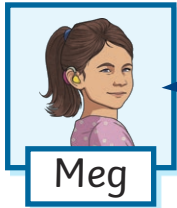
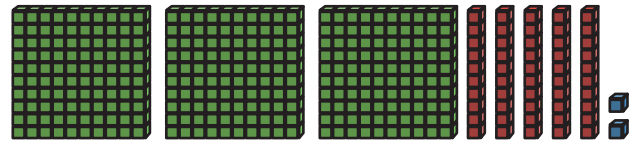


Partitioning 3-Digit Numbers in Different Ways

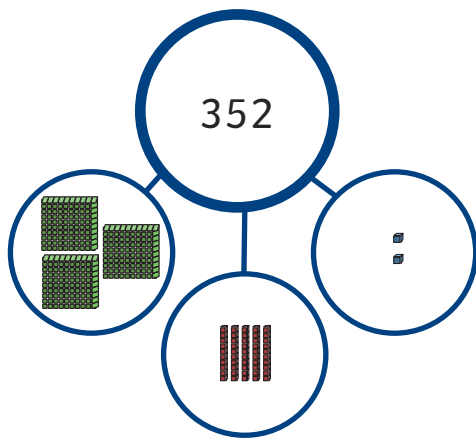
Meg has represented a 3-digit number using base ten.



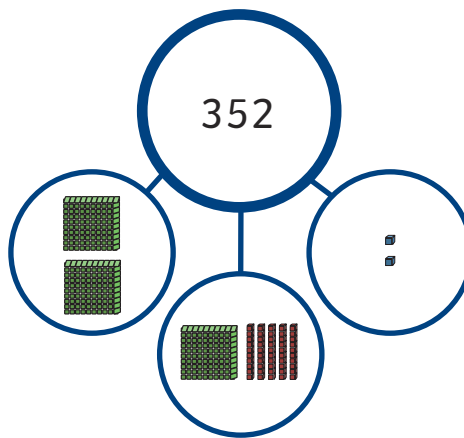
I have made the number 352. It has 3 hundreds, 5 tens and 2 ones.



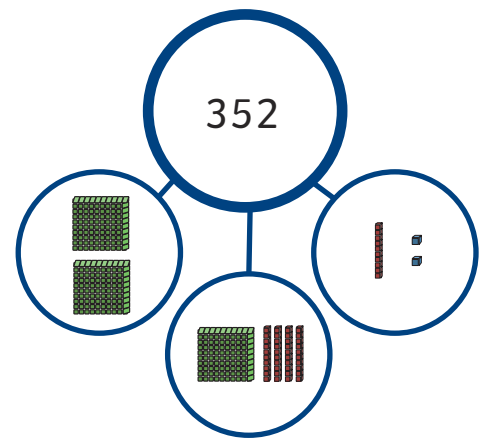
Meg uses the base ten to find two other ways of partitioning 352.



$$352 = 300 + 50 + 2$$



$$352 = 200 + 150 + 2$$

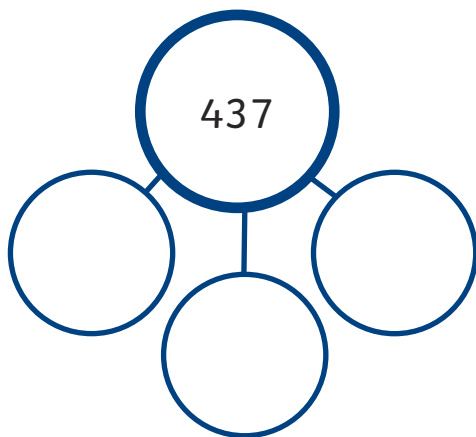


$$352 = 200 + 140 + 12$$

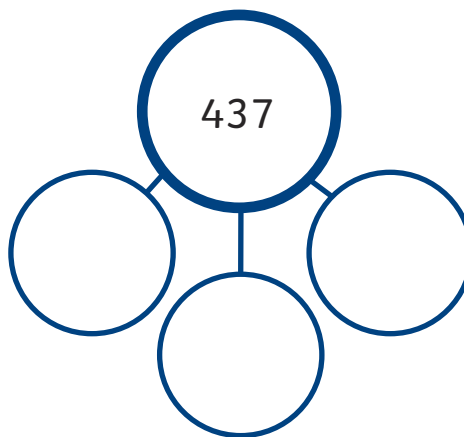
What do you notice? Discuss with a partner any patterns you can see.

Complete the sentence and find three ways of partitioning each 3-digit number.

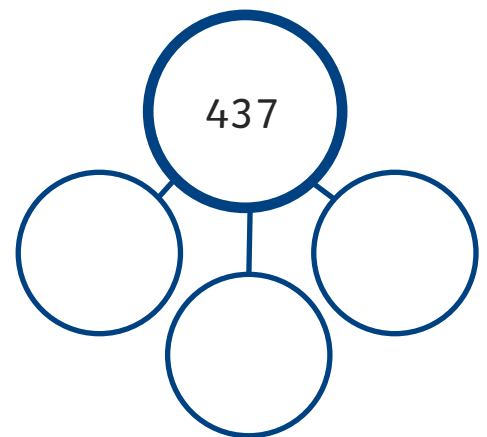
1) 437 has hundreds, tens and ones.



$$437 =$$

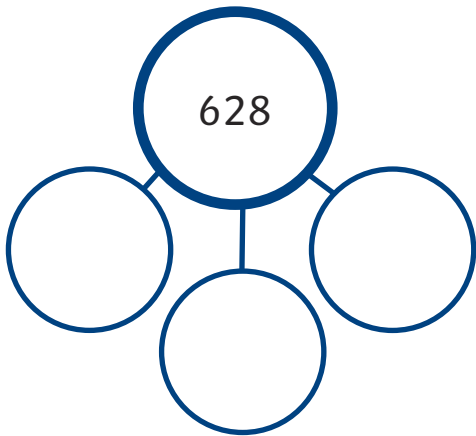


$$437 =$$

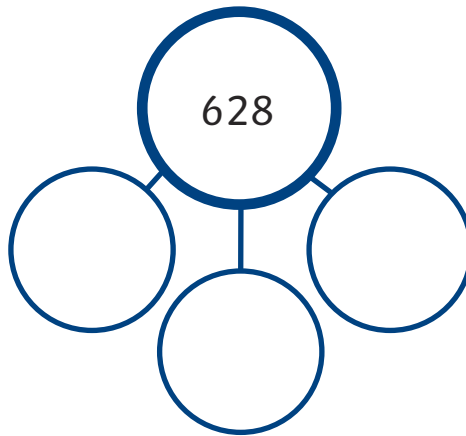


$$437 =$$

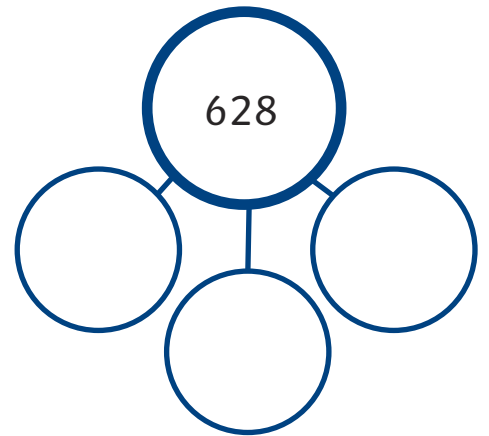
2) 628 has hundreds, tens and ones.



628 =

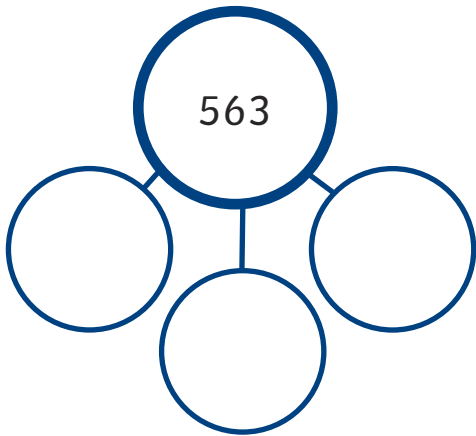


628 =

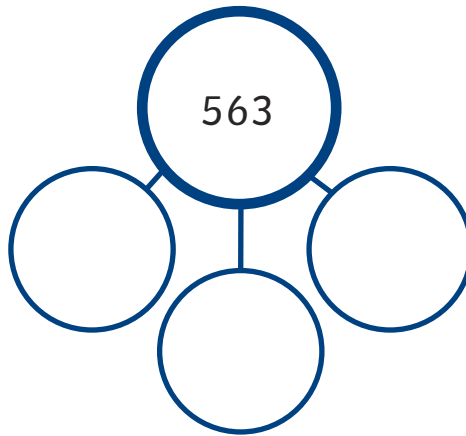


628 =

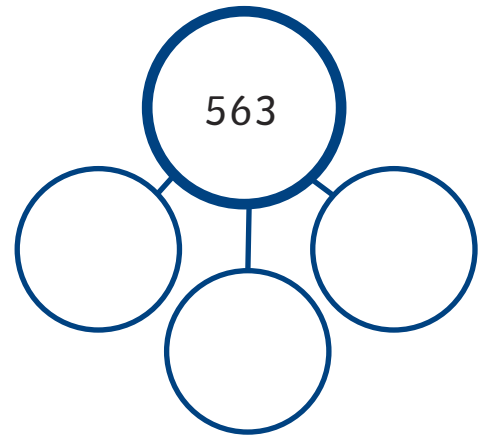
3) 563 has hundreds, tens and ones.



563 =

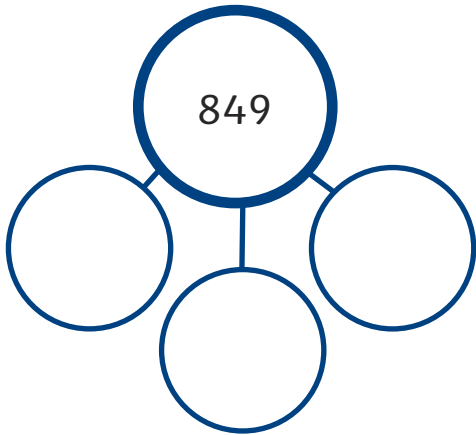


563 =

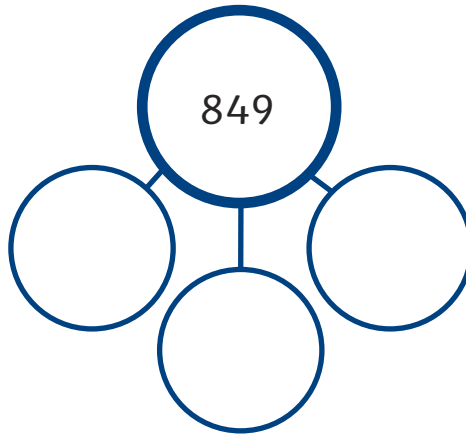


563 =

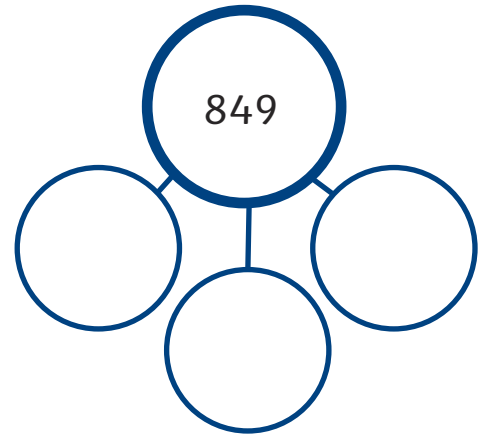
4) 849 has hundreds, tens and ones.



849 =

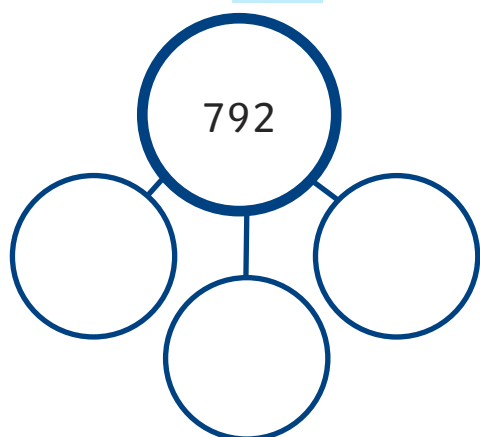


849 =

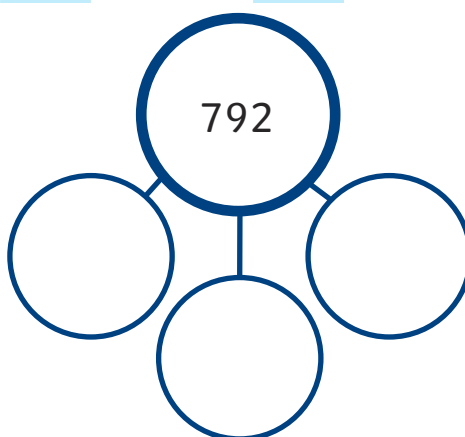


849 =

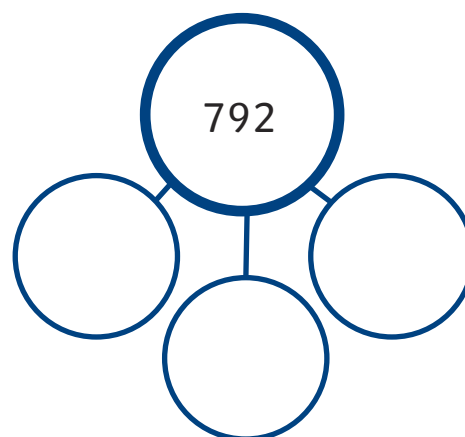
5) 792 has hundreds, tens and ones.



792 =

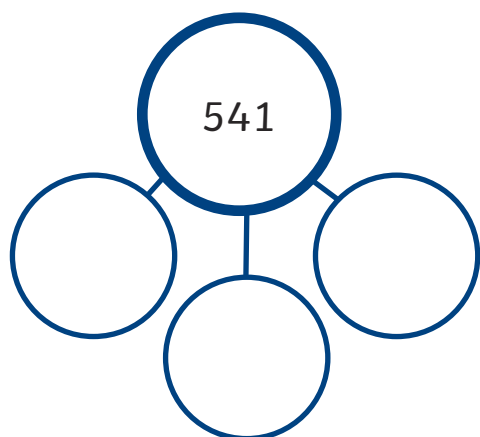


792 =

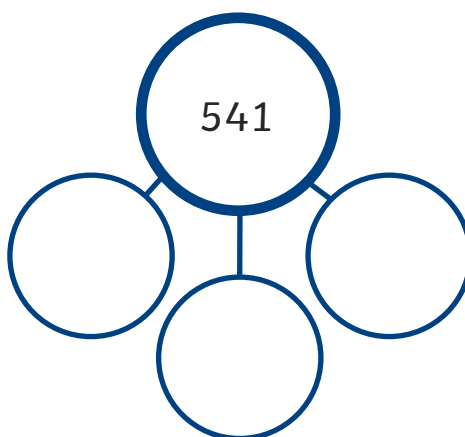


792 =

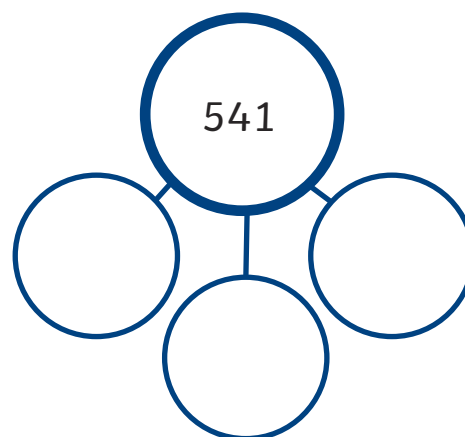
6) 541 has hundreds, tens and ones.



541 =

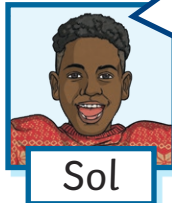


541 =

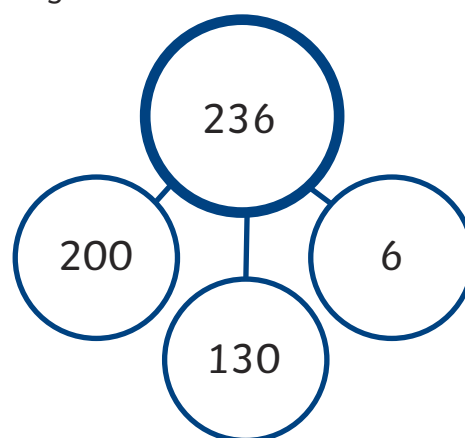
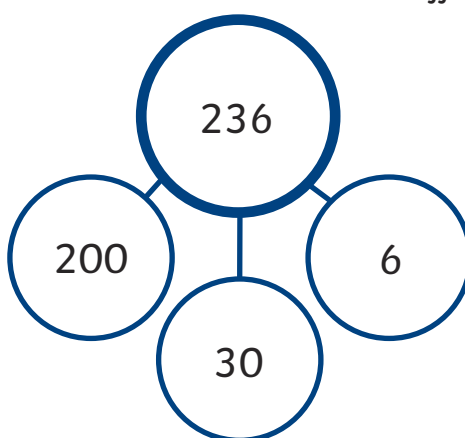


541 =

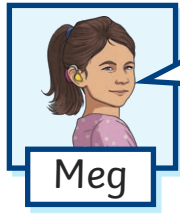
7) Can you spot the mistake? What should Sol have done differently?



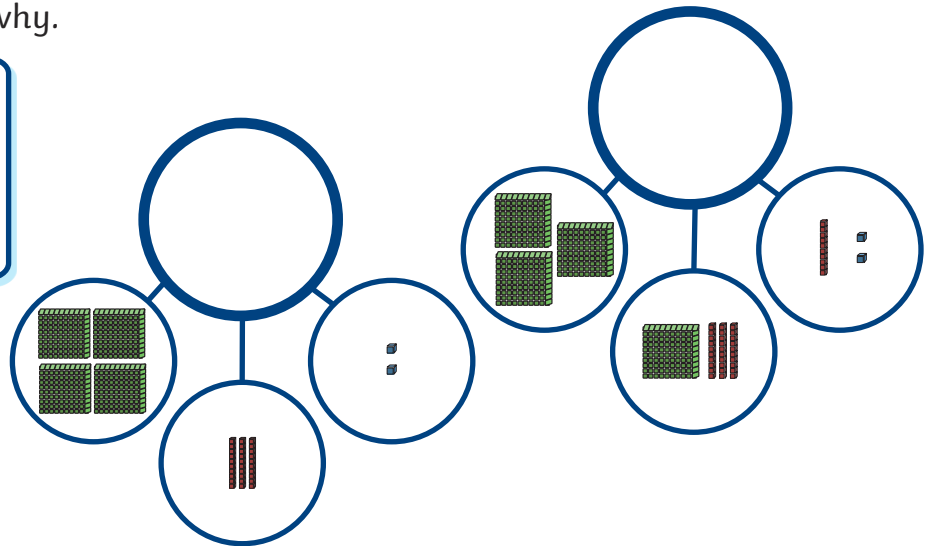
The part-whole models show two ways of partitioning 236.



8) Is this true or false? Explain why.



Two children have found different ways to partition the same 3-digit number.



9) Do you agree? Explain why.



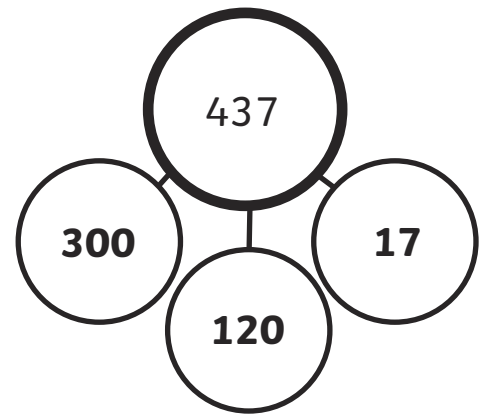
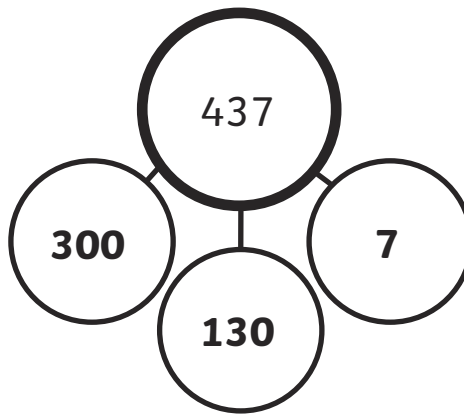
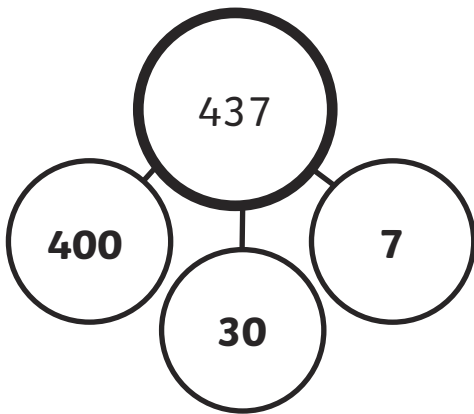
$500 + 20 + 1$ is the same as $400 + 110 + 11$

10) Sally has used nine pieces of base ten to show different ways of partitioning a 3-digit number. Some pieces are hundreds and some are tens. There are no ones.

What numbers could Sally have made? Explain how you know.

Partitioning 3-Digit Numbers in Different Ways **Answers**

1) 437 has **4** hundreds, **3** tens and **7** ones.

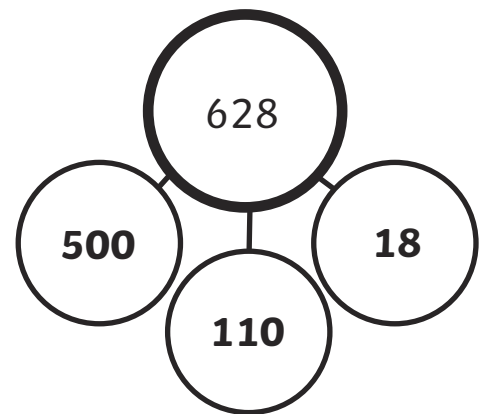
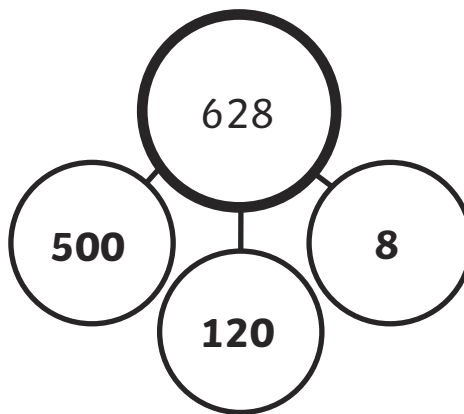
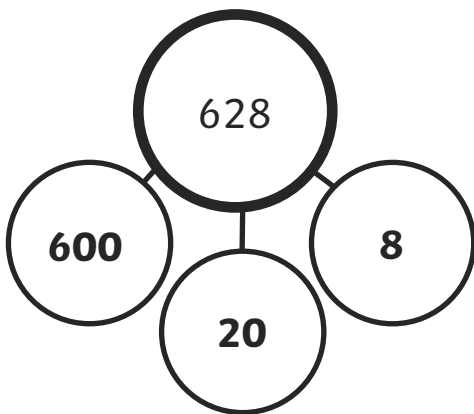


$$437 = 400 + 30 + 7$$

$$437 = 300 + 130 + 7$$

$$437 = 300 + 120 + 17$$

2) 628 has **6** hundreds, **2** tens and **8** ones.

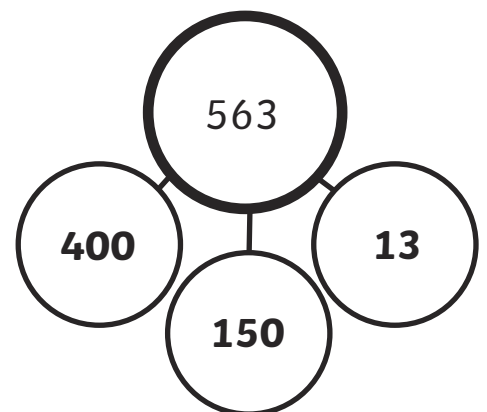
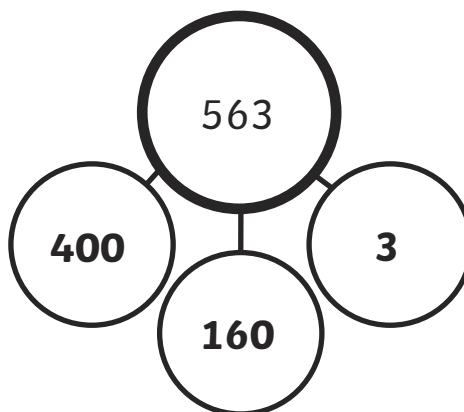
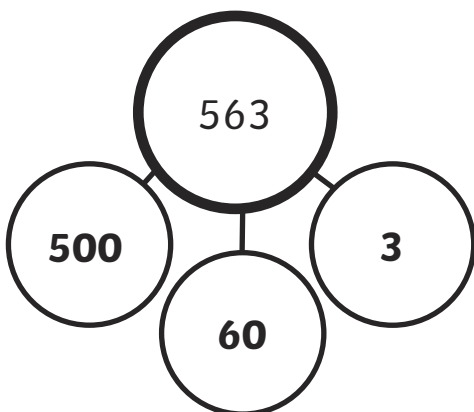


$$628 = 600 + 20 + 8$$

$$628 = 500 + 120 + 8$$

$$628 = 500 + 110 + 18$$

3) 563 has **5** hundreds, **6** tens and **3** ones.

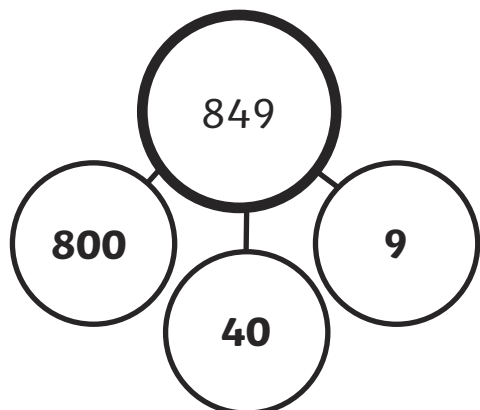


$$563 = 500 + 60 + 3$$

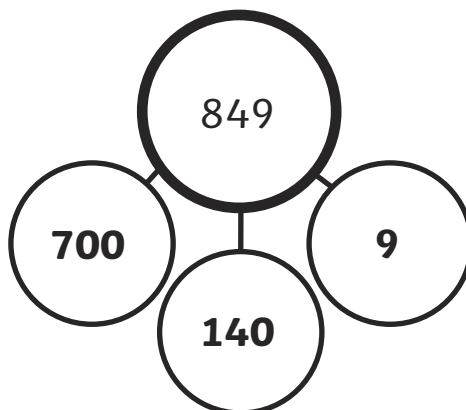
$$563 = 400 + 160 + 3$$

$$563 = 400 + 150 + 13$$

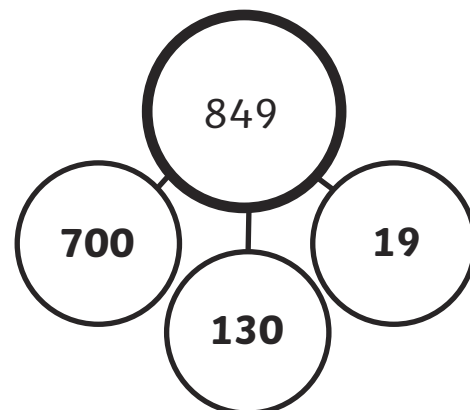
4) 849 has **8** hundreds, **4** tens and **9** ones.



$$849 = 800 + 40 + 9$$

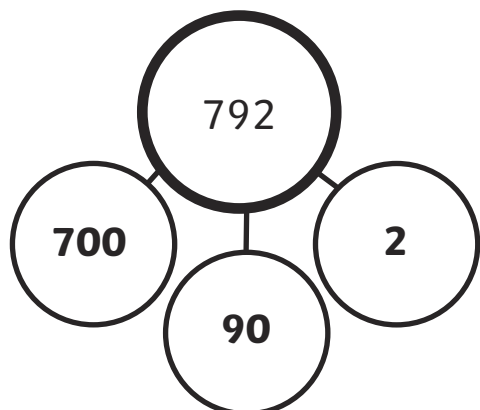


$$849 = 700 + 140 + 9$$

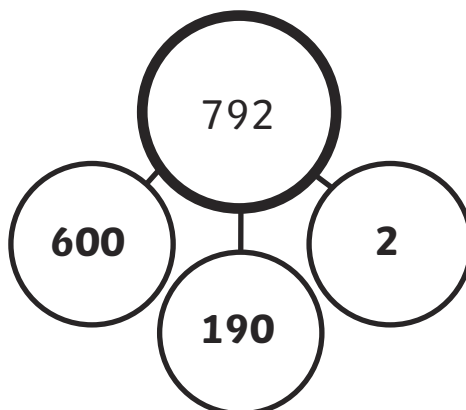


$$849 = 700 + 130 + 19$$

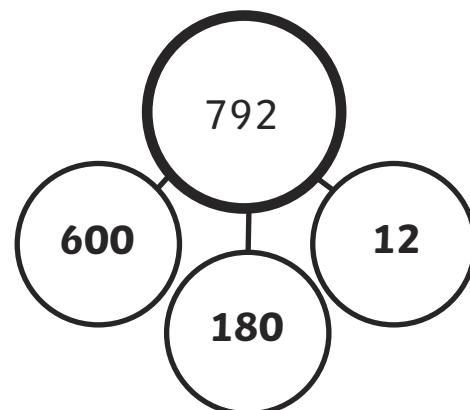
5) 792 has **7** hundreds, **9** tens and **2** ones.



$$792 = 700 + 90 + 2$$

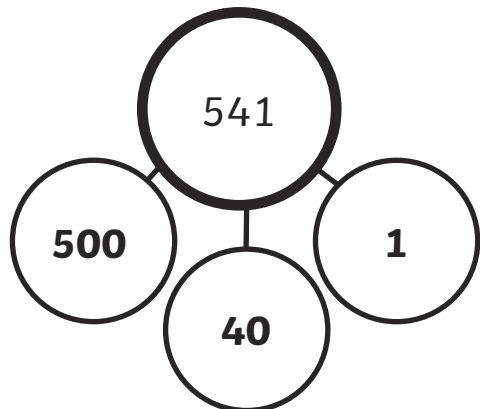


$$792 = 600 + 190 + 2$$

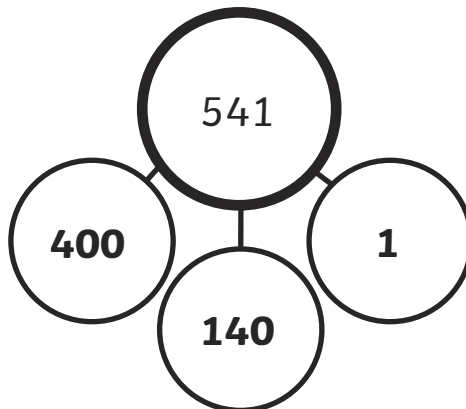


$$792 = 600 + 180 + 12$$

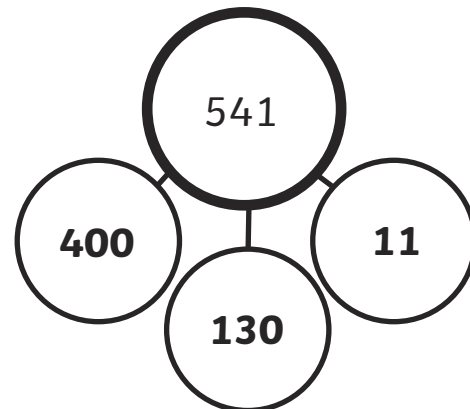
6) 541 has **5** hundreds, **4** tens and **1** ones.



$$541 = 500 + 40 + 1$$



$$541 = 400 + 140 + 1$$



$$541 = 400 + 130 + 11$$

- 7)** The first part-whole model shows 236 correctly partitioned into 200, 30 and 6. On the second part-whole model, Sol has added an extra hundred. He could correct this by changing the parts to 100, 130 and 6.
- 8)** The statement is false. One child has used a total of 4 hundreds, 3 tens and 2 ones so has partitioned 432. The other child has 4 hundreds, 4 tens and 2 ones, so has partitioned 442.
- 9)** Children should agree. They could use equipment to prove that these are both ways of partitioning 521 using 5 hundreds, 2 tens and 1 one.
- 10)** The numbers of hundreds and tens must add up to 9 as there are no ones. Possible answers are 810, 720, 630, 540, 450, 360, 280 or 180.