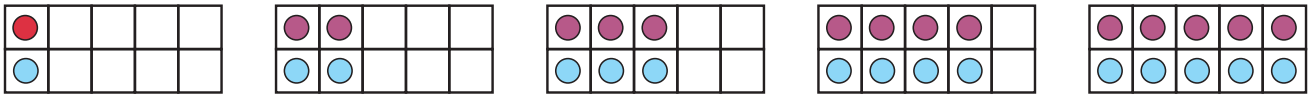
Overview Week 7

Finding patterns inside numbers

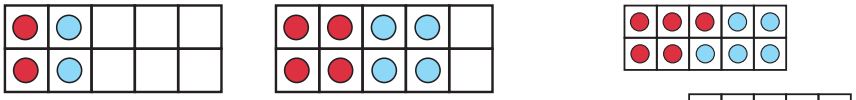
This is a fun activity that helps your students see numbers as flexible way. This is an excellent introduction to problem solving. To solve problems with numbers it is important that students do not see numbers in a fixed context, rather that they are able to be manipulated and changed to help solve a problem.

Use the ten frame cards to help find patterns. Have your students find the flash cards with these patterns.

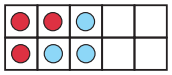
Doubling and "half of"

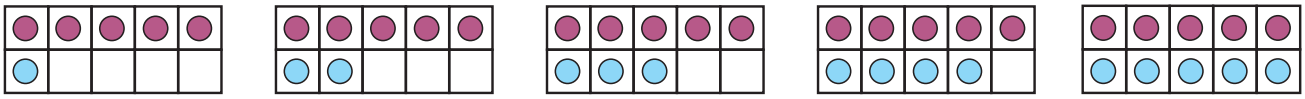


Doubling a different way using the pairs layout. (N.B. adding 3+3 and 5+5 with pairs is not as easy to visualize.)



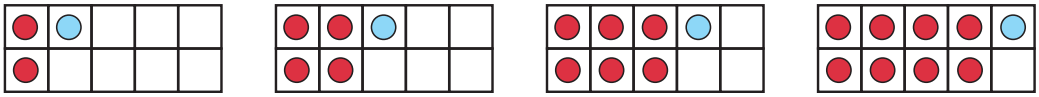
More than 5: Use the rows layout of this activity.



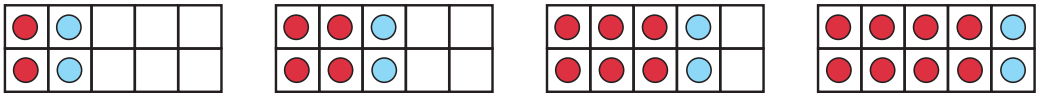


Odd and even relationship: Use the pairs layout for this activity.

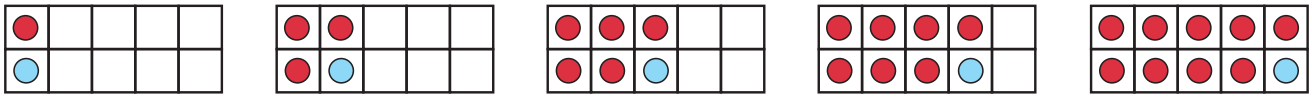
Even and 1 more is odd



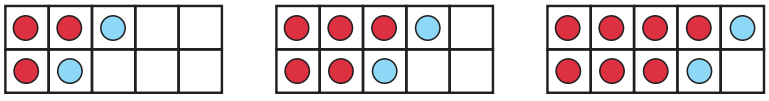
Even and 2 more is even again



Odd and 1 more is even



Odd and 2 more is odd again.



Real life stories

These are very important for your students to understand that numbers are important, are useful, make sense and can be used to solve problems.

Making up stories

In your stories different language.

For addition use such as “and”, “together”, “make” and “add”, use them interchangeably.

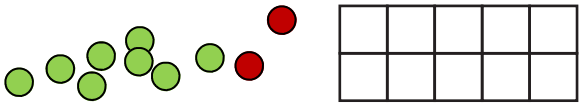
For subtractions use “how many more to make…?”, “take- away”, “lost”, “gone away”, “eaten”,

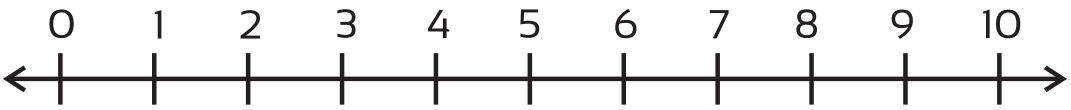
For “difference between” students may solve it in different ways. Laying a second row of counters over the first, laying a second set of counters beside the first, taking away the counters that are the difference. Numbers close together can be easily found on a number line. All are legitimate ways of showing the same problem.

Even introduce the concept of multiplication without calling it that. “2 rows of ”, “half of”, “2 lots of”.

Have your students use their ten frames with counters. Watch to see that they understand the question and are manipulating counters in a mathematically sensible manner.

Sometimes have your students use a number line to help them solve stories. Number lines suit some number stories more easily than others which may require lots of “counting on”, an inefficient method for solving problems, so restrict the numbers used for this resource.

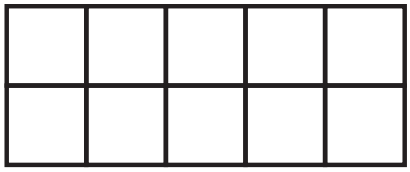




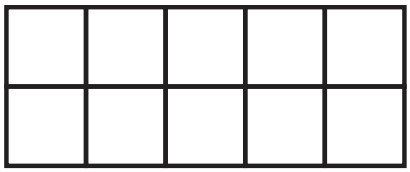
Doubling Numbers to 10

Template Instructions: Write in an even number, have students write the doubles.

Look at these two ten frames. They show doubles.

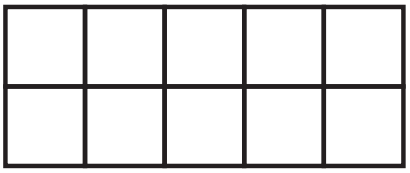


Double _____ makes ___

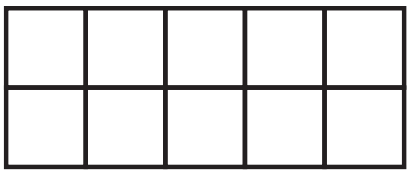


Double _____ makes ___

Draw the dots to on the ten frames to show the doubles.



Double _____ makes ___

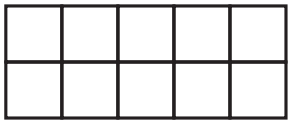


Double _____ makes ___

Draw lines to match the ten frames with the numbers that go together.

and

and



and

Finding Patterns in Numbers to 10

Template Instructions: Write in a number, have students write the numbers that together make that number.

Here are two ten frames for

Write the numbers that together make

_____ and _____

_____ and _____

Here are two ten frames for

Write the numbers that together make

_____ and _____

_____ and _____

Here are two ten frames for

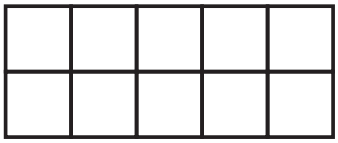
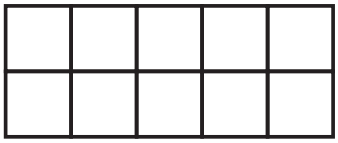
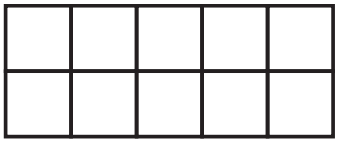
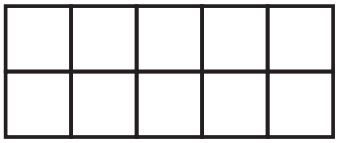
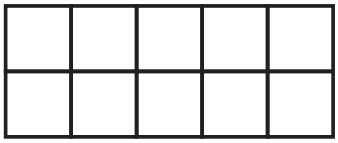
Write the numbers that together make

_____ and _____

_____ and _____

Turn Around Patterns in Numbers to 10

Template Instructions: Draw the dots and have the students write the pairs and their turnaround pairs for these ten frames.

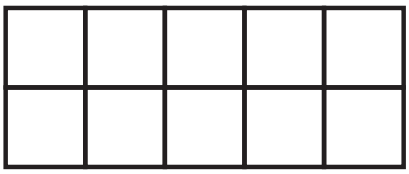
	☐ and ☐	☐ and ☐
	☐ and ☐	☐ and ☐
	☐ and ☐	☐ and ☐
	☐ and ☐	☐ and ☐
	☐ and ☐	☐ and ☐

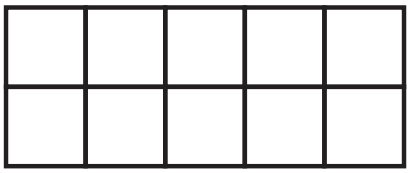
Here are some more. Use your own numbers.

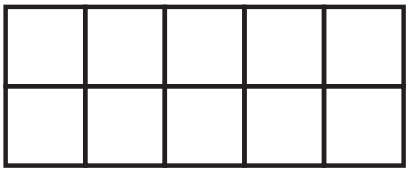
☐ ☐ and ☐	☐ ☐ and ☐
☐ ☐ and ☐	☐ ☐ and ☐

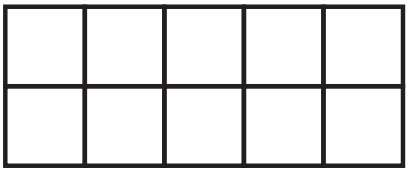
Real Life Stories to 10 - Adding

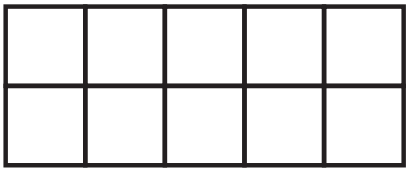
Template Instructions: Make up your own adding stories. Use the ten frames to help show the numbers.

 and is

 and is

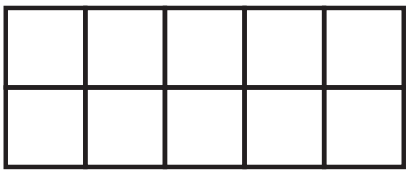
 and is

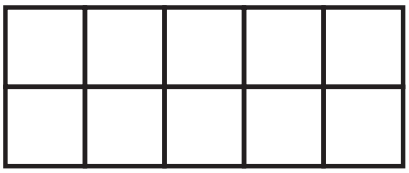
 and is

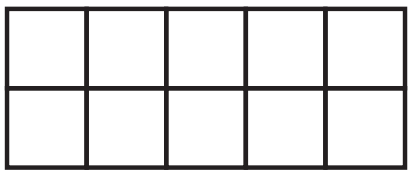
 and is

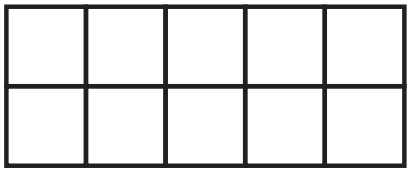
Real Life Stories to 10 -Take Away

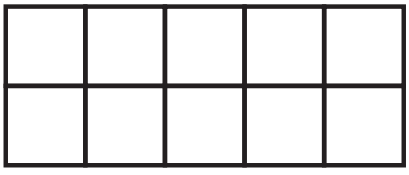
Template Instructions: Make up your own tae-away stories. Use the ten frames to help show the numbers.

 ☐ take ☐ is ☐

 ☐ take ☐ is ☐

 ☐ take ☐ is ☐

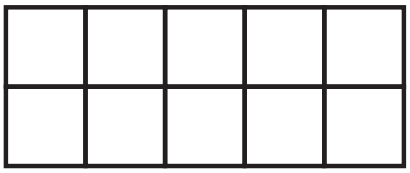
 ☐ take ☐ is ☐

 ☐ take ☐ is ☐

Real Life Stories to 10 - Difference Between

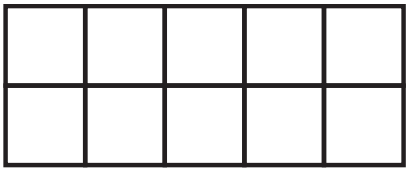
Template Instructions: Make up your own difference between stories. Draw both sets of dots on the ten frames, one on top of the other, to show the difference between the two numbers.

The difference between ☐ and ☐



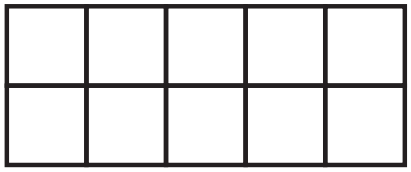
is ☐

The difference between ☐ and ☐



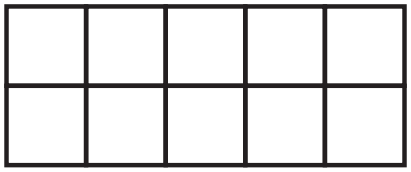
is ☐

The difference between ☐ and ☐



is ☐

The difference between ☐ and ☐



is ☐

Lesson 7A

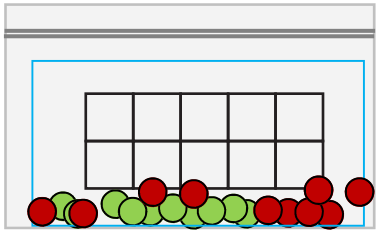
Doubling Patterns

The Ten Frames Gadget is excellent for showing patterns inside numbers.

Students can use their ten frames alongside all the Gadget if teachers choose.

*Place Laminated ten frames and counters in bags. Ensure all students have their own set of counters and there are two sets of 10 counters with different shades e.g. green and red.

Store individually in zip lock bags or containers.



Set the Ten Frames gadget to these settings.

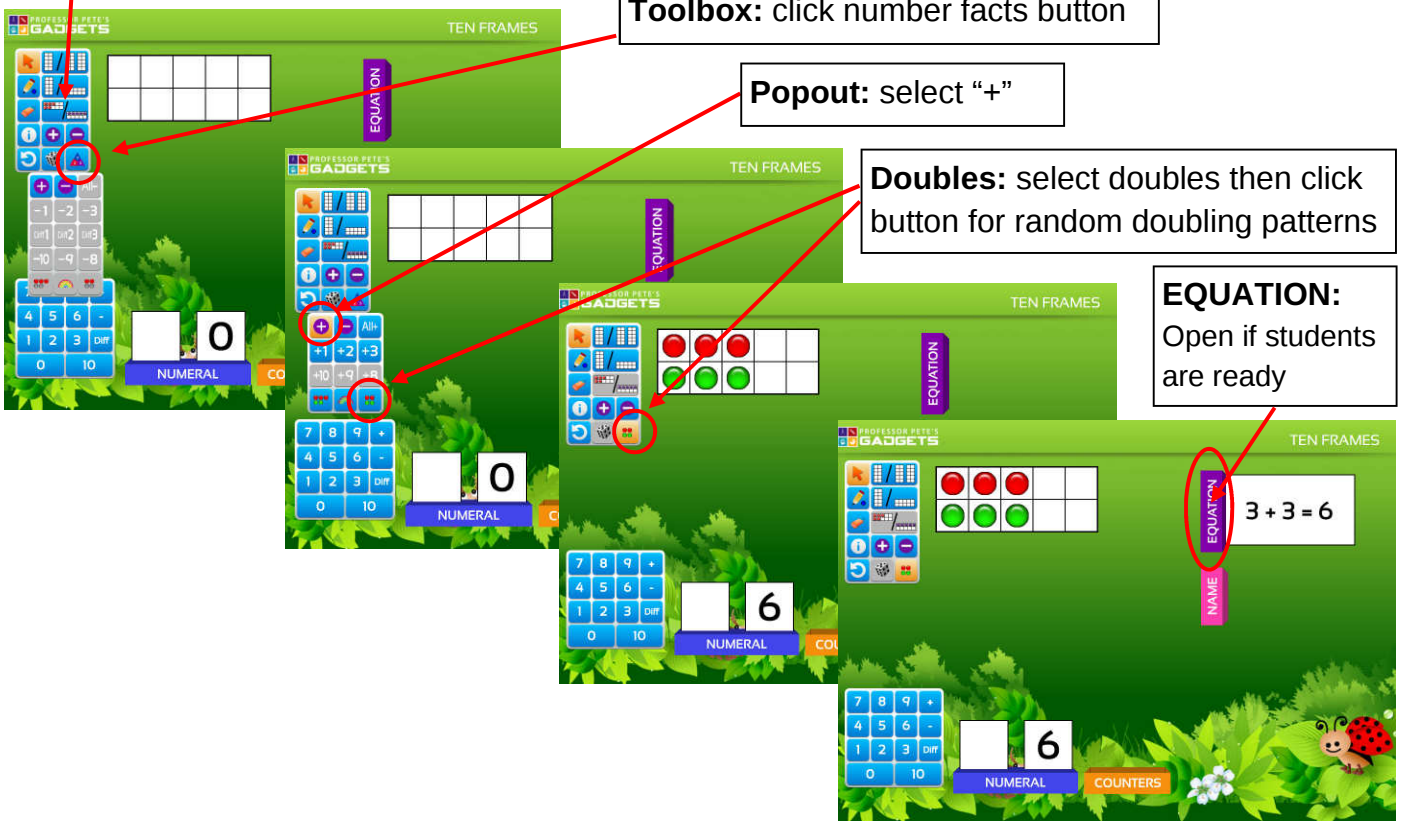
Arrangement: set to pairs

Toolbox: click number facts button

Popout: select "+"

Doubles: select doubles then click button for random doubling patterns

EQUATION: Open if students are ready



Lesson 7A

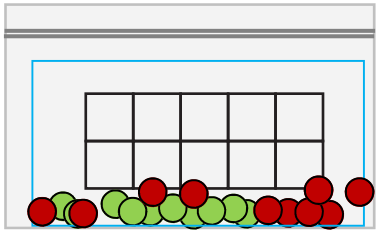
Halving Patterns

The Ten Frames Gadget is excellent for showing patterns inside numbers.

Students can use their ten frames alongside all the Gadget if teachers choose.

*Place Laminated ten frames and counters in bags. Ensure all students have their own set of counters and there are two sets of 10 counters with different shades e.g. green and red.

Store individually in zip lock bags or containers.



Set the Ten Frames gadget to these settings.

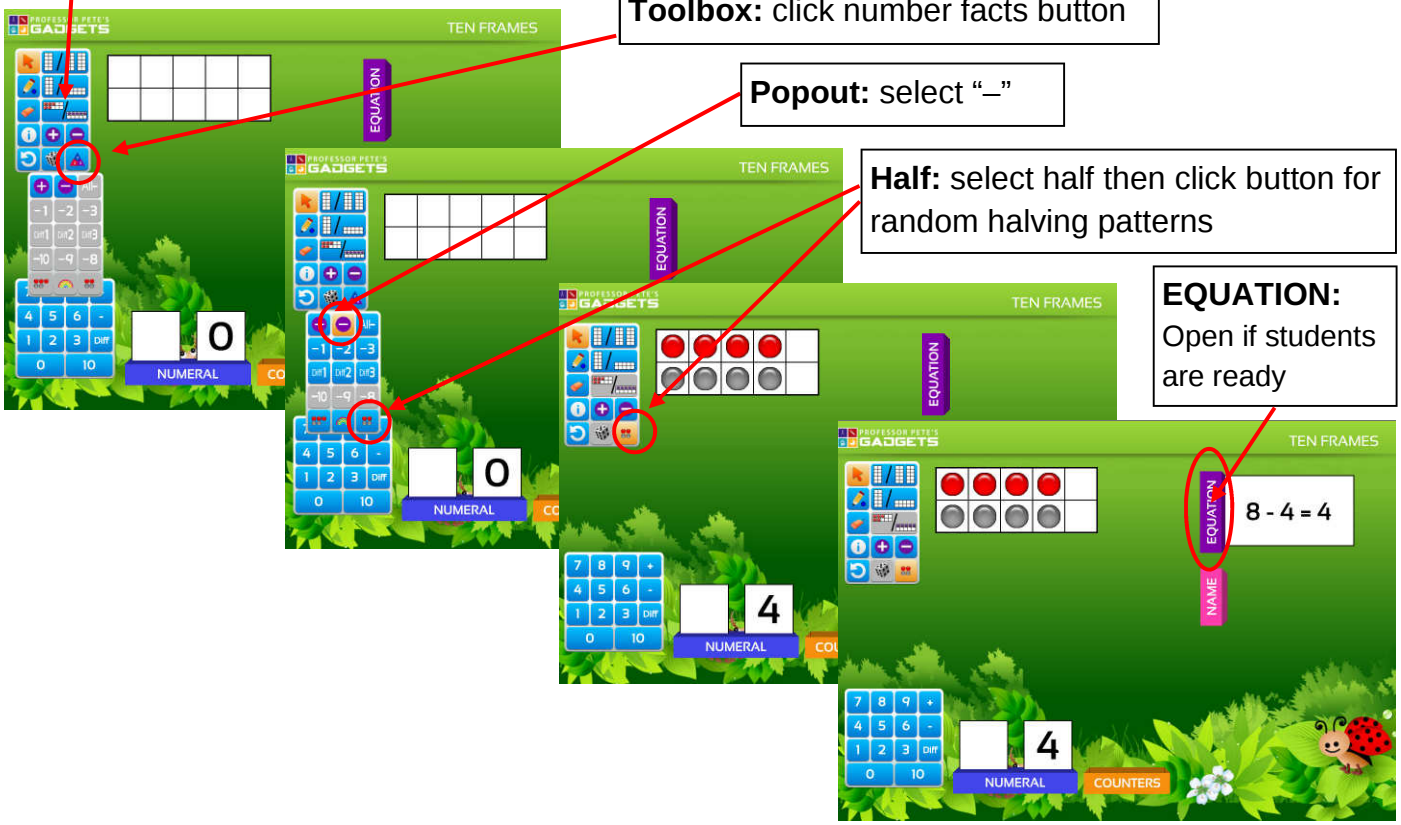
Arrangement: set to pairs

Toolbox: click number facts button

Popout: select "–"

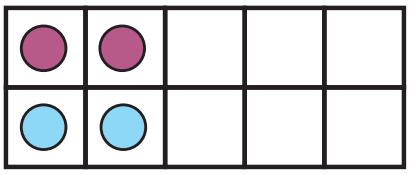
Half: select half then click button for random halving patterns

EQUATION: Open if students are ready



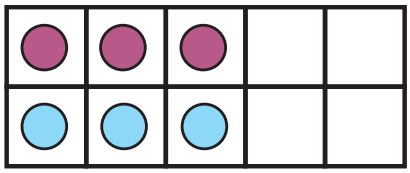
Doubling Patterns in Numbers to 10

Look at these two ten frames. They show doubles.



4

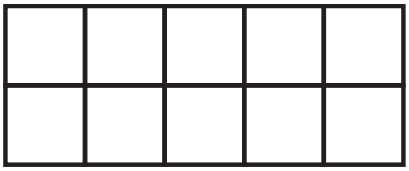
Double _____ makes 4



6

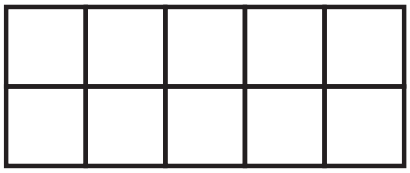
Double _____ makes 6

Draw the dots on the ten frames to show the doubles.



8

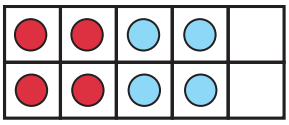
Double _____ makes 8



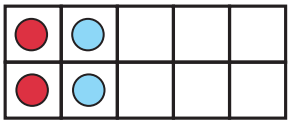
10

Double _____ makes 10

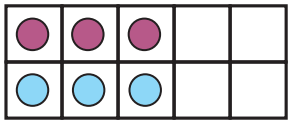
Draw lines to match the ten frames with the numbers that go together.



2 and 2



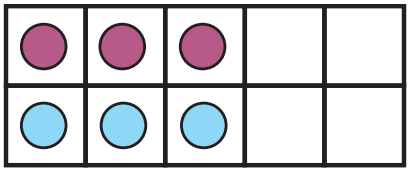
5 and 3



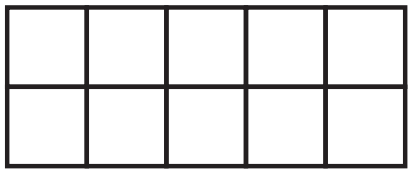
3 and 3

Halving Patterns in Numbers to 10

Cross out some dots to show half.
Draw the dots on the ten frames first.

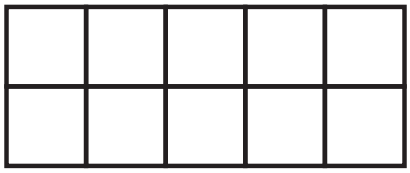


Half of 6 makes _____

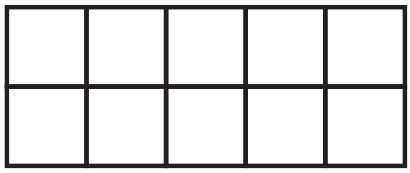


Half of 4 makes _____

Draw the dots to on the ten frames to show each number and half of it.



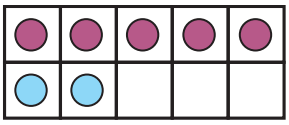
Half of 2 makes _____



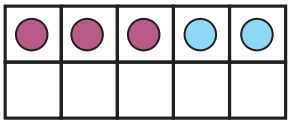
Half of 6 makes _____

Numbers that are doubles are always (odd or even)? _____

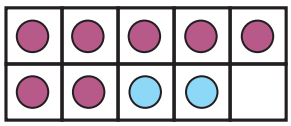
Draw lines to match the ten frames with the numbers that go together.



7 and 2



5 and 2



3 and 2

Lesson 7B

Odd and Even Patterns (Optional)

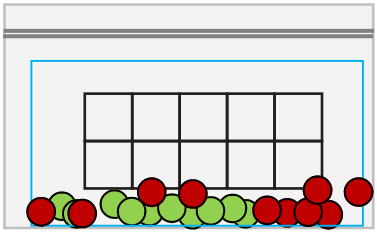
Note: If your students do not cover odd and even then skip this day's activities

The Ten Frames Gadget is excellent for showing patterns inside numbers.

Students can use their ten frames alongside all the Gadget if teachers choose.

*Place Laminated ten frames and counters in bags. Ensure all students have their own set of counters and there are two sets of 10 counters with different shades e.g. green and red.

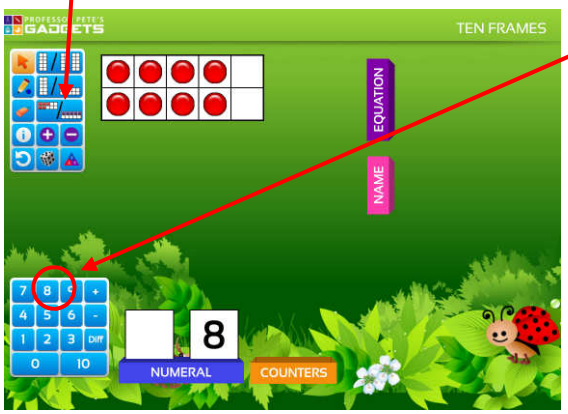
Store individually in zip lock bags or containers.

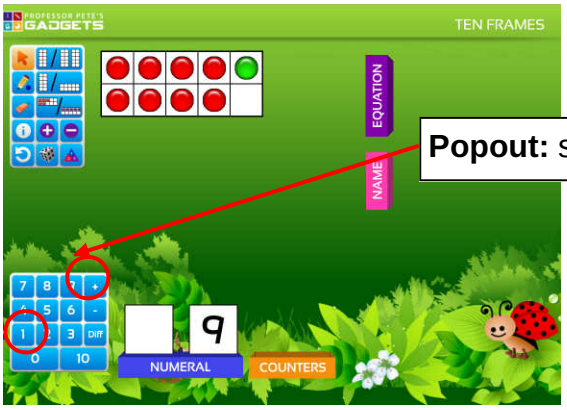


Set the Ten Frames gadget to these settings.

Arrangement: set to pairs

Keypad: select an even or odd number

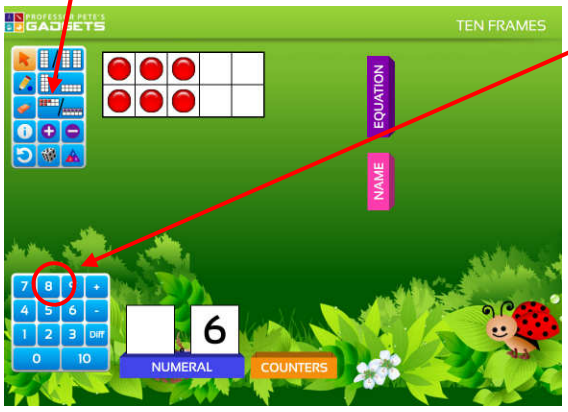


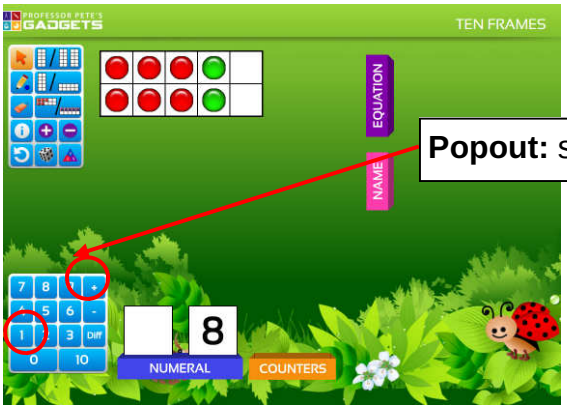


Popout: select "+1"

Arrangement: set to pairs

Keypad: select an even or odd number





Popout: select "+2"

Lesson 7B

Odd and Even Patterns (Optional)

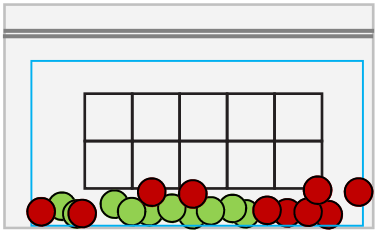
Note: If your students do not cover odd and even then skip this day's activities

The Ten Frames Gadget is excellent for showing patterns inside numbers.

Students can use their ten frames alongside all the Gadget if teachers choose.

*Place Laminated ten frames and counters in bags. Ensure all students have their own set of counters and there are two sets of 10 counters with different shades e.g. green and red.

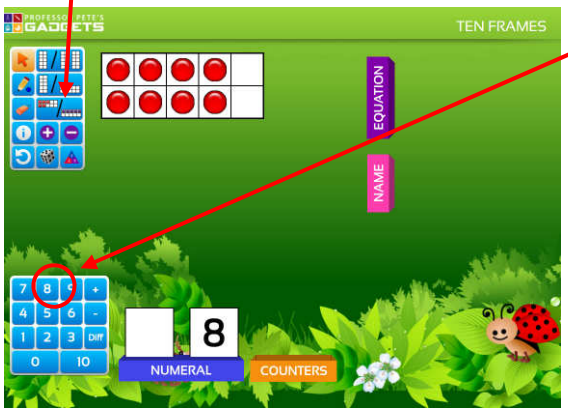
Store individually in zip lock bags or containers.

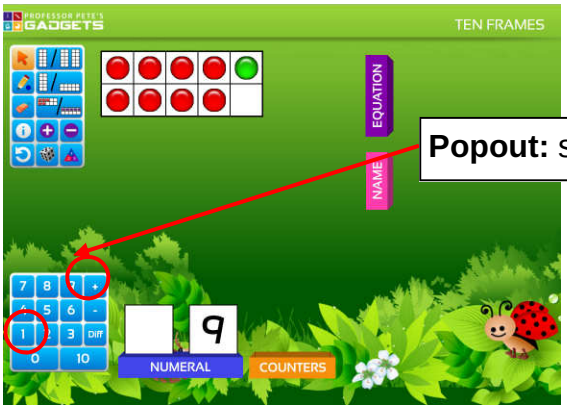


Set the Ten Frames gadget to these settings.

Arrangement: set to pairs

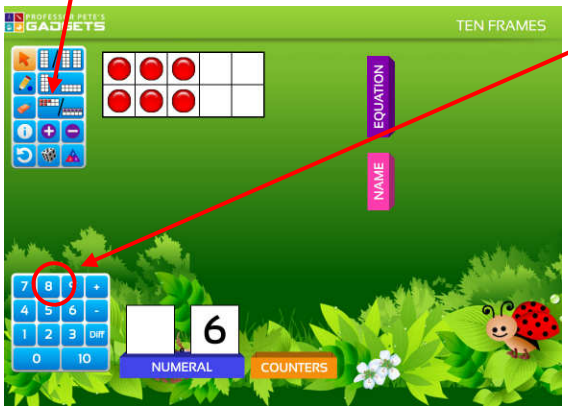
Keypad: select an even or odd number



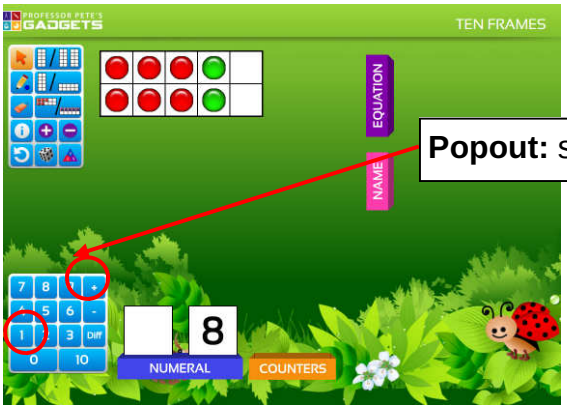


Popout: select "+1"

Arrangement: set to pairs



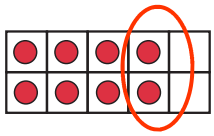
Keypad: select an even or odd number



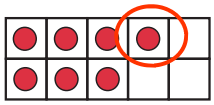
Popout: select "+2"

Finding Patterns - Odd Even

Write whether the number is odd or even.
Fill in the dots or numbers to help you.
Circle the last dots, are they a pair or one on its own?

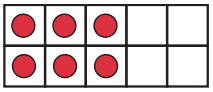
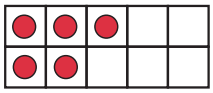
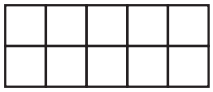
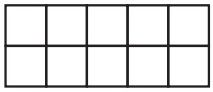
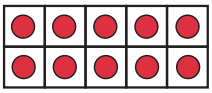


8 even



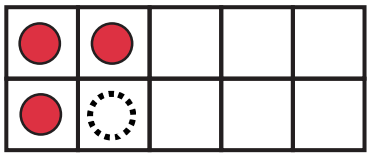
7 odd

Circle the last dots. Write whether the number is odd or even.

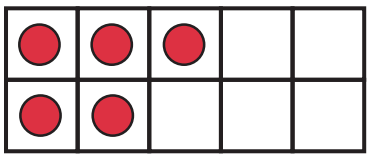
 _____	 _____
 3	 2
 4	 _____
 9	 _____

Finding Patterns - Odd Even

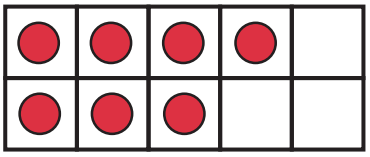
Look at these ten frames. Draw one more dot and write the missing numbers.

3	and	1			4

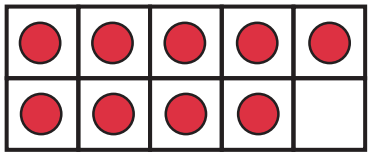
3 is odd, one more makes the number even

	and				

5 is odd, one more makes the number _____

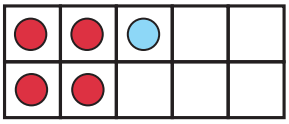
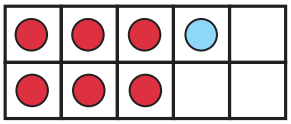
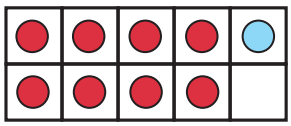
	and				

7 is odd, one more makes the number _____

	and				

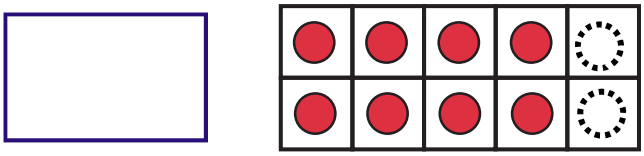
9 is odd, one more makes the number _____

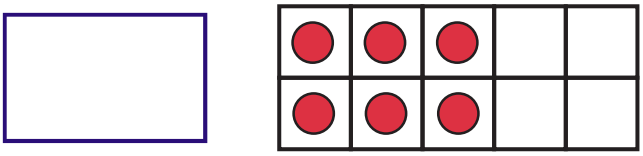
Draw lines to match the ten frames with the numbers that go together.

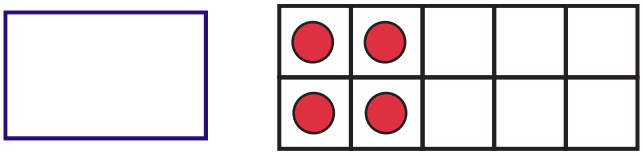
		6	and	1
		8	and	1
		4	and	1

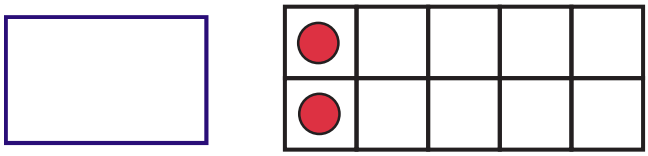
Finding Patterns - Odd Even

Look at these ten frames. Draw two more dots and write the new number.

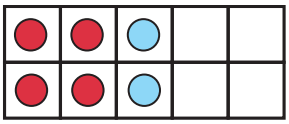




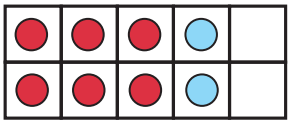




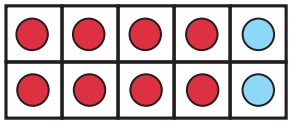
Draw lines to match the ten frames with the numbers that go together.



4 and 2



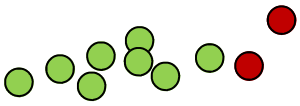
8 and 2

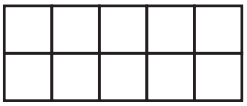


6 and 2

Finding Patterns - Odd Even

Use your ten frame and coloured counters to help you find one more than each of the numbers.





1 more than 5	is	6	The number is now odd
2 more than 1	is		The number is now
1 more than 3	is		The number is now
2 less than 2	is		The number is now
1 less than 6	is		The number is now
2 more than 4	is		The number is now
1 less than 4	is		The number is now

Lesson 7C,D

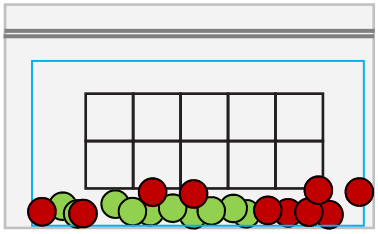
Real life stories with ten frames.

Hand out ten frames and counters*.

Note: Before using the Ten Frames Gadget, make sure students do lots of hands on activities with their ten frames. The concept of using ten frames to solve real life stories is best when initiated by the students. They need to see that the counters actually represent real objects. % counters represents 5 bugs etc. Using the Gadget, is best used in this situation to display and check the answer the students have on their ten frames.

*Place Laminated ten frames and counters in bags. Ensure all students have their own set of counters and there are two sets of 10 counters with different shades e.g. green and red.

Store individually in zip lock bags or containers.

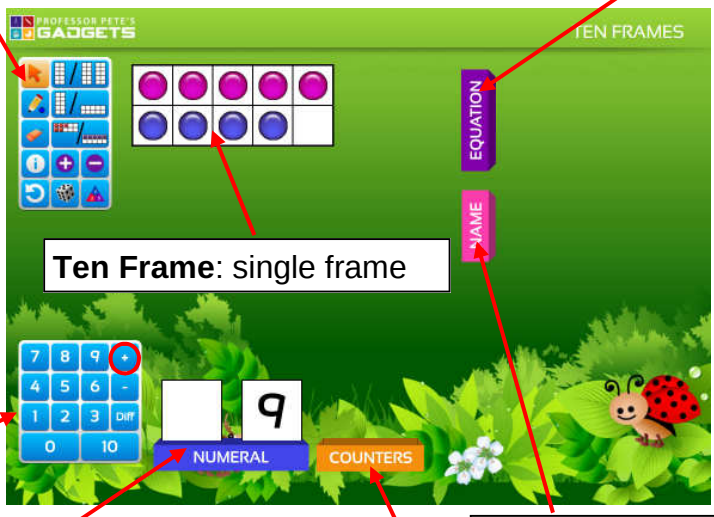


I**t is important to have students show numbers on their ten frame the numbers as counters representing the story correctly.** Using a different shades of counters for the two numbers that go together will help students picture what is happening in the story.

Checking responses with the Ten Frames gadget to these settings.

EQUATION: hide it unless your students already use the "+" or "–" sign

Tool Panel: Check default settings
- Single ten frame
- Horizontal or vertical layout



Ten Frame: single frame

Key Pad: for entering numbers e.g. "5+4"

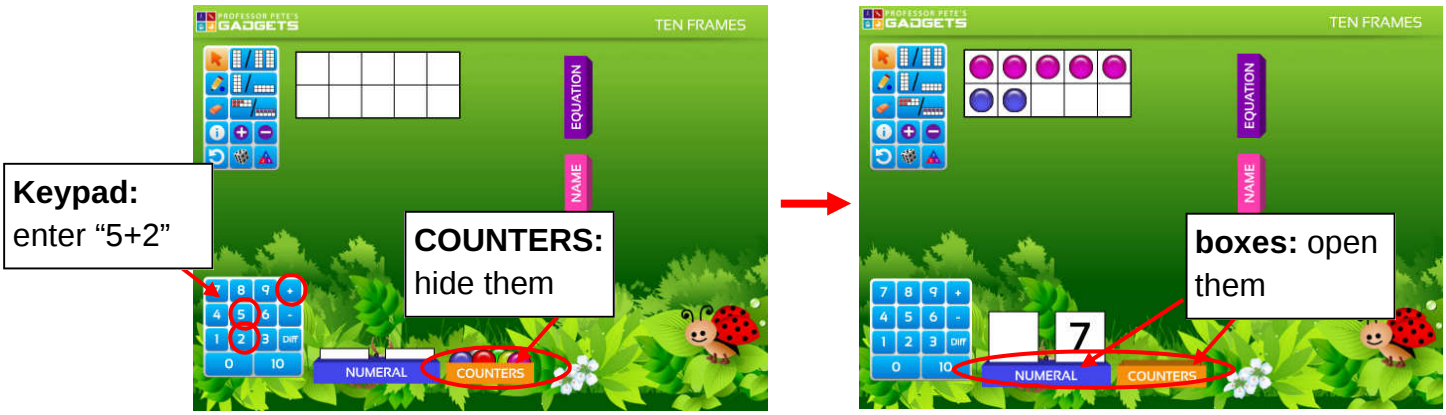
NAME: hide it (close it)

NUMERAL: hide or show the written form of the number

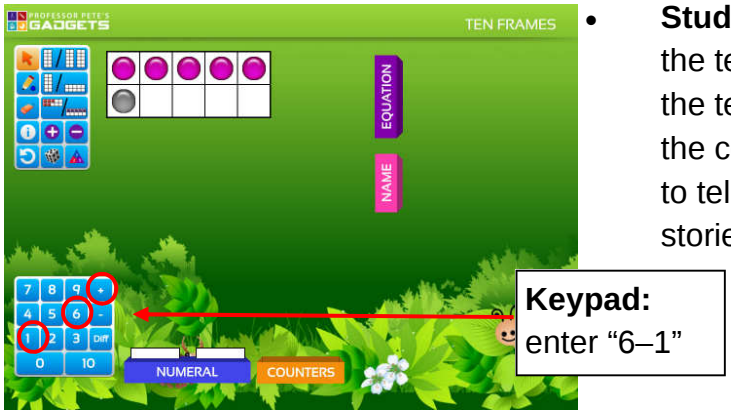
COUNTERS: hide or show the counters on the ten frames

Lesson 4A Cont'd

- Close all boxes including the counters.
- Read out the story in the worksheets or make up your own.
- Ask students to show you what is happening on their ten frames. What is the answer?
- Open the counters box and the counters will appear on screen. Check students responses on the ten frame son the Gadgets.
- Reset the screen
- Repeat for subtraction worksheets. Students need to realise that the counters are actually removed, not just greyed out.
- **Extension:** Where applicable ask students which layout (pairs or rows) is best way to represent the story. (Some stories adding 5 are best using rows, one or 2 more are best shown with pairs arrangement



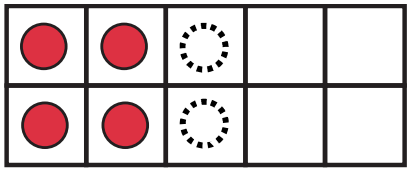
- Repeat above steps with other number stories.
- **Worksheet activities:** Complete only some of them. Remember you do not need to do all the activities but choose the best ones most suitable for your students. Alternatively you could use the extra worksheets for early finishers or homework.



- **Students giving stories:** enter a number story on the ten frames and have students retell a story to fit the ten frame representation. E.g. enter 6–1, show the counters on the ten frame and ask the students to tell them a story to represent it. Listen to their stories to check them.

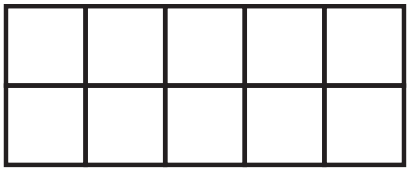
Real Life Stories to 6

Read the story and draw the 2 coloured counters to show:
There are 4 flowers in a vase. 2 more are added. How many flowers altogether?



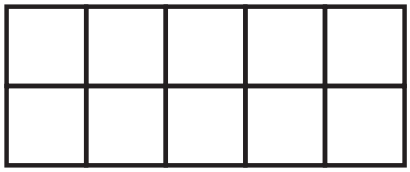
4 and 2 is 6

There are 5 cars in a toy box. 1 more cars drives in.
How many in the toy box now?



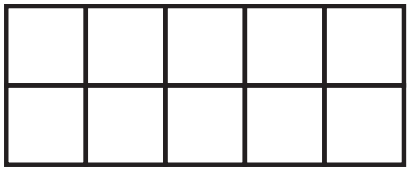
____ and ____ is ____

There are 2 dolls with red ribbons and 3 with blue ribbons.
How many dolls altogether?



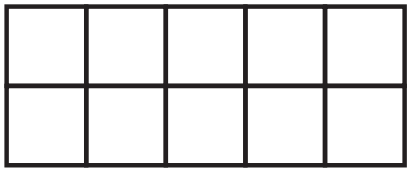
____ and ____ is ____

There are 2 bugs in a jar. 3 more fly in.
How many bugs are in the jar now?



____ and ____ is ____

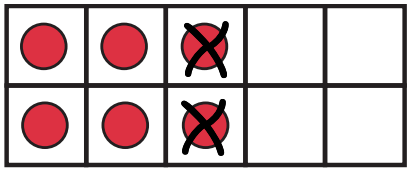
There are 2 cookies in a jar. 4 more are added.
How many cookies in the jar now?



____ and ____ is ____

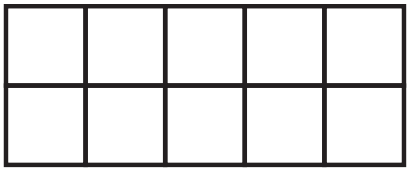
Real Life Stories to 6

Read the story and draw the dots then cross some out to show:
There are 6 cookies in a jar. 2 are eaten. How many cookies are left?



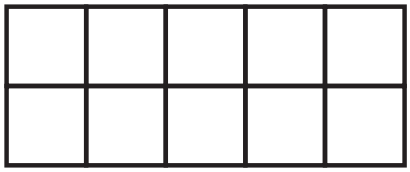
6 take 2 is 4

There are 5 cars in a toy box. 1 drives away.
How many trucks are left?



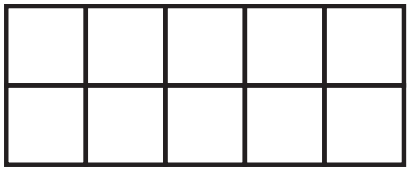
____ take ____ is ____

There are 5 ribbons in a drawer. 3 of the ribbons are green. The others are red.
How many of the ribbons are red?



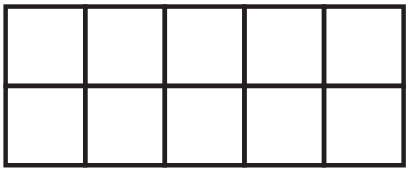
____ take ____ is ____

There are 6 bugs in a jar. 3 fly away.
How many bugs are left in the jar?



____ take ____ is ____

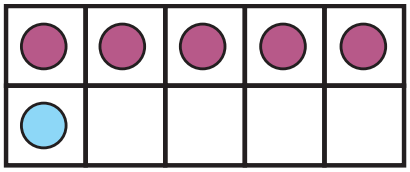
There are 4 flowers in a vase. 2 flowers died and were thrown out.
How many flowers are left?



____ take ____ is ____

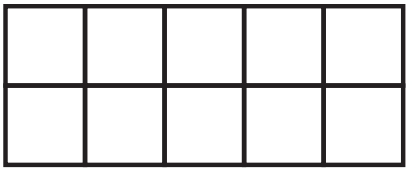
Real Life Stories to 6

Read the story and draw 1 or 2 extra counters to show:
There are 5 marbles in a bag. 1 more is added. How many marbles altogether?

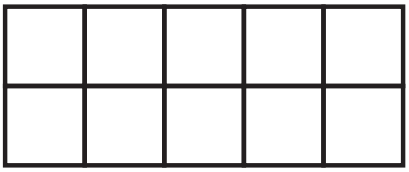


6

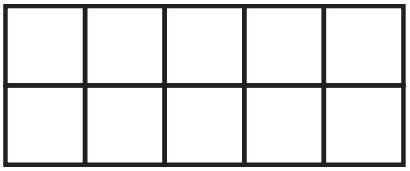
There are 4 bikes in a garage. 1 more arrives.
How many bikes are in the garage now?



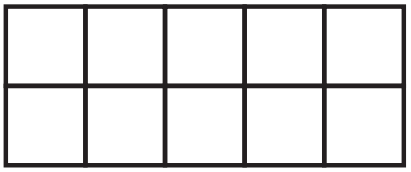
There is 1 hair clip in the bag. A friend puts 2 more in.
How many hair clips are in the bag now?



There are 4 bugs in a jar. 2 more fly in.
How many bugs are in the jar altogether?



There are 4 pencils in a case. 1 more pencil is thrown in.
How many are in the pencil case now?

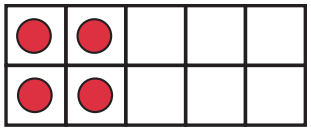


Real Life Stories to 6

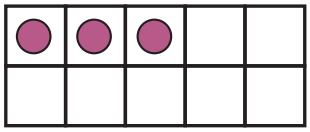
Draw the extra dots or cross them off on the ten frame to show the new number.

There are 4 boys and 1 girl.

How many children altogether?

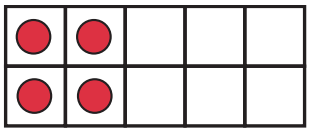


There are 3 red shirts and 2 blue shirts. How many shirts altogether?

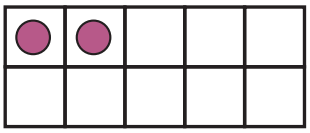


There are 4 red cars. 2 drive away.

How many cars are left?

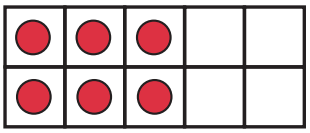


There are 2 red hats and 2 blue hats. How many hats altogether?

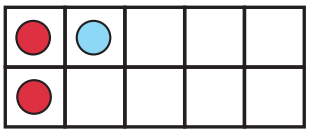


There are 6 bikes. 4 bikes are blue.

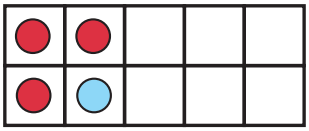
The rest are red. How many bikes are red?

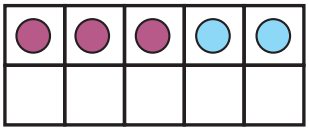


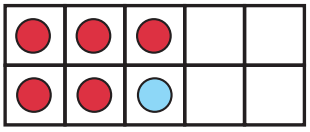
Tell an adding story to go with the ten frame.

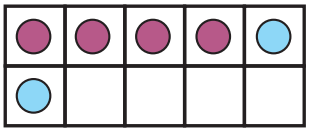


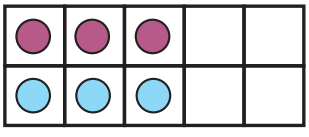
Tell a take away story to go with these.





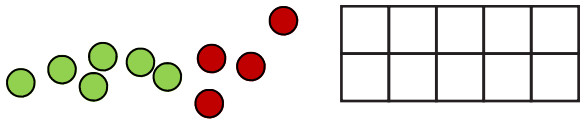






Real Life Stories to 10

Use your ten frame and coloured counters to help you find the answers.



There are 6 girls and 4 boys.

How many children altogether?

There are 8 teachers. 2 go home.

How many teachers left at school?

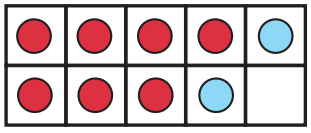
There are 7 flowers. 2 are roses.

The rest are lilies. How many lilies?

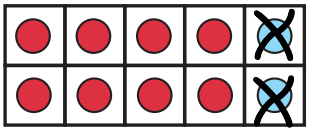
There are 8 dogs. 1 runs home.

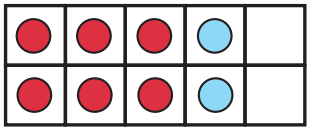
How many dogs are still playing together?

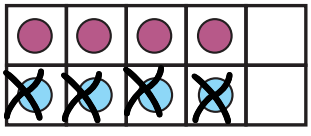
Tell an adding story to go with the ten frame.

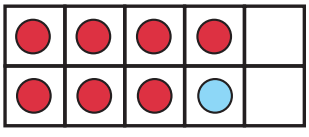


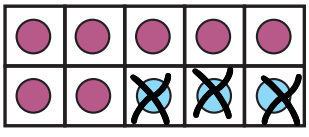
Tell a take away story to go with these.





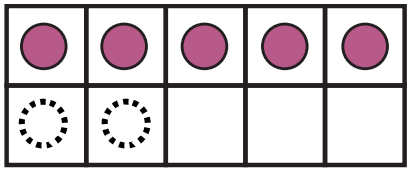






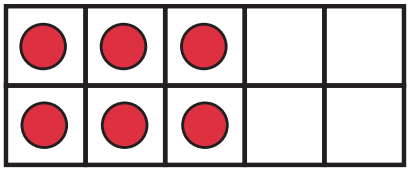
Real Life Stories to 10

Read the story and draw the 2 coloured counters to show:
There are 5 dolls with black hair and 2 with red hair. How many dolls altogether?



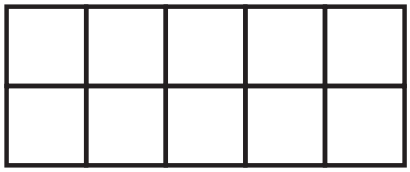
5 and 2 is 7

There are 6 oranges in a box. 3 more are added. How many oranges are there altogether?



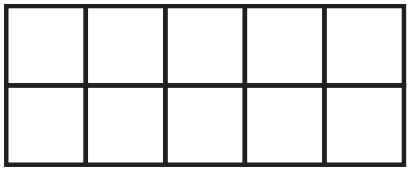
____ and ____ is ____

There are 7 boys playing in a room. 3 more joins them.
How many boys are there now in the room?



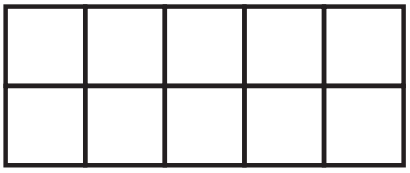
____ and ____ is ____

There are 8 bugs in a jar. 2 more fly in.
How many bugs are in the jar now?



____ and ____ is ____

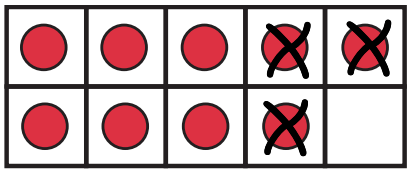
There are 4 brownies in a tub. 4 more are added.
How many brownies are there the tub now?



____ and ____ is ____

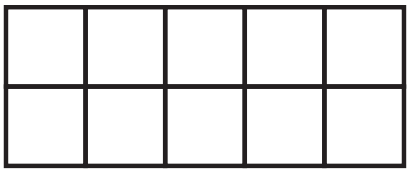
Real Life Stories to 10

Read the story and draw the dots then cross some out on to show:
There are 9 bananas on a plate. 3 are eaten. How many bananas are left?



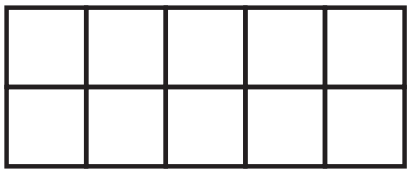
9	take	3	is	6

There are 8 trucks in a toy box. 4 drive away.
How many trucks are left?



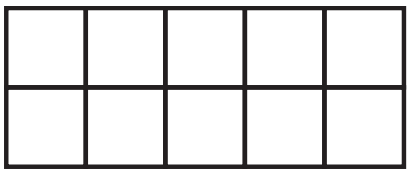
	take		is	

There are 10 ribbons in the drawer. 4 of the ribbons are used.
How many of the ribbons are left?



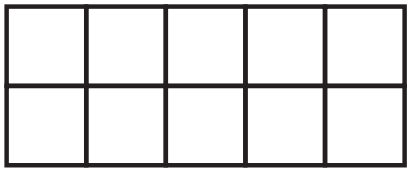
	take		is	

There are 8 flies in a jar. 3 fly away.
How many flies are left in the jar?



	take		is	

There are 7 stickers one a page. 4 fall off. How many stickers are left?



	take		is	

Real Life Stories to 10

Can you work these out?
Use your ten frame or number line if necessary.

There are 10 dogs, 6 wander off.
How many are left behind?

There are 7 crabs, 2 more join them.
How many crabs are there now?

There are 8 mice, 5 run off.
How many are left now?

There are 7 spiders, 4 run away.
How many spiders are left?

There are 3 cup cakes in a basket.
A friend brings 5 more.
How many cakes are there now?

There are 7 apples. 1 is eaten apple.
How many are there now?

There are 9 boxes. 8 boxes are crushed.
How many boxes are left?

There are 10 birds sitting on a branch, 4 fly away.
How many are there on the branch now?

Lesson 7E Revision

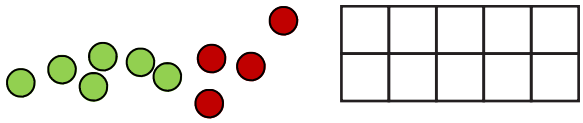
Use the worksheets to revise previous lessons.

Set the Ten Frames Gadget to the necessary settings.
Use the individual ten frames or number lines when required.

Revision

W7 E

Use your ten frame and coloured counters to help you find the answers.



There are 5 girls and 3 boys.

How many altogether?

There are 8 soldiers, 2 go home on leave.

How many are left?

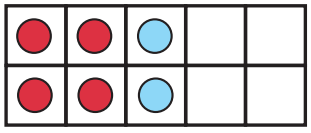
There are 4 roses and 4 daisies.

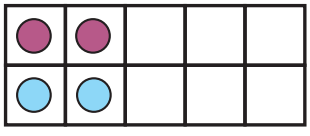
How many flowers altogether?

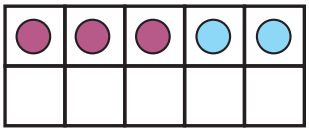
There are 7 dogs playing. 2 dogs run home.

How many are still playing together?

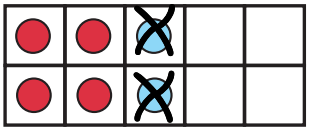
Tell an adding story to go with the ten frame.

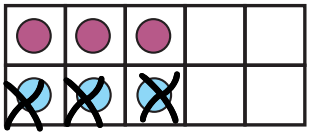


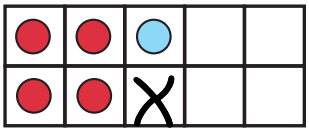




Tell a take away story to go with these





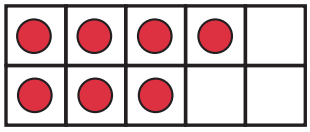


Revision

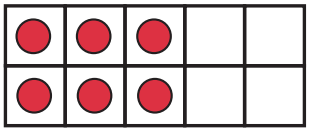
W7 E

Draw the extra dots or cross them off on the ten frame to show the new number.

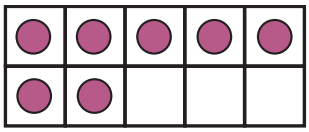
There are 7 boys and 1 girl.
How many children altogether?



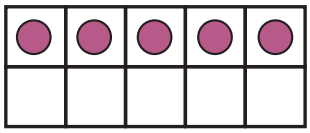
There are 6 red shirts and 4 blue shirts. How many shirts altogether?



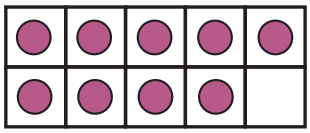
There are 7 red cars. 2 drive away.
How many are left?



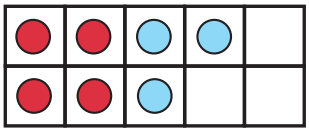
There are 5 red hats and 5 blue hats. How many hats altogether?



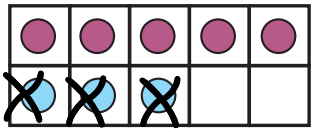
There are 9 red and blue bikes. 4 bikes are blue. How many bikes are red?

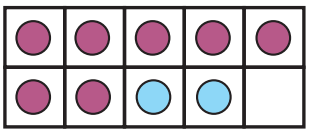


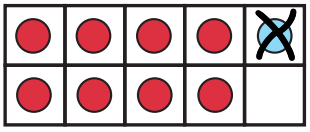
Tell an adding story to go with the ten frame.

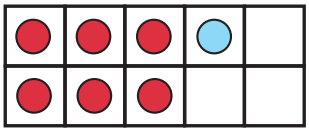


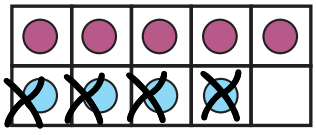
Tell a take away story to go with these.





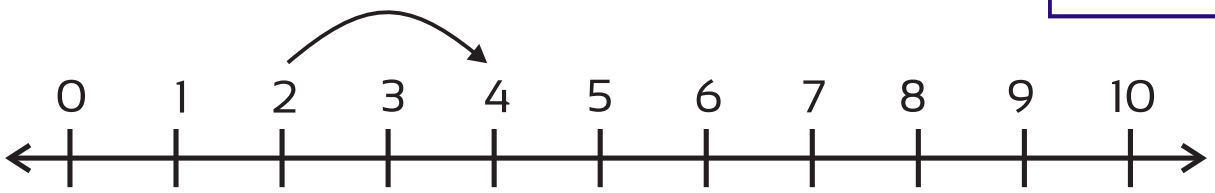






Hop on the number line to find the number.

There are 2 boys and 2 girls. How many children altogether?



I have 6 grapes plus 2 more grapes.
How many grapes altogether?

I have 8 red marbles. 1 rolls away. How many marbles are left?

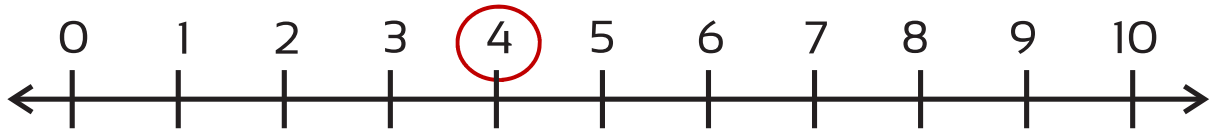
I have 9 red hats and 1 blue hat. How many hats altogether?

I have 9 boxes. 7 are blue the rest are yellow. How many boxes are yellow?

Find the number on a number line. Circle the starting number.
How many hops to make the new number? Can you guess without counting?

3 and ___ makes 5

4 and ___ makes 5



___ and 2 makes 6

___ and 1 makes 8

7 and ___ makes 9