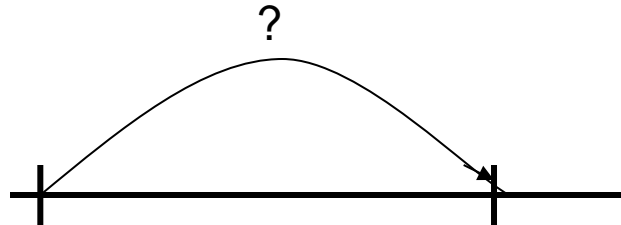
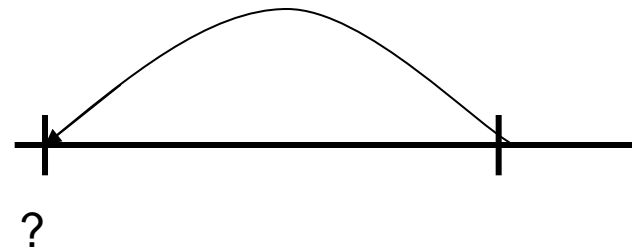
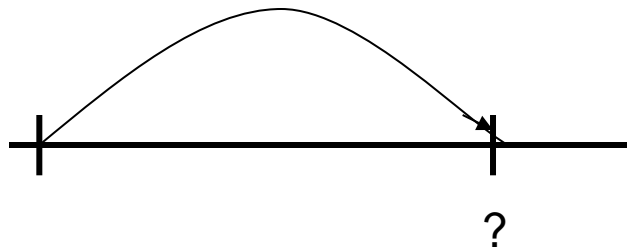


# Addition and Subtraction Progression Policy

# Visual Images



Children should be selecting one of these three visual images before starting their work. These images reinforce the 'what they are doing', not 'how are they doing it'.

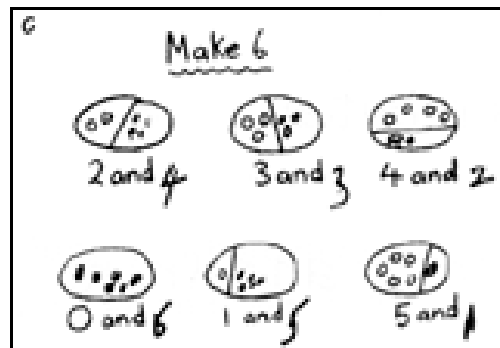
# Value Expectations

- Year R - Units
- Year 1 – Units and Tens
- Year 2- Tens and Hundreds
- Year 3-Hundreds to Thousands
- Year 4-Thousands to Tens of Thousands, tenths, unit fractions
- Year 5-Tens of Thousands, hundredths
- Year 6-Tens of Thousands to Tens of Millions, decimals
- Year 7 and beyond – A wide range of whole and decimal numbers

Written methods then become basis for mental methods the following year.

# Early Addition

- I can record calculations using pictures



Make 6

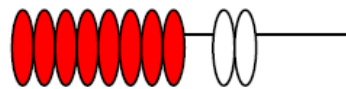
$$2 + 4 = \underline{6}$$

$$3 + 3 = \underline{6}$$

$$1 + 5 = \underline{6}$$

- I can use bead strings to illustrate addition

$$8 + 2$$



$$8 + 2 = \underline{10}$$

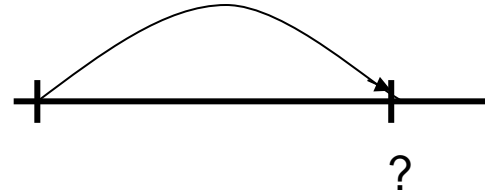
- I can double using objects



$$3 + 3 = \underline{6}$$

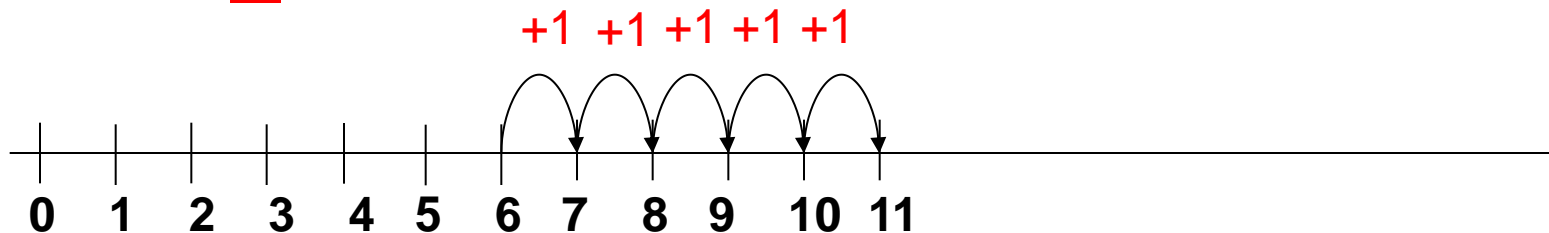
# Early Number Line Addition

Visual Image:



- I can use a **structured** number line to count on in units.

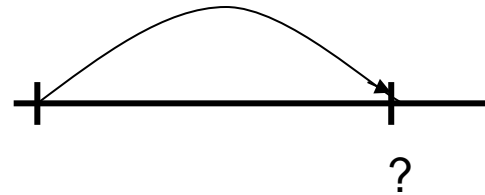
$$6 + 5 = \underline{11}$$



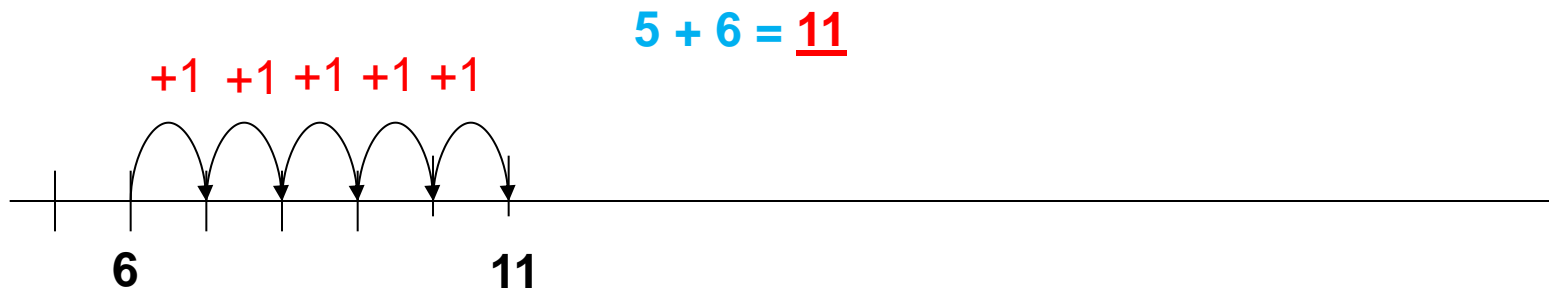
**Move on to** – adding three single digit numbers  
e.g.  $4 + 3 + 6 = 13$  Spot useful number bonds  
( $6 + 4 = 10$  first, then  $+ 3 = 13$ )

# Early Number Line Addition

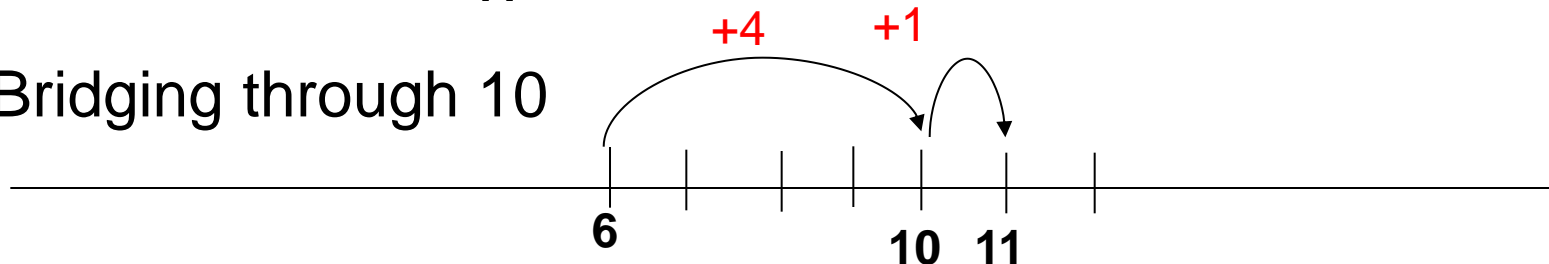
Visual Image:



- I can use a blank number line to count on in units.



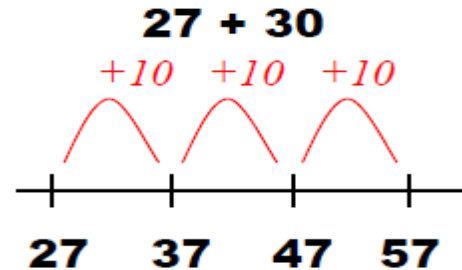
- Bridging through 10



**Reinforce**— always starting from the larger number.

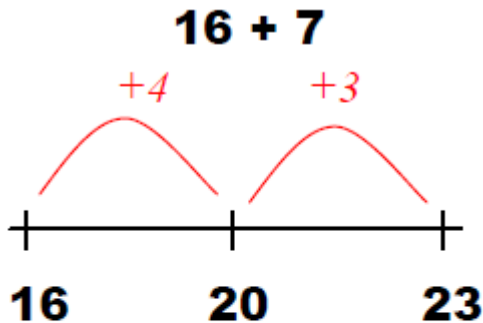
# Early Number Line Addition

- I can use a number line to count on in tens



$$27 + 10 + 10 + 10 = 57$$

$$27 + 30 = \underline{57}$$



$$16 + 4 + 3 = 23$$

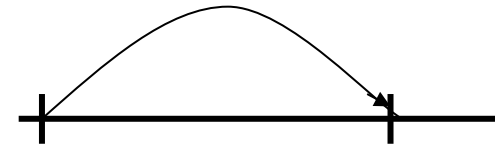
$$16 + 7 = \underline{23}$$

**Move on to** - counting on, using number bonds and 'bridging' to nearest 10.

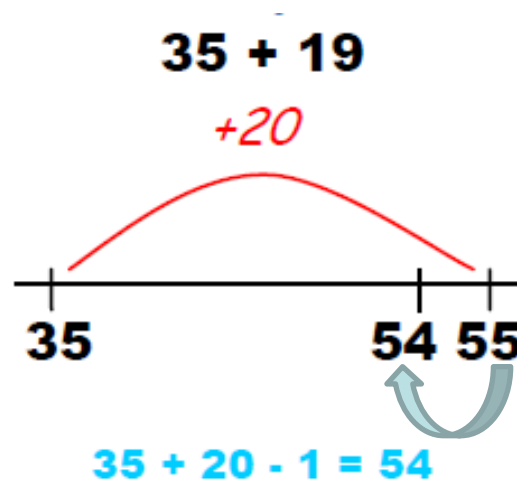
(e.g. Use your understanding of number bonds to 7 to split it into 4 + 3)

# Moving on with Number Line

## Addition



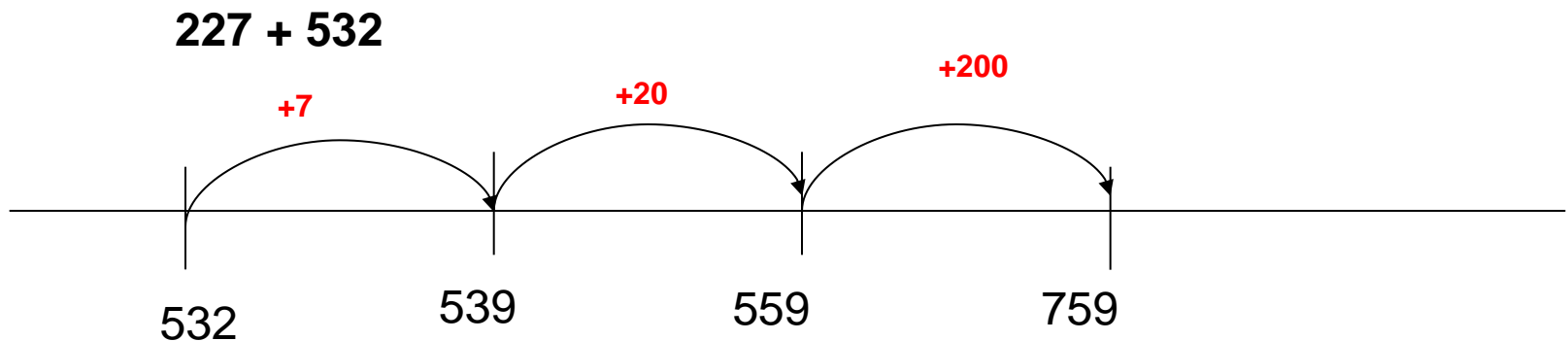
- I can add near multiples of ten by adding in tens and adjusting



$$35 + 19 = 54$$

# Moving on with Number Line Addition

- I can use methods of partitioning to solve more complex addition



$$532 + 7 + 20 + 200 = \underline{759}$$

***Move on to...***

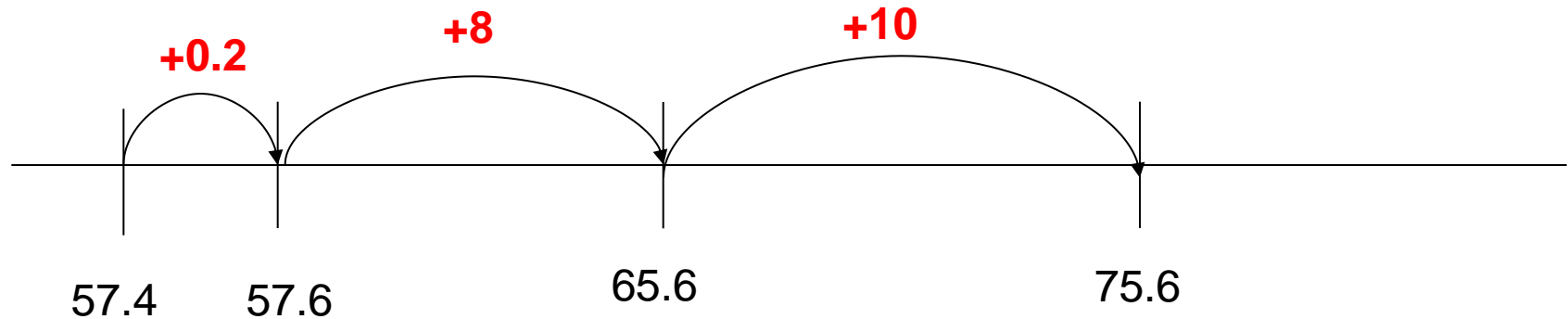
Numbers that use bridging

By starting with the units, this will help when later you are calculating using columns!

# Number Lines and Decimals

- I can use number line methods with decimal numbers

$$18.2 + 57.4$$



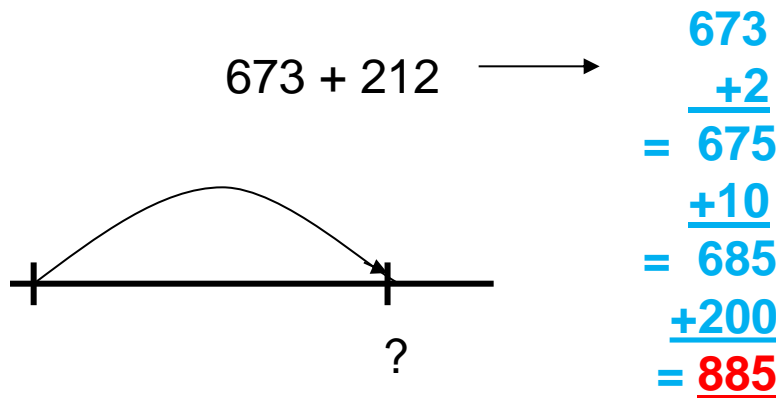
$$57.4 + 0.2 + 8 + 10 = \underline{75.6}$$

*Move on to...*

Decimals that use bridging

# Moving Towards the Compact Method

- I can link the number line method to the expanded method to add amounts



You will first need to show the numberline method so that you link the two methods together.

# Compact Addition Method

- I can carry numbers to add using the compact method

Whole Numbers

$$625 + 48$$

$$\begin{array}{r} 625 \\ + 48 \\ \hline 673 \\ \hline 1 \end{array}$$

$$625 + 48 = \underline{673}$$

Decimal Numbers

$$16.4 \text{ kg} + 7.68 \text{ kg}$$

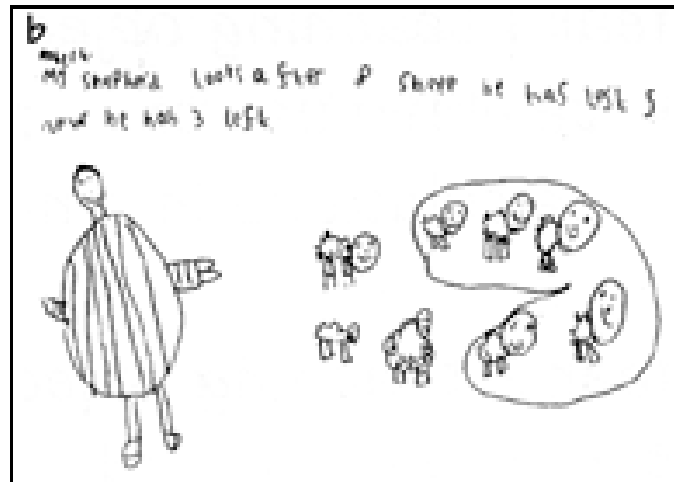
$$\begin{array}{r} 16.40 \\ + 7.68 \\ \hline 24.08 \\ \hline 1 \quad 1 \end{array}$$

$$16.4 + 7.68 = \underline{24.08} \\ \text{kg}$$

# Early Subtraction

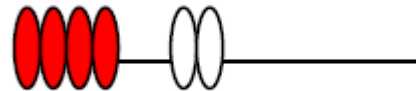
- I can record subtraction using pictures

$$8 - 5 = \underline{3}$$
$$8 - 3 = \underline{5}$$



- I can use bead strings to illustrate subtraction

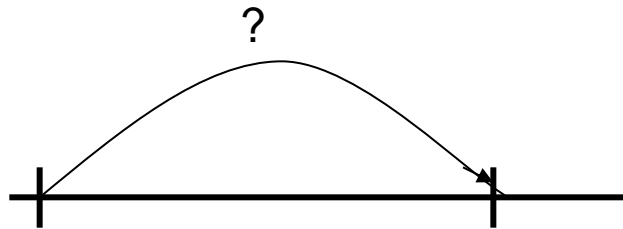
$$6 - 2$$



$$6 - 2 = \underline{4}$$

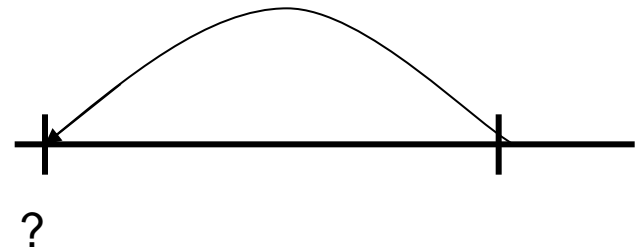
# Number Line Subtraction

Two visual images:



Finding the Difference

*(How many more than...?)*



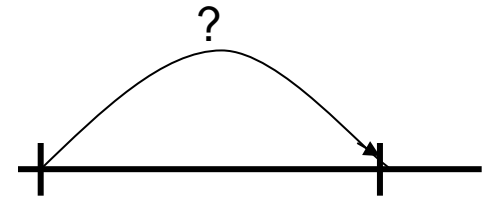
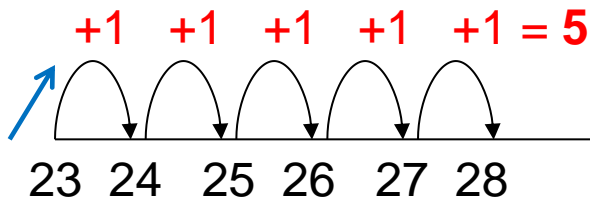
Counting Back

You will need to select which image you need, based on either context or number size.

# Early Number Line Subtraction

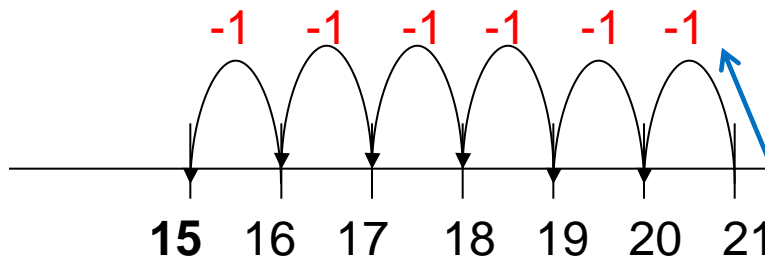
- I can use a number line to find the difference

What is the difference between 23 and 28? 5

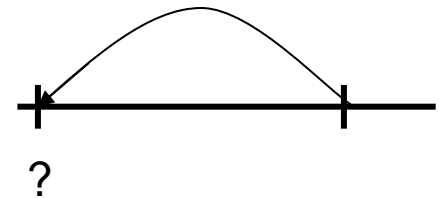


- I can use a number line to count back

What is  $21 - 6$ ?



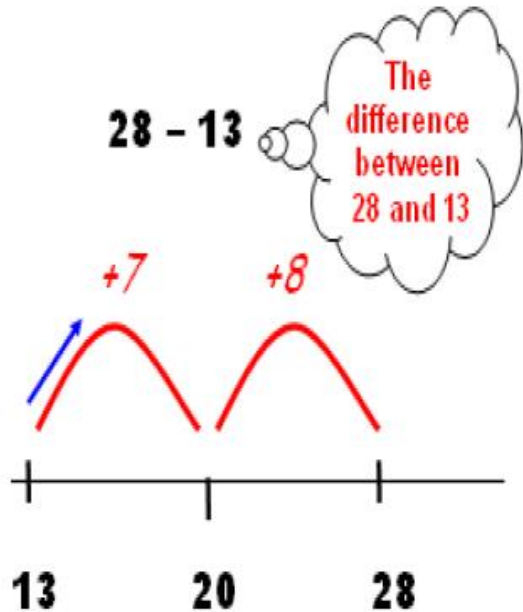
$$21 - 6 = \underline{15}$$



# Moving on with Number Line

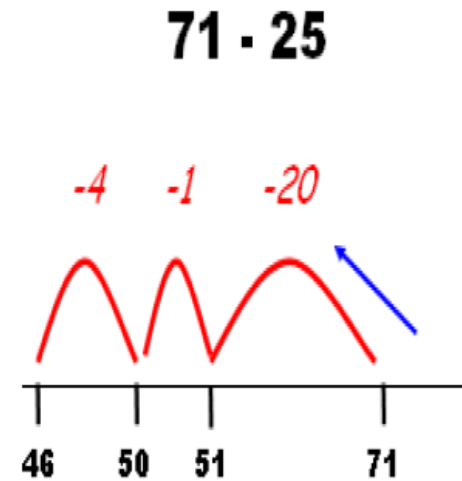
## Subtraction

- I can use partitioning to find the difference



$$28 - 13 = \underline{15}$$

- I can use bridging the ten to count back



$$71 - 20 = 51$$

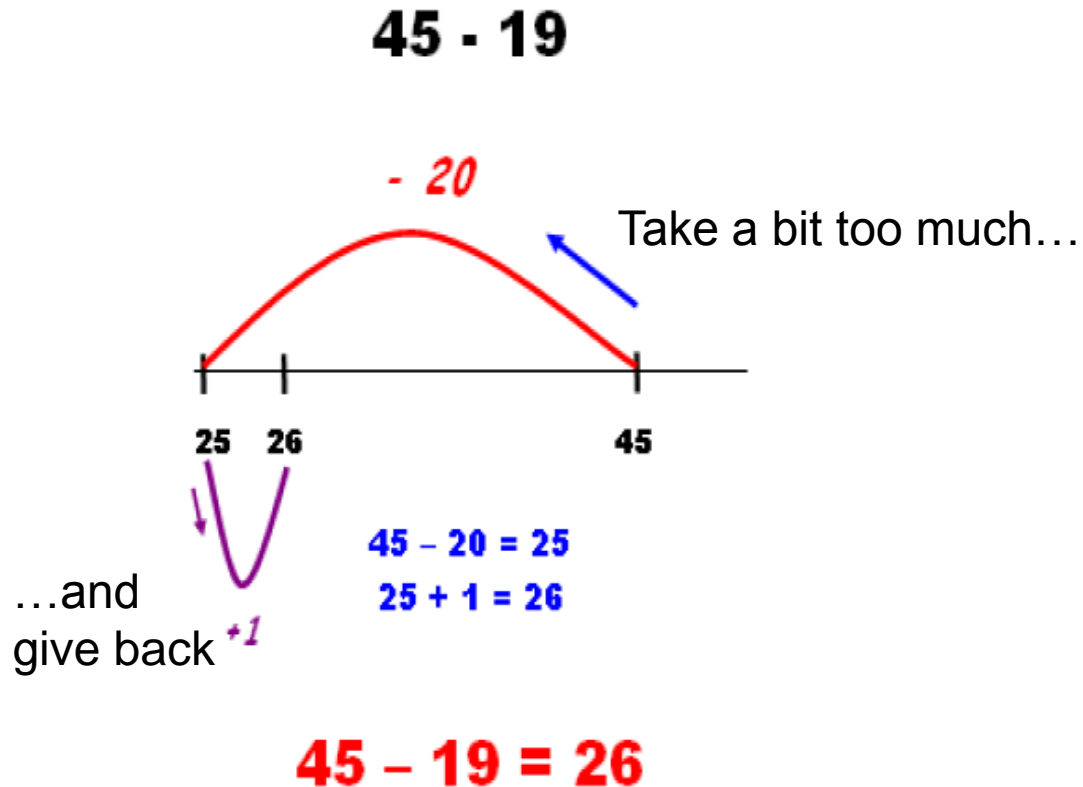
$$51 - 1 = 50$$

$$50 - 4 = 46$$

$$71 - 25 = \underline{46}$$

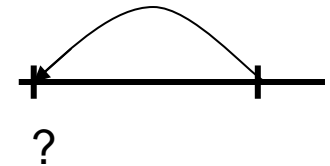
# Moving on with Number Line Subtraction

- I can subtract near multiples of ten by counting back in tens and adjusting

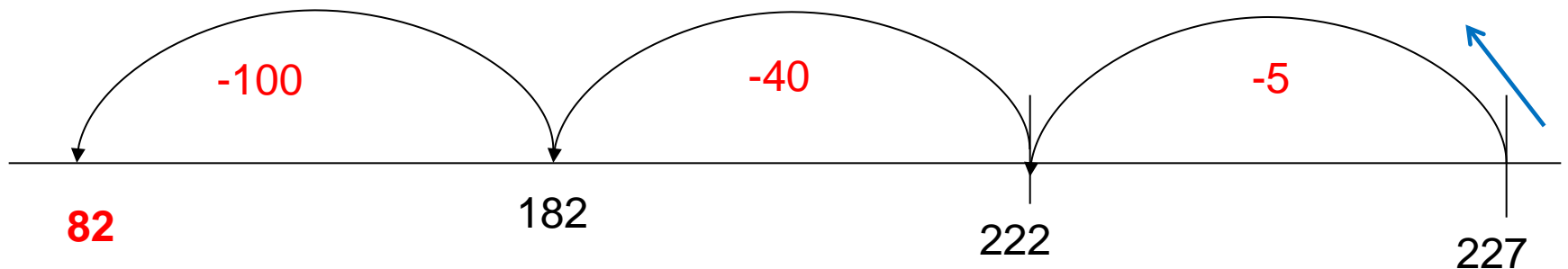


# Becoming More Efficient

- I can use place value knowledge to make larger jumps



$$227 - 145 = 227 - 5 - 40 - 100 = \underline{82}$$

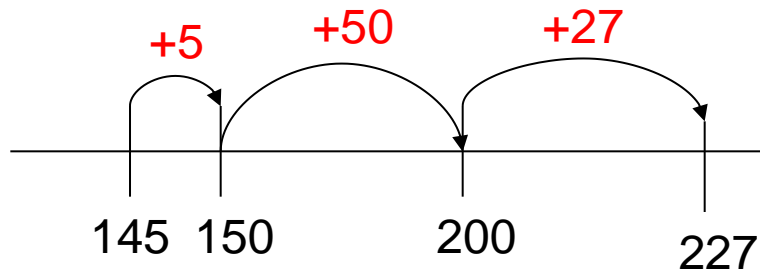
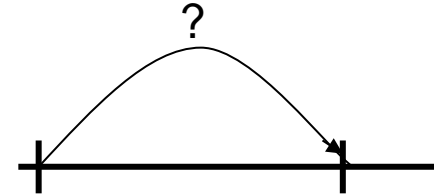


Start with the units as  
this helps later!

# Becoming More Efficient

- I can use place value knowledge to make larger jumps

$$227 - 145 =$$

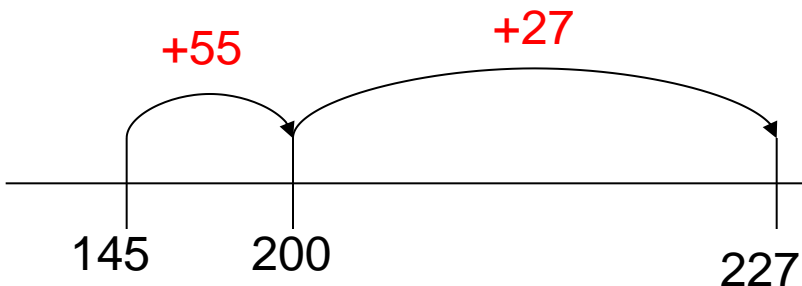


$$5 + 50 + 27 = \underline{82}$$

Use number bonds to help you

*Move on to...*

$$55 + 27 = \underline{82}$$

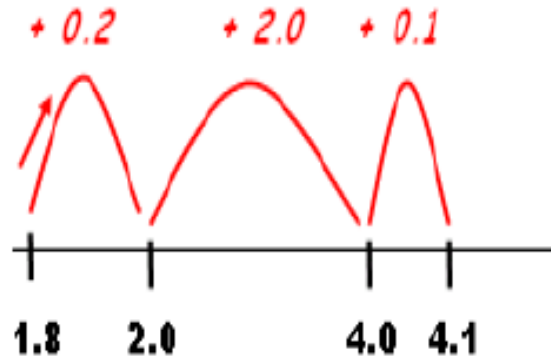


Count up to the nearest multiple of 10 or 100

# Number Lines and Decimals

- I can use a number line to find the difference between two decimals

$$4.1 - 1.8$$



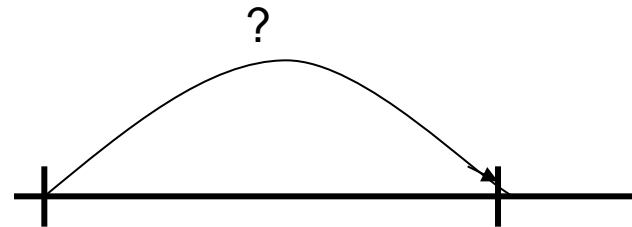
$$1.8 + 0.2 + 2.0 + 0.1 = 4.1$$

# Moving Towards the Compact Method

- I can link a find the difference numberline method to an expanded subtraction method

$$227 - 145 = ?$$

$$\begin{array}{r} 227 \\ -145 \\ \hline + 5 \longrightarrow 150 \\ +50 \longrightarrow 200 \\ +27 \longrightarrow 227 \\ \hline 82 \end{array}$$



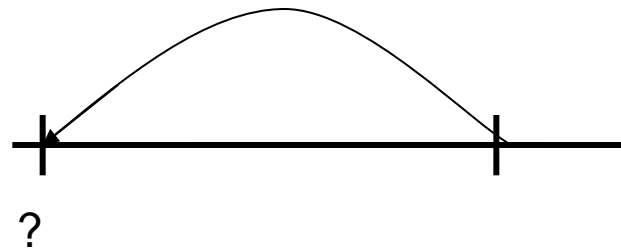
$$227 - 145 = \underline{82}$$

# Moving Towards the Compact Method

- I can link a counting back numberline method to an expanded subtraction method

$$227 - 145 = ?$$

$$\begin{array}{r} 227 \\ -145 \\ \hline -5 \\ \hline 222 \\ -40 \\ \hline 182 \\ -100 \\ \hline 82 \end{array}$$



$$227 - 145 = \underline{82}$$

# Decomposition

$$227-145 = ?$$

$$227 = 200 + 20 + 7$$

$$\text{Also, } 227 = 100 + 120 + 7$$

Flexible partitioning will help you prepare for decomposition.

$$227-145 = ?$$

$$\begin{array}{r} 1 \\ \cancel{2} 12 \ 7 \\ -1 \ 4 \ 5 \\ \hline \phantom{2} \phantom{12} \ 2 \end{array}$$

Start with the units.  $7-2=5$ , but  $20-40$ ? Can't do (without going into minus numbers), Use flexible partitioning to turn into  $100 + 120 + 7$  so that you can do  $120-40$ .

# Compact Subtraction Method

- I can use compact decomposition to solve whole and decimal number subtractions

$$647 - 286$$

$$\begin{array}{r} \overset{5}{\cancel{6}} \overset{1}{4} 7 \\ - 286 \\ \hline 361 \end{array}$$

$$647 - 286 = \underline{361}$$

$$137.4 - 29.6$$

$$\begin{array}{r} 2 \overset{1}{6} \\ \overset{1}{\cancel{3}} \overset{1}{7} . 4 \\ - 29.6 \\ \hline 107.8 \end{array}$$

$$137.4 - 29.6 = \underline{107.8}$$