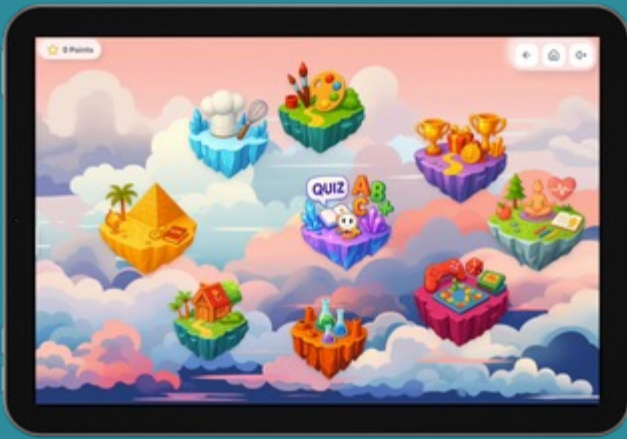


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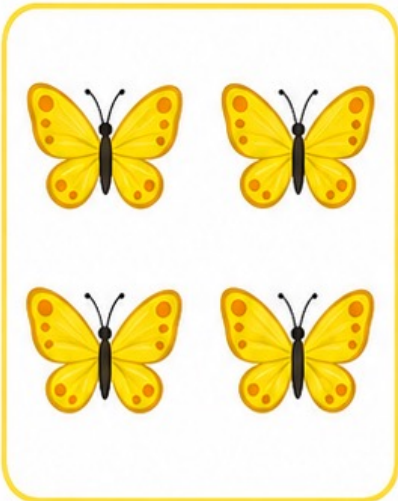
Modelling Addition and Subtraction Problems - Year 1

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ADD TO

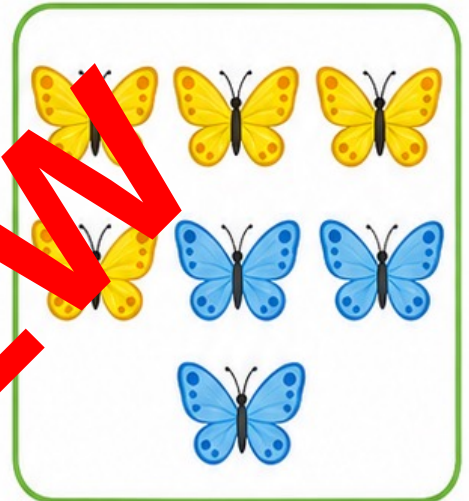
Start



Some more join



New total



Mia saw 4 butterflies. Then 3 more flew over. How many butterflies are there now?

$$4 + 3 = 7$$



The amount gets bigger.

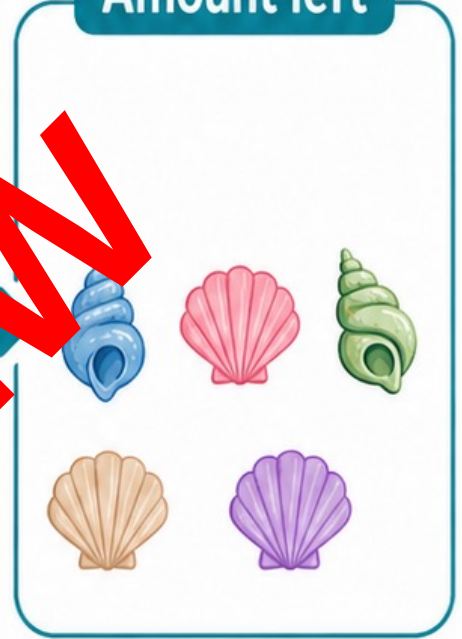
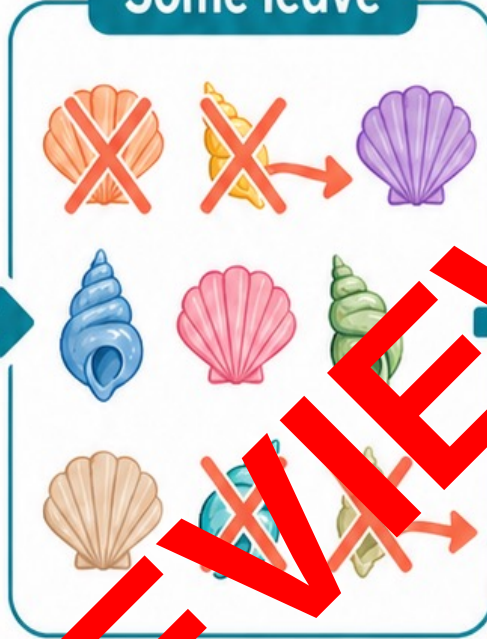


TAKE FROM

Start

Some leave

Amount left



Nema collected 9 shells.
He gave 4 to a friend.
How many shells are left?

$$9 - 4 = 5$$

The amount gets smaller.

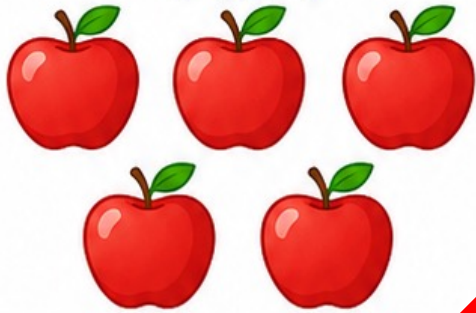


PART-PART-WHOLE

Whole

8

Part

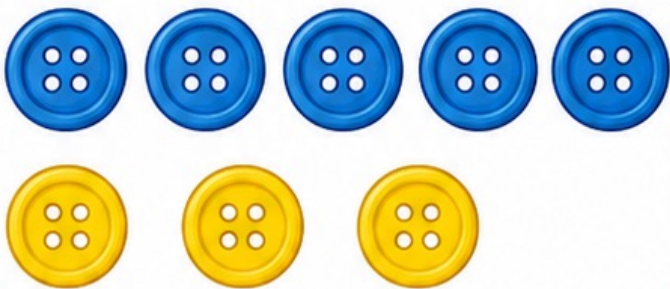


Part



5 red apples and 3 green apples make 8 apples.

$$5 + 3 = 8$$



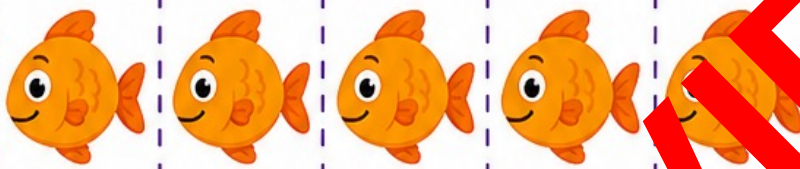
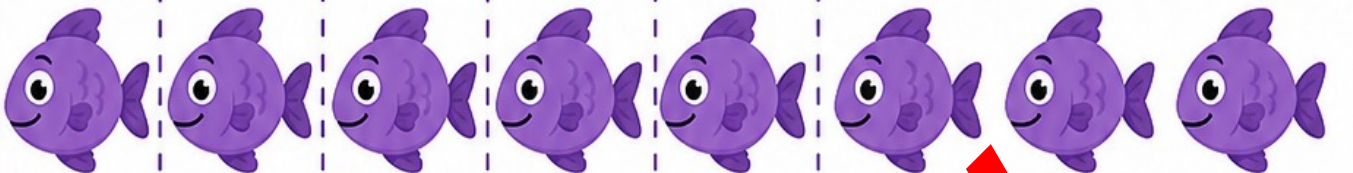
8 buttons. 5 are blue.
How many are yellow?

$$5 + ? = 8$$
$$? = 3$$

Parts join to make a whole.

COMPARE

Bigger amount



Smaller amount

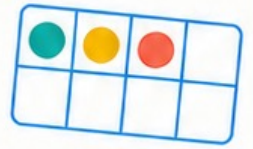
Ari saw 8 purple fish and 5 orange fish.
How many more purple fish did Ari see?

$$8 - 5 = 3$$

8 is 3 more than 5.

Difference means how many more or fewer.

READ, DRAW, MODEL, SOLVE



+

5

THINK BOARD

Place one task card here

1 READ IT

What do I know? What am I finding?

2 DRAW IT

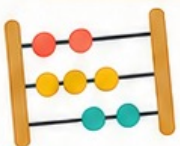
Sketch the story.

3 MODEL IT

Use counters, a ten frame, a part-part-whole diagram or a number line.

4 SOLVE IT

Write a number sentence.
Check your answer.



3

8



THINK BOARD TASK CARDS – WITHIN 10

Choose a card. Read it, draw it, model it and solve it.

CARD 1

Lena had 3 beanbags. Then she found 4 more. How many beanbags does Lena have now?



CARD 2

Eight ducks were on a pond. Three ducks swam away. How many ducks are left?



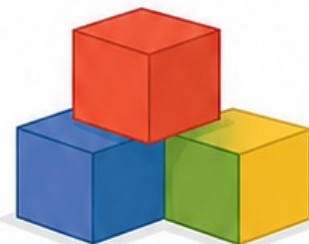
CARD 3

A bowl has 5 red apples and 2 green apples. How many apples are there altogether?



CARD 4

Theo has 9 blocks. Mia has 6 blocks. How many more blocks does Theo have?



THINK BOARD TASK CARDS – WITHIN 20

Choose a card. Read it, draw it, model it and solve it.

CARD 5

There were 7 children on a bus. Five more children got on. How many children are on the bus now?



CARD 6

A shop had 14 oranges. It sold 6 oranges. How many oranges are left?



CARD 7

There are 8 cats and 7 dogs at the shelter. How many animals are there altogether?



CARD 8

Kian has 16 stickers. Ruby has 9 stickers. How many more stickers does Kian have?

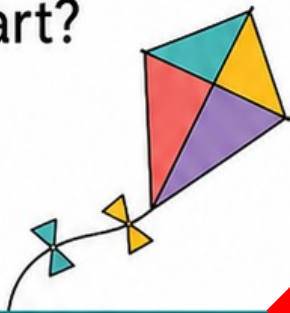


THINK BOARD TASK CARDS – MISSING NUMBERS

Choose a card. Read it, draw it, model it and solve it.

CARD 9

Some kites were flying. Four more kites joined them. Now there are 11 kites. How many kites were flying at the start?



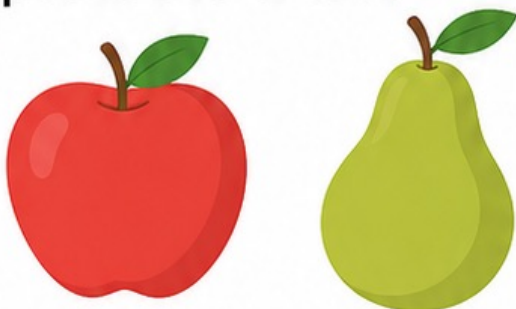
CARD 10

There were 13 pencils in a tub. Some rolled away. Six pencils are left. How many pencils rolled away?



CARD 11

There are 12 pieces of fruit. Five are apples and the rest are pears. How many pears are there?



CARD 12

Nina read 6 books. Eli read 3 more books than Nina. How many books did Eli read?



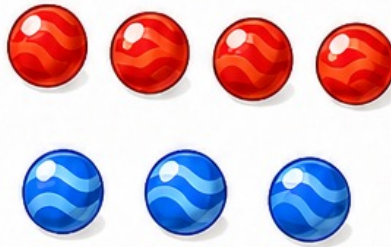
STORY PROBLEM MATCH-UP – SET 1

Cut apart each row. Match the story, picture and equation.

STORY

Kai had 4 marbles. Then 3 more rolled over. How many marbles are there now?

PICTURE



EQUATION

$$4 + 3 = 7$$

STORY

Ten ladybirds were on a leaf. Four flew away. How many are left?

PICTURE



EQUATION

$$10 - 4 = 6$$

STORY

There are 5 drums and 2 shakers. How many instruments are there altogether?

PICTURE



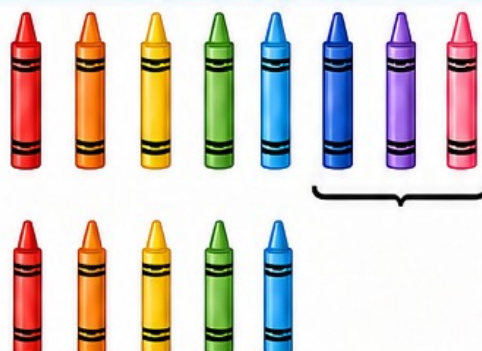
EQUATION

$$5 + 2 = 7$$

STORY

Ruby has 8 crayons. Leo has 5 crayons. How many more crayons does Ruby have?

PICTURE



EQUATION

$$8 - 5 = 3$$

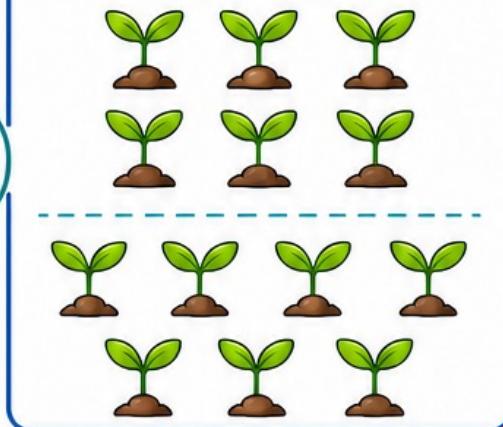
STORY PROBLEM MATCH-UP – SET 2

Cut apart each row. Match the story, picture and equation.

STORY

Six seedlings were growing.
Seven more were planted. How many seedlings are there now?

PICTURE



EQUATION

$$6 + 7 = 13$$

STORY

There were 15 balloons. Six popped. How many balloons are left?

PICTURE



EQUATION

$$15 - 6 = 9$$

STORY

A tray has 9 blue cups and 4 yellow cups. How many cups are there altogether?

PICTURE



EQUATION

$$9 + 4 = 13$$

STORY

Jade has 14 beads.
Sam has 8 beads.
How many more beads does Jade have?

Jade 14



Sam 8



Difference 6

$$14 - 8 = 6$$

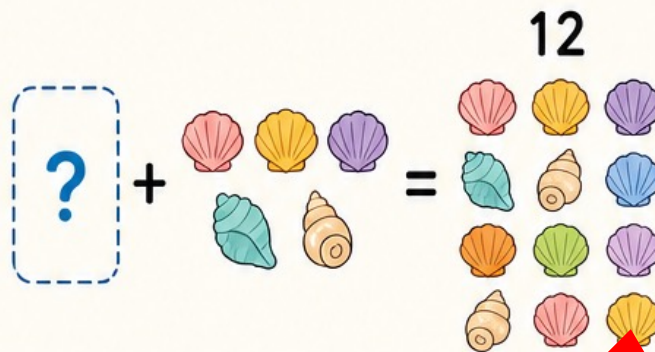
STORY PROBLEM MATCH-UP – SET 3

Cut apart each row. Match the story, picture and equation.

STORY

Milo had some shells.
He found 5 more.
Now he has 12 shells.
How many shells did he have at the start?

PICTURE



EQUATION

$$? + 5 = 12$$

STORY

There were 13 pencils. Some were given away. Eight pencils are left. How many were given away?

PICTURE



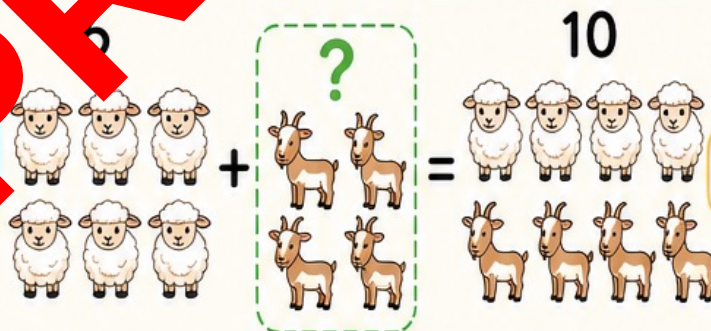
EQUATION

$$13 - ? = 8$$

STORY

Ten animals are at the farm. Six are sheep and the rest are goats. How many goats are there?

PICTURE



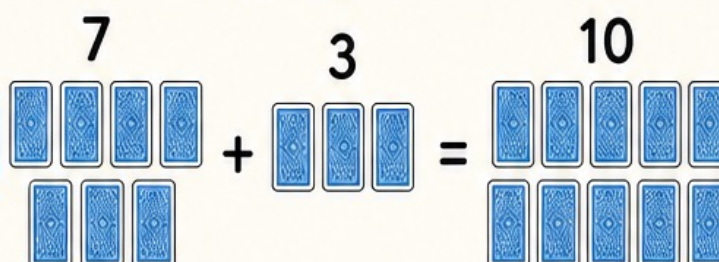
EQUATION

$$6 + ? = 10$$

STORY

Zoe has 7 cards.
Finn has 3 more cards than Zoe.
How many cards does Finn have?

PICTURE



EQUATION

$$7 + 3 = 10$$

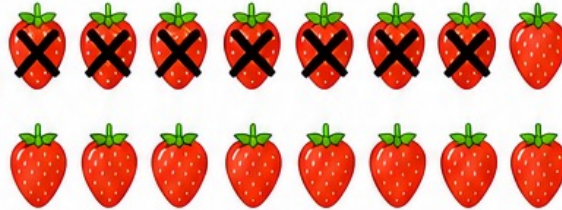
STORY PROBLEM MATCH-UP – SET 4

Cut apart each row. Match the story, picture and equation.

STORY

A basket held 16 strawberries. Seven were eaten. How many strawberries are left?

PICTURE



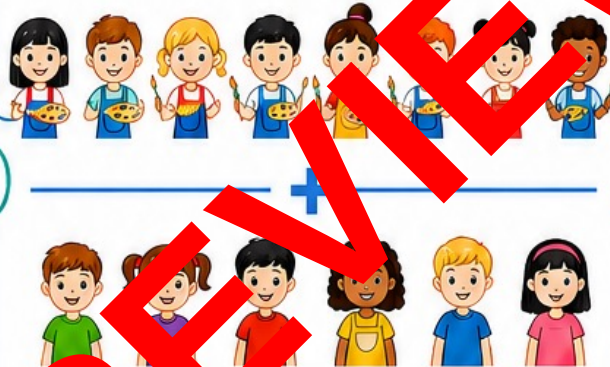
EQUATION

$$16 - 7 = 9$$

STORY

Eight children were painting. Six more joined them. How many children are painting now?

PICTURE



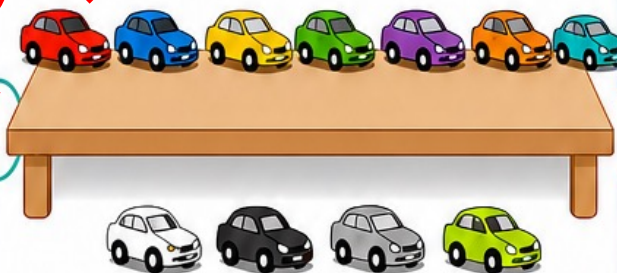
EQUATION

$$8 + 6 = 14$$

STORY

There were 11 toy cars. Four rolled under a shelf. How many toy cars can still be seen?

PICTURE



EQUATION

$$11 - 4 = 7$$

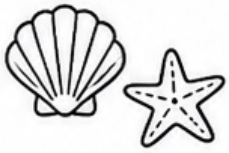
STORY

Pia has 9 shells. Ben has 6 shells. How many more shells does Pia have?



EQUATION

$$9 - 6 = 3$$



SORT THE STORY – PAGE 1



Name: _____

Read each story. Write A for Add To, T for Take From,
P for Part-Part-Whole or C for Compare.

1

Maya had 4 shells.
She found 3 more.
How many shells does
she have now?

Type: _____

2

Nine birds sat on a fence.
Two flew away.
How many birds are left?

Type: _____

3

There are 5 red cubes
and 4 blue cubes.
How many cubes are
there altogether?

Type: _____

4

Leo has 8 pencils.
Anya has 5 pencils.
How many more pencils
does Leo have?

Type: _____

5

Some frogs were
in a pond.
Three more joined them.
Now there are 10 frogs.
How many were there
at the start?

Type: _____

6

Twelve balloons were
tied up.
Some popped.
Seven are left.
How many balloons
popped?

Type: _____





SORT THE STORY – PAGE 1



Name: ANSWERS

Read each story. Write A for Add To, T for Take From, P for Part-Part-Whole or C for Compare.

1 Maya had 4 shells.
She found 3 more.
How many shells does she have now?

Type: **Add To**

2 Nine birds sat on a fence.
Two flew away.
How many birds are left?

Type: **Take From**

3 There are 5 red cubes and 4 blue cubes.
How many cubes are there altogether?

Type: **Part-Part-Whole**

4 Leo has 8 pencils.
Anyia has 5 pencils.
How many more pencils does Leo have?

Type: **Compare**

5 Some frogs were in a pond.
Three more joined them.
Now there are 10 frogs.
How many were there at the start?

Type: **Add To**

6 Twelve balloons were tied up.
Some popped.
Seven are left.
How many balloons popped?

Type: **Take From**





SORT THE STORY – PAGE 2



Name: _____

Read each story. Circle + or -. Underline the unknown number. Then solve.

- ① Rina packed 6 apples and 5 pears. How many pieces of fruit did she pack?

Operation: + or -

Answer: _____

- ② There were 13 books. Four were borrowed. How many books remain?

Operation: + or -

Answer: _____

- ③ Eight children were drawing. Some more joined them. Now 15 are drawing. How many joined?

Operation: + or -

Answer: _____

- ④ Fourteen buttons were in a jar. Some were used. Six remain. How many were used?

Operation: + or -

Answer: _____

- ⑤ Nate has 9 cards. Ava has 6 cards. How many more cards does Nate have?

Operation: + or -

Answer: _____

- ⑥ Some fish were in a tank. Five were moved. Seven remain. How many fish were there at the start?

Operation: + or -

Answer: _____





SORT THE STORY – PAGE 2



Name: ANSWERS

Read each story. Circle + or -. Underline the unknown number. Then solve.

- ① Rina packed 6 apples and 5 pears. How many pieces of fruit did she pack?

Operation: + or -

Answer: 11

- ② There were 13 books. Four were borrowed. How many books remain?

Operation: + or -

Answer: 9

- ③ Eight children were drawing. Some more joined them. Now 15 are drawing. How many joined?

Operation: + or -

Answer: 7

- ④ Fourteen buttons were in a jar. Some were used. Six remain. How many were used?

Operation: + or -

Answer: 8

- ⑤ Nate has 9 cards. Ava has 6 cards. How many more cards does Nate have?

Operation: + or -

Answer: 3

- ⑥ Some fish were in a tank. Five were moved. Seven remain. How many fish were there at the start?

Operation: + or -

Answer: 12





READ, DRAW, MODEL, SOLVE – PAGE 1



Name: _____

For each story: draw it, choose a model, write the number sentence and solve.

- 1** Talia had 3 toy cars. She got 5 more. How many toy cars does she have now?

DRAW

MODEL

EQUATION

ANSWER

- 2** Nine leaves were in a basket. Four blew away. How many leaves remain?

DRAW

MODEL

EQUATION

ANSWER

- 3** There are 6 red beads and 2 blue beads. How many beads are there altogether?

DRAW

MODEL

EQUATION

ANSWER





READ, DRAW, MODEL, SOLVE – PAGE 1

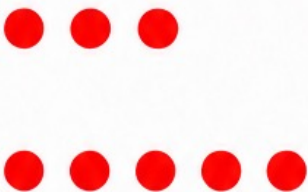


Name: ANSWERS

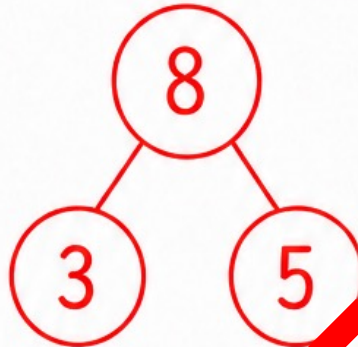
For each story: draw it, choose a model, write the number sentence and solve.

- 1** Talia had 3 toy cars. She got 5 more. How many toy cars does she have now?

DRAW



MODEL



EQUATION

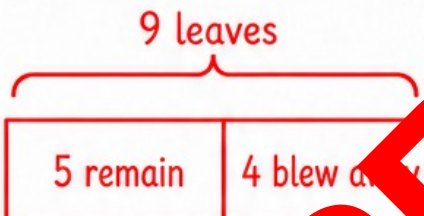
$$3 + 5 = 8$$

ANSWER

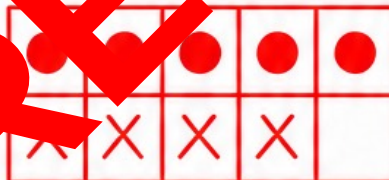
8

- 2** Nine leaves were in a basket. Four blew away. How many leaves remain?

DRAW



MODEL



EQUATION

$$9 - 4 = 5$$

ANSWER

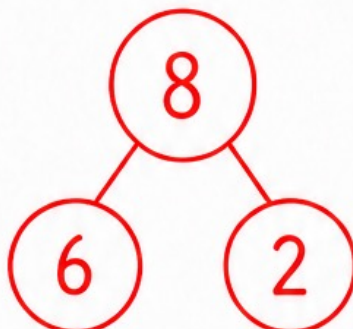
5

- 3** There are 6 red beads and 2 blue beads. How many beads are there altogether?

DRAW



MODEL



EQUATION

$$6 + 2 = 8$$

ANSWER

8





READ, DRAW, MODEL, SOLVE — PAGE 2



Name: _____

For each story: draw it, choose a model, write the number sentence and solve.

1

Seven students were reading. Six more joined them.
How many students are reading now?

DRAW

MODEL

EQUATION

ANSWER

2

Fifteen muffins were on a tray. Seven were eaten.
How many muffins remain?

DRAW

MODEL

EQUATION

ANSWER

3

Mika has 12 counters. Zara has 8 counters.
How many more counters does Mika have?

DRAW

MODEL

EQUATION

ANSWER





READ, DRAW, MODEL, SOLVE — PAGE 2



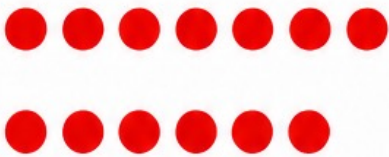
Name: ANSWERS

For each story: draw it, choose a model, write the number sentence and solve.

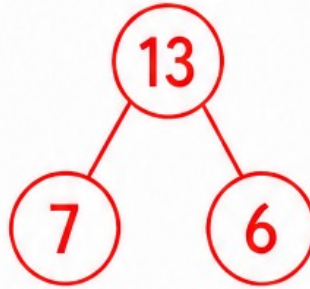
1

Seven students were reading. Six more joined them.
How many students are reading now?

DRAW



MODEL



EQUATION

$$7 + 6 = 13$$

ANSWER

13

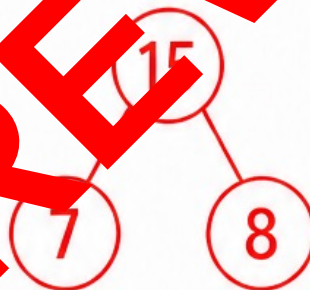
2

Fifteen muffins were on a tray. Seven were eaten.
How many muffins remain?

DRAW



MODEL



EQUATION

$$15 - 7 = 8$$

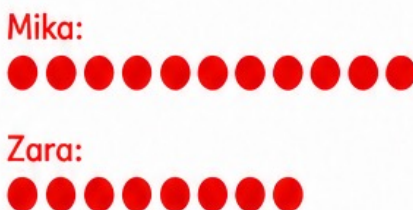
ANSWER

8

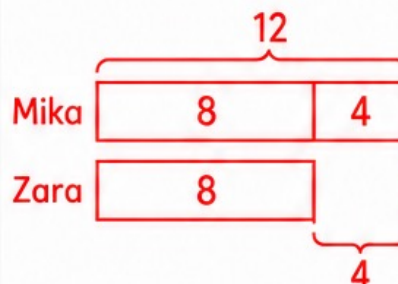
3

Mika has 12 counters. Zara has 8 counters.
How many more counters does Mika have?

DRAW



MODEL



EQUATION

$$12 - 8 = 4$$

ANSWER

4



MISSING NUMBERS IN STORIES – PAGE 1

Name: _____



Draw a model. Write the missing number in the box. Then check.

- 1** Some bees were near a flower.
Five more came.
Now there are 12 bees.
How many bees were there at first?

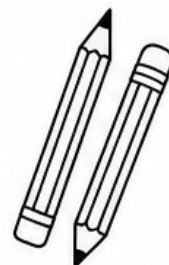


$$\square + 5 = 12$$

MODEL

MISSING NUMBER _____

- 2** There were 14 pencils.
Some were sharpened.
Nine were not sharpened.
How many were sharpened?



$$14 - \square = 9$$

MODEL

MISSING NUMBER _____

- 3** Ten toys are in a box.
Six are balls and the rest
are blocks.
How many blocks are there?



$$6 + \square = 10$$

MODEL

MISSING NUMBER _____

- 4** Ari had 13 stickers.
He gave some away
and kept 8.
How many stickers
did he give away?



$$13 - \square = 8$$

MODEL

MISSING NUMBER _____

MISSING NUMBERS IN STORIES – PAGE 1

Name: **ANSWERS**



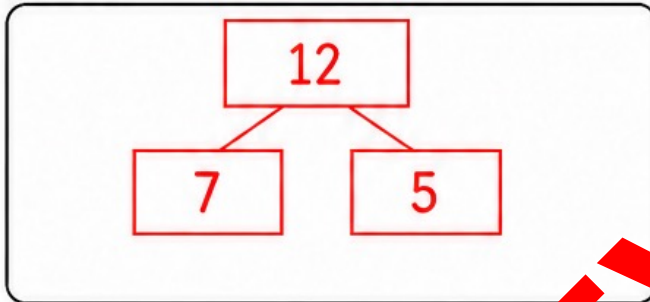
Draw a model. Write the missing number in the box. Then check.

- 1** Some bees were near a flower.
Five more came.
Now there are 12 bees.
How many bees were there at first?



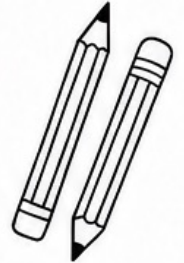
$$\boxed{7} + 5 = 12$$

MODEL



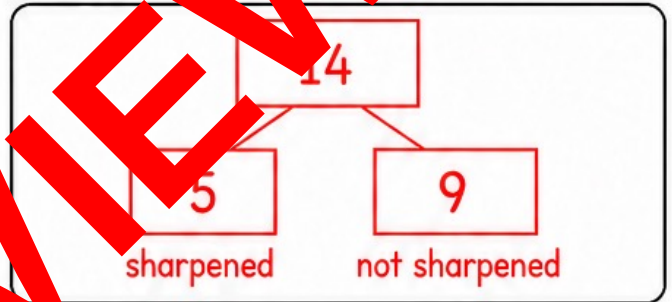
MISSING NUMBER 7

- 2** There were 14 pencils.
Some were sharpened.
Nine were not sharpened.
How many were sharpened?



$$14 - \boxed{5} = 9$$

MODEL



MISSING NUMBER 5

- 3** Ten toys are in a box.
Six are balls and the rest
are blocks.
How many blocks are there?



$$6 + \boxed{4} = 10$$

MODEL



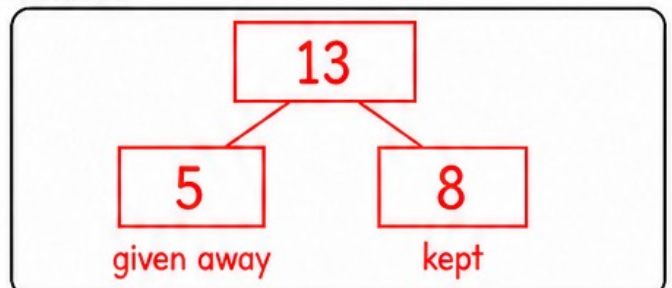
MISSING NUMBER 4

- 4** Ari had 13 stickers.
He gave some away
and kept 8.
How many stickers
did he give away?



$$13 - \boxed{5} = 8$$

MODEL



MISSING NUMBER 5

MISSING NUMBERS IN STORIES – PAGE 2

Name: _____

Draw a model. Write the missing number in the box. Then check.



1. Some children were at the playground. Four went home. Seven stayed. How many children were there at the start?



$$\square - 4 = 7$$

MODEL

MISSING NUMBER _____

2. Luka has 6 marbles. Priya has 5 more marbles than Luka. How many marbles does Priya have?



$$6 + 5 = \square$$

MODEL

MISSING NUMBER _____

3. Sienna has 15 buttons. That is 7 more buttons than Max. How many buttons does Max have?

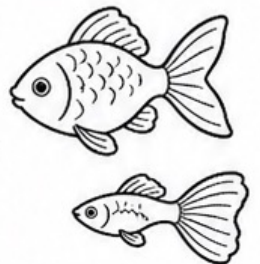


$$15 - 7 = \square$$

MODEL

MISSING NUMBER _____

4. There were 12 fish. Some were goldfish and 5 were guppies. How many were goldfish?



$$\square + 5 = 12$$

MODEL

MISSING NUMBER _____

MISSING NUMBERS IN STORIES – PAGE 2

Name: ANSWERS



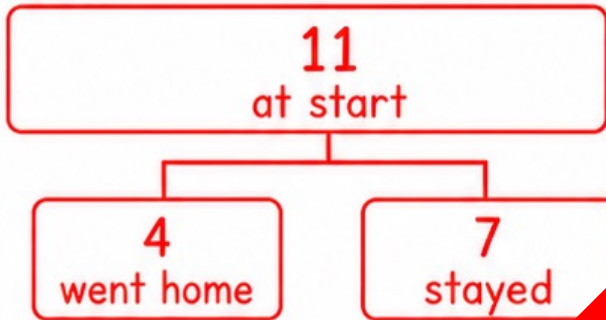
Draw a model. Write the missing number in the box. Then check.

1. Some children were at the playground. Four went home. Seven stayed. How many children were there at the start?



$$\boxed{11} - 4 = 7$$

MODEL



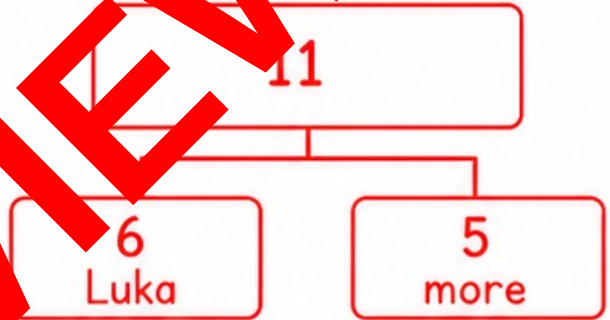
MISSING NUMBER 11

2. Luka has 6 marbles. Priya has 5 more marbles than Luka. How many marbles does Priya have?



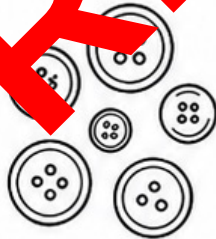
$$6 + 5 = \boxed{11}$$

MODEL



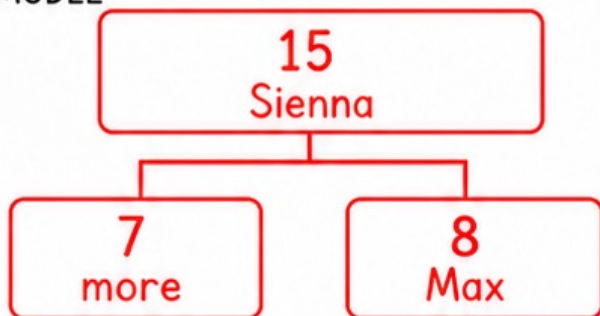
MISSING NUMBER 11

3. Sienna has 15 buttons. That is 7 more buttons than Max. How many buttons does Max have?



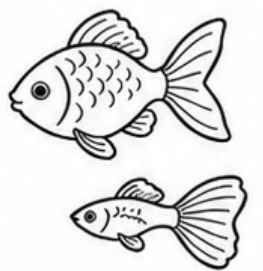
$$15 - 7 = \boxed{8}$$

MODEL



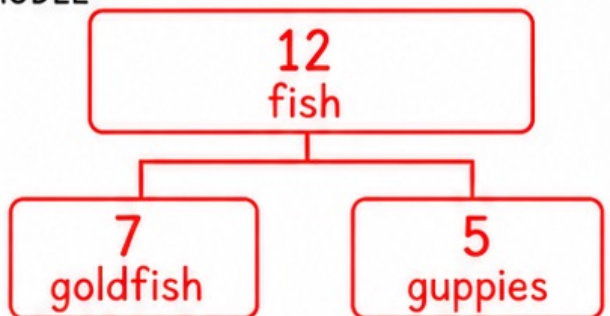
MISSING NUMBER 8

4. There were 12 fish. Some were goldfish and 5 were guppies. How many were goldfish?



$$\boxed{7} + 5 = 12$$

MODEL



MISSING NUMBER 7

Name: _____

COMPARE AND EXPLAIN – PAGE 1

Use the bars to compare. Write the difference and an answer sentence.

1. Lily has 10 leaves. Omar has 6 leaves.
How many more leaves does Lily have?

DRAW BARS		NUMBER SENTENCE
Lily		DIFFERENCE
Omar		
		ANSWER SENTENCE

2. There are 13 red counters and 8 blue counters.
How many more red counters are there?

DRAW BARS		NUMBER SENTENCE
Red		DIFFERENCE
Blue		
		ANSWER SENTENCE

3. Mia builds a tower 9 cubes tall. Noah builds a tower 7 cubes tall.
How much taller is Mia's tower?

DRAW BARS		NUMBER SENTENCE
Mia		DIFFERENCE
Noah		
		ANSWER SENTENCE

Name: ANSWERS

COMPARE AND EXPLAIN – PAGE 1

Use the bars to compare. Write the difference and an answer sentence.

1. Lily has 10 leaves. Omar has 6 leaves.
How many more leaves does Lily have?

DRAW BARS

Lily



Omar



NUMBER SENTENCE

$$10 - 6 = 4$$

DIFFERENCE

4

ANSWER SENTENCE

Lily has 4 more leaves than Omar.

2. There are 13 red counters and 8 blue counters.
How many more red counters are there?

DRAW BARS

Red



Blue



NUMBER SENTENCE

$$13 - 8 = 5$$

DIFFERENCE

5

ANSWER SENTENCE

There are 5 more red counters.

3. Mia builds a tower 9 cubes tall. Noah builds a tower 7 cubes tall.
How much taller is Mia's tower?

DRAW BARS

Mia



Noah



NUMBER SENTENCE

$$9 - 7 = 2$$

DIFFERENCE

2

ANSWER SENTENCE

Mia's tower is 2 cubes taller.

COMPARE AND EXPLAIN — PAGE 2

Name: _____

Draw comparison bars. Write the number sentence and answer.

- ① Kai has 7 shells. Bea has 4 more shells than Kai. How many shells does Bea have?



DRAW BARS

----------------------	----------------------

NUMBER SENTENCE

DIFFERENCE

ANSWER SENTENCE

- ② Rosa has 14 stickers. That's 6 more stickers than Ben. How many stickers does Ben have?



DRAW BARS

----------------------	----------------------

NUMBER SENTENCE

DIFFERENCE

ANSWER SENTENCE

- ③ A blue ribbon is 12 blocks long. It is 3 blocks longer than a red ribbon. How long is the red ribbon?



DRAW BARS

----------------------	----------------------

NUMBER SENTENCE

DIFFERENCE

ANSWER SENTENCE

COMPARE AND EXPLAIN — PAGE 2

Name: ANSWERS

Draw comparison bars. Write the number sentence and answer.

- ① Kai has 7 shells. Bea has 4 more shells than Kai. How many shells does Bea have?



DRAW BARS

Kai

7

Bea

7	4
---	---

NUMBER SENTENCE

$$7 + 4 = 11$$

DIFFERENCE

4

ANSWER SENTENCE

Bea has 11 shells.

- ② Rosa has 14 stickers. That's 6 more stickers than Ben. How many stickers does Ben have?



DRAW BARS

Rosa

14

Ben

8	6
---	---

NUMBER SENTENCE

$$14 - 6 = 8$$

DIFFERENCE

6

ANSWER SENTENCE

Ben has 8 stickers.

- ③ A blue ribbon is 12 blocks long. It is 3 blocks longer than a red ribbon. How long is the red ribbon?



DRAW BARS

Blue

12

Red

9	3
---	---

NUMBER SENTENCE

$$12 - 3 = 9$$

DIFFERENCE

3

ANSWER SENTENCE

The red ribbon is 9 blocks long.

MIXED PROBLEM-SOLVING CHALLENGE – PAGE 1

Name: _____

Choose a useful model. Write the number sentence and solve.

- 1 Some pencils were in a cup. Six more pencils were added. Now there are 14 pencils. How many were there at the start?



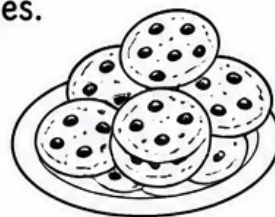
MODEL CHOICE

WORKING

NUMBER SENTENCE

ANSWER

- 2 There were 17 cookies. Eight were shared. How many cookies are left?



MODEL CHOICE

WORKING

NUMBER SENTENCE

ANSWER

- 3 There are 15 pieces of fruit. Seven are apples and the rest are pears. How many pears are there?



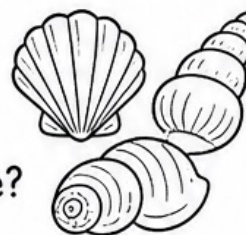
MODEL CHOICE

WORKING

NUMBER SENTENCE

ANSWER

- 4 Ava has 12 shells. Eli has 9 shells. How many more shells does Ava have?



MODEL CHOICE

WORKING

NUMBER SENTENCE

ANSWER

MIXED PROBLEM-SOLVING CHALLENGE – PAGE 1

Name: **ANSWERS**

Choose a useful model. Write the number sentence and solve.

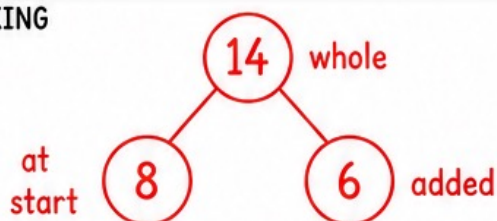
- 1 Some pencils were in a cup. Six more pencils were added. Now there are 14 pencils. How many were there at the start?



MODEL CHOICE

part-whole

WORKING



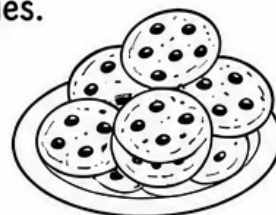
NUMBER SENTENCE

$$8 + 6 = 14$$

ANSWER

8 pencils

- 2 There were 17 cookies. Eight were shared. How many cookies are left?



MODEL CHOICE

part-whole

WORKING



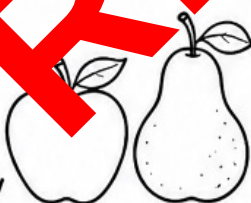
NUMBER SENTENCE

$$17 - 8 = 9$$

ANSWER

9 cookies

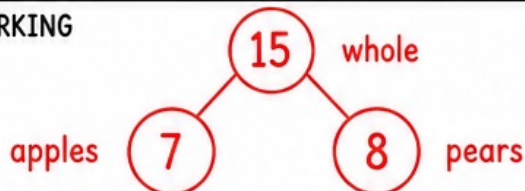
- 3 There are 15 pieces of fruit. Seven are apples and the rest are pears. How many pears are there?



MODEL CHOICE

part-whole

WORKING



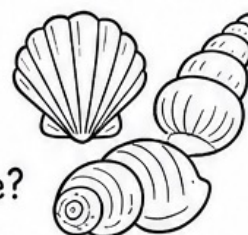
NUMBER SENTENCE

$$15 - 7 = 8$$

ANSWER

8 pears

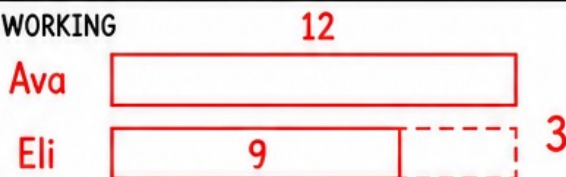
- 4 Ava has 12 shells. Eli has 9 shells. How many more shells does Ava have?



MODEL CHOICE

comparison bars

WORKING



NUMBER SENTENCE

$$12 - 9 = 3$$

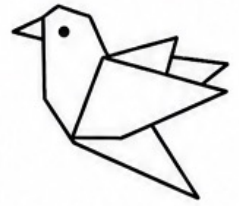
ANSWER

3 shells

MIXED PROBLEM-SOLVING CHALLENGE – PAGE 2

Name: _____

Solve both problems. Then write and model your own story.



- ① The class made 9 paper birds on Monday and 7 paper birds on Tuesday. How many paper birds did they make altogether?

MODEL

NUMBER SENTENCE

ANSWER

- ② There were 18 counters. Some were put away and 11 remain. How many counters were put away?



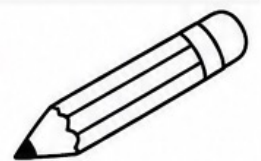
MODEL

NUMBER SENTENCE

ANSWER

WRITE YOUR OWN STORY

Write a story to match $13 - 5 = 8$.



STORY

MODEL

CHECK: Does my story match $13 - 5 = 8$? YES / NOT YET

MIXED PROBLEM-SOLVING CHALLENGE – PAGE 2

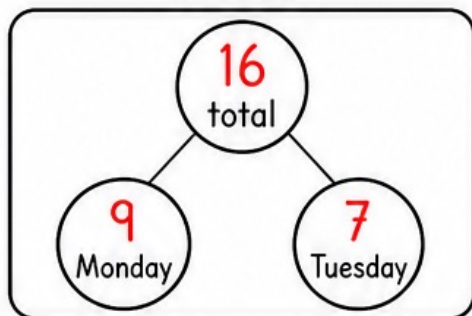
Name: ANSWERS

Solve both problems. Then write and model your own story.



- 1 The class made 9 paper birds on Monday and 7 paper birds on Tuesday. How many paper birds did they make altogether?

MODEL



NUMBER SENTENCE

$$9 + 7 = 16$$

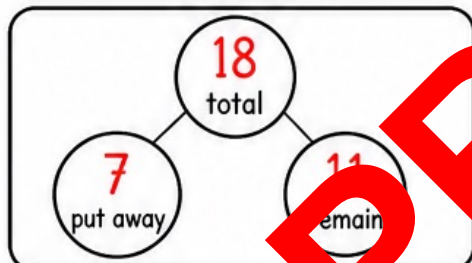
ANSWER

16 birds

- 2 There were 18 counters. Some were put away and 11 remain. How many counters were put away?



MODEL



NUMBER SENTENCE

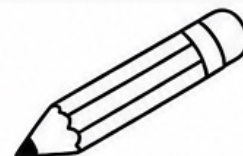
$$18 - 11 = 7$$

ANSWER

7 counters

WRITE YOUR OWN STORY

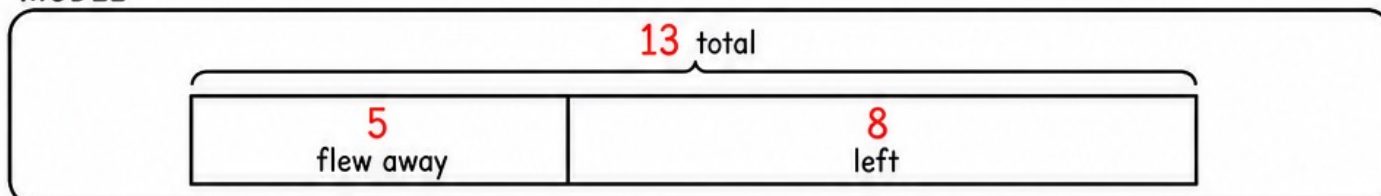
Write a story to match $13 - 5 = 8$.



STORY

There were 13 birds. Five flew away. Eight birds are left.

MODEL



CHECK: Does my story match $13 - 5 = 8$? YES / NOT YET

MODELLING ADDITION AND SUBTRACTION — ASSESSMENT PAGE 1



Name: _____

Show a useful model. Write the number sentence and answer.



1. There were 6 marigolds in the school garden. The class planted 5 more. How many marigolds are there now?

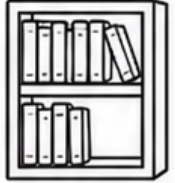


MODEL

NUMBER SENTENCE

ANSWER

2. The class library had 14 books on a shelf. Six books were borrowed. How many books are left?



MODEL

NUMBER SENTENCE

ANSWER

3. There are 12 markers in an art tray. Seven are warm colours and the rest are cool colours. How many are cool colours?



MODEL

NUMBER SENTENCE

ANSWER

4. One garden bed has 9 seedlings. Another garden bed has 6 seedlings. How many more seedlings are in the first bed?



MODEL

NUMBER SENTENCE

ANSWER

MODELLING ADDITION AND SUBTRACTION — ASSESSMENT PAGE 1



Name: **ANSWERS**

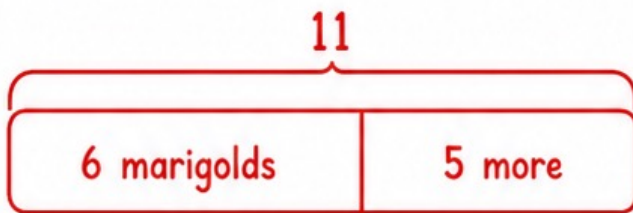
Show a useful model. Write the number sentence and answer.



1. There were 6 marigolds in the school garden. The class planted 5 more. How many marigolds are there now?



MODEL



NUMBER SENTENCE

$$6 + 5 = 11$$

ANSWER

11 marigolds

2. The class library had 14 books on a shelf. Six books were borrowed. How many books are left?



MODEL



NUMBER SENTENCE

$$14 - 6 = 8$$

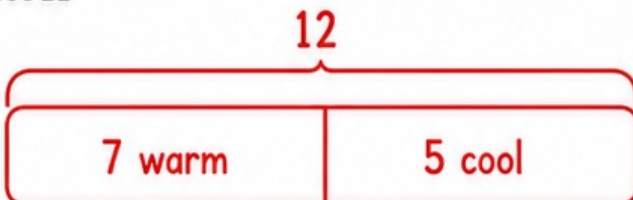
ANSWER

8 books

3. There are 12 markers in a art tray. Seven are warm colours and the rest are cool colours. How many are cool colours?



MODEL



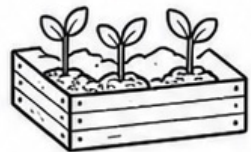
NUMBER SENTENCE

$$12 - 7 = 5$$

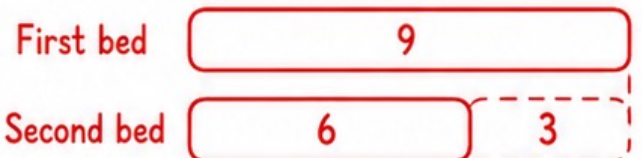
ANSWER

5 cool-colour markers

4. One garden bed has 9 seedlings. Another garden bed has 6 seedlings. How many more seedlings are in the first bed?



MODEL



NUMBER SENTENCE

$$9 - 6 = 3$$

ANSWER

3 seedlings

MISSING PARTS AND EXPLANATION – ASSESSMENT PAGE 2

Name: _____

Use a model to solve each problem. Then explain one choice.

1. Some kites were in the sky. Four more kites flew up. Now there are 13 kites. How many kites were there at the start?



MODEL

NUMBER SENTENCE

ANSWER

2. There were 15 paintbrushes. Some were washed and 9 still needed washing. How many paintbrushes were washed?



MODEL

NUMBER SENTENCE

ANSWER

3. There are 12 students wearing hats. Seven hats are blue and the rest are yellow. How many hats are yellow?



MODEL

NUMBER SENTENCE

ANSWER

4. Iva has 11 shells. She has 4 more shells than Jo. How many shells does Jo have?



MODEL

NUMBER SENTENCE

ANSWER

EXPLAIN YOUR MODEL

Choose one problem. Explain how your model matches the story.

Problem number: _____

MISSING PARTS AND EXPLANATION – ASSESSMENT PAGE 2

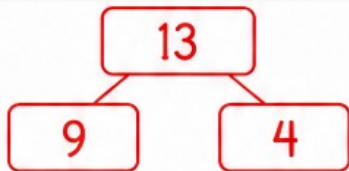
Name: **ANSWERS**

Use a model to solve each problem. Then explain one choice.

1. Some kites were in the sky. Four more kites flew up. Now there are 13 kites. How many kites were there at the start?



MODEL



NUMBER SENTENCE

$$9 + 4 = 13$$

ANSWER

9 kites

2. There were 15 paintbrushes. Some were washed and 9 still needed washing. How many paintbrushes were washed?



MODEL



NUMBER SENTENCE

$$15 - 9 = 6$$

ANSWER

6 paintbrushes

3. There are 12 students wearing hats. Seven hats are blue and the rest are yellow. How many hats are yellow?



MODEL



NUMBER SENTENCE

$$12 - 7 = 5$$

ANSWER

5 yellow hats

4. Ivy has 11 shells. She has 4 more shells than Jo. How many shells does Jo have?



MODEL



NUMBER SENTENCE

$$11 - 4 = 7$$

ANSWER

7 shells

EXPLAIN YOUR MODEL

Choose one problem. Explain how your model matches the story.

Problem number: 1

My part-whole model shows 13 kites as 9 at the start and 4 more.

The two parts make the whole.

MODELLING ADDITION AND SUBTRACTION – ASSESSMENT RUBRIC

Student: _____

Date: _____

CRITERION	BEGINNING	DEVELOPING	ACHIEVING	CONFIDENT	EXCEEDING
Understanding the story	Needs help to identify what happens.	Identifies some story information.	Identifies the action, quantities and question.	Explains how the quantities are related.	Justifies an interpretation of the story.
Choosing a model	Needs a model provided.	Chooses a partly useful model.	Chooses a model that matches the story.	Adapts a model for an unknown position.	Compares models and selects an efficient one.
Number sentence	Needs help to record an equation.	Records some correct equation parts.	Records a matching addition or subtraction equation.	Records an equivalent equation and explains it.	Uses more than one matching equation.
Accurate solution	Solution is not yet complete.	Solves some steps with support.	Solves accurately and states the answer.	Checks the answer using a second method.	Generalises and creates a related problem.
Explanation and checking	Gives little explanation.	Names a step or check.	Explains how the model matches the story.	Justifies the operation and checks the result.	Communicates clear reasoning and evaluates efficiency.

Modelling Addition and Subtraction Problems



Our learning goal

We will read a maths story, show it with a useful model, write a matching number sentence, and explain our solution

READ

REPRESENT

SOLVE

EXPLAIN



Use the Think Board

Move through the same four steps each time. The story that you tell your model must show.

READ IT

VIEW IT

MODEL IT

SOLVE IT



What is happening?

Do not choose + or – from one keyword. Picture the action. Joining, separating, making a whole, or comparing.

JOIN
quantities come together

SEPARATE
something is taken apart

WHOLE & PARTS
how parts are related

COMPARE
find how much more



Four story structures

The story structure tells us how the quantities are related and which model will be useful.

ADD TO
something joins

TAKE FROM
something leaves

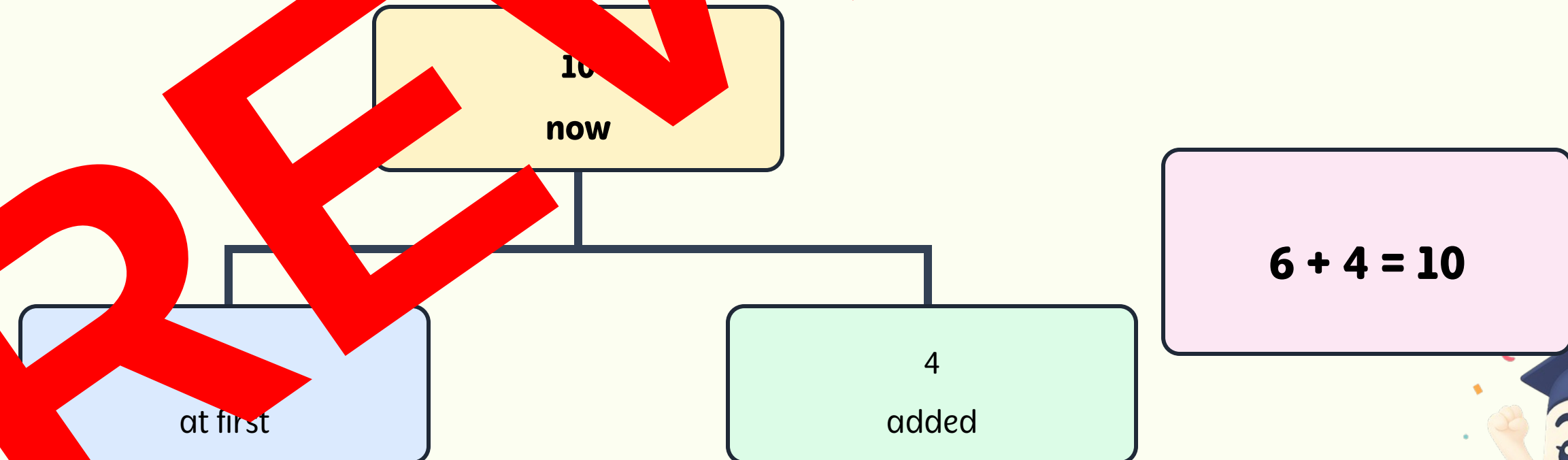
PART-PART-WHOLE
parts make a whole

COMPARE
find the difference



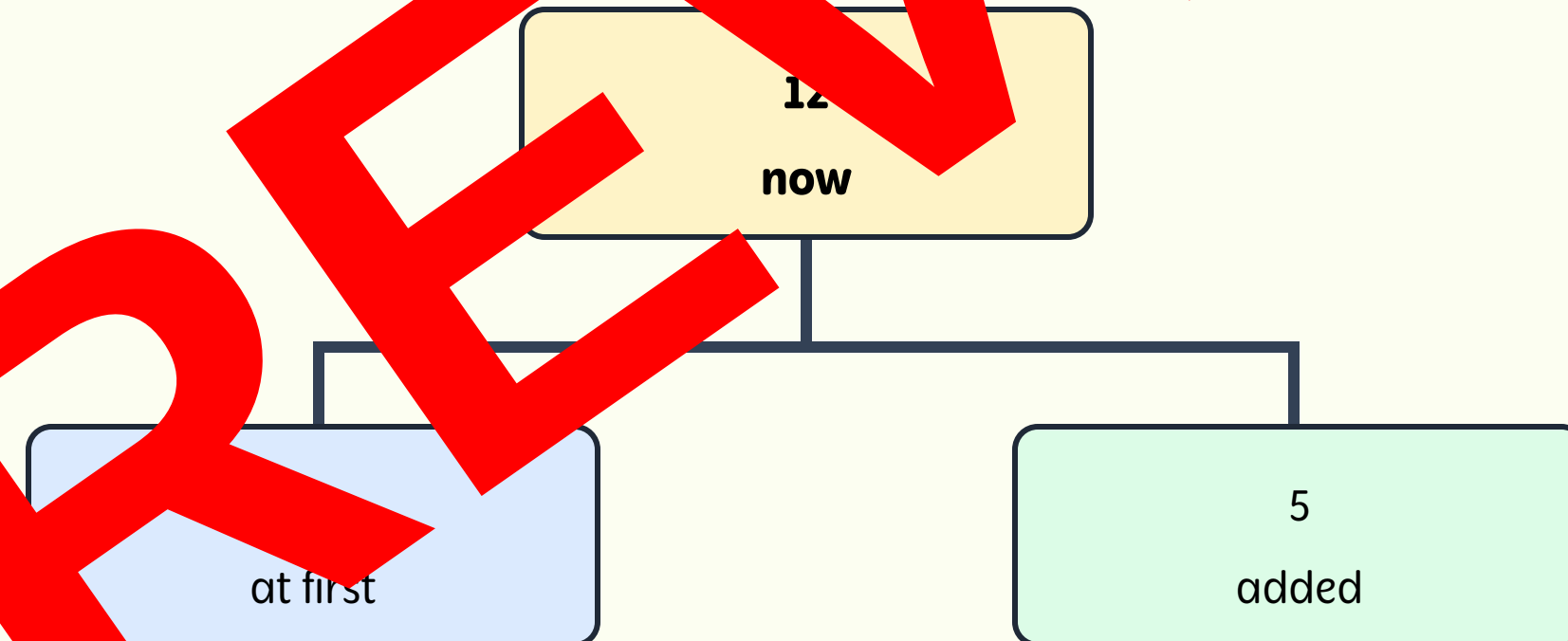
Add To: result unknown

Kai has 6 shells. He finds 4 more. How many shells does Kai have now?



Add To: change unknown

Mia has 7 stickers. Some more are given to her. Now she has 12. How many were added?



$$7 + \square = 12$$



Take From: result unknown

There were 14 birds. Six flew away. How many birds are left?

at the start: 14

6

flew away

8

left

$$14 - 6 = 8$$



Take From: start unknown

Some children were playing. Four went home. Seven stayed. How many were there at the start?

11
at the start

went home

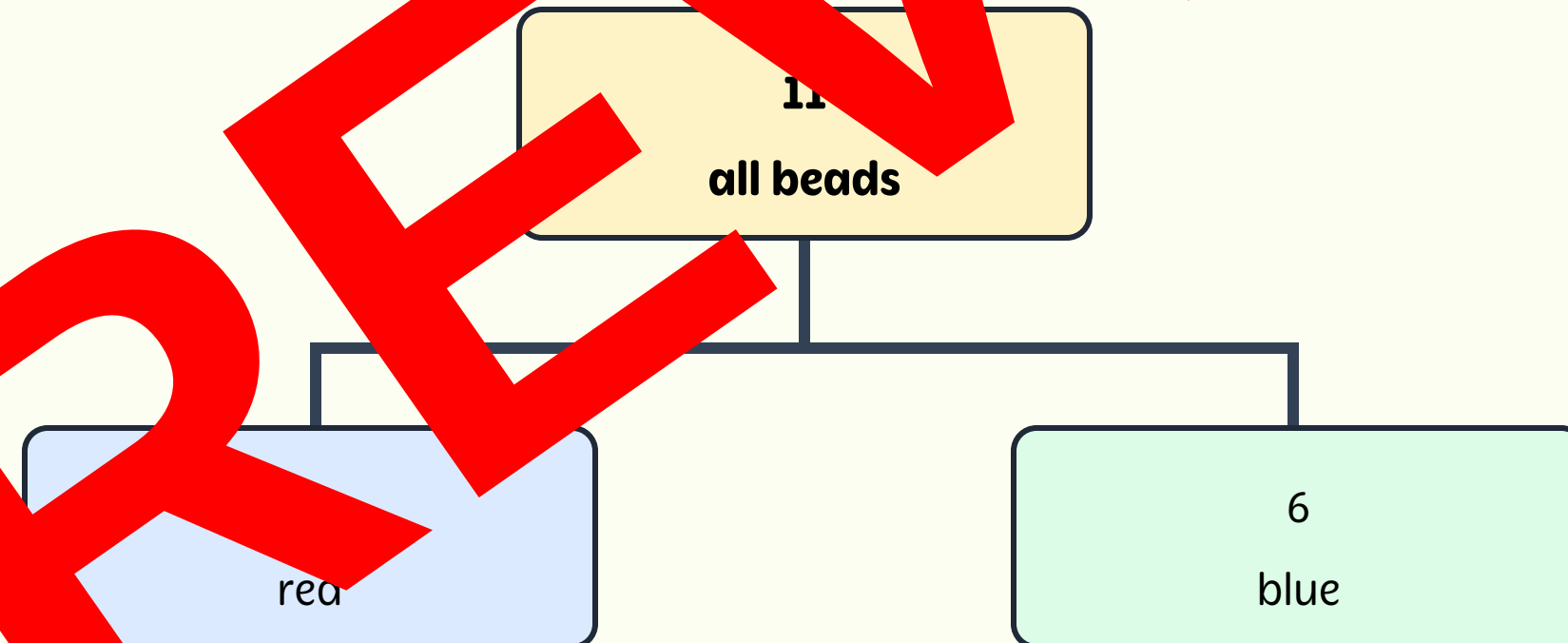
7
stayed

$$\square - 4 = 7$$



Part-Part-Whole: whole unknown

There are 5 red beads and 6 blue beads. How many beads are altogether?

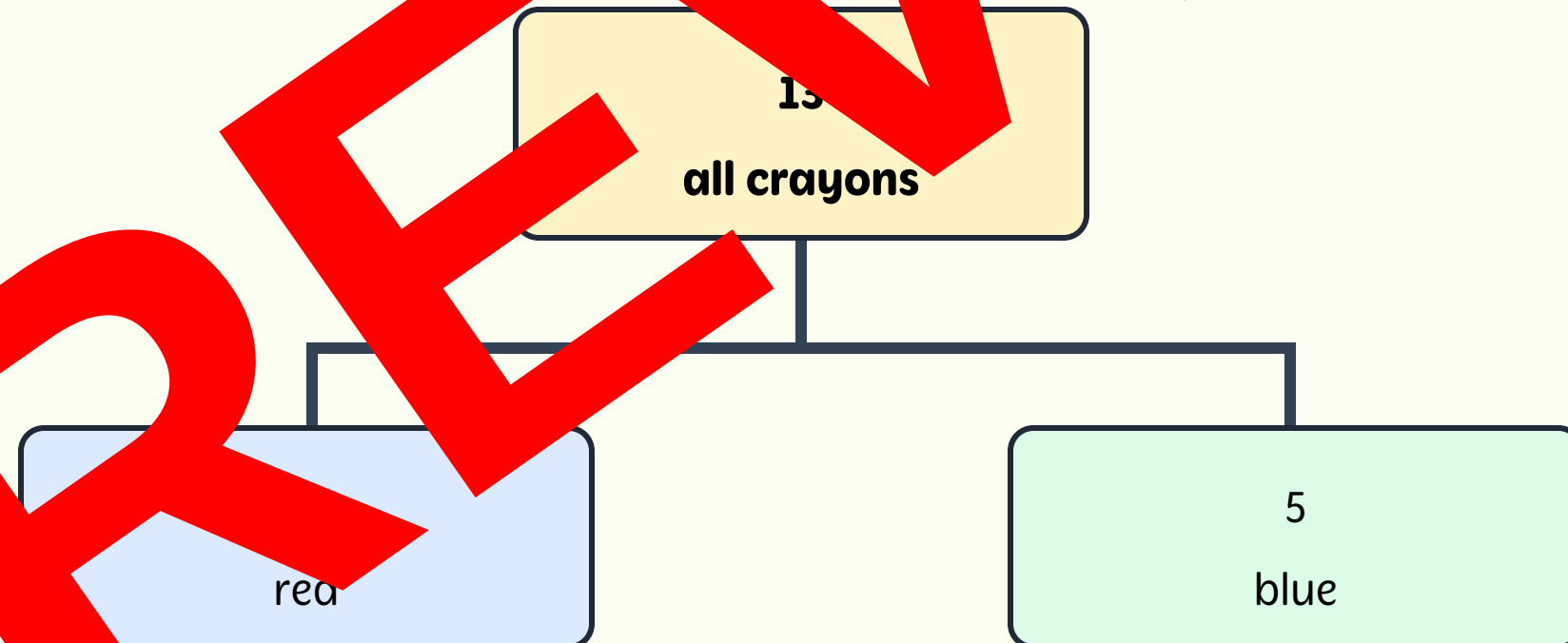


$$5 + 6 = 11$$



Part-Part-Whole: part unknown

There are 13 crayons. Eight are red. The rest are blue. How many are blue?



$$13 - 8 = 5$$



Compare: difference unknown

Lina has 12 blocks. Otis has 9 blocks. How many more blocks does Lina have?

Lina

12

Otis

9

difference

3

$$12 - 9 = 3$$



Compare: bigger unknown

Ben has 8 marbles. Zara has 5 more marbles than Ben. How many marbles does Zara have?

Zara

13

Ben

difference

5

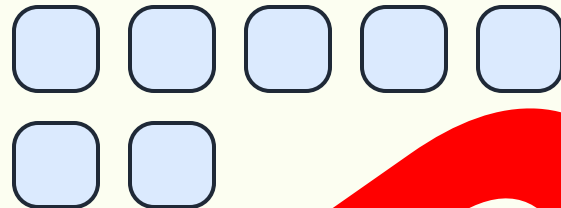
$$8 + 5 = 13$$



Model with counters and drawings

Show each quantity. Join, cross out, or line up objects so the action in the story is visible.

7 at first



5 more

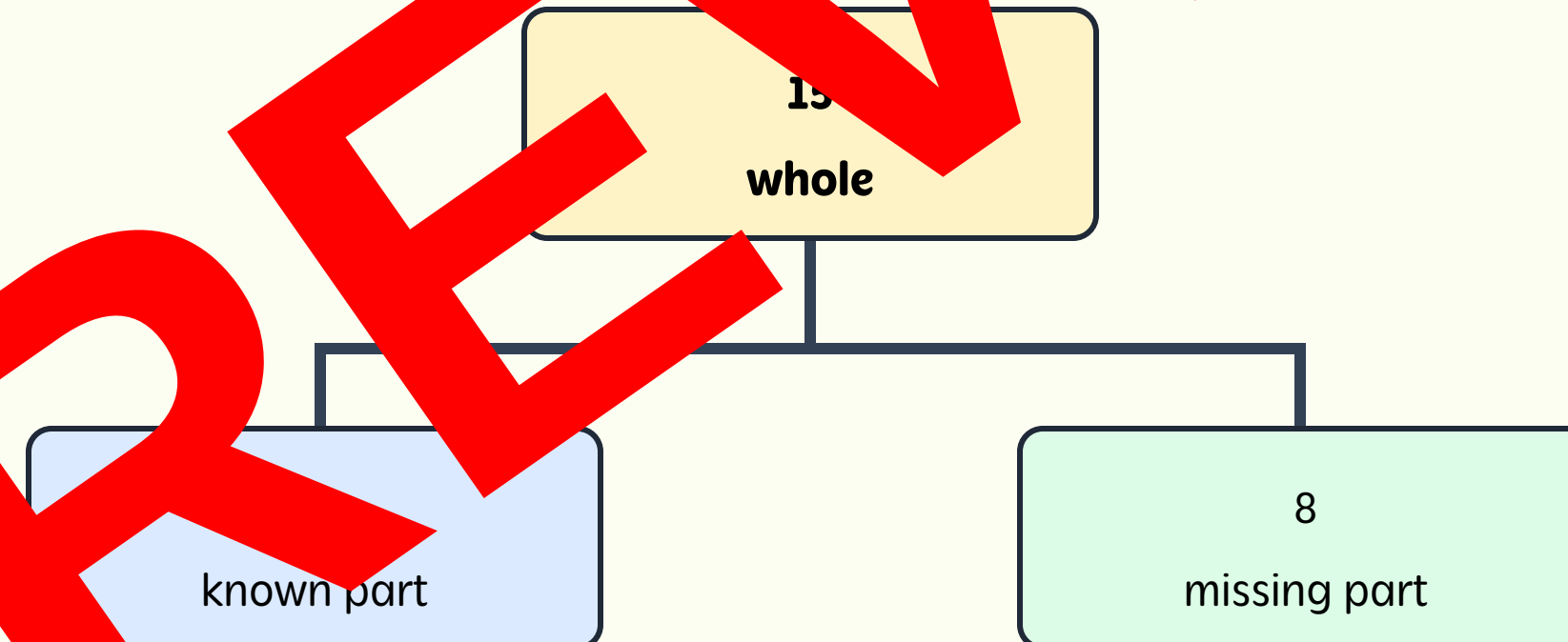


$$7 + 5 = 12$$



Use a part-part-whole diagram

This model shows how two parts make a whole. It also helps when one part is unknown.

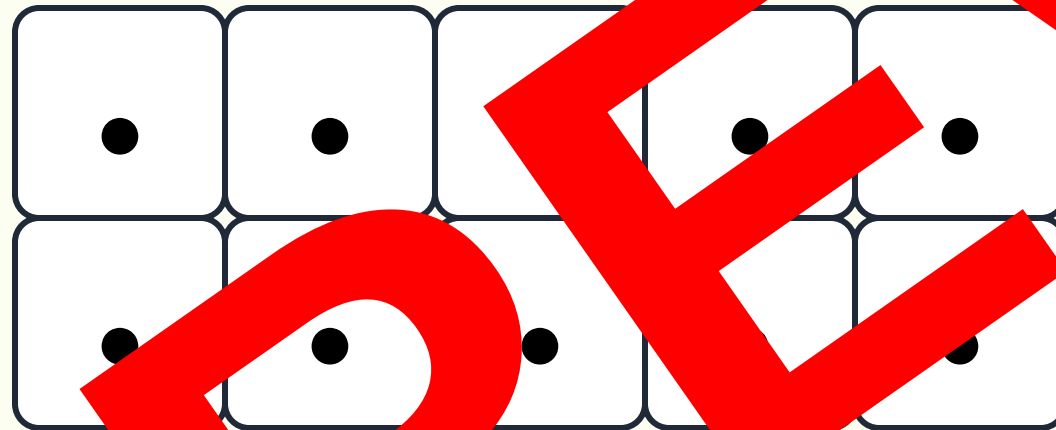


$$15 - 7 = 8$$



Use ten frames

Ten frames make groups of ten and extra ones easy to see. Here, we have a full ten and 3 more.



and 3 more

$$10 + 3 = 13$$



Use a number line

Start at a known number. Jump forward to add and backward to subtract.



$$5 + 7 = 12$$



Write a matching number sentence

Name what each number represents. The equation must match the situation and the unknown.

8
at the store

+ 6
added

= 14
total



Choose a useful strategy

A clear model can help you choose an efficient way to calculate.

COUNT ON

$$9 + 3$$

COUNT BACK

$$10 - 4$$

MAKE TEN

$$8 + 5$$

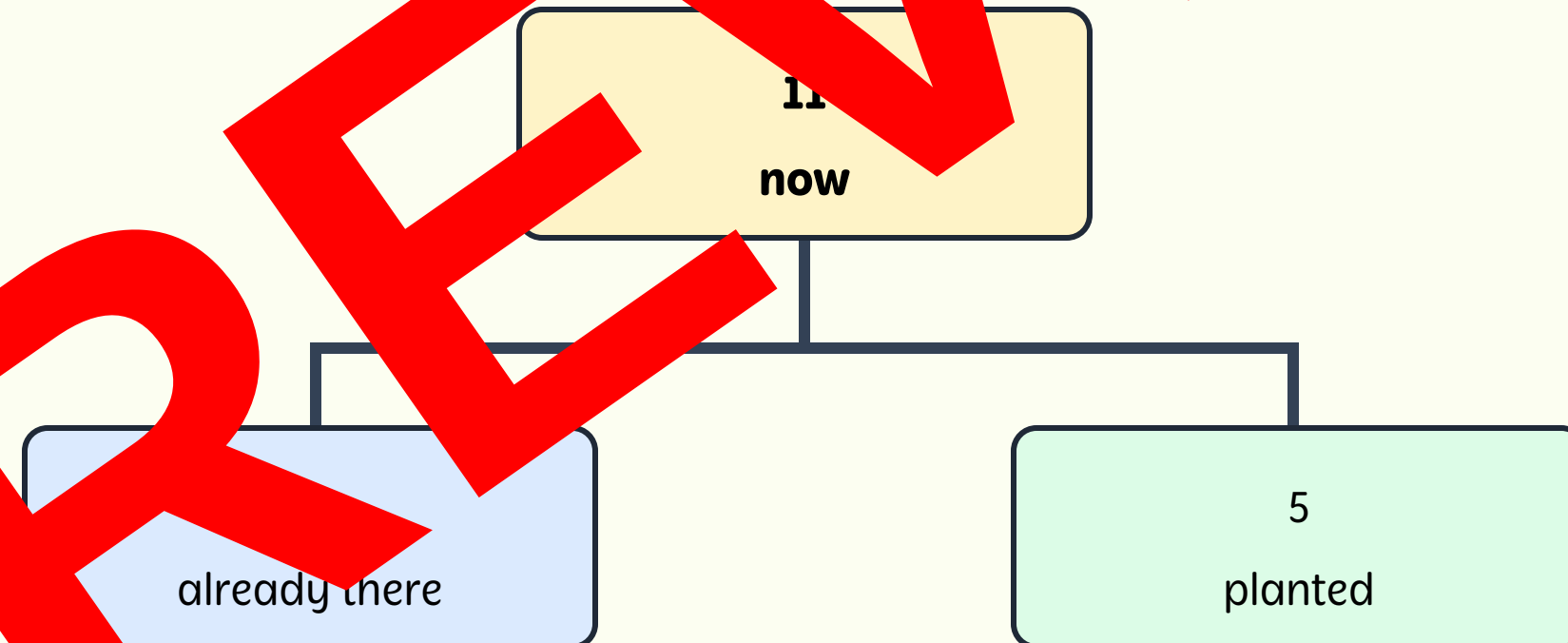
USE A KNOWN FACT

$$6 + 6$$



Guided example: school garden

There are 6 marigolds. The class plants 5 more. How many marigolds are there now?



$$6 + 5 = 11$$



Guided example: art table

There were 14 paintbrushes. Six were used. How many paintbrushes are left?

at the start: 14

6

used

8

left

$$14 - 6 = 8$$



Guided example: compare collections

Ava has 12 shells. Eli has 9 shells. How many more shells do Ava have?

Ava

12

Eli

9

difference

3

$$12 - 9 = 3$$



Explain and check your thinking

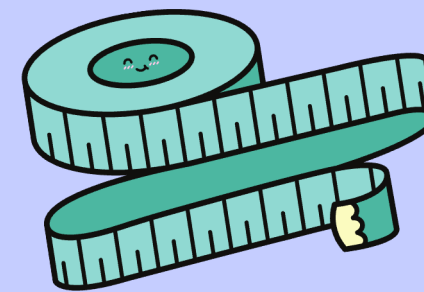
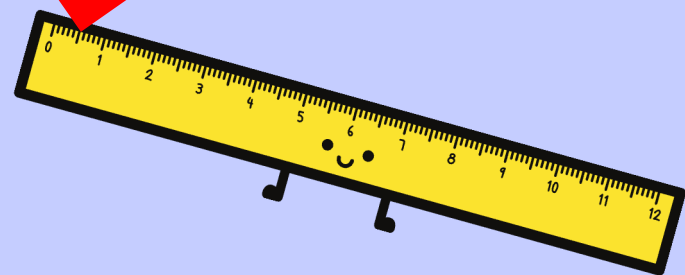
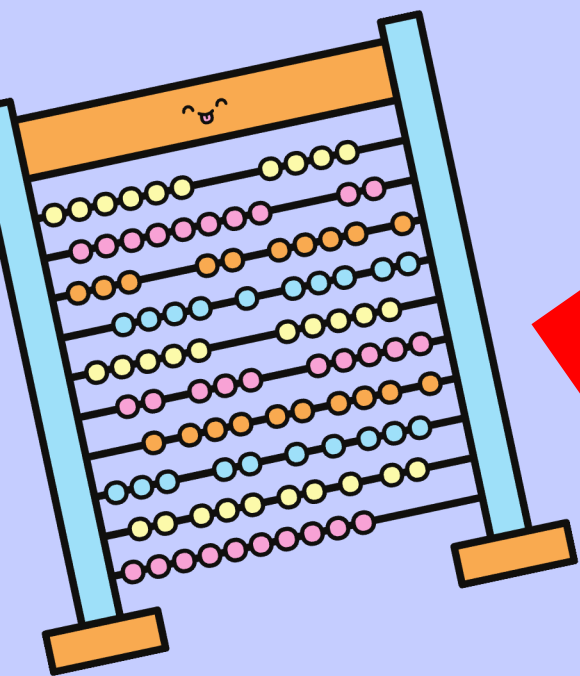
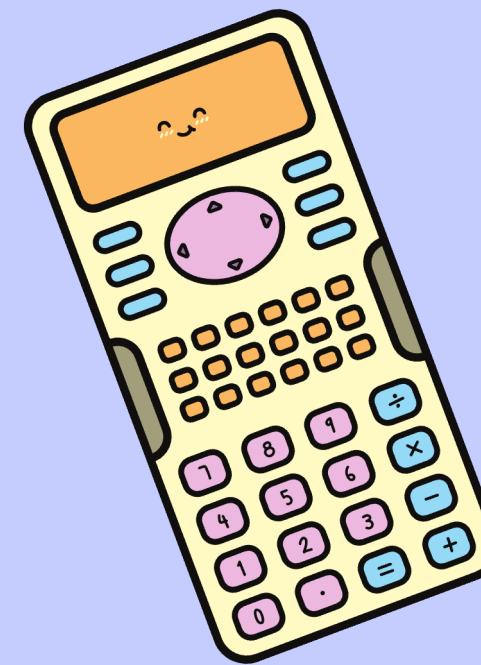
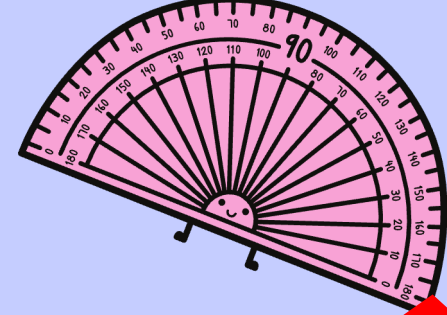
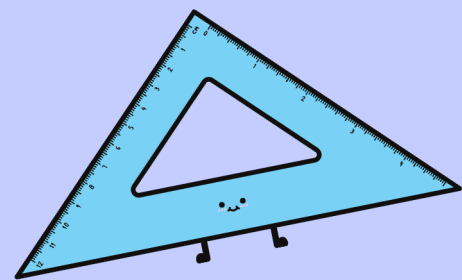
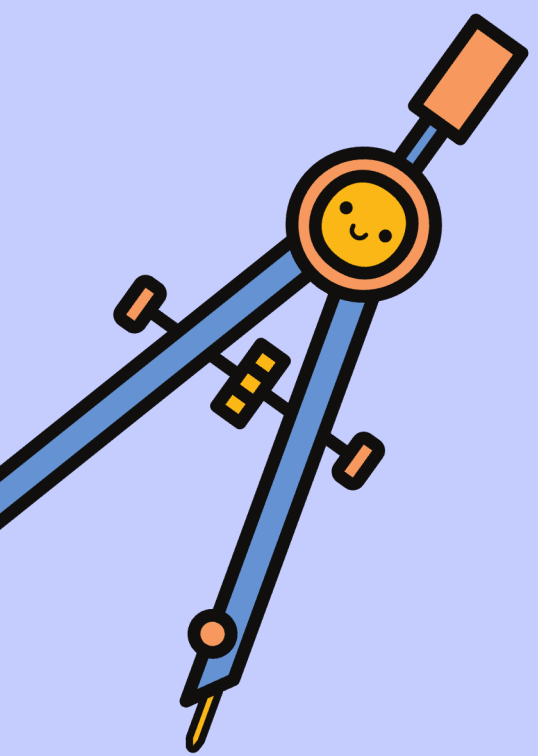
A strong solution connects the story, model, equation, and answer.

Does my model match the story?

Does my equation match my model?

Is my answer reasonable?





PREVIEW

Modelling Addition and Subtraction Problems Quiz



Quiz directions

Read each story carefully. Picture the action, choose or write an answer, then explain how you know.

1
READ

2
MODEL

3
SOLVE

4
CHECK



Question 1 – True or False

Mia had 7 shells. She found 4 more. This story shows addition.

TRUE

FALSE



Answer 1

True. Four more shells on the next seven

$$7 + 4 = 11$$



Question 2 – Choose the equation

There were 13 books. Five were borrowed. How many remain?

A

$$13 + 5 = 18$$

B

$$13 - 5 = 8$$

C

$$5 - 13 = 8$$

D

$$13 - 13 = 0$$



Answer 2

B. Five books leave the group of 13.

$$13 - 5 = 8$$



Question 3 – Short answer

There were 16 counters. Seven were moved away. How many counters are left?

MODEL

NUMBER SENTENCE

ANSWER



Answer 3

Seven counters are removed from 16, leaving 9

$$16 - 7 = 9$$



Question 4 – Choose the structure

There are 6 red beads and 4 blue beads. How many beads are altogether?

A
Add To

B
Take From

C
Part-Part-Whole

D
Compare



Answer 4

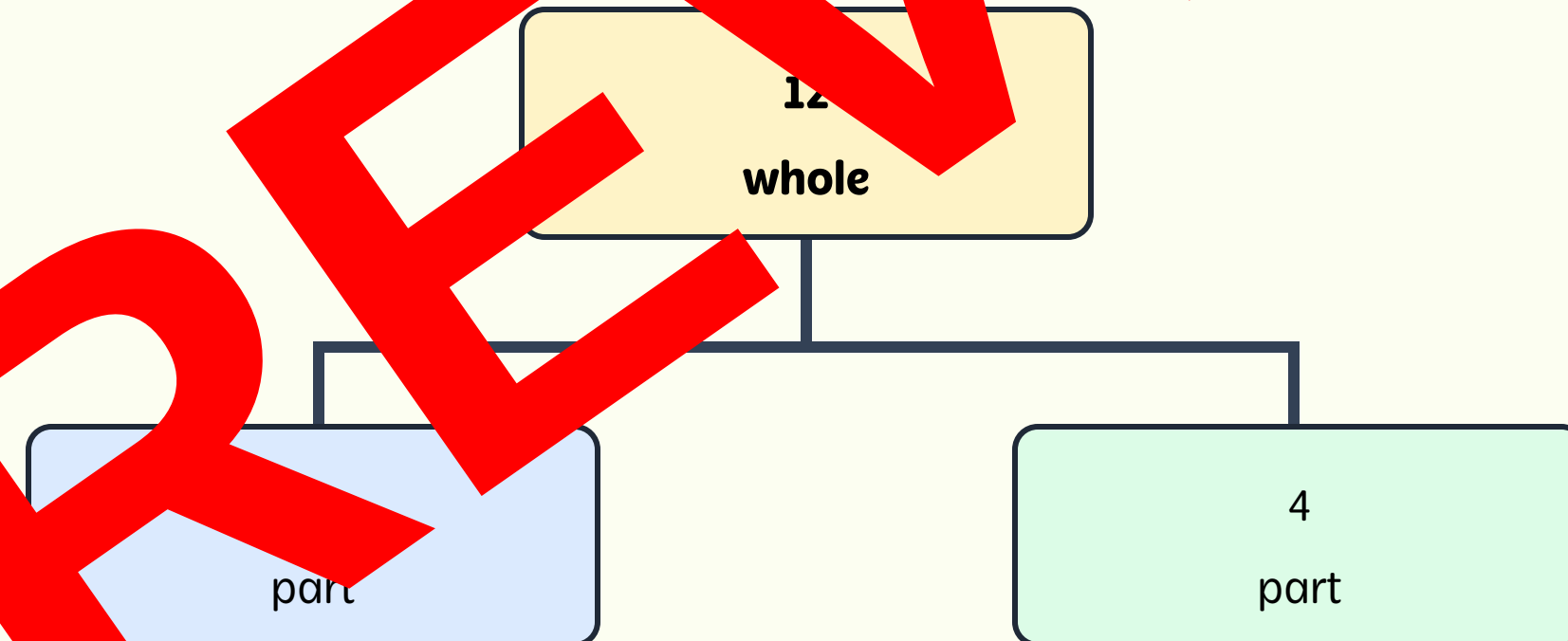
C. The two colour groups are pairs of one colour

$$6 \div 4 = 10$$



Question 5 – True or False

A part-part-whole model has whole 12 and parts 8 and 4. The equation $8 = 4$ matches the model.



TRUE or FALSE?



Answer 5

True. Removing the known part 8 from 12 leaves the other part 4.

$$12 - 8 = 4$$



Question 6 – Find the missing part

There are 11 toys. Six are balls and the rest are blocks. How many blocks are there?

MODEL

NUMBER SENTENCE

ANSWER



Answer 6

The whole is 11 and the known part is 6, so the missing part is 5.

$$11 - 6 = 5$$



Question 7 – Find the difference

Anya has 14 stickers. Ben has 9 stickers. How many more stickers does Anya have?

A

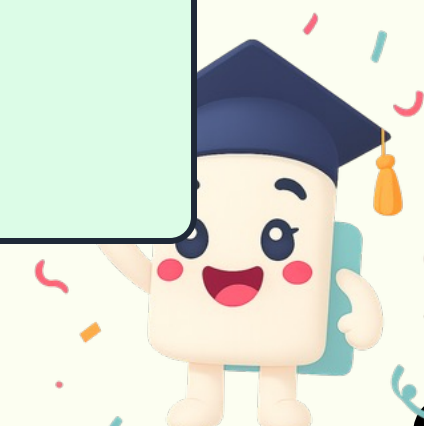
3

C

5

D

6



Answer 7

C. Compare the two quantities and find the difference.

$$1 - 9 = 5$$



Question 8 – Start unknown

Some birds were on a fence. Five flew away and 7 stayed. How many birds were there at the start?

MODEL

NUMBER SENTENCE

ANSWER



Answer 8

The start had both the birds that it and the birds that it had.

$$7 + 5 = 12$$



Question 9 – Choose a model

Ten apples are compared with 6 pears. Which model will show the difference most clearly?

A
One mixed pile

B
A number line

C
Comparison bars

D
A clock



Answer 9

C. Aligned comparison bars show the equation part of the extra 4.

$$10 - 6 = 4$$



Question 10 – Solve and explain

There are 15 crayons. Eight are red and the rest are blue. How many crayons are blue? Explain your model.

MODEL

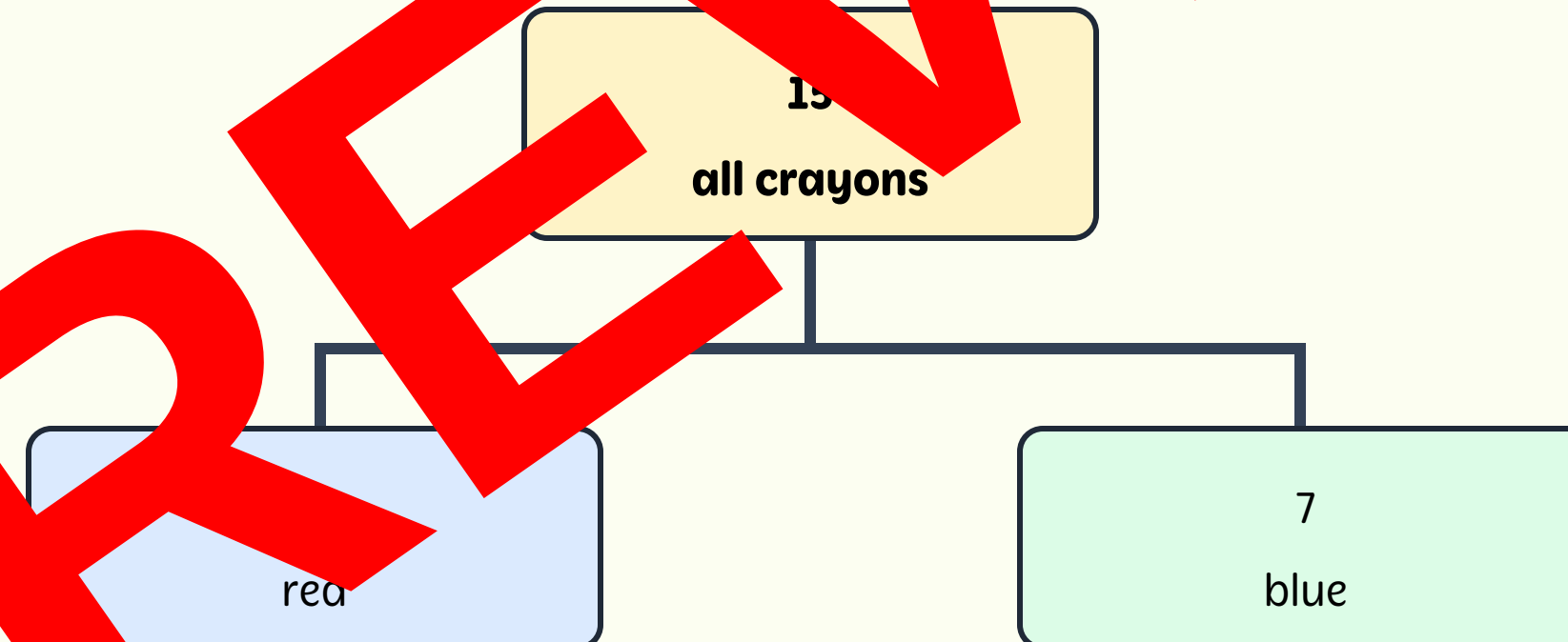
NUMBER SENTENCE

ANSWER



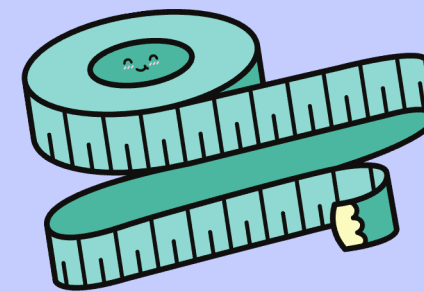
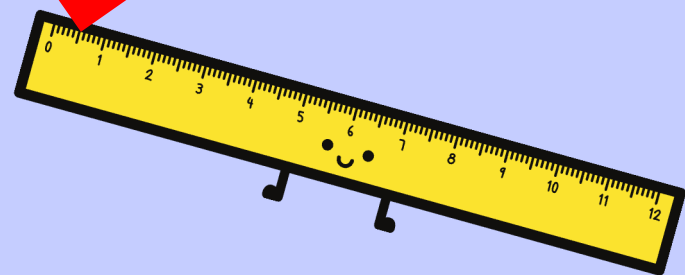
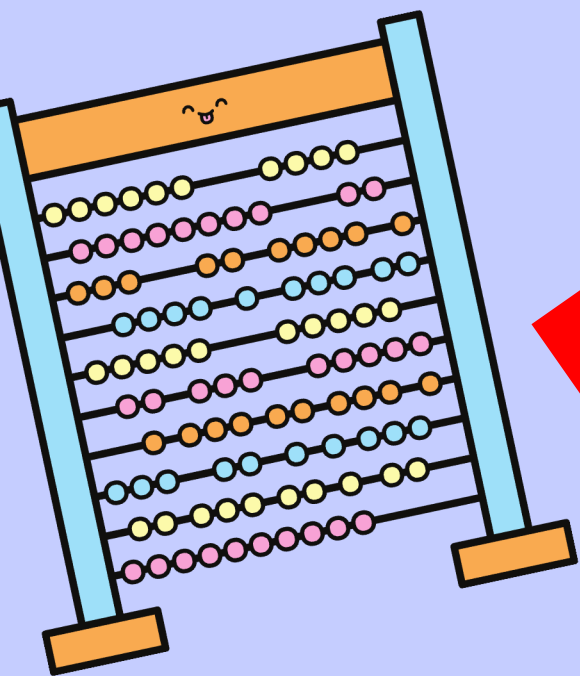
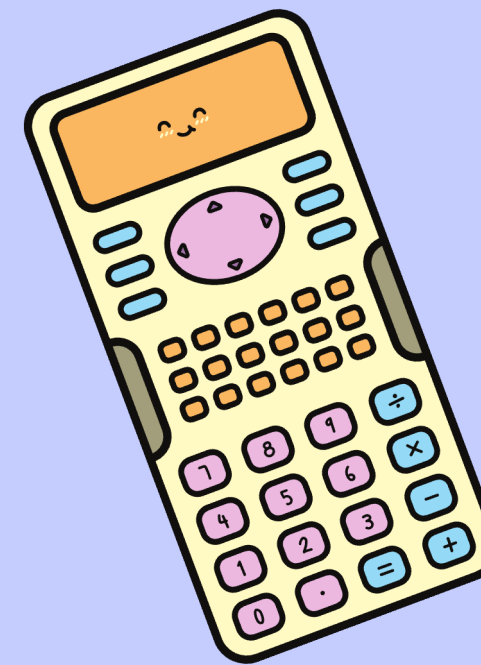
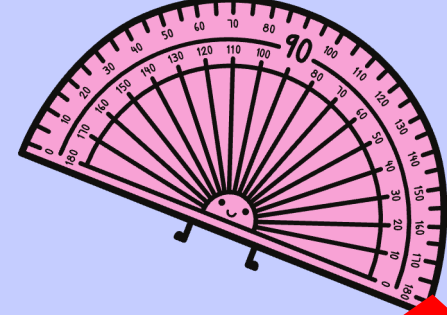
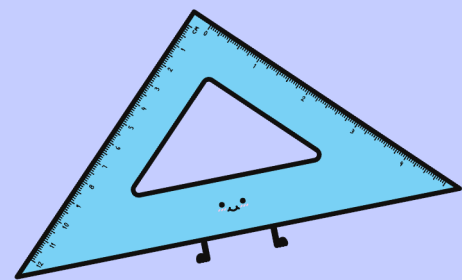
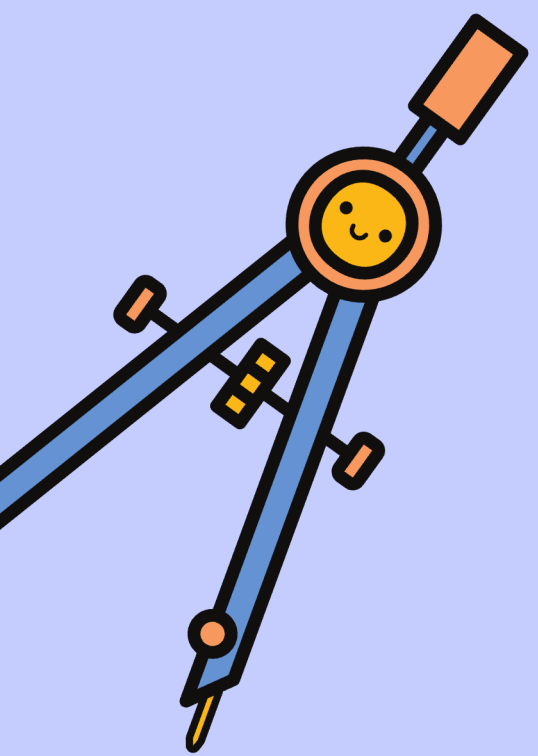
Answer 10

The whole is 15. One part is 8 red crayons, so the other part is 7 blue crayons.



$$15 - 8 = 7$$





PREVIEW