St Anne's Statistics Policy

Date approved:	6th January, 2025
Date of review:	Summer Term 2025

Rationale:

This policy lays out the expectations for statistics, and has been created to support the teaching of a mastery approach to mathematics in line with the National Curriculum and the White Rose scheme, which forms the framework of our curriculum through its long- and medium-term planning outline and small steps.

A Mastery Approach:

A mastery approach to learning involves the following five "big ideas" of effective maths teaching:

Coherence - a coherent learning progression offering deep and connected understanding

Representation and Structure concrete, pictorial and abstract representations are carefully structured to help pupils "see the maths"

Mathematical Thinking - looking for patterns and relationships, making connections, conjecturing, reasoning and generalising, communicating ideas using precise vocabulary

Fluency - - - efficient, accurate recall of key number facts and procedures, allowing pupils to move between different contexts and representations, choosing strategies

Variation - - - conceptual variation presents different representations of key features, while procedural variation presents different ways of proceeding through the learning journey (via scaffolding and support, etc)

Concrete – Pictorial – Abstract:

Mathematical understanding is developed through use of representations that are initially concrete (e.g. counters, multilink cubes, dienes, etc), and then pictorial (e.g. part-whole models, place value columns with images of counters in them, etc) to then facilitate abstract working (e.g. formal written methods).

If at any point a pupil is struggling with the abstract, they should revert to familiar pictorial and/or concrete materials/representations as appropriate. As children move through the different stages, representations should be modelled alongside each other to ensure a secure understanding is maintained. Children should only move onto the abstract method when they have a secure understanding of the concept through an appropriate concrete and pictorial representation. This policy should be used in conjunction with the St Anne's Mathematics policy, our Written Calculation Policies and the White Rose calculation policy, as well as our Key Instant Recall Facts documents, which we share with our families to supplement the learning children receive in school. Teachers are also encouraged to refer to the NCETM Ready-To-Progress Criteria resources in ascertaining when children are ready to move on to new learning.

Vocabulary:

Children will continually recap vocabulary learned in previous years to ensure that their understanding and usage of the terminology is fully developed, broad and specific in application. Vocabulary from previous years is included in each year group's columns in black, while new vocabulary that may not have been previously encountered is in green. Teachers are encouraged to check this list of vocabulary at the beginning and end of a relevant unit to ensure that they are modelling the full breadth and depth of vocabulary to the children, and that the children are using it in their verbal and written responses accurately and confidently.

Please see appendix 4 of the written calculation policies for notes on precise vocabulary, and for a comprehensive glossary, please see the separate document "NCETM Maths Glossary KS1-KS3" which is saved in PDF format with our calculation policies in the shared area.

Contents:

Statistics in Reception

Statistics is not covered in Reception. This unit starts to form part of the curriculum in Year 2.

The following is what the Department for Education stipulates should be covered in Reception:

Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers.

By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built.

In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures.

It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes. https://help-for-early-years-providers.education.gov.uk/areas-of-learning/mathematics

Statistics in Year 1

Statistics is not covered in Year 1. This unit starts to form part of the curriculum in Year 2.

Statistics in Year 2

Pupils should be taught to:
- interpret and construct simple pictograms, tally charts, block diagrams and tables
- ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity
- ask-and-answer questions about totalling and comparing categorical data

Notes and guidance (non-statutory):
Pupils record, interpret, collate, organise and compare information (for example, using many-to-one correspondence in pictograms with simple ratios 2, 5,10).

Vocabulary:

pictograms, tally chart, block diagram, category, sorting, totalling, comparing, horizontal/vertical

Statistics in Year 3

Pupils should be taught to:
- interpret and present data using bar charts, pictograms and tables
- solve one-step and two-step questions [for example 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables

Notes and guidance (non-statutory):
Pupils understand and use simple scales (for example, 2, 5, 10 units per cm) in pictograms and bar charts with increasing accuracy.
They continue to interpret data presented in many contexts.

Vocabulary:

pictograms, tally chart, block diagram, category, sorting, totalling, comparing, horizontal/vertical, table, bar chart, one-step problem, two-step problem

Statistics in Year 4

Pupils should be taught to:
- interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs
- solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

Notes and guidance (non-statutory):
Pupils understand and use a greater range of scales in their representations.
Pupils begin to relate the graphical representation of data to recording change over time.

Vocabulary:

pictograms, tally chart, block diagram, category, sorting, totalling, comparing, horizontal/vertical, table, bar chart, one-step problem, two-step problem, time graph, discrete data, continuous data, line graph, comparison problem, sum problem, difference problem, calculate, interpret

Statistics in Year 5

Pupils should be taught to:
- solve comparison, sum and difference problems using information presented in a line graph
- complete, read and interpret information in tables, including timetables

Notes and guidance (non-statutory):
Pupils connect their work on coordinates and scales to their interpretation of time graphs.
They begin to decide which representations of data are most appropriate and why.

Vocabulary:

pictograms, tally chart, block diagram, category, sorting, totalling, comparing, horizontal/vertical, table, bar chart, one-step problem, two-step problem, time graph, discrete data, continuous data, line graph, comparison problem, sum problem, difference problem, calculate, interpret, **timetable, two-way table**

Statistics in Year 6

Pupils should be taught to:
- interpret and construct pie charts and line graphs and use these to solve problems
- calculate and interpret the mean as an average

Notes and guidance (non-statutory):
Pupils connect their work on angles, fractions and percentages to the interpretation of pie charts.
Pupils both encounter and draw graphs relating 2 variables, arising from their own enquiry and in other subjects.
They should connect conversion from kilometres to miles in measurement to its graphical representation.
Pupils know when it is appropriate to find the mean of a data set.

Vocabulary:

pictograms, tally chart, block diagram, category, sorting, totalling, comparing, horizontal/vertical, table, bar chart, one-step problem, two-step problem, time graph, discrete data, continuous data, line graph, comparison problem, sum problem, difference problem, calculate, interpret, timetable, two-way table, **pie chart, mean average**