

## The Lottery

How are Lottery numbers selected?

Discuss with the children:

- How lottery numbers are selected NB. Is this done at random, or is there a biased selection?
- How often numbers come up (National Lottery Web-site: [www.national-lottery.co.uk](http://www.national-lottery.co.uk))

Ask the children to select six numbers of their own.

Carry out a survey in the group to establish;

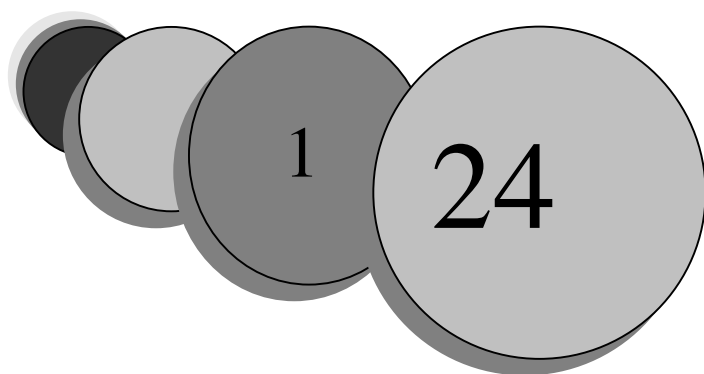
the most popular numbers chosen  
why those numbers were chosen

Construct a frequency chart the number of times the numbers 1-10, 11-20, 21-30 etc come up.

Why are certain groups of numbers more popular than others?

### Extensions

- Work out the average of the numbers chosen, (i) individually (ii) as a class
- What are the mode, median, and range for the numbers chosen?



**Learning Objectives Linked to the N.N.S.**

Use the language associated with probability to discuss events, including those with equally likely outcomes.

Solve a problem by collecting, organising, extracting and interpreting data in tables charts and graphs.

## The Lottery

NB. It is important that Investigation 1 'Selecting Lottery Numbers' is completed before attempting this investigation

### Selecting Lottery Numbers Randomly

Repeat the exercise carried out in Investigation 1, this time the children will be asked to

select numbers at random. (Teachers will decide the method the children will use to select numbers at random)

Explain the task to the children, ask them how might the results be different to investigation 1, when we choose numbers at random

Each child is to select six numbers at random

Carry out a survey in the group to establish;

The frequency of each number occurring

Construct a frequency chart to show the number of times certain numbers are selected

45						
40						
35						
30						
25						
20						
15						
10						
5						
	1-9	10-19	20-29		40-49	

Ball numbers

### Possible avenues of enquiry to pursue

- Is there a difference in our findings to the first investigation?
- What is the average of the numbers chosen, why is this so?
- Can you explain why our findings are different?
- Is there an implication for number selection assuming that most people choose by a biased selection?
- What is the chance of one of your chosen numbers being selected?
- **Make up your own enquiry**

Learning Objectives Linked to the N.N.S.

Use the language associated with probability to discuss events, including those with equally likely outcomes. Solve a problem by collecting, organising, extracting and interpreting data in tables charts and graphs.

## The Lottery

Visit the National Lottery Web-site at [www.national-lottery.co.uk](http://www.national-lottery.co.uk)

Find the list of past winning lottery numbers and work out the frequency of certain numbers being selected, record your findings in written and graphical form.

- Does the average number selected differ from your previous findings?
- Are there more odd than even numbers?
- What are the totals of all the six balls actually chosen - how do they differ?
  
- **Think of your own question to investigate**

### Learning Objectives Linked to the N.N.S.

Use the language associated with probability to discuss events, including those with equally likely outcomes.

Solve a problem by collecting, organising, extracting and interpreting data in tables charts and graphs.

## Consecutive Numbers

Do you know what consecutive numbers are?

Consecutive numbers are numbers which follow each other in an unbroken order  
For example, 3, 4, 5, 6 are consecutive numbers so too are 234, 235, 236.

How many numbers from 1 to 50 do you think it is possible to make using consecutive numbers?

Hint

You may find it useful to see how many numbers you can make with pairs of consecutive numbers, then triples etc. Draw a chart to record your results.

Where there any numbers that cannot be made?  
Why was this so?

### Investigation 2

Add up all the numbers from 1-50. Can you find a clever way of doing this?

Hint

Instead of working with the numbers 1 - 50 to begin with, simplify your investigation by working with the numbers 1 - 10

You might start by thinking of pairs of numbers that add up to 10. Try it, what do you notice? Can you apply your reasoning to working out how to add up the numbers 1-50?

Did you find a rule? Can you use your rule to work out the total of the consecutive numbers 1 - 100?

Learning objectives linked to the N.N.S.

Add several numbers

Solve mathematical problems or puzzles...