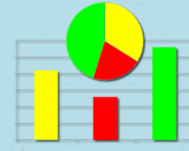


Pie Charts From Bar Charts



By Mike Ollerton

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INTRODUCTION

Some writing adapted from “Getting the buggers to add up” third edition pp122-123 Helen Williams posted a lovely photo on Twitter arising from our session at BCME8 at Nottingham University 14th-17th April 2014.

MATHEMATICAL CONTENT

- Statistics
- Circle properties

APPLICABILITY

KS2 – KS3

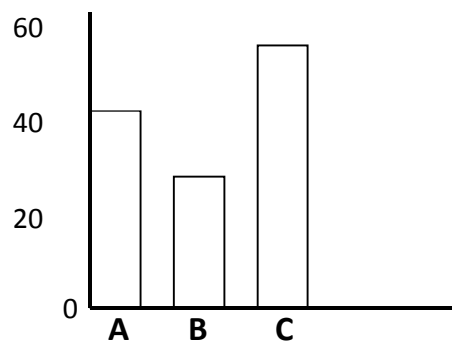
A common method for displaying data used in several areas of the curriculum is that of drawing a pie chart. Sometimes problems can occur when students do not have the conceptual knowledge required to convert certain information into a pie chart. This might well cause some frustrations, possibly resulting in off-the-cuff questions such as, “*Don’t they teach you how to do this in mathematics?*” Of course students are taught how to draw pie charts in mathematics lessons. However, there are three reasons why they suddenly cannot draw them in another lesson.

These are:

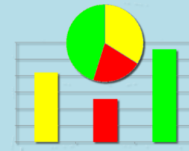
- i) they were about to be taught them next week;
- ii) students cannot remember how to draw one;
- iii) they struggle to transfer knowledge gained in mathematics lessons to another subject area.

The model I offer here is simple yet robust and the example is based upon students having to convert three groups of data, **A**, **B** and **C** from a bar chart to a pie chart.

The bar chart reads as follows:



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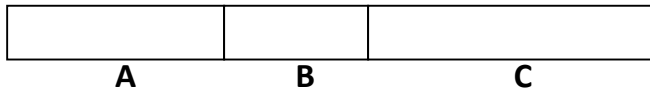


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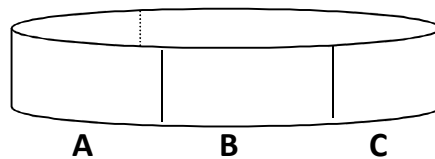
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The next step is to join all three bars together into one long strip



Now join the two ends together and form the one long strip into a circle.



Because the long strip now forms the circumference of the circle, we can draw sectors from the centre of the circle to each of the join lines between **A** and **B**, **B** and **C** and **C** and **A**. The sectors will then produce a pie chart as a representation of the original bar chart.

Although this method circumvents the need for students to carry out the calculation involving dividing by 360, it does not lose any integrity in terms of the underlying mathematics. Indeed such a method could provide a starting point in a mathematics lesson for students to make sense of the processes involved in drawing a pie chart.