

**Planning Overview**  
**Year 3 Statistics**

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

<b>Objective</b>	<b>Teaching and Learning</b>
<p><b>Create a tally chart and understand that grouping in 5s helps with the accuracy and speed of counting the totals</b></p>	<p>Ask the children a question where there can be endless multiple answers – favourite food, favourite colour, favourite animal, etc. Ask the children to try to record multiple responses to the question. Ask them how easy it was without a system.</p> <p>Talk about how a tally chart and frequency table works (recap from year 2). How would this help them to collect data in a more efficient way?</p> <p>Children to collect data from their peers using a tally chart and a frequency table.</p> <p>Children to answer questions about the data that they have collected (how many...how many more...the difference between...)</p>
<p><b>Transfer data from a tally chart to a table and then a pictogram</b></p>	<p>Collect data from the class on a given topic. Recap how to fill the tally/frequency table in. Share this frequency table with the class. Ask the children questions around the data.</p> <p>Use the children to create a human pictogram. Ask all of the children who voted for the first option to line up, then the second, etc</p> <p>Each child stands for one child, each child is representing their own vote.</p> <p>Now draw what the children created physically on the board. How many votes is each child worth?</p> <p>Ask children to pictogram the data that they collected the lesson before using an image of a child to represent each vote.</p>
<p><b>Interpret data from a pictogram when one symbol represents more than one unit</b></p>	<p>Show the children 5 different packets of biscuits. Ask the children to choose their favourite biscuit.</p> <p>Children to physically go and get their favourite biscuit but have pre-cut each biscuit in half. Each child gets a piece of the biscuit that represents their favourite. If we were to find the total of children who liked each type of biscuit we could put the biscuits together again, what would one biscuit represent? 2 children. Explain when we create a</p>

	<p>pictogram the symbol needs to be the same so we would represent it with a circle for 2 biscuits.</p> <p>Create a pictogram using circles to represent the votes – if each half circle represents one vote then how many votes will a full biscuit represent? Create a key of one circle = 2 votes.</p> <p>Question the children about the data. How many children liked digestives? How many liked hobnobs? Jammy dogers etc. How many more liked.... How many children liked chocolatey biscuits?</p> <p>Ask the children to create a similar pictogram for fruits or similar where a symbol represents 2 votes and half a symbol represents one vote.</p> <p>Greater Depth – show them a range of data and ask them to think about a sensible value for one unit.</p> <p>If the data range went up to 40 would we be wanting to draw 40 symbols or even 20? What could 1 symbol sensibly represent? Could we show 1 vote easily? What about 2?</p> <p>Can decide what scale to use on a pictogram based on the range of the data included in the frequency table.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center; background-color: #00a6c9; color: white; padding: 5px;"><b>Mastery with Greater Depth</b></p> <p>Create two separate pictograms to display the following information. The symbol used in each should have a value of more than 1. Which value will you choose for each pictogram?</p> <p>Explain your decisions.</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2">Class</th> <th colspan="2">Number of merits awarded</th> </tr> <tr> <th>Hard work</th> <th>Good behaviour</th> </tr> </thead> <tbody> <tr> <td>YR</td> <td>42</td> <td>32</td> </tr> <tr> <td>Y1</td> <td>39</td> <td>18</td> </tr> <tr> <td>Y2</td> <td>24</td> <td>27</td> </tr> <tr> <td>Y3</td> <td>30</td> <td>33</td> </tr> <tr> <td>Y4</td> <td>18</td> <td>24</td> </tr> <tr> <td>Y5</td> <td>30</td> <td>24</td> </tr> <tr> <td>Y6</td> <td>39</td> <td>36</td> </tr> </tbody> </table> </div>	Class	Number of merits awarded		Hard work	Good behaviour	YR	42	32	Y1	39	18	Y2	24	27	Y3	30	33	Y4	18	24	Y5	30	24	Y6	39	36
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<p><b>Can transfer data from a tally chart to a table</b></p>	<p>Ask children to retrieve the data that they collected and presented in a tally chart during the first statistics lesson. Ask them now to use multilink/Lego to show this data as bars. Show the children how to create an axis around the bars that they have created to give more information – to label the bars and to give a scale to read the bars against.</p>																										









**Can create a bar chart to represent data**

**Can interpret data in graphs and understand varying scales of multiples of 2, 5 and 10 when reading values presented in bar charts**

Ask the children to change the scale on the y axis now to a scale that increases in 2s. how will this change their data? What if the scale was going up in 5s – can they read the data now?

Children to use their data to create a bar chart using drawn bars rather than multilink/Lego blocks.

Children to be given a range of bar charts to read that have a range of scales. Ask them to fill in frequency tables to show the bar chart data in a different way. Ask them questions about the data shown on each bar chart.

Mastery	
Class	Weekly awards for a tidy classroom  = 3 awards
Reception	
Year 1	 +1
Year 2	
Year 3	 +2
Year 4	
Year 5	
Year 6	 +1

Mastery	
Transfer the information from the weekly awards table to the table below.	
Class	Number of awards
YR	
Y1	
Y2	6
Y3	
Y4	
Y5	
Y6	

Present the information in a bar graph.

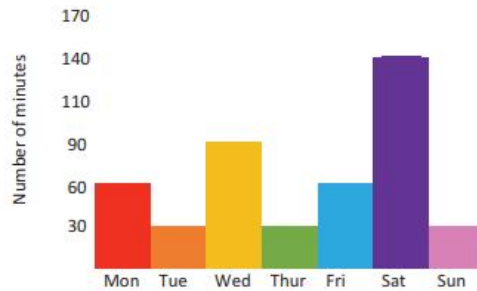
First4Maths – Digging Deeper – Page 42

**SETTING THE SCENE**

Gus has been investigating how much time he spends playing sports each week. First, he created a table whilst he gathered his data.

Day	Number of minutes
Monday	90
Tuesday	30
Wednesday	60
Thursday	45
Friday	60
Saturday	105
Sunday	15

Next, he put his data into a bar chart.



Has Gus presented his data correctly? Explain to him fully.

Greater Depth children can decide what scale to use on a bar chart based on the range of the data included in the frequency table.

### Mastery with Greater Depth

Work with two friends to collect data on how many hours each of you watch TV for a week.

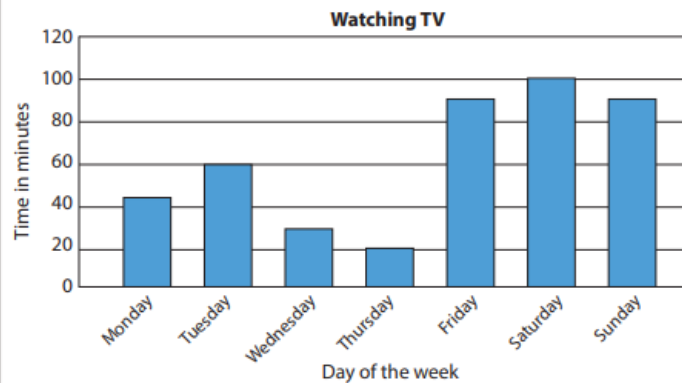
Decide how you will combine and present the data using just one graph.

**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**

Children to answer questions around a range of bar charts. Encourage children to use a range of mental addition and subtraction strategies to solve problems

### Mastery

The graph shows how many minutes Sam spent watching TV at home last week.



On which day did Sam watch the most TV?

How many minutes of TV did Sam watch on Wednesday?

How many more minutes did Sam watch on Friday than on Tuesday?

How many fewer minutes did Sam watch on Thursday compared to Sunday?

NRICH- If the world were a village

## If the World Were a Village

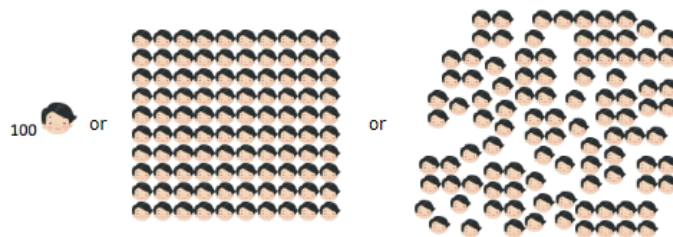
Age 5 to 11  
Challenge Level ★

A gallery based on the book, 'If the World Were a Village' by David J Smith and Shelagh Armstrong, has opened and needs some exhibits. All of these must be based upon the data from within the book. It is important to be thoughtful about how the data are presented because sometimes key messages can be missed out because of the way the data are shown.

In the book, the world's population (6,660,000,000) is represented in the imaginary village of 100 residents so that each resident represents approximately 67 million people from the real world.

Here's an example:

In the village, there are 100 people:



NRICH Class 5's names

## Class 5's Names

Age 7 to 11  
Challenge Level ★

Here are the lists of first names of the members of Class 5. (They are in alphabetical order of their surnames so they do not seem to be ordered.)

Girls in Class 5	Boys in Class 5
Hetty	David
Annie	Nelson
Tessa	Ali
Debbie	Jake
Willow	Harry P
Jess	William
Abby	Ben
Sindy	Tom
Penny	Dai
Bel	Arlo
Sara	Andrew
Pippa	Harry W
Selma	Tim
Becky	Joe
Mel	Alan
Pauline	James
Netty	Jeff
	Mohammed

One day when 34 children were in class, Mrs Clifton, their teacher, said they were going to make some block graphs and other things using their first names. She put the class lists onto the white board.

First, the class made tally charts of the initial letters of their names. They worked in pairs.

The first part of Becky and Selma's tally looked like this:

Children to continue creating graphs and tables in other curriculum areas to consolidate this skill and see data handling in different contexts.