

# Adding a 3-digit number and 1s

## Learning focus

In this lesson, children will understand how to recognise additions where they will bridge a ten, and know how to use exchange of 10 ones for 1 ten.

## Small steps

- Previous step: Adding and subtracting a 3-digit number and 1s
- **This step: Adding a 3-digit number and 1s**
- Next step: Subtracting 1s from a 3-digit number

## NATIONAL CURRICULUM LINKS

### Year 3 Number – Addition and Subtraction

- Add and subtract numbers mentally, including: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds.
- Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

## ASSESSING MASTERY

Children can add a single digit number to a 3-digit number and bridge the ten by exchanging 10 ones for 1 ten. Children can recognise when exchange of 10 ones for 1 ten is required.

## COMMON MISCONCEPTIONS

Children may not understand that exchange is a different way of partitioning the number, and think that they are changing the number. Ask:

- *What is the same and what is different about  $100 + 50 + 5$  and  $100 + 40 + 15$ ?*

The concept of exchange may cause difficulty for some children, and they may assume you have to exchange for every addition. Ask:

- *Can you tell if the 10s digit will increase before working out the exact answer?*

## STRENGTHENING UNDERSTANDING

Children will need to link this learning to knowledge of bonds within 20. It may help children to imagine or use a ten frame to support this thinking initially. Use of base 10 equipment to represent change from 1s to 10 in a concrete way will also support understanding.

## GOING DEEPER

Encourage children to recognise whether the 10s digit will increase in an addition even before calculating the exact answer. Challenge children to recognise this as a checking strategy.

## KEY LANGUAGE

**In lesson:** exchange, addition, subtraction, 10s digit, tens (10s), ones (1s), 10 ones, hundreds (100s), solutions, altogether, pattern

**Other language to be used by the teacher:** total, variation

## STRUCTURES AND REPRESENTATIONS

Number line, part-whole model, place value equipment

## RESOURCES

**Mandatory:** base 10 equipment, 0–9 digit cards

**Optional:** ten frame



In the eTextbook of this lesson, you will find interactive links to a selection of teaching tools.

## Before you teach

- Do children know number bonds for 11?
- Can children tell if two numbers will add to 10 or greater?
- Do children know what to add to 135 to make 140?

# Adding a 3-digit number and 1s

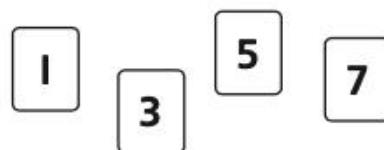
## Discover



1 a) Solve the additions.

b) Use the cards to complete this addition.

$$\square\square\square + \square = 160$$



Is there more than one way?



# Share

a)  $571 + 3$  can be solved like last lesson but  $135 + 7$  is different.



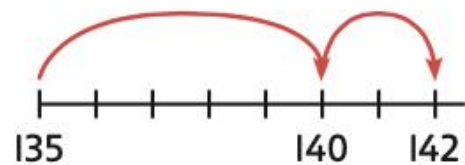
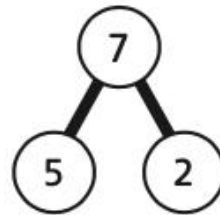
$571 + 3 = ?$   
I can add the 1s.  
 $1 + 3 = 4$

$$571 + 3 = 574$$

$135 + 7 = ?$   
I will add the 1s.  
 $5 + 7 = 12$   
Is the answer 1,312?



$135 + 7 = ?$   
We need 5 more to make the next 10.  
Then add on the 2.



The 5 ones and 5 more make a ten.  
Exchange 10 ones for 1 ten.

$$135 + 7 = 1 \text{ hundred} + 4 \text{ tens} + 2 \text{ ones} = 142$$

H	T	O

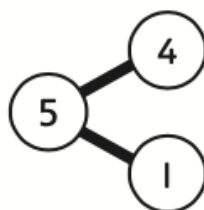
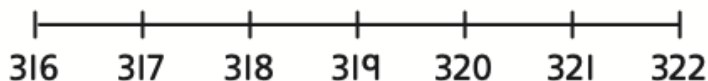
b)  $153 + 7 = 160$  and  $157 + 3 = 160$

These both total 160, because  $7 + 3 = 10$ .

# Think together

1 Solve this addition.

$$\boxed{3} \boxed{1} \boxed{6} + \boxed{5}$$



H	T	O

$$6 \text{ ones} + 5 \text{ ones} = \boxed{\phantom{00}} \text{ ones}$$

$$\boxed{\phantom{00}} \text{ ones} = 1 \text{ ten and } \boxed{\phantom{00}} \text{ ones}$$

$$316 + 5 = \boxed{\phantom{00}} \text{ hundreds} + \boxed{\phantom{00}} \text{ tens} + \boxed{\phantom{00}} \text{ ones} = \boxed{\phantom{000}}$$

2 Which addition changes the 10s digit? Can you tell before finding the answers?

A  $\boxed{2} \boxed{4} \boxed{8} + \boxed{6}$

B  $\boxed{8} \boxed{4} \boxed{2} + \boxed{6}$

Now solve the additions.

a)  $8 \text{ ones} + 6 \text{ ones} = \boxed{\phantom{00}} \text{ ones}$

b)  $2 \text{ ones} + 6 \text{ ones} = \boxed{\phantom{00}} \text{ ones}$

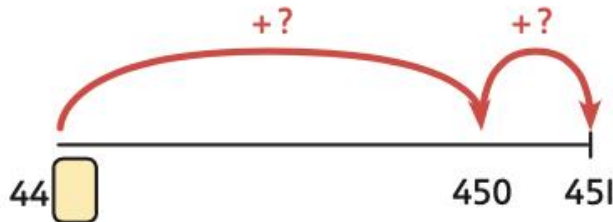
$$\boxed{\phantom{00}} \text{ ones} = 1 \text{ ten} + \boxed{\phantom{00}} \text{ ones}$$

$$248 + 6 = \boxed{\phantom{000}}$$

$$842 + 6 = \boxed{\phantom{000}}$$

3  $44\boxed{\phantom{0}} + \boxed{\phantom{0}} = 451$

Find more than 4 different solutions. Add a number less than 10.



I want to find all the solutions.



4 Find an example to support Astrid's idea.

CHALLENGE



When I add a 3-digit number and 1s, the 10s digit increases by 1.

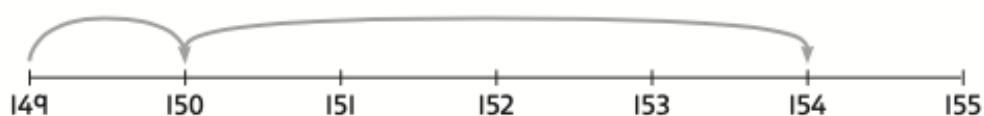
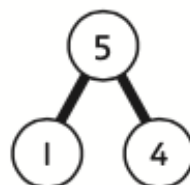
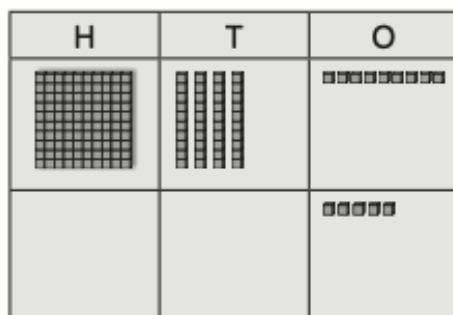
Is it always true?

Can the 10s digit ever increase by 2?

Discuss with a partner and share your reasons with the class.

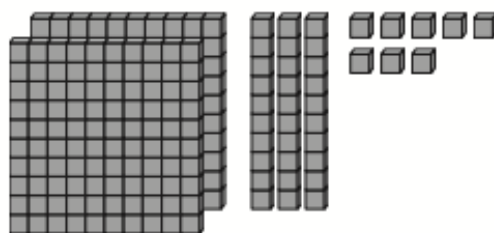
# Adding a 3-digit number and 1s

- 1** a) A museum has 149 fossils. They are given 5 more.  
How many fossils do they have now?



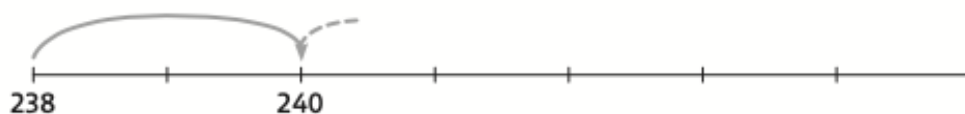
Now they have  fossils.

- b) Ella and Noah found 238 dinosaur bones on the beach and 7 more in a field.  
How many bones altogether?



$$238 + 7 = \boxed{\phantom{000}}$$

There are  bones altogether.



**2** Complete the calculations.

$$\begin{array}{|c|c|c|} \hline 3 & 4 & 7 \\ \hline \end{array} + \begin{array}{|c|} \hline 4 \\ \hline \end{array}$$

$$\begin{array}{|c|c|c|} \hline 5 & 2 & 8 \\ \hline \end{array} + \begin{array}{|c|} \hline 3 \\ \hline \end{array}$$



a)  $7 + 4 = \square$

$347 + 4 = \square$

b)  $8 + 3 = \square$

$528 + 3 = \square$

**3** Complete the additions.

a)  $349 + 6 = \square$

d)  $6 + 459 = \square$

g)  $\square = 559 + 6$

b)  $349 + 7 = \square$

e)  $6 + 458 = \square$

h)  $\square = 558 + 7$

c)  $349 + 8 = \square$

f)  $6 + 457 = \square$

i)  $\square = 557 + 8$

Explain a pattern that you noticed.

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- 4 Circle the calculations where the 10s digit will increase, then calculate the additions.



$458 + 1$

$185 + 4$

$154 + 8$

$841 + 5$

$584 + 1$

$418 + 5$

$514 + 8$

$158 + 4$

- 5 Use the digits 3, 4, 5 and 8 to make additions for each list.

**CHALLENGE**

Tens digit will not increase	Tens digit will increase
<input type="text"/> <input type="text"/> <input type="text"/> + <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> + <input type="text"/>
<input type="text"/> <input type="text"/> <input type="text"/> + <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> + <input type="text"/>
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## Reflect

Explain what is the same and what is different about how to solve:  
 $825 + 3$  and  $825 + 8$

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_





