



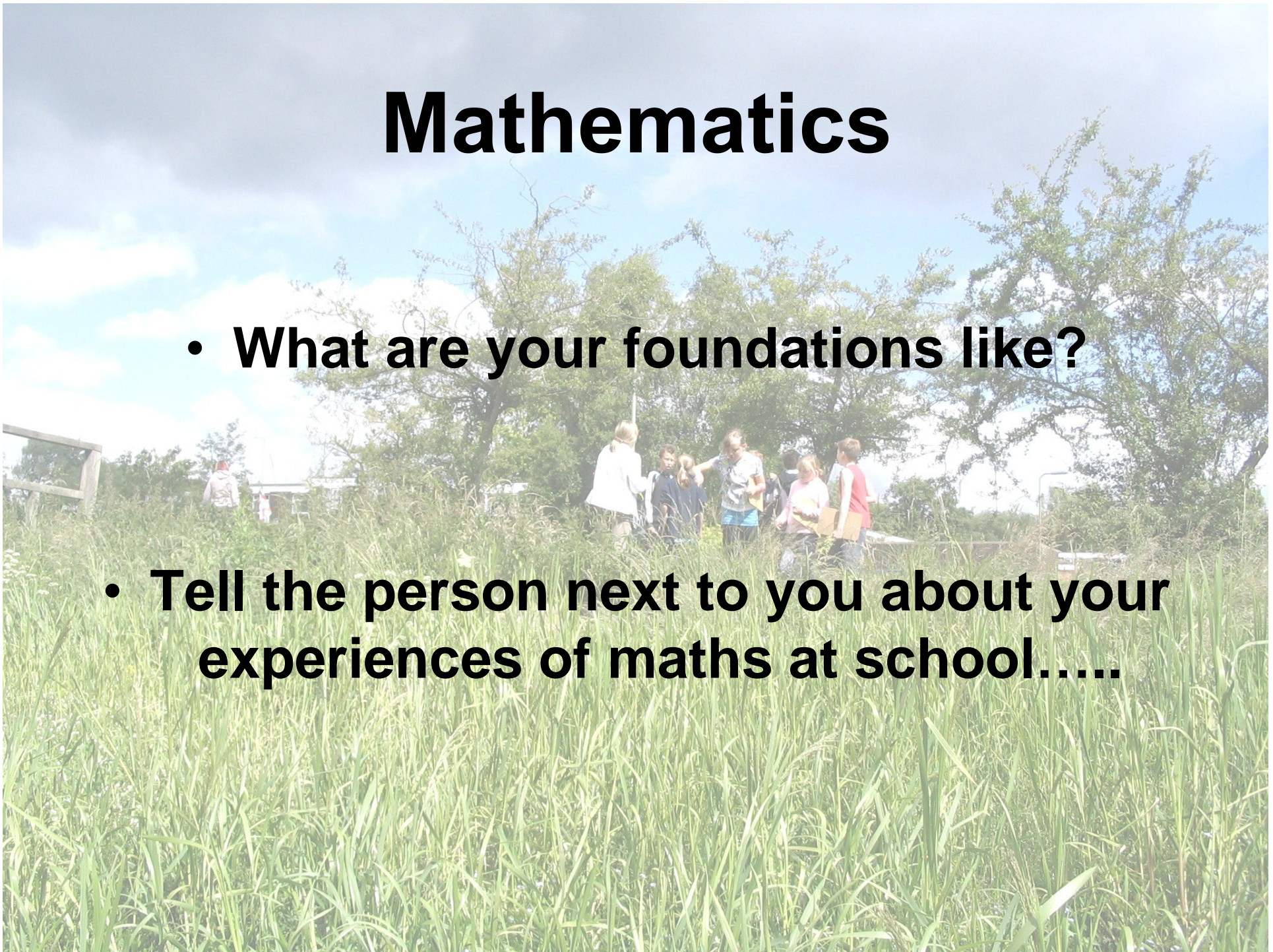
**Guillemont Junior School**

**Mathematical Mums  
and  
Digit Dividing Dads**

**November 2009**

# Mathematics

- **What are your foundations like?**
- **Tell the person next to you about your experiences of maths at school.....**



A photograph of a group of people standing in a field of tall green grass. The sky is blue with some white clouds. The text "The GOOD" is overlaid in the center of the image.

**The GOOD**

# The BAD



A photograph of a group of people standing in a field of tall green grass. The sky is blue with some white clouds. The text "The UGLY" is overlaid in the center of the image.

# The UGLY

# Curriculum Guidance

Mathematical understanding should be developed through

- ❖ Stories
- ❖ Games
- ❖ Songs
- ❖ Imaginative play

Can you remember any from your youth??

# Curriculum Guidance

## Mathematical development

Counting

Matching

Sorting

Seeking patterns

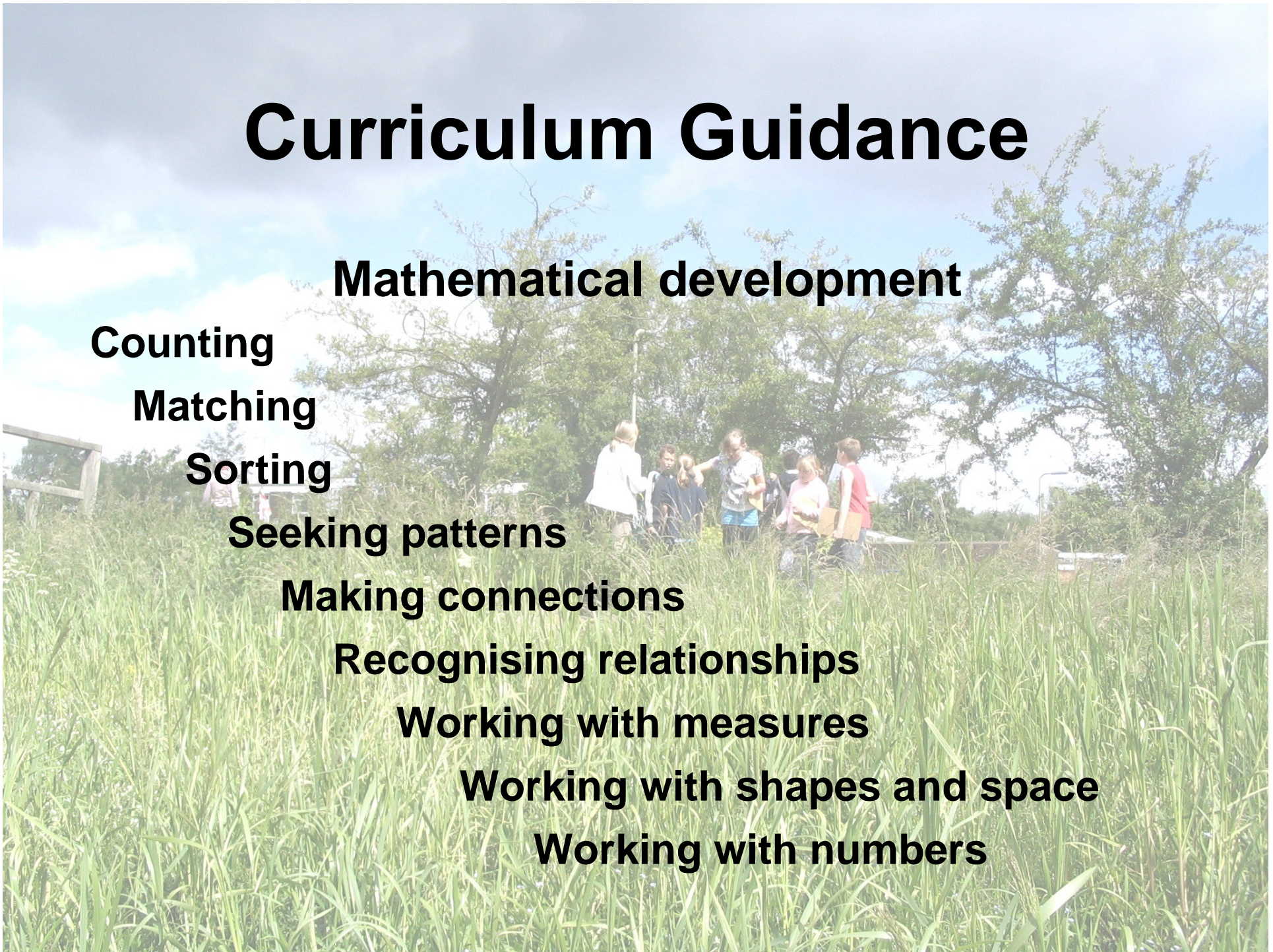
Making connections

Recognising relationships

Working with measures

Working with shapes and space

Working with numbers



# Counting

## Cardinal numbers

Counting / Recognising that the last object touched is the total number of objects

## Ordinal numbers

1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup>

## Subitising

To recognise a small number of objects without counting them

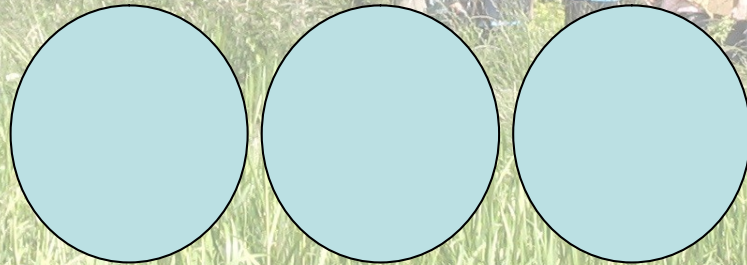
A photograph of a group of people standing in a field of tall, green grass. The sky is blue with scattered white clouds. In the background, there are trees and a wooden fence. The text "Every lesson starts...." is overlaid in the center of the image.

Every lesson starts....

.....with a warm up

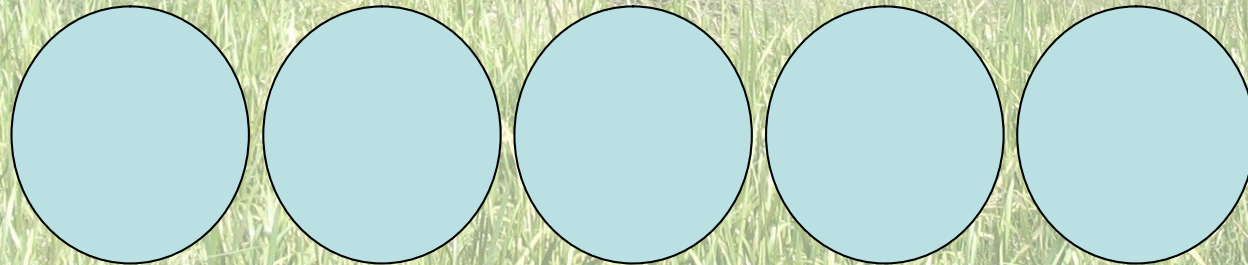
What is:

3



What is:

5

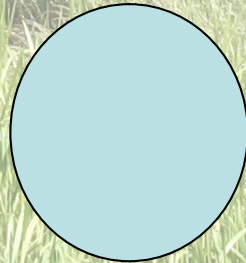
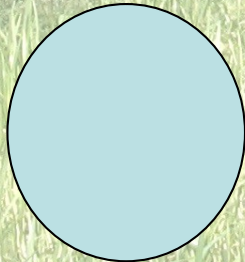
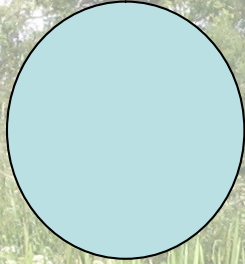
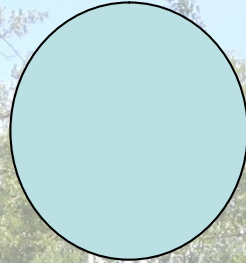
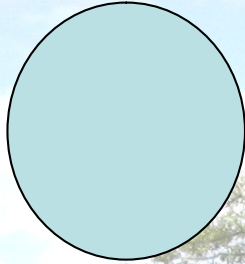




How many?



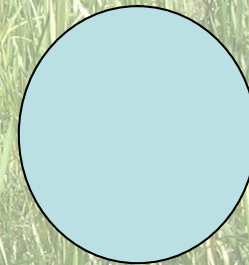
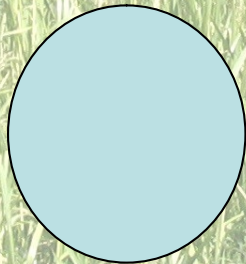
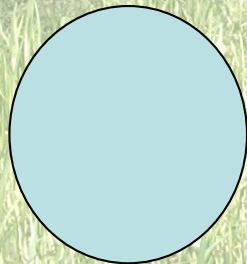
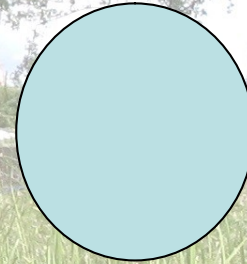
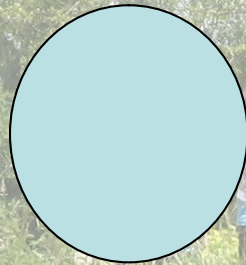
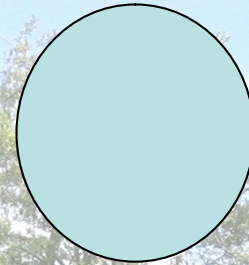
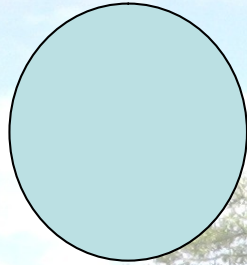
# How many?



How many?



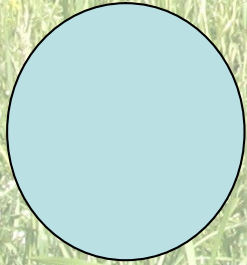
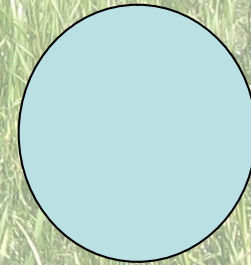
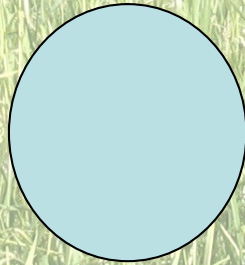
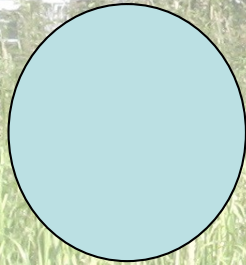
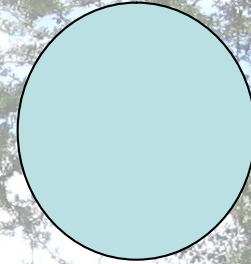
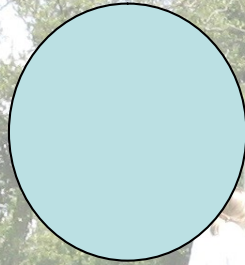
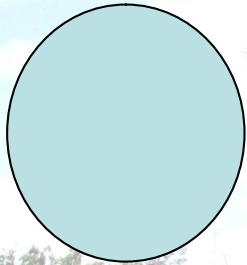
# How many?



How many?



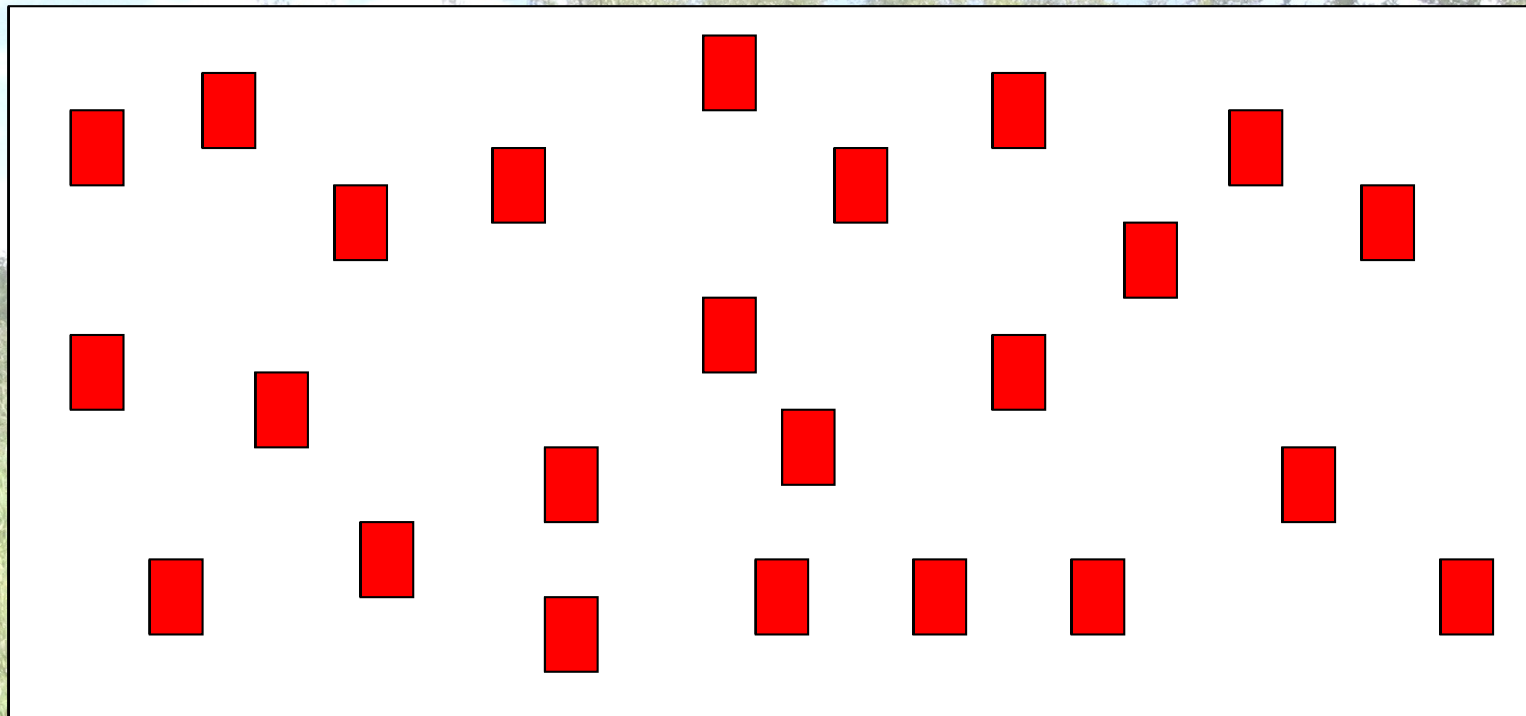
# How many?



How many?

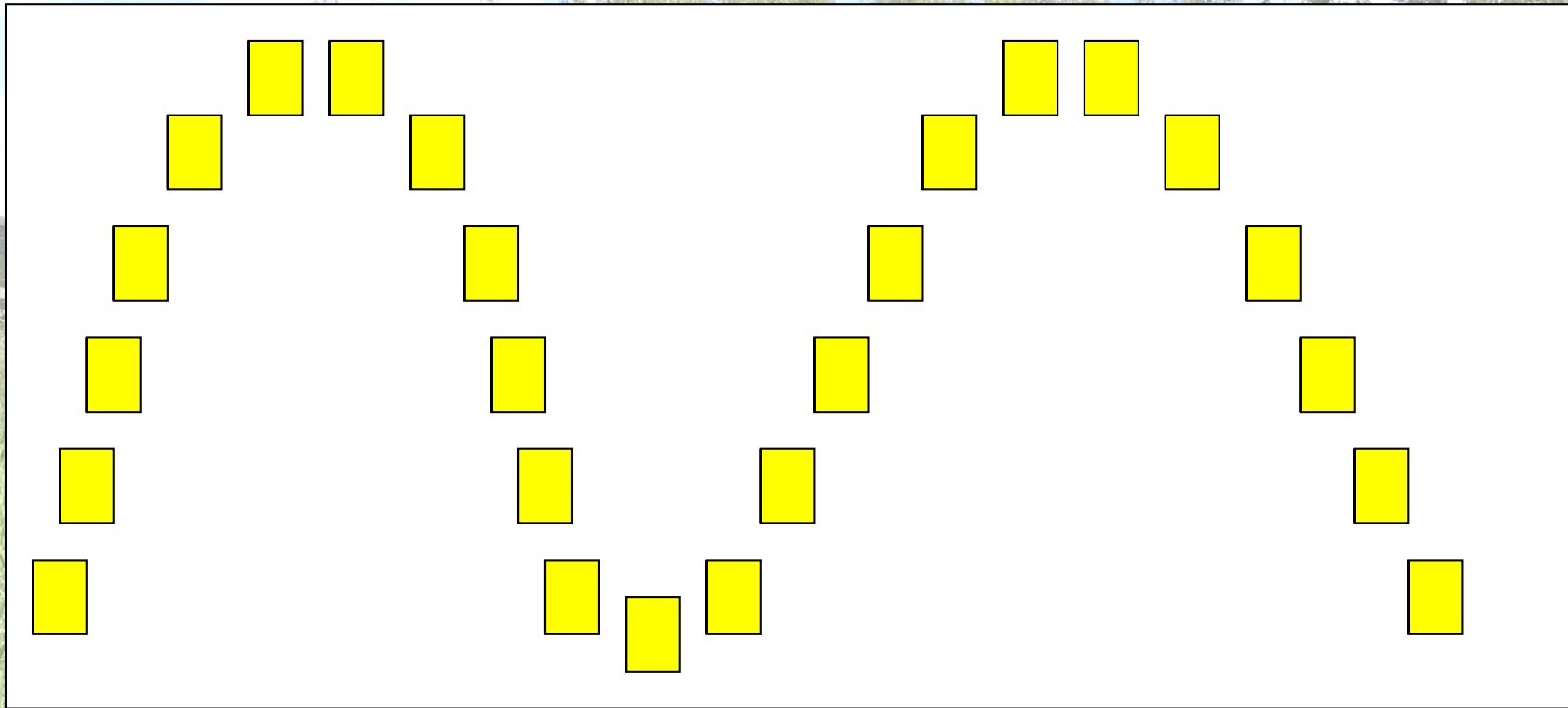


# How many?

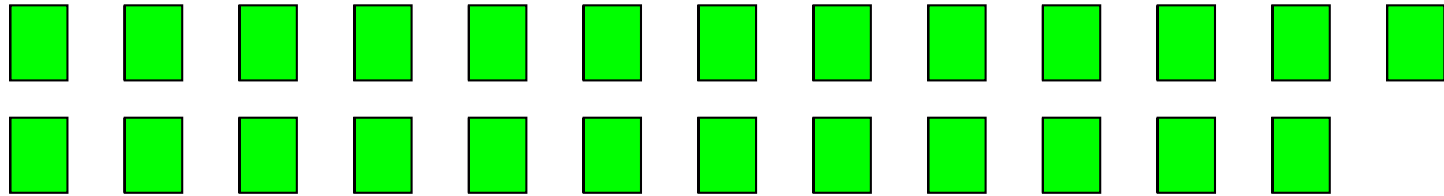




# How many?



# How many?



# Counting

Numbers can be used as 'labels'

Counting involves:

- ❖ saying the number names in order,
- ❖ matching the numbers to objects counted,
- ❖ knowing that you say one number for each object you count
- ❖ the last number you say gives the number of objects in the group.

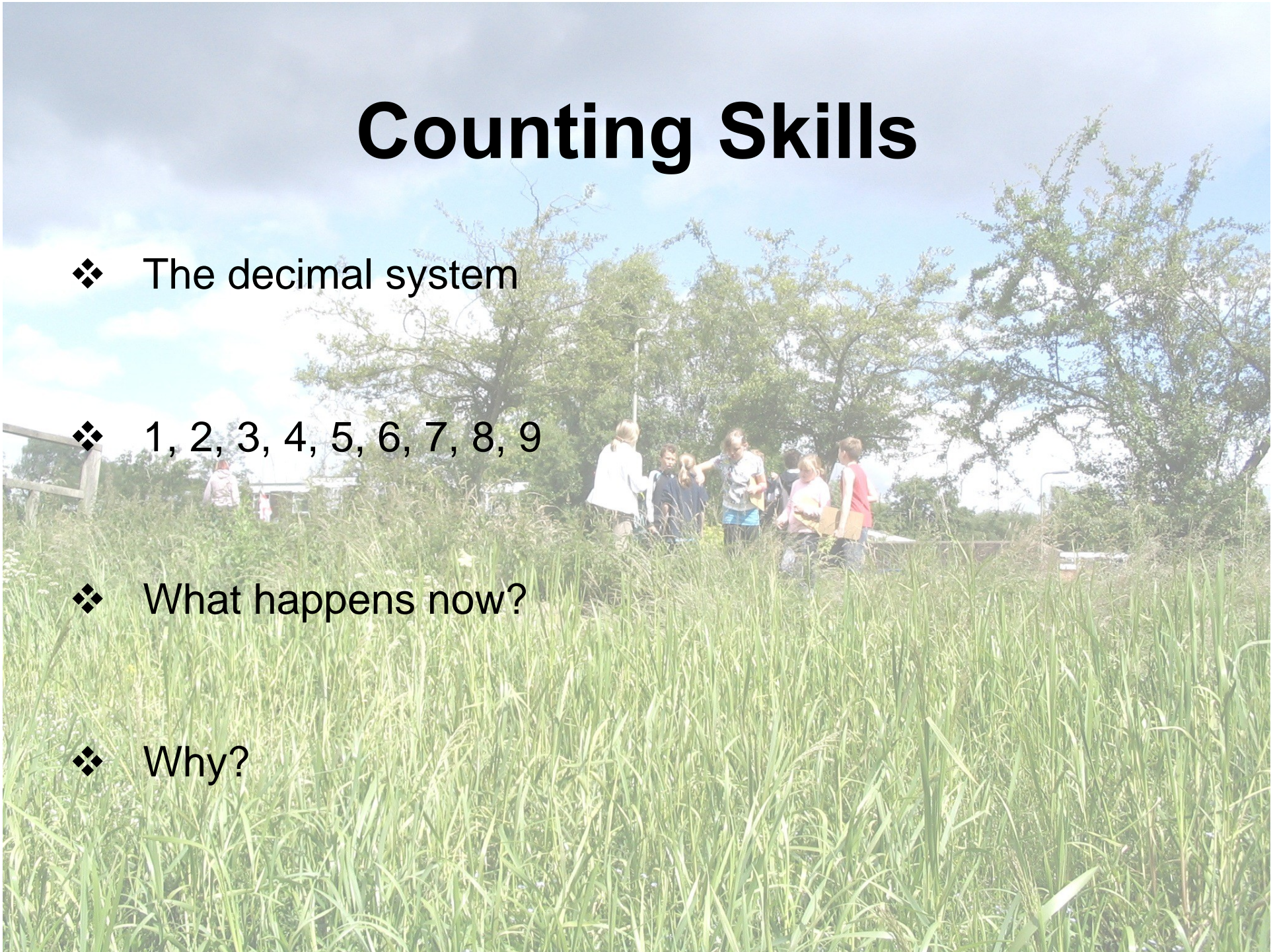
# Counting Skills

❖ The decimal system

❖ 1, 2, 3, 4, 5, 6, 7, 8, 9

❖ What happens now?

❖ Why?

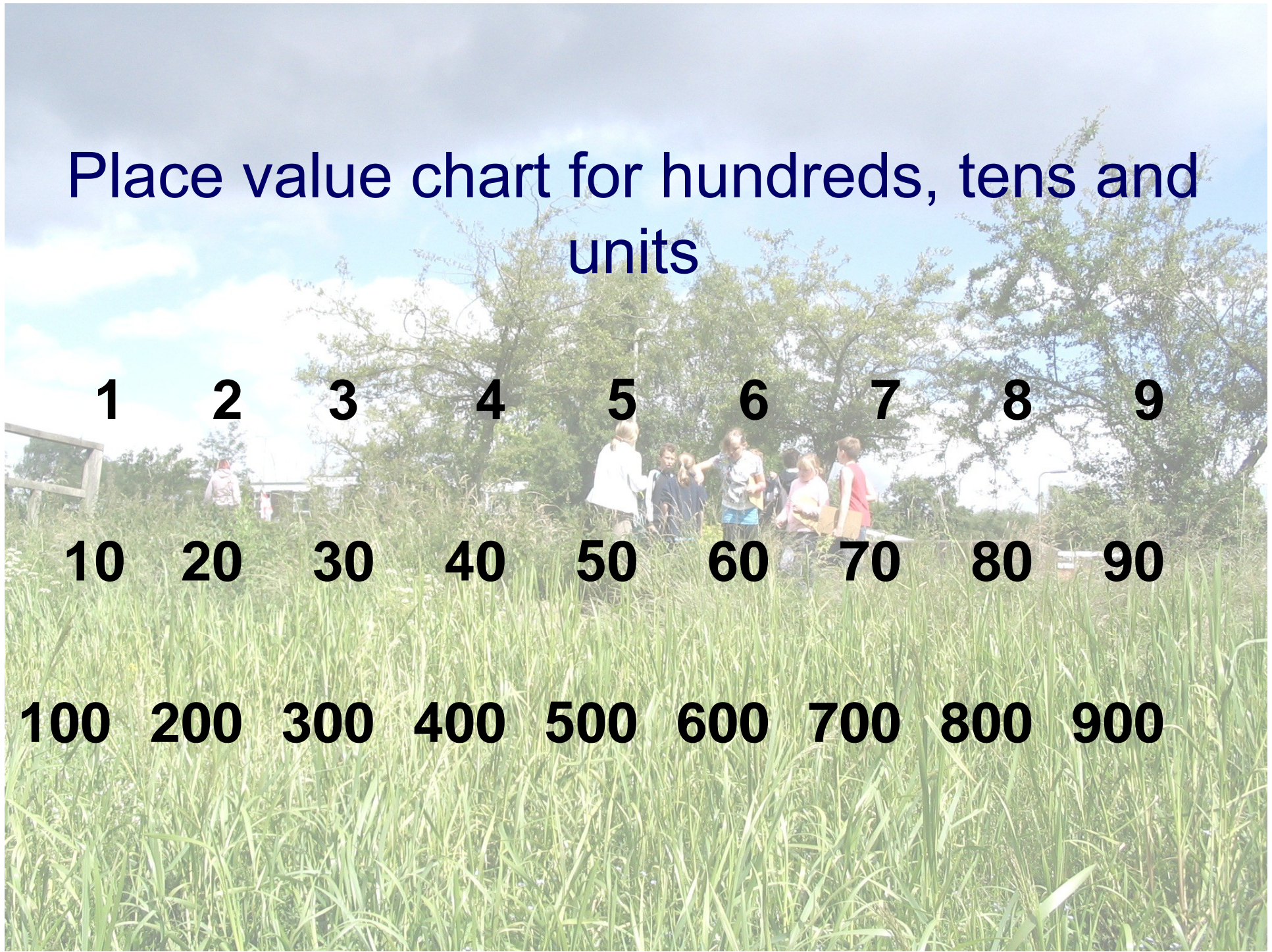


# Place value chart for hundreds, tens and units

**1      2      3      4      5      6      7      8      9**

**10   20   30   40   50   60   70   80   90**

**100   200   300   400   500   600   700   800   900**



# Place value chart for tenths, hundredths and thousandths

<b>0.001</b>	<b>0.002</b>	<b>0.003</b>	<b>0.004</b>	<b>0.005</b>	<b>0.006</b>	<b>0.007</b>	<b>0.008</b>	<b>0.009</b>
<b>0.01</b>	<b>0.02</b>	<b>0.03</b>	<b>0.04</b>	<b>0.05</b>	<b>0.06</b>	<b>0.07</b>	<b>0.08</b>	<b>0.09</b>
<b>0.1</b>	<b>0.2</b>	<b>0.3</b>	<b>0.4</b>	<b>0.5</b>	<b>0.6</b>	<b>0.7</b>	<b>0.8</b>	<b>0.9</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
<b>10</b>	<b>20</b>	<b>30</b>	<b>40</b>	<b>50</b>	<b>60</b>	<b>70</b>	<b>80</b>	<b>90</b>
<b>100</b>	<b>200</b>	<b>300</b>	<b>400</b>	<b>500</b>	<b>600</b>	<b>700</b>	<b>800</b>	<b>900</b>
<b>1000</b>	<b>2000</b>	<b>3000</b>	<b>4000</b>	<b>5000</b>	<b>6000</b>	<b>7000</b>	<b>8000</b>	<b>9000</b>

# Teaching place value

- **Children need to understand place value as a system for naming numbers – numbers that can be infinitely large or infinitely small.**
- **It is essential to discuss the language of number – place value charts and place value number cards are helpful visual aids.**
- **Whatever their stage of development, children should be familiar with a wider range of numbers than they are expected to use in calculations.**

# Consolidating place value

- Using a place value chart to clarify how we say numbers, using hundreds, as well as tens and ones moving digits
- Using arrow cards and a computer program to show how the written and spoken forms of numbers are related place value
- Using concrete materials to give the children an understanding of the increase in size of numbers

# Decimal system

1				
1	2			
1	2	3		
1	2	3	4	
1	2	3	4	5

1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5

6				
6	7			
6	7	8		
6	7	8	9	
6	7	8	9	10

# Progression in calculation

- **Counting of objects and mental counting**
- **Early stages of mental calculation and learning of number facts, with recording**
- **Work with larger numbers and informal jottings**
- **Expanded written methods, first with whole numbers then with decimals (introduced from late Year 3)**
- **Compact written methods (introduced from Year 4)**
- **Use of calculators for more difficult calculations (introduced from Year 5)**

# Mental and written methods of calculation

**Mental Calculation**



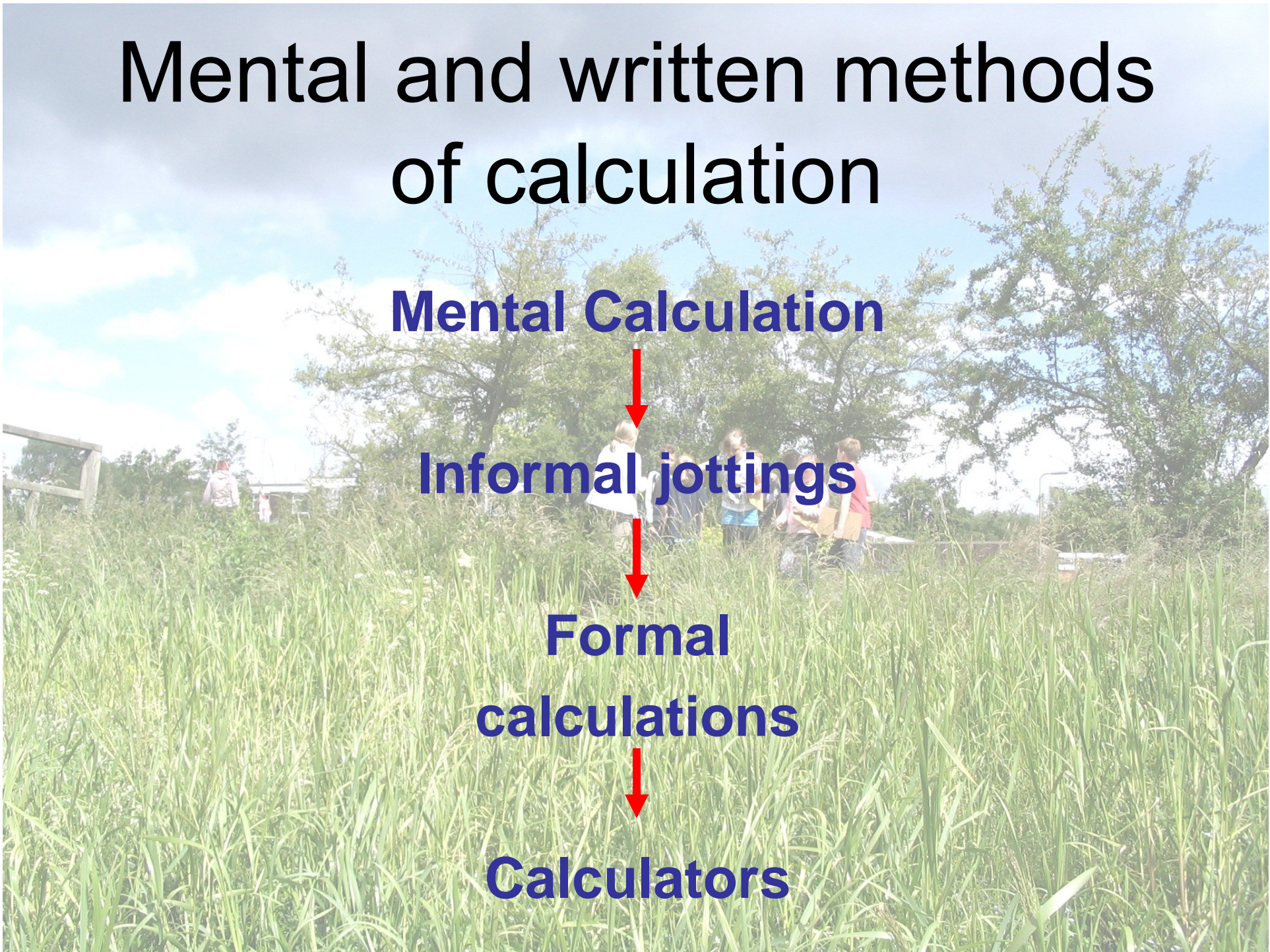
**Informal jottings**



**Formal  
calculations**



**Calculators**



# Strategies used for calculations

$30 + 40$

$35 + 40$

$32 + 45$

$35 + 47$

$35 + 45$

$35 + 49$

$80 - 50$

$82 - 30$

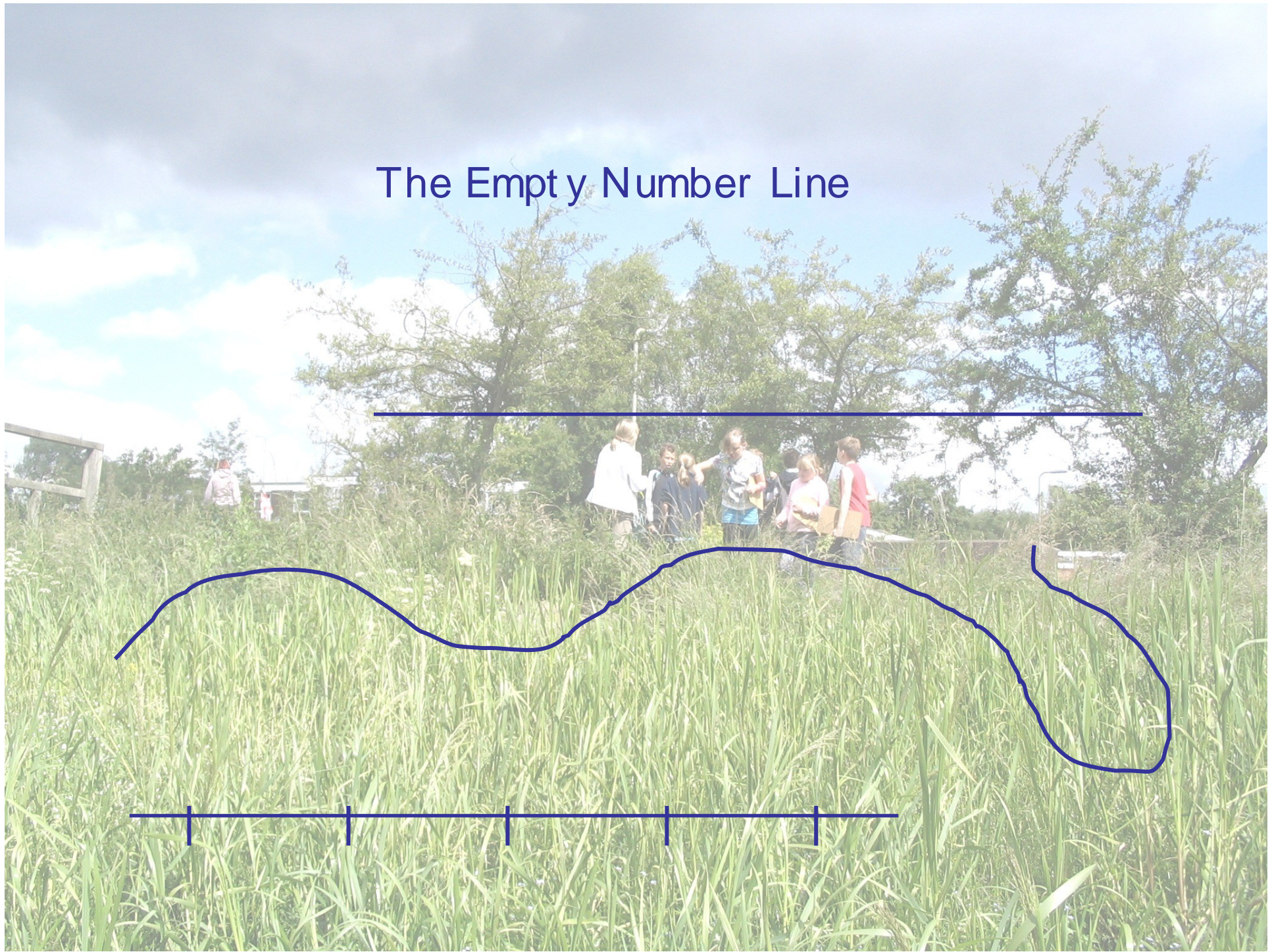
$82 - 79$

$80 - 58$

$85 - 35$

$82 - 14$

# The Empty Number Line



This is not the problem

$$27 + 28 = ?$$

$$20 + 20 = 40$$

$$7 + 8 = 15$$

$$40 + 15 = 55$$

THIS is the problem

$$91 - 37 = ?$$

or

$$1025 - 336 = ?$$

(KS2 Paper A, 2001)

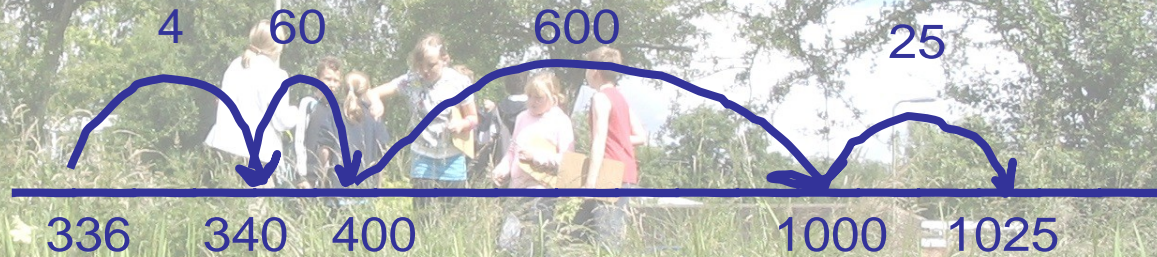
# Try it yourself

$$1025 - 336 = ?$$

Split

$$\begin{array}{r} 9 \ 1 \ 1 \ 1 \\ \cancel{1}0\cancel{2}5 \\ - \cancel{3}3\cancel{6} \\ \hline 689 \end{array}$$

Sequential



$$4 + 60 + 600 + 25 = 689$$

# Examples of successful ENL usage in KS2 SATs

Remember 1025 - 336 (2001 Paper A)?

Child F

16

Calculate 1025 - 336

$$\begin{array}{r} \cancel{1025} \\ - \cancel{336} \\ \hline \cancel{717} \end{array} \quad \begin{array}{r} \cancel{1025} \\ - \cancel{336} \\ \hline \cancel{717} \end{array}$$

717

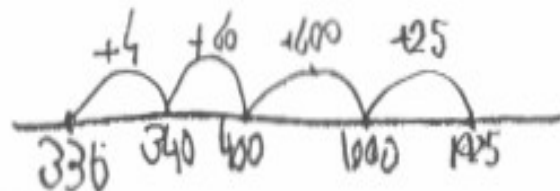
0

1 mark

Child G

16

Calculate 1025 - 336



689

1

A photograph of a group of people standing in a field of tall, green grass. The sky is blue with scattered white clouds. In the background, there are trees and a wooden fence. The text "How do we teach it" is overlaid in the center of the image.

How do we teach it

Demonstration

# Strategies used for calculations

$$643 + 50$$

$$360 + 264$$

$$324 + 58$$

$$3.2 + 1.9$$

$$31.5 + 1.62$$

$$27 + 36 + 13$$

$$403 - 386$$

$$705 - 287$$

$$428 - 43$$

$$8006 - 2993$$

$$572 - 49$$

$$1000 - 750$$

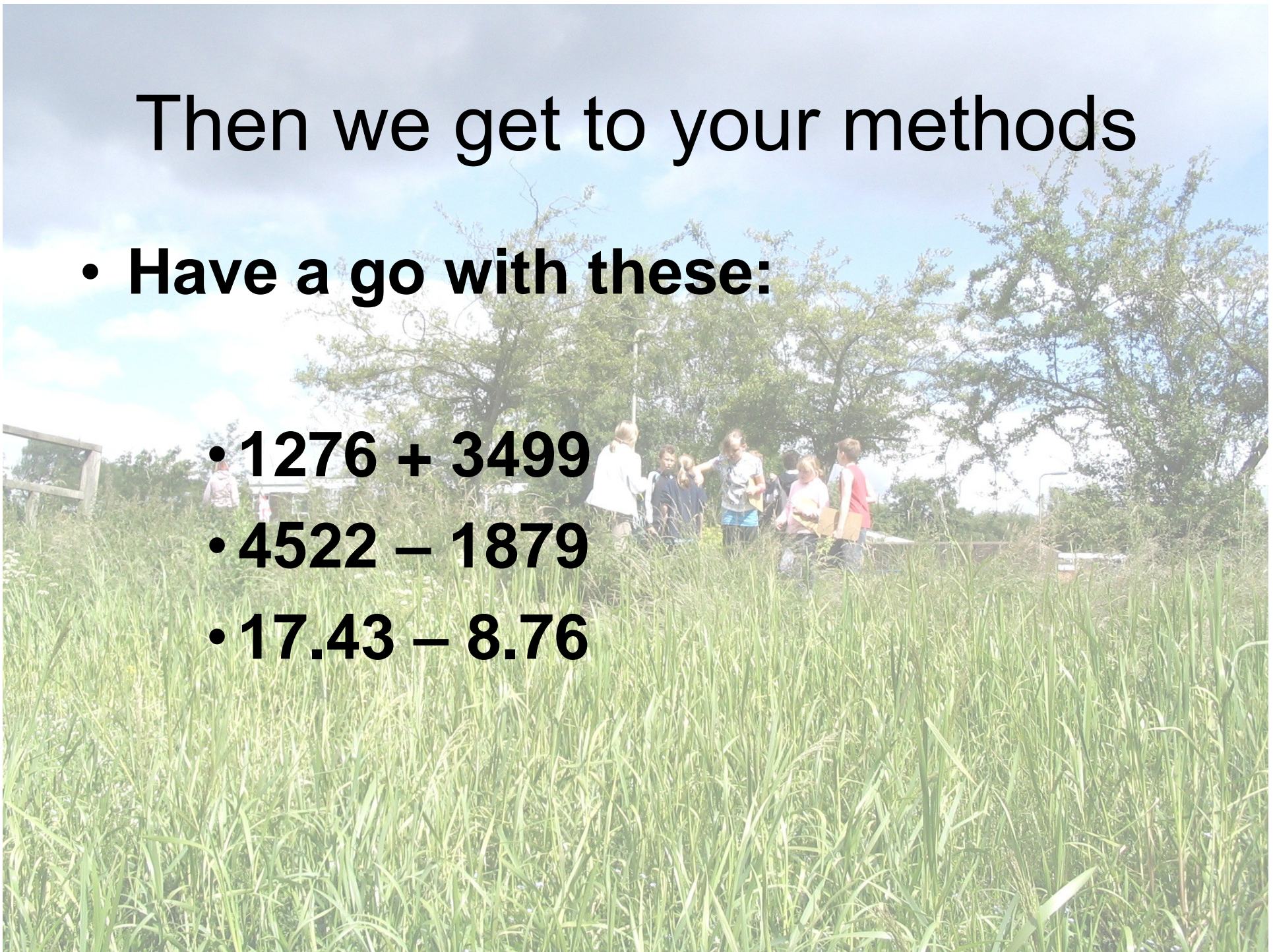
# Then we get to your methods

- **Have a go with these:**

- **1276 + 3499**

- **4522 – 1879**

- **17.43 – 8.76**



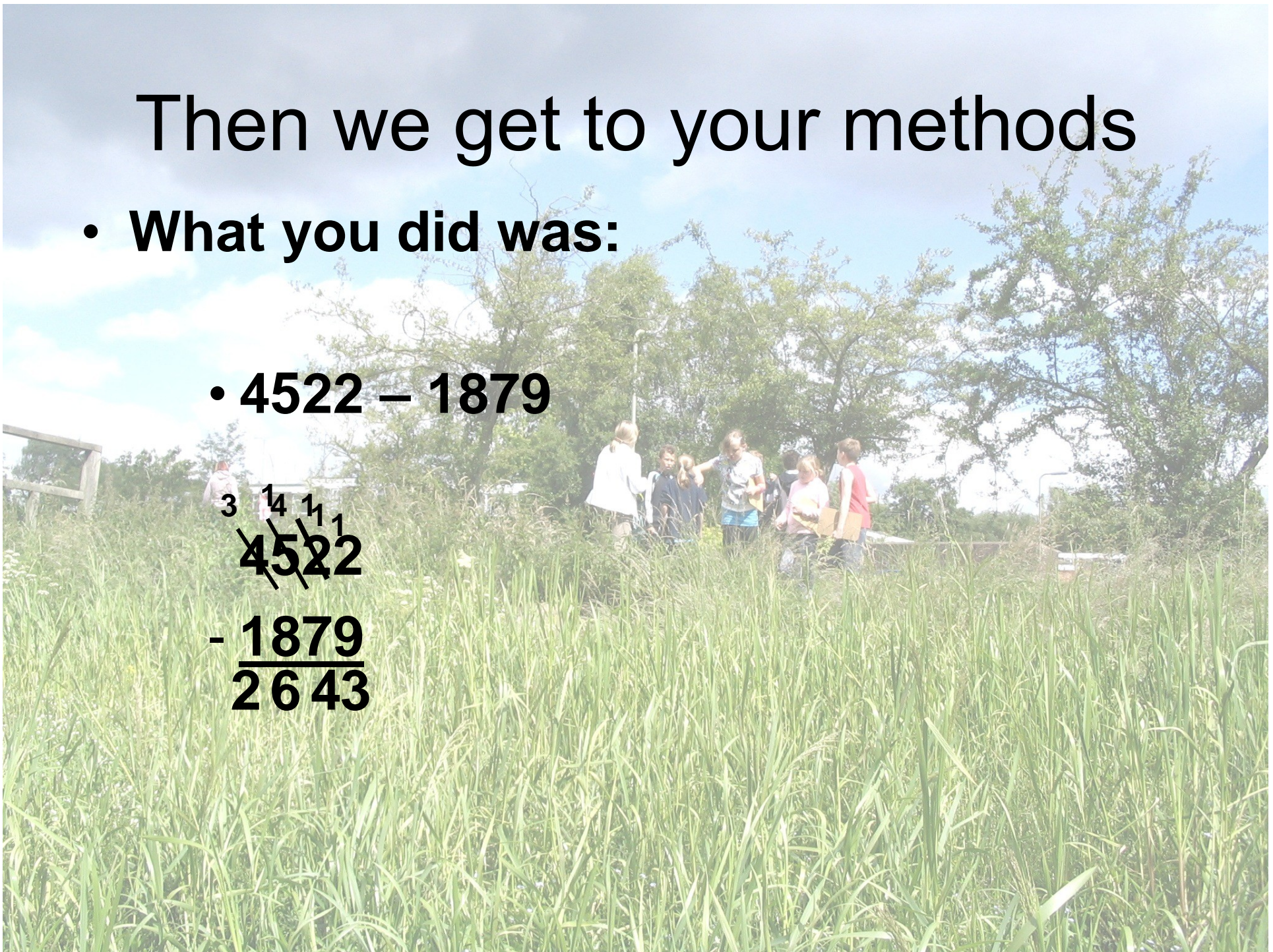
# Then we get to your methods

- **What you did was:**

- **4522 – 1879**

$$\begin{array}{r} 3 \quad 14 \quad 11 \quad 1 \\ \cancel{4}5\cancel{2}2 \end{array}$$

$$\begin{array}{r} - 1879 \\ \hline 2643 \end{array}$$





A group of about ten people, including children and adults, are standing in a field of tall, green grass. They are looking towards the camera or each other. In the background, there are several trees and a building with a wooden fence. The sky is blue with some white clouds. The text "Thank you" is overlaid in the center of the image.

Thank you