sure chn know where to write the extra 100, and add it to the other 100s.

Up for a challenge?

Write 367 + 456. *Look at this addition, how can you spot if you will need to write an extra 10 or 100?*

Now it's the children's turn:

- Chn work in pairs together, so that they can discuss the addition, but record on their own sheet (see child sheet).
- As you move around the group, ask chn to roughly predict what the answer will be before they begin the addition. Ensure chn understand where to write the extra 10 and 100 when necessary. When writing their own additions, ensure that they have left space above the answer box for the extra 10s and 100s. Ask chn to predict if they think they will need an extra 10 or 100.

S-t-r-e-t-c-h:

If chn cope well, give them an addition of a pair of 3-digit numbers where you get a 4-digit answer e.g. 748 + 574. *Where should we write the 1000?*
What is the 4-digit answer when we put 1000, 300, 20 and 2 together?

Things to remember

We have been using expanded addition, where we partition the 3-digit numbers first, as this helps us to understand the value of each digit. We must remember to leave a line above the answer box for any extra 10s and 100s. Ask chn why we add the 1s first rather than the 100s. Discuss how if we add the 100s first, we may end up with an extra 100 when we add the 10s and so need to alter the answer we have written in the 100s column. The same could happen when we add the 1s, as we might need to write an extra 10 in the 10s column. Say that it's good to roughly predict the answer, as then this might alert us to a mistake in our addition.
You may want to add something that has emerged from the activity. This may refer to misconceptions or mistakes made.

Resources	**Outcomes**
• 100s, 10s and 1s place value cards • Practice sheet (see child sheet)	1. Chn can add pairs of 3-digit numbers using expanded addition (answers less than 1000). 2. Chn begin to add pairs of 3-digit numbers which give 4-digit answers.

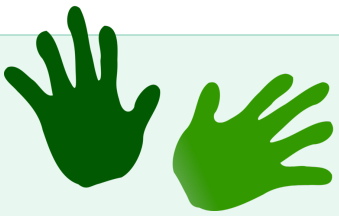
Addition mission

Activity 1

Work in pairs

Things you will need:

- Practice sheet
- A pencil
- Place value cards (optional)



What to do:

- Discuss and predict each addition together. Write your answers on your own sheets. Use expanded addition method to work out your answers.
- Make sure you have left a space above the answer lines so that you have somewhere to to write the extra 10 and 100 if necessary. Predict together if you think you will need an extra 10 or 100 each time.
- Remember to start by adding the 1s on the right, then the 10s in the middle and finally the 100s on the left.
- Write the whole number answer at the side.
- Some numbers are partitioned for you to start with to remind you how to do it. But in the others you need to remember how to partition and lay out the expanded addition yourselves.
- Good luck, you're on an addition mission!

627 + 164

600 20 7
100 60 4
\+ 10
700 90 1 791

S-t-r-e-t-c-h:

Work out the answer to 748 + 574. The 100s come to more than 1000. Where will you write the 1000? What is the 4-digit answer?

Learning outcomes:

- I can add pairs of 3-digit numbers using expanded addition (answers less than 1000).
- I am beginning to add pairs of 3-digit numbers which give 4-digit answers.

Addition mission

Activity 1

482 + 286 =

400 80 2
+ 200 80 6

654 + 268 =

600 50 4
+ 200 60 8

287 + 642 =

+

749 + 244 =

+

385 + 247 =

+

387 + 327 =

+

258 + 584 =

+