

Tapping into P.K (prior knowledge) grows learning

Repetition and rehearsal of skills are needed if *all* students are to retain any new information; however, this is particularly useful for students with learning difficulties or students who simply need a little more time to process new information. These activities are designed and prepared in such a way as to activate and build on student's prior knowledge and learning.

Students need to develop an understanding about the relationship between reading, saying, and doing (modelling) numbers.

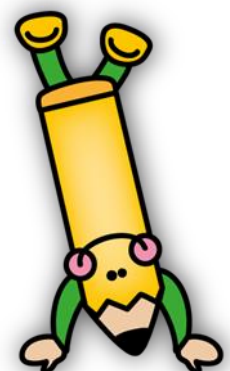
The concept of Starting Maths with S.P.R.I.N.G, reinforces the learning through repeated practice.

Spring is mainly used as an intervention and is generally run 'over and above normal teaching for students requiring additional support. *However*, the overall concept has been adapted and can be applied to basic maths group teaching as it supports deliberate acts of teaching.

Enjoy.

Claire Knight

(Resource Teacher of Learning and Behaviour)



Start Maths with a **S.P.R.I.N.G.**

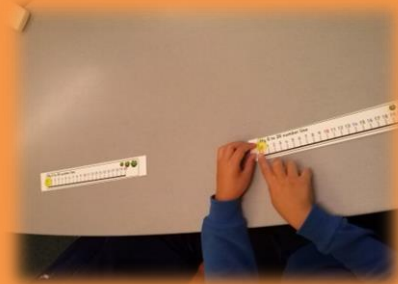
S Start Counting

Forwards
Backwards

In a group round robin verbally
or

Use a number line with a see
through token.

Then turn the number line over
and get students to visualise
and remember

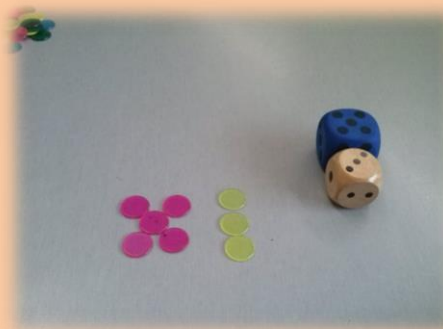


P Patterns: Use materials

Using fingers, tokens, beads,
cubes

dice, fans, cards

10's frames





Using materials, dice, cards or numbers board

Counting on/back

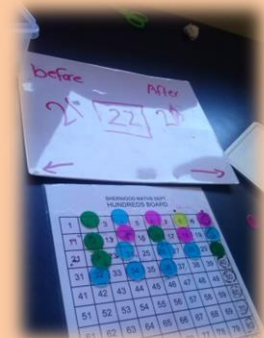


Sequencing forwards and backwards using cards using words such as next number or number before

Counting on to the next number

Counting forward/backwards

- Talk about the Maths words:
- Use words such as "Next" = counting on
- Number "Before" = counting back
- Reinforce that next, after, add one more - (all mean the same thing)



R

Reinforce strategy :
Counting On from the highest
number



I Identify numbers:

- 0-20
- 0-50
- 0-100



N Number Facts

0-5 move on only when students have mastered

0-10: Move on only when students have mastered

0-20: move on only when students have mastered

G

Game of your choice



Teacher

Moving Students from counting all to counting on.

Intervention: 30 minutes 3-4 times a week

Duration: 8-10 weeks

Group: 4 students

Knowledge

Focus on numbers to 20, patterns to 10, groupings with 5

Strategy:

Start counting from highest number e.g. $2+3 = 3+2$

S	Start Counting forwards and backwards to 0-20
P	Patterns – finger patterns, dice patterns, tens frames patterns
R	Reinforce Strategy: Counting all objects then counting on from highest number Use words like next number, counting on.....
I	Identify numbers Order numbers 0-20 Number one more or one less - also use words like next number... before
N	Number facts: 1. +- to 5 2. +- to 10
G	Play a game

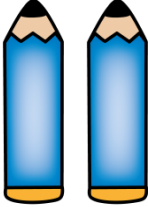

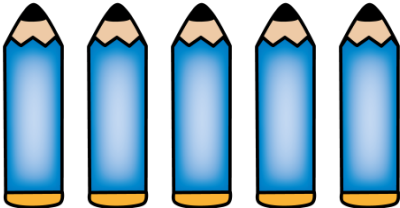
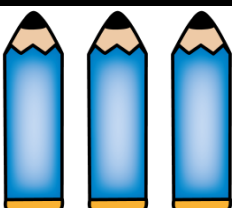
Activities:

0-10 / 0-20

S	Start counting: In a circle take turns to start counting 0-10 forwards, backwards and on the number line
P	Patterns <ul style="list-style-type: none">○ Roll dice and recall dice patterns 0-5 when mastered 0-12○ Tens Frames: recognise and make patterns 0-10 using counters○ Finger patterns: use fingers to make the numbers
R	Reinforce Strategy Teach students to start counting from the highest number <i>Example: 2+3 start from highest number: 3+2</i>
I	Identifying numbers <ul style="list-style-type: none">○ Using cards identify numbers 0-10 when master then 0-20○ Write the numbers○ Order numbers 0-20○ Sequencing numbers one more or one less: example ___ 9 ___○ Use 100's board or number strip
N	Number facts <ul style="list-style-type: none">○ Add/Sub number facts for numbers 0-5, then 0-10, then 0-20 :○ Use basic fact cards, basic fact squares / sums
G	Games – play one of the following: <ul style="list-style-type: none">○ Snakes and Ladders○ Addition board○ Snap○ Cards○ Number wheel○ Beat the timer (use sand timer from dollar store)○ Rote learn double facts 0-10



How many pencils



Adding to 5



$$\begin{array}{|c|c|} \hline \bullet & \bullet \\ \hline \bullet & \bullet \\ \hline \end{array} + \underline{\quad} = 5$$

$$\begin{array}{|c|c|} \hline \bullet & \bullet \\ \hline \bullet & \bullet \\ \hline \end{array} + \underline{\quad} = 5$$

$$\begin{array}{|c|c|} \hline \bullet & \bullet \\ \hline \bullet & \bullet \\ \hline \end{array} + \underline{\quad} = 5$$

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Adding past 5

$$\begin{array}{|c|c|} \hline \bullet & \bullet \\ \hline \bullet & \bullet \\ \hline \bullet & \bullet \\ \hline \end{array} + \begin{array}{|c|c|} \hline \bullet & \\ \hline & \\ \hline & \\ \hline \end{array} =$$

$$\begin{array}{|c|c|} \hline \bullet & \bullet \\ \hline \bullet & \bullet \\ \hline \bullet & \bullet \\ \hline \end{array} + \begin{array}{|c|c|} \hline \bullet & \bullet \\ \hline \bullet & \\ \hline & \\ \hline \end{array} =$$

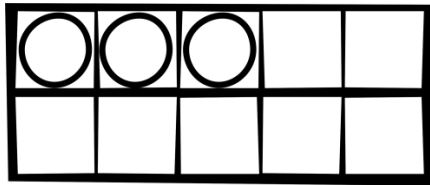
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$$\begin{array}{|c|c|} \hline \bullet & \bullet \\ \hline \bullet & \bullet \\ \hline \bullet & \bullet \\ \hline \end{array} + \begin{array}{|c|c|} \hline \bullet & \bullet \\ \hline \bullet & \bullet \\ \hline \bullet & \bullet \\ \hline \end{array} =$$

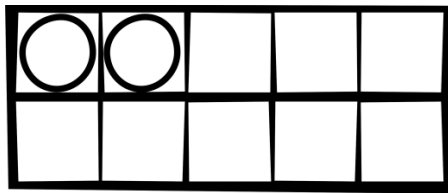
$$\begin{array}{|c|c|} \hline \bullet & \bullet \\ \hline \bullet & \bullet \\ \hline \bullet & \bullet \\ \hline \end{array} + \begin{array}{|c|c|} \hline \bullet & \bullet \\ \hline \bullet & \bullet \\ \hline \bullet & \bullet \\ \hline \end{array} =$$



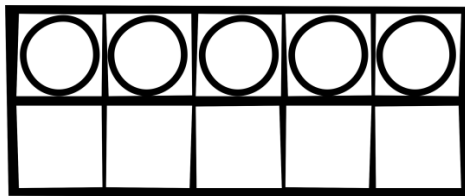
Adding to 10



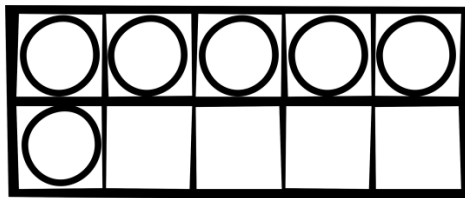
$3 + \underline{\quad\quad} = 10$



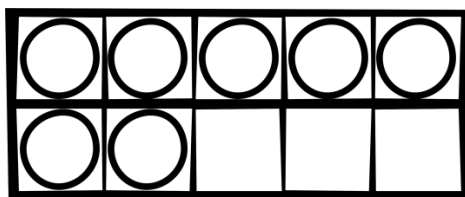
$2 + \underline{\quad\quad} = 10$



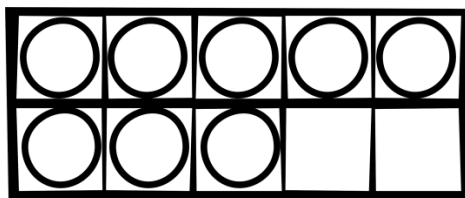
$5 + \underline{\quad\quad} = 10$



$6 + \underline{\quad\quad} = 10$



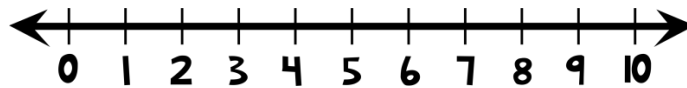
$7 + \underline{\quad\quad} = 10$



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



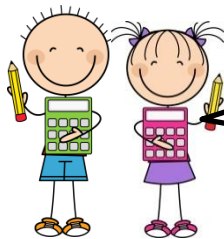
I can count forwards



0 1 [] 3 [] 5

0 [] 2 [] 4 []

5 [] [] 8 9 []

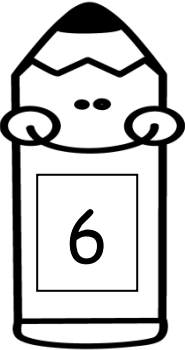
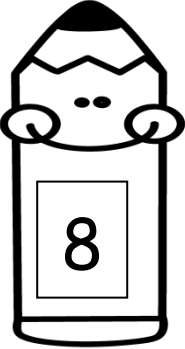
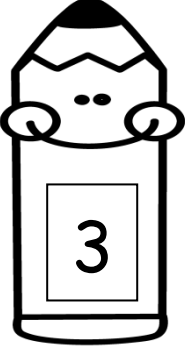


I can count backwards

10 9 [] [] 6 [] [] [] 2 [] 0

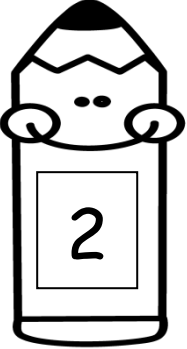
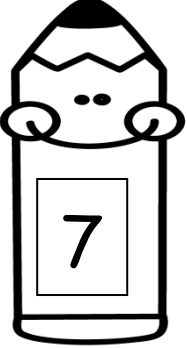
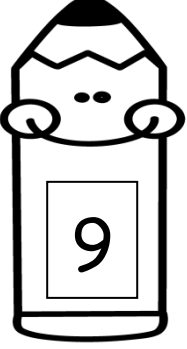


Fill in the missing numbers to 10

Before	Number	After
<hr/>		<hr/>
<hr/>		<hr/>
<hr/>		<hr/>



Fill in the missing numbers to 10

Before	Number	After
		
		
		



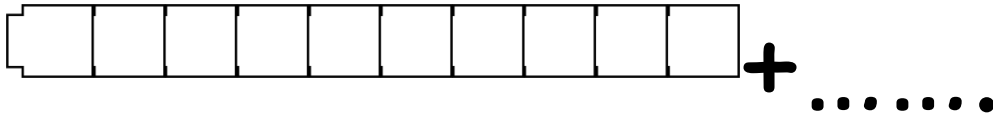
Teen numbers are in *between* 10-20



10

11, 12, 13, 14, 15, 16, 17, 18, 19

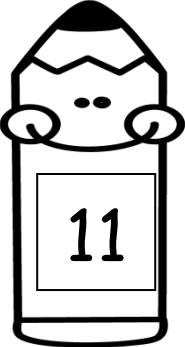
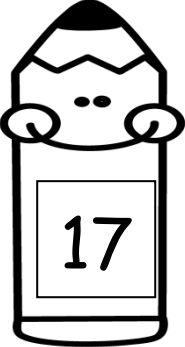
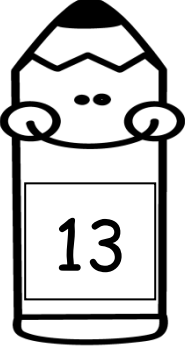
20



11	10 + 1
12	10 + 2
13	10
14	10 +
15	10 +
16	10 +
17	10 +
18	10 +
19	10 +

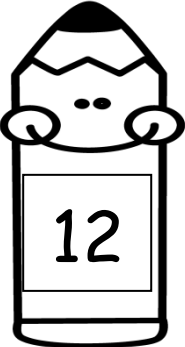
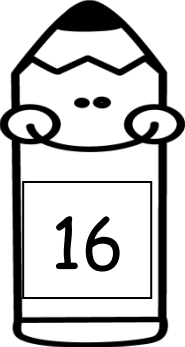
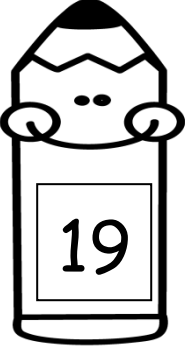


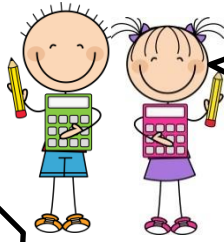
Fill in the missing number to 20

Before	Number	After
		
		
		



Fill in the missing number to 20

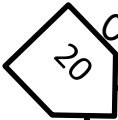
Before	Number	After
		
		
		



Counting On / Counting Back



1	2		4	5		7		9	
11		13	14		16	17			20

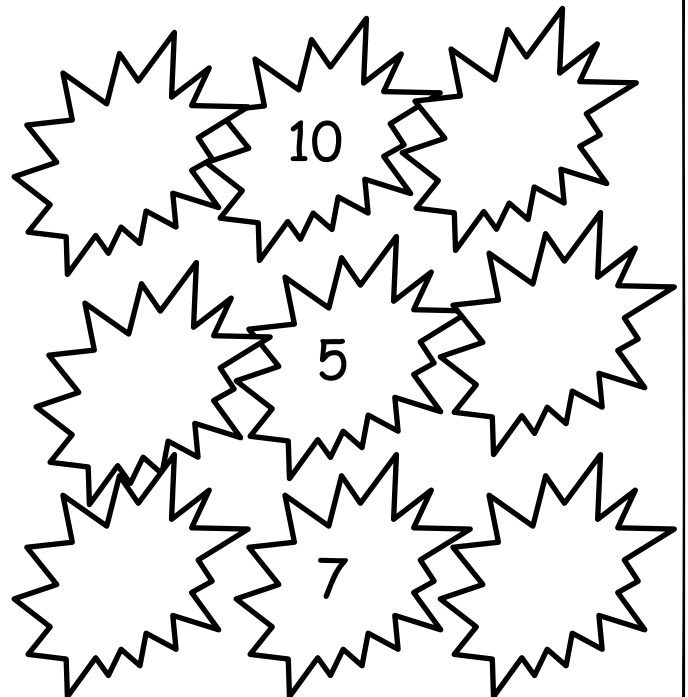
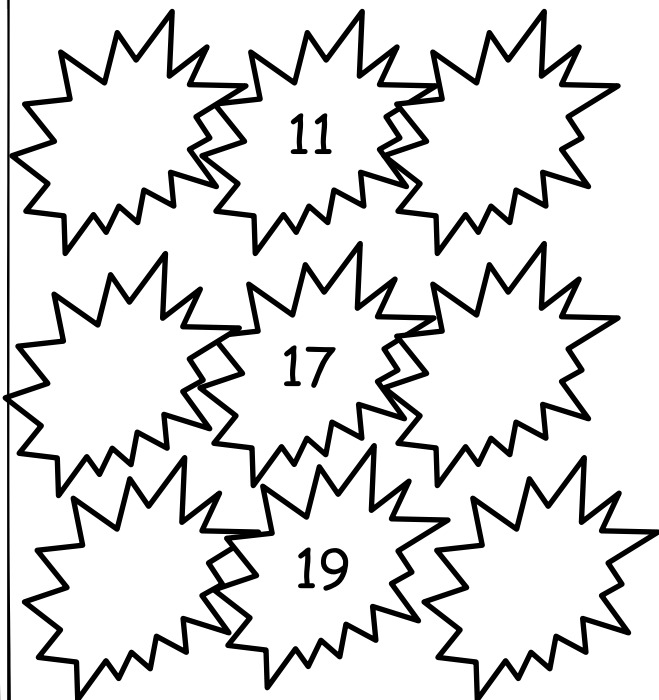


Counting Back from 20 -0

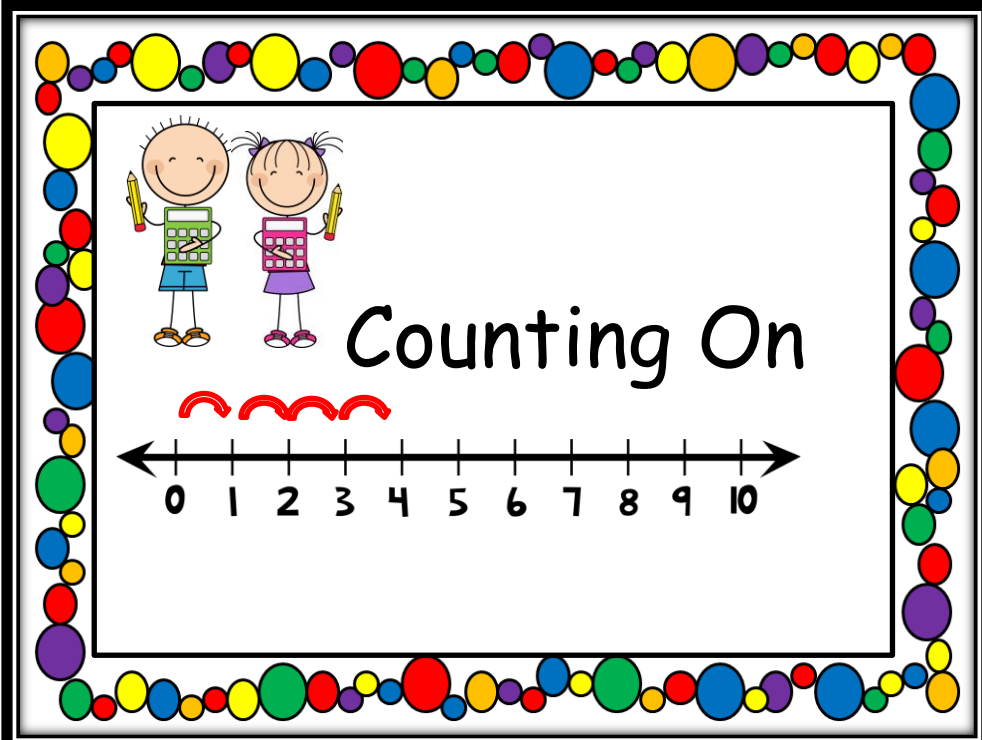
19		17	16		14		12	11	
9	8	7			4		2		0



What number comes :
Before and then Next



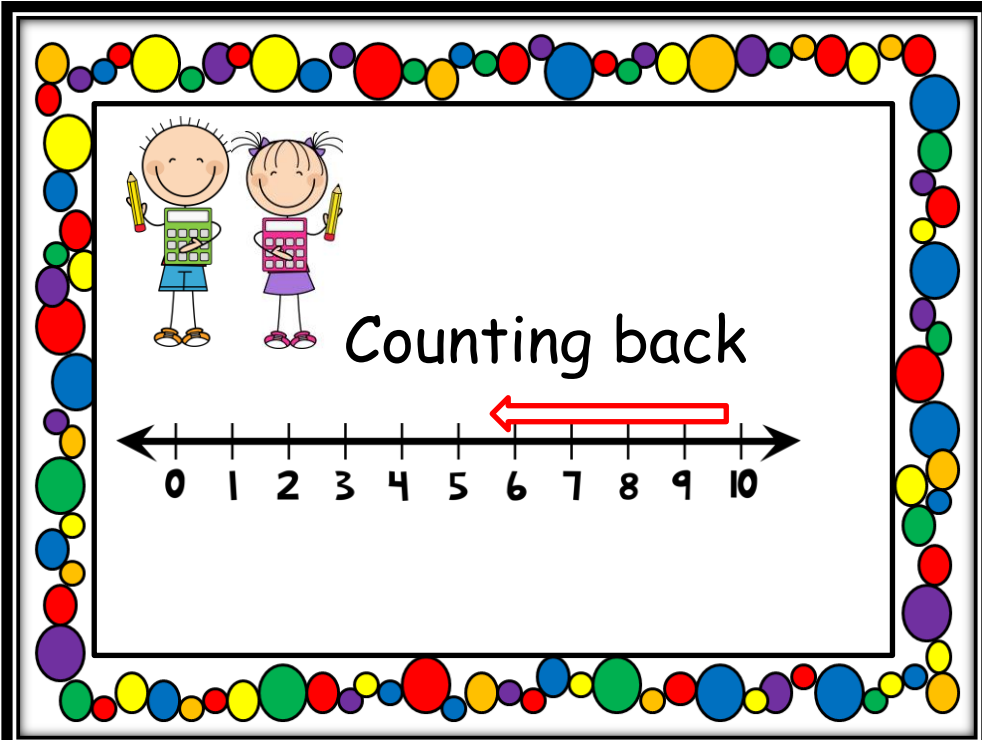
Strategy Prompt Cards



Counting On

0 1 2 3 4 5 6 7 8 9 10

This card illustrates the 'Counting On' strategy. It features two cartoon children, a boy and a girl, each holding a pencil and a small grid. Below them is a number line from 0 to 10. Three red curved arrows are drawn above the number line, starting at 1 and moving to 2, 2 to 3, and 3 to 4, representing the process of counting on from a starting point.

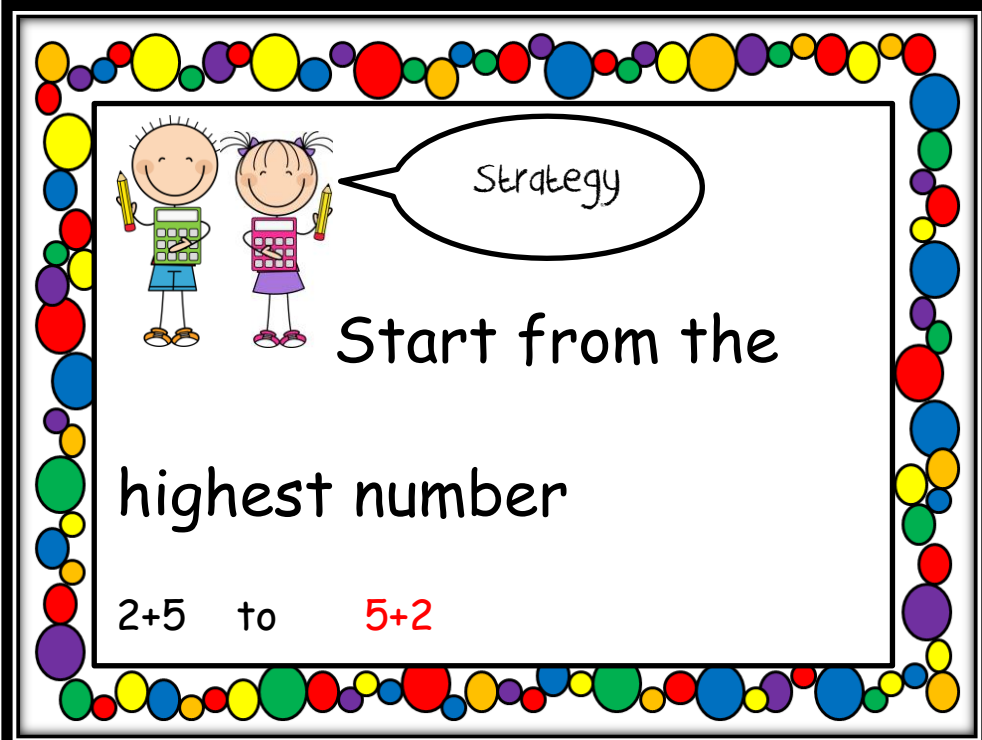


Counting back

0 1 2 3 4 5 6 7 8 9 10

This card illustrates the 'Counting back' strategy. It features the same two cartoon children as the first card. Below them is a number line from 0 to 10. A red arrow is drawn above the number line, pointing from 10 to 6, representing the process of counting back from a starting point.

Strategy Prompt Cards

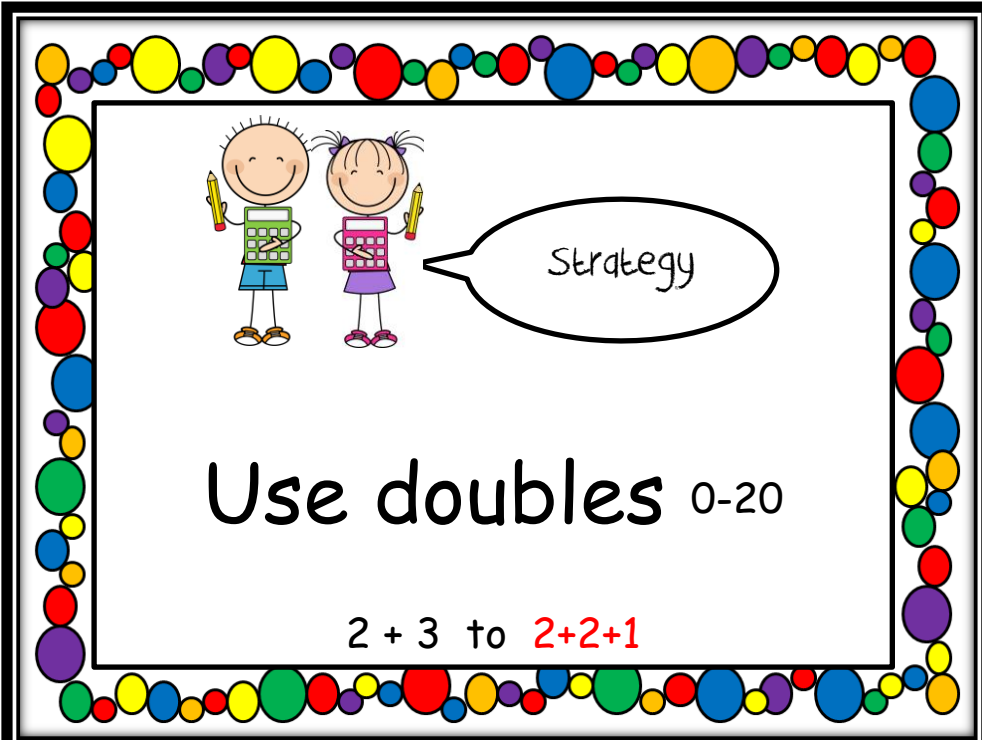


A strategy prompt card with a decorative border of colorful circles. It features two cartoon children, a boy and a girl, holding calculators and pencils. A speech bubble above them says "Strategy". The text below reads "Start from the highest number" and "2+5 to 5+2".

Strategy

Start from the
highest number

2+5 to 5+2



A strategy prompt card with a decorative border of colorful circles. It features two cartoon children, a boy and a girl, holding calculators and pencils. A speech bubble above them says "Strategy". The text below reads "Use doubles 0-20" and "2 + 3 to 2+2+1".

Strategy

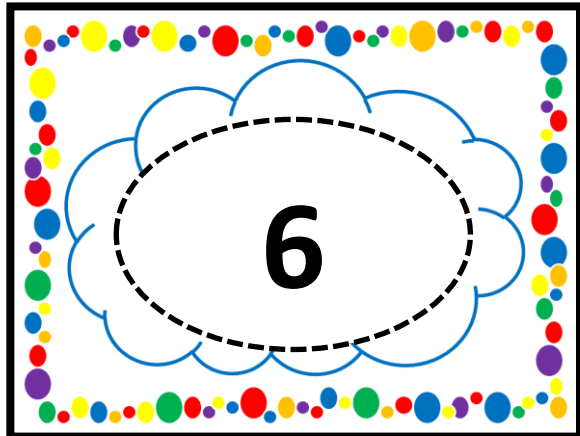
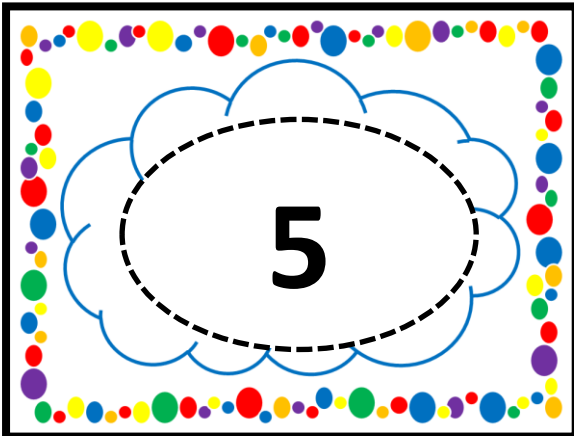
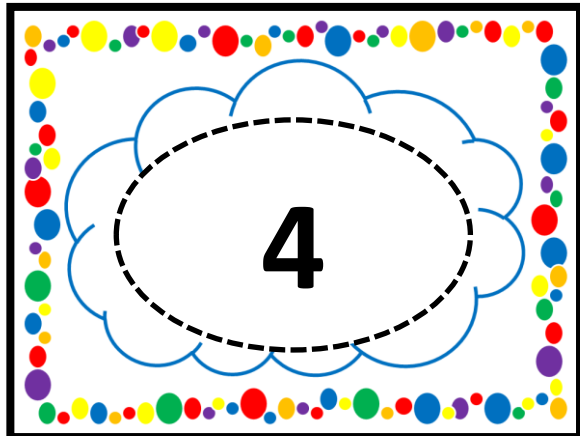
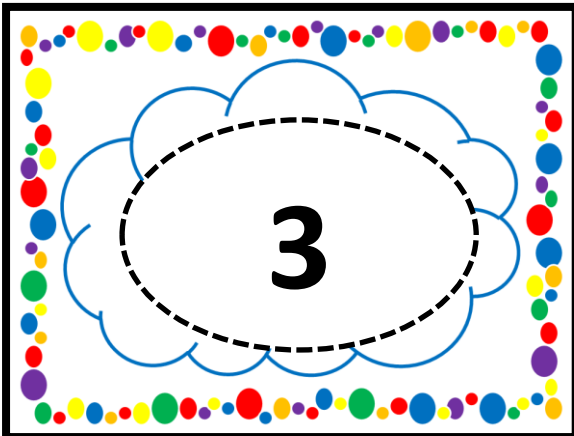
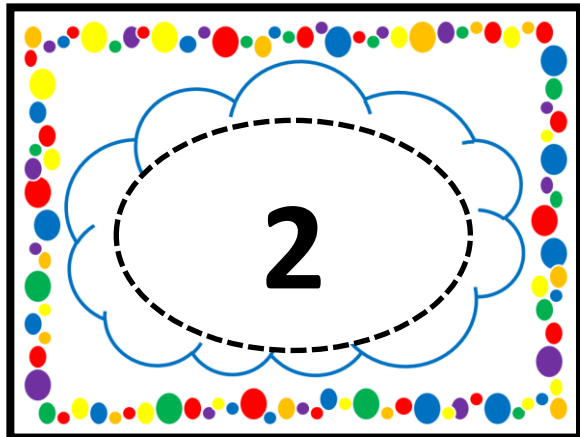
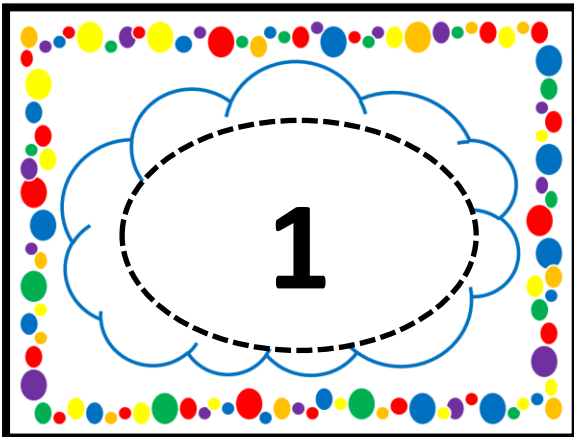
Use doubles 0-20

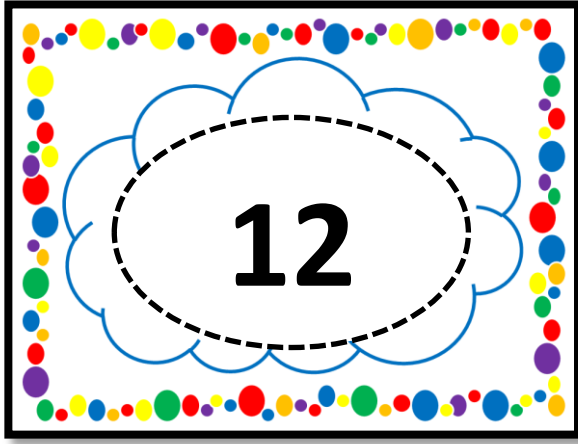
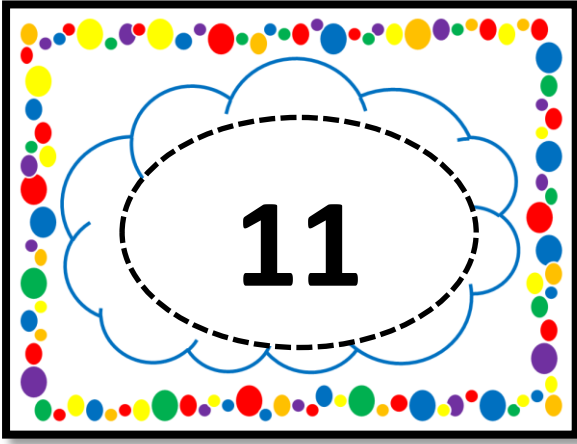
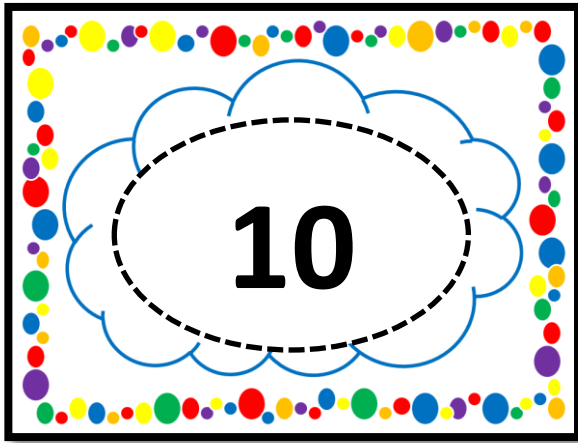
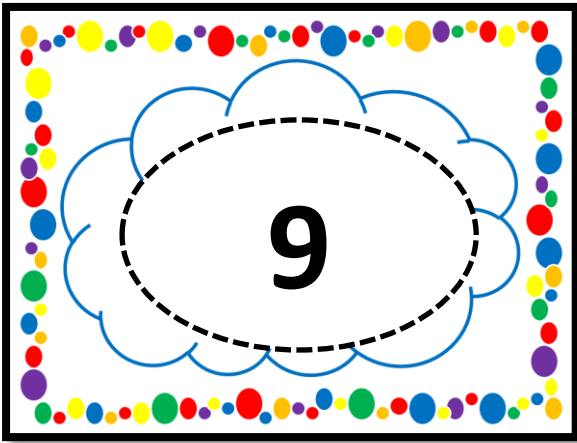
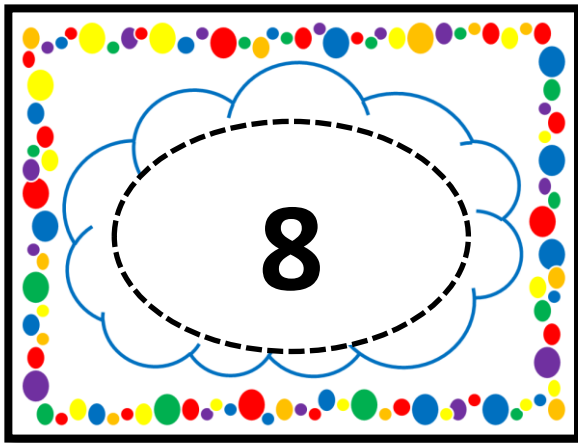
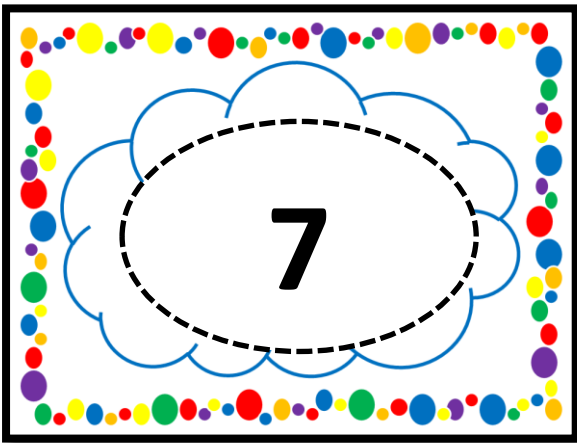
2 + 3 to 2+2+1

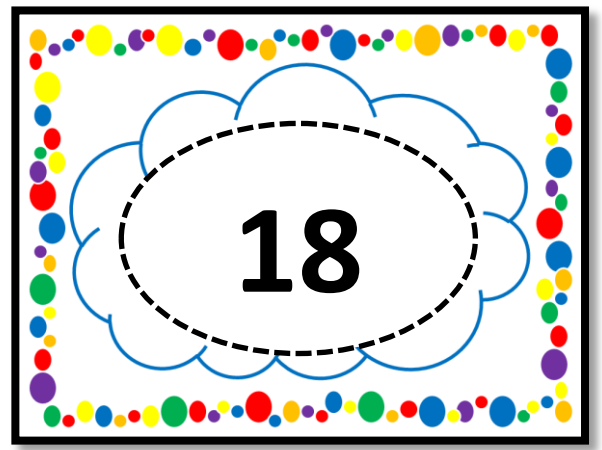
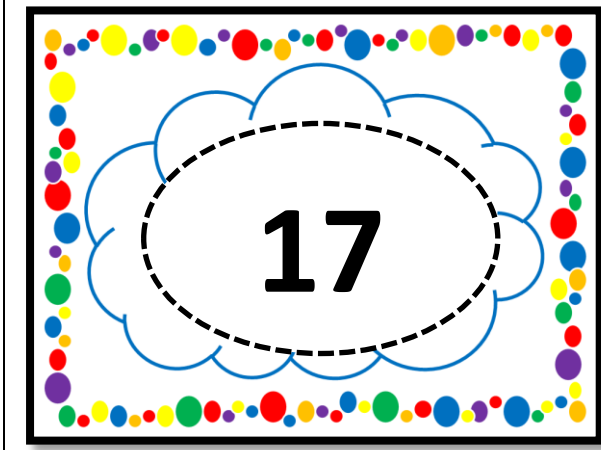
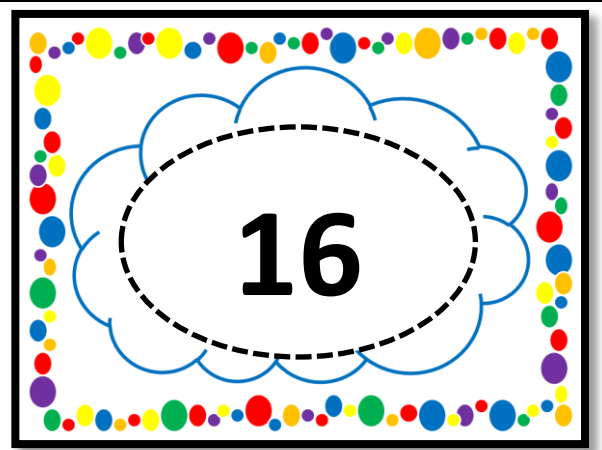
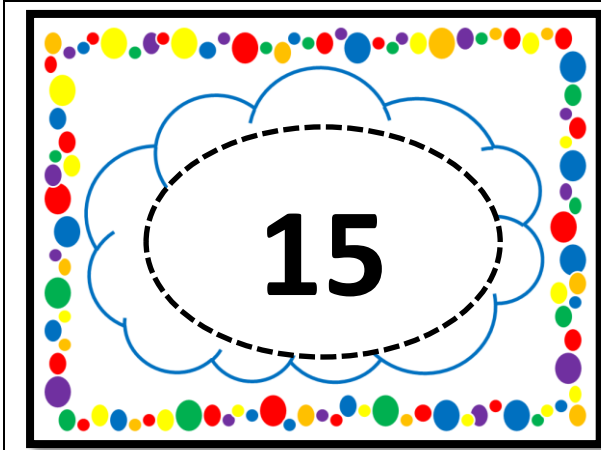
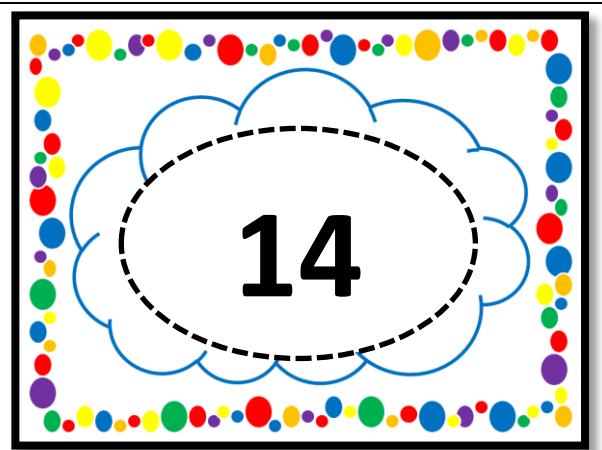
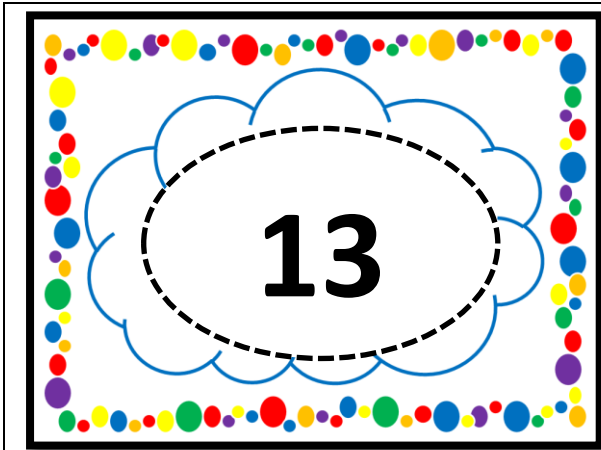


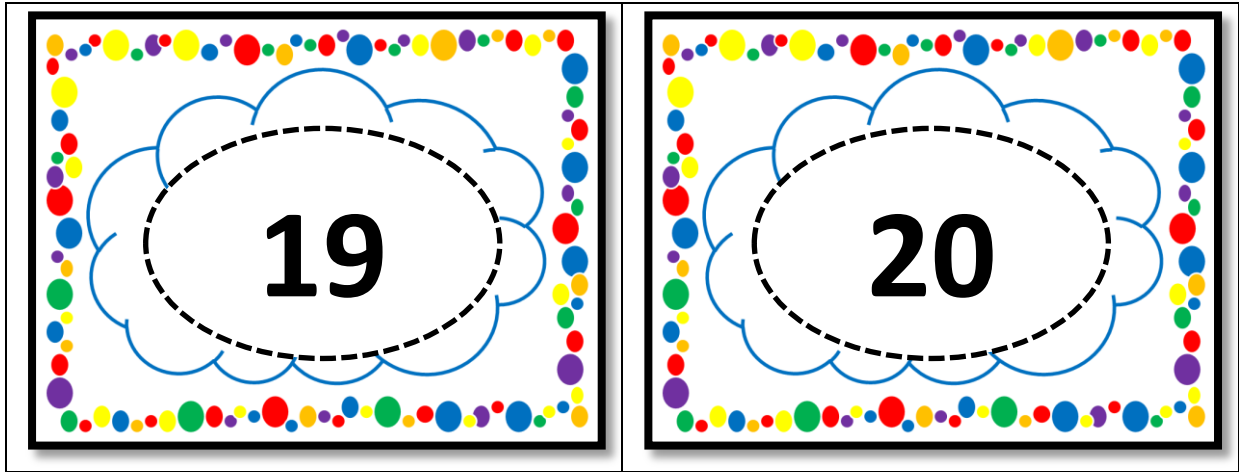
Number Cards to 20 for sequencing/counting

forwards/counting backwards and missing number











Number Handwriting

1	<i>One</i>
2	<i>Two</i>
3	<i>Three</i>
4	<i>Four</i>
5	<i>Five</i>
6	<i>Six</i>
7	<i>Seven</i>
8	<i>Eight</i>
9	<i>Nine</i>
10	<i>Ten</i>



Number Handwriting

11	<i>Eleven</i>
12	<i>Twelve</i>
13	<i>Thirteen</i>
14	<i>Fourteen</i>
15	<i>Fifteen</i>
16	<i>Sixteen</i>
17	<i>Seventeen</i>
18	<i>Eighteen</i>
19	<i>Nineteen</i>
20	<i>Twenty</i>



Let's learn our doubles to help solve maths problems

$1+1$

$2+2$

$3+3$

$4+4$

$5+5$

$6+6$

$7+7$

$8+8$

$9+9$

$10+10$



Let's learn our doubles to help solve maths problems

$11 + 11$

$12 + 12$

$13 + 13$

$14 + 14$

$15 + 15$

$16 + 16$

$17 + 17$

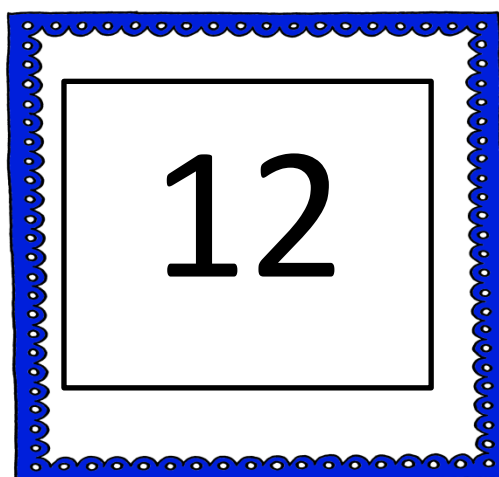
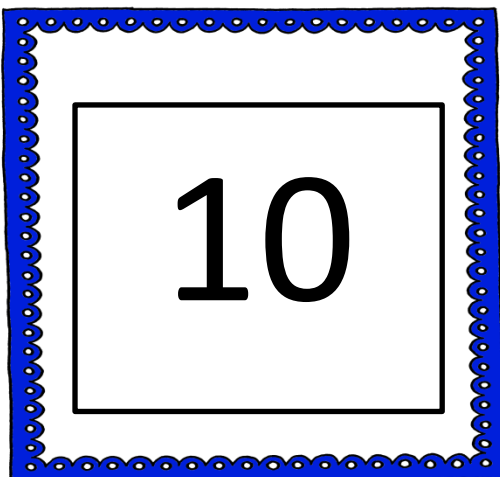
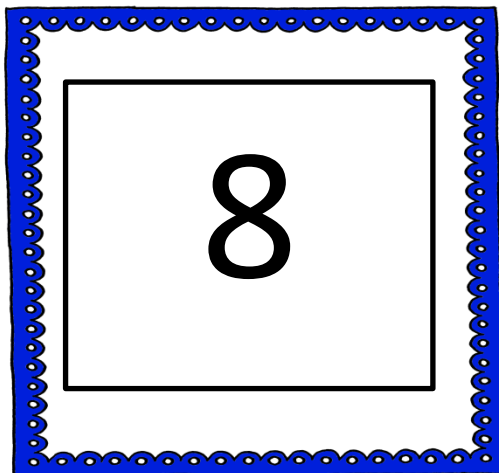
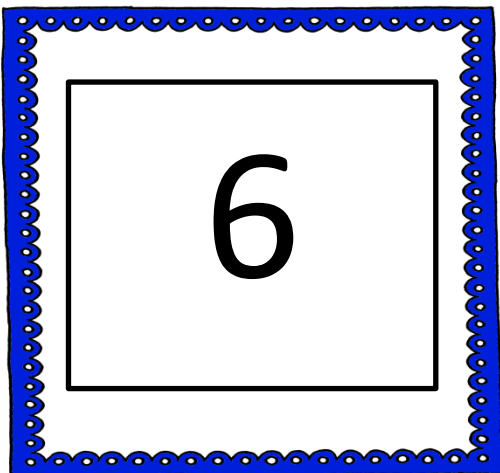
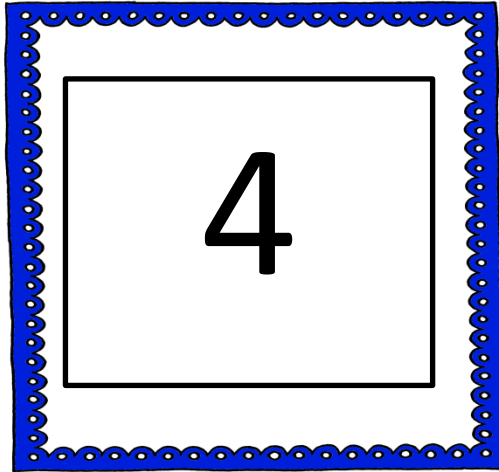
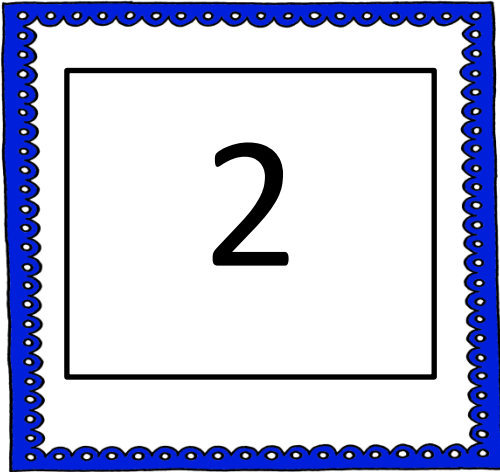
$18 + 18$

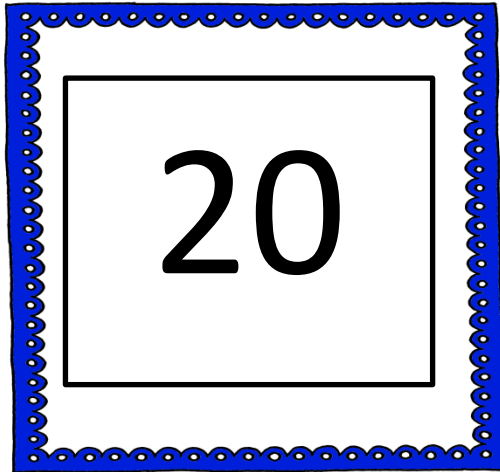
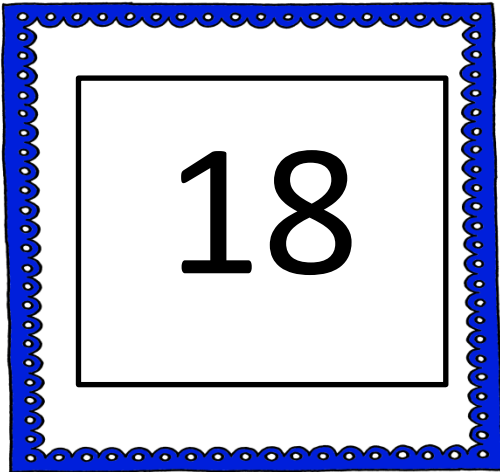
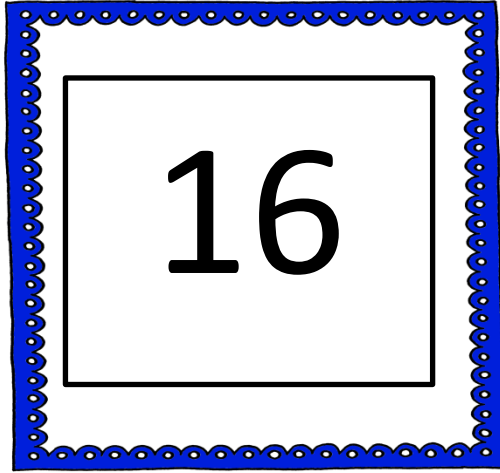
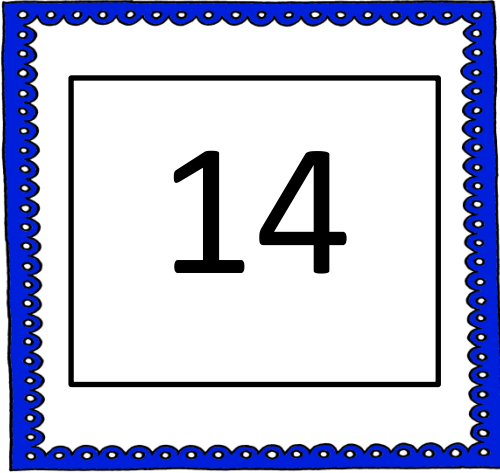
$19 + 19$

$20 + 20$



Counting in 2's







Counting in 5's

5

10

15

20

25

30



35

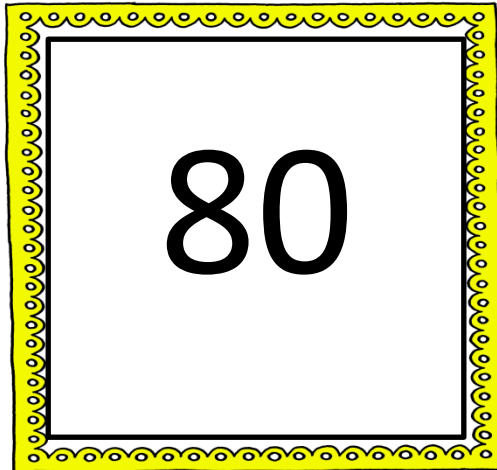
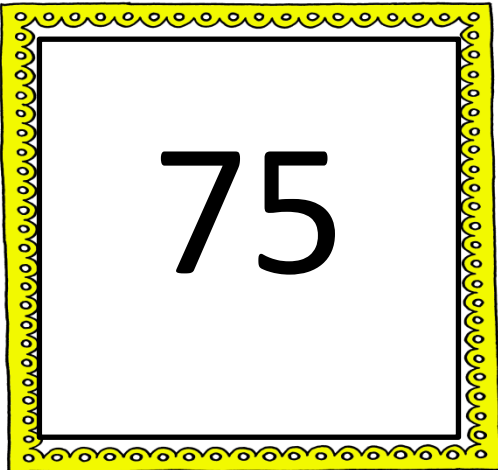
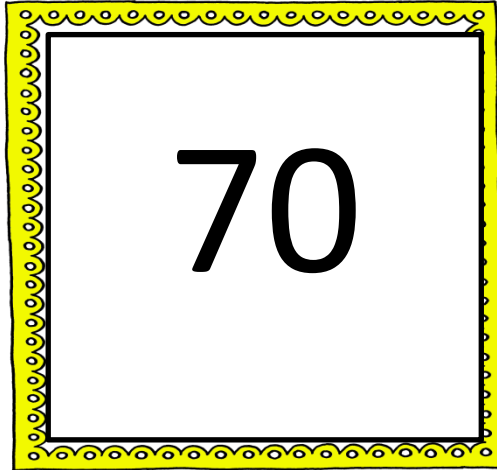
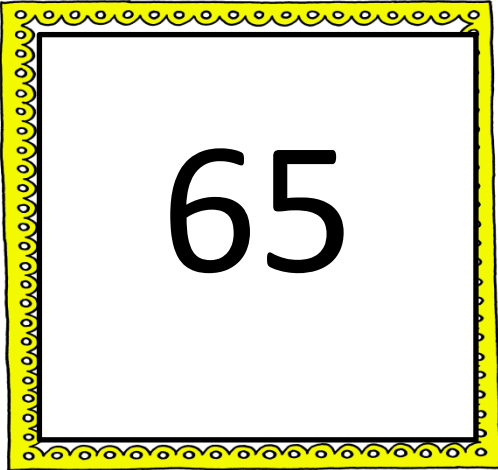
40

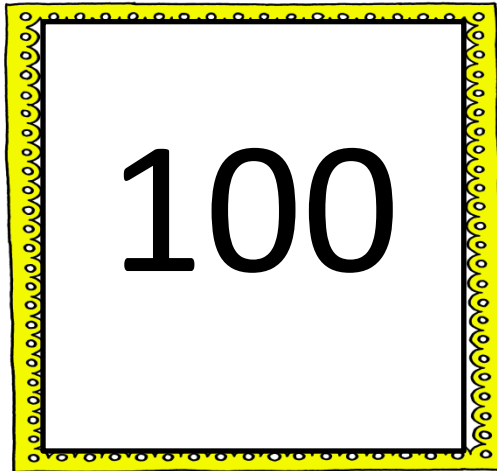
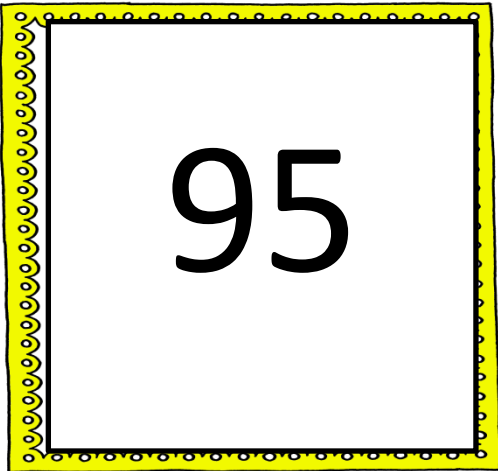
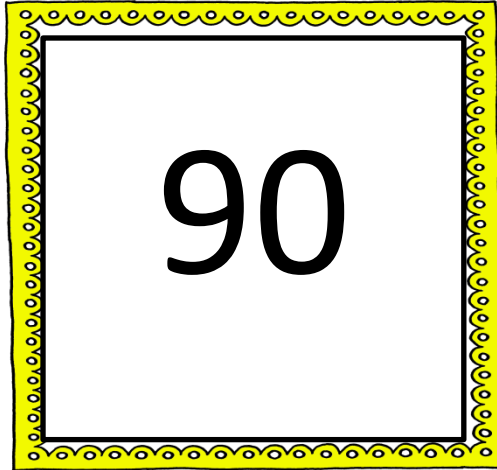
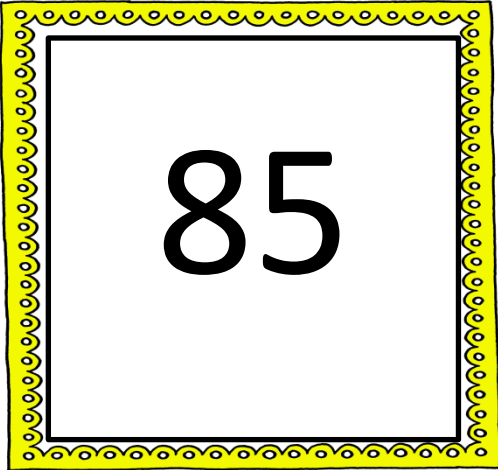
45

50

55

60







10

20

30

40

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60



70

80

90

100

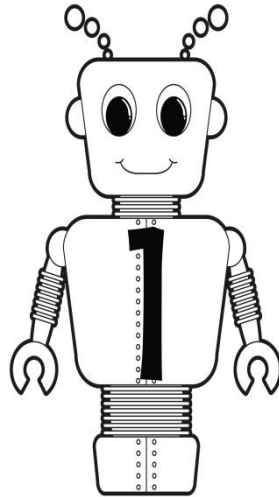
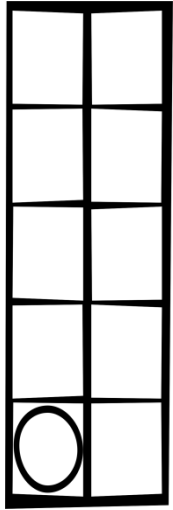


Can you count in $\times 2$, $\times 5$, and $\times 10$

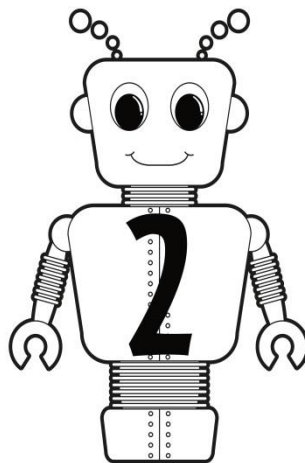
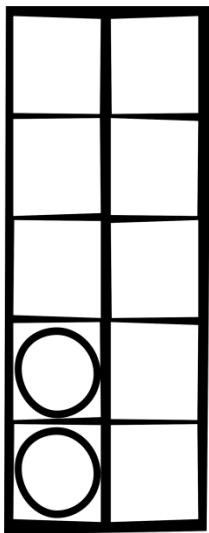
2									
---	--	--	--	--	--	--	--	--	--

5									
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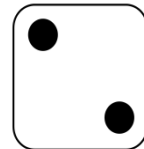
10									
----	--	--	--	--	--	--	--	--	--

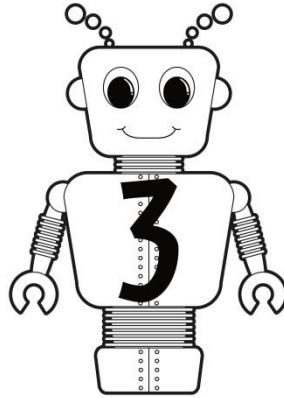
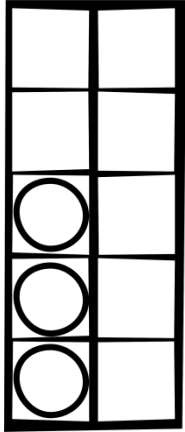


One

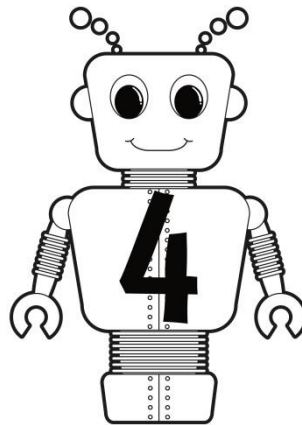
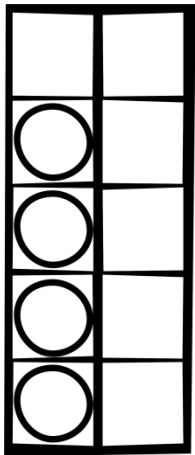


Two

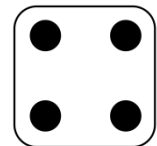


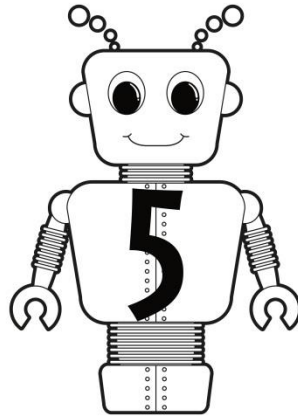
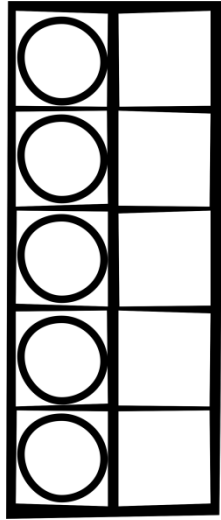


Three

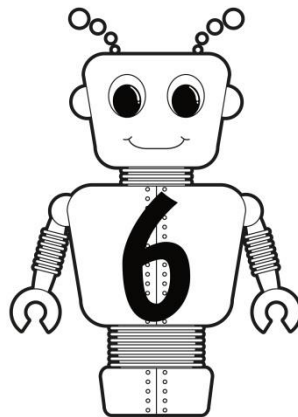
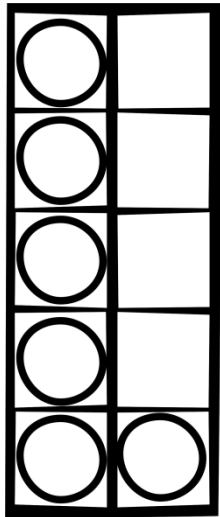


Four



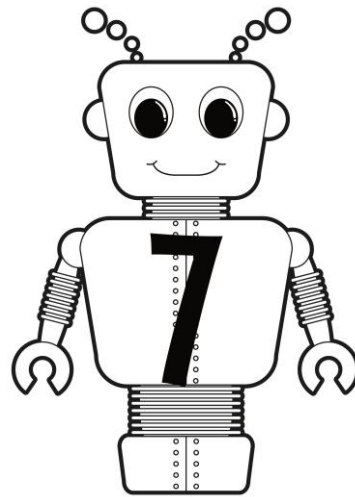
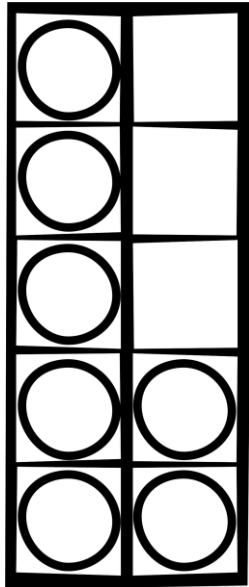


Five

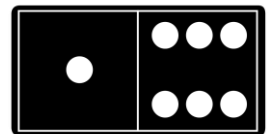


Six

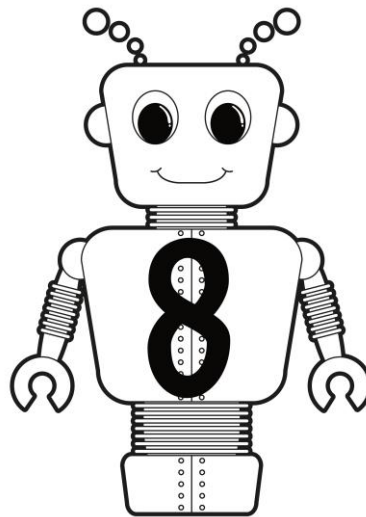
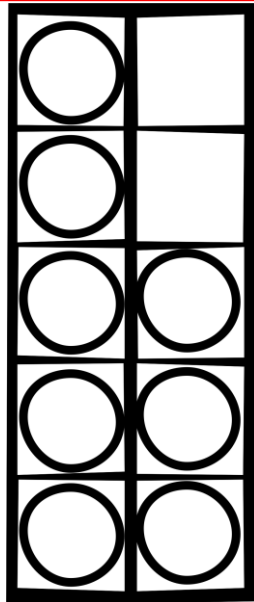




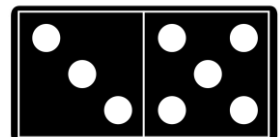
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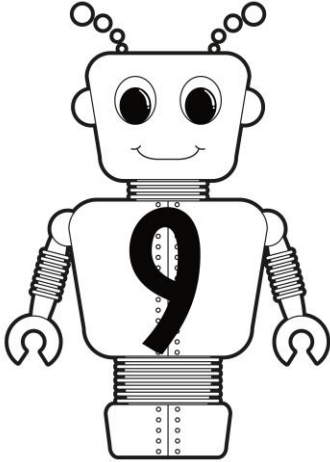
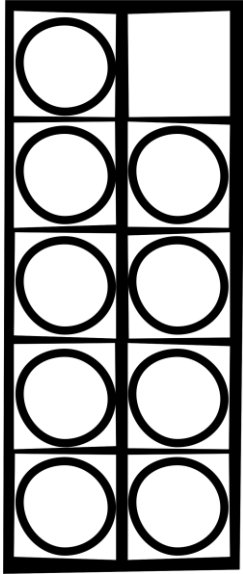


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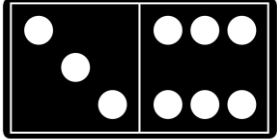


Eight

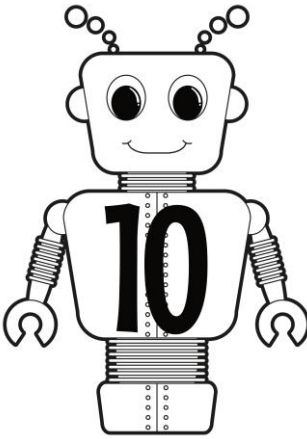
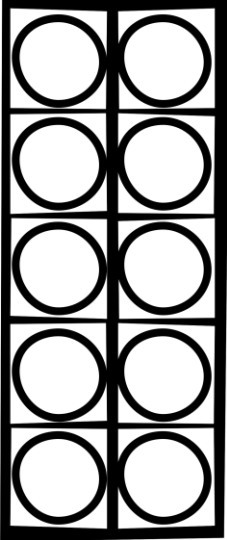




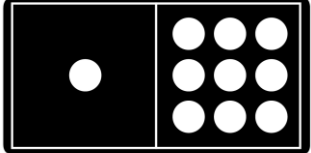
Nine

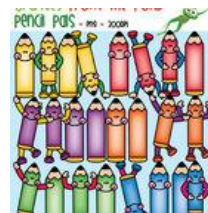


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Ten





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