Lesson: What is an Average?

Learning Objectives:
- Understand the term average and what it represents.
- Understand and develop the concepts of mean, mode, median and range and how to calculate them.
- Collect, process and compare samples of data.

Starter:	Pupils	Teacher
Practical to show types of average using height. Median: pupils line up in height order. Mode: pupils stand in groups of same height Mean: pupils lay head to toe. (see notes) Range: difference between smallest and largest.	Participate in activity and class discussion. Understand different types of average.	Organise practical activity and question pupils so they understand the differences in types of average.
Main: Process class' height data to accurately calculate the different types of average. Discuss outcomes, differences, unusual results. Worksheet for pupils to work on available.	**Pupils** Process their data and draw conclusions. Discuss their results.	**Teacher** Decide which data to use (see notes). Facilitate distribution of data. Assist pupils in processing and understanding data.
Plenary: Use the Excel file to process data on South Africa Primary aged pupils. How do their results compare to your class'?	**Pupils** Process or assist processing of SA data. Discuss outcomes and compare to own data.	**Teacher** Enable processing of data. Facilitate class discussion on results and comparisons.

Outcomes:
All Pupils Will: Participate in starter activity. Gain some understanding of averages.
Most Pupils Will: Understand the differences in types of average and calculate from data.
Some Pupils Will: Use spreadsheets to process data and make comparisons with other datasets. Draw conclusions giving reasons.

Resources:
Long tape measure, CensusAtSchool Data (previously collected) or Spreadsheet facilities, Calculators, Worksheet if wanted, Excel file of South African data.

Classroom Management:
Whole class/ Paired or Group work on Main Activity

Keywords:	Strategy Links:
Average, Mean, Mode, Median, Range, Data, Measure	Y5T1 Unit 6b Handling data 2 Y6T1 Unit 6a Handling data

Prior Knowledge:
Ability to calculate using all 4 operations,

Assessment of Learning:
Class discussion, Written answers to calculations, Homework

Extension Activity:
Develop to work with larger datasets, Grouped averages, Incorporate data from other countries using Random Data Selector.

Homework Ideas:
Simple Averages Worksheet to Assess Individuals Learning

This resource was created by the CensusAtSchool project at www.censusatschool.ntu.ac.uk

Notes:
Question ideas?
Median: Which pupil best represents the average class height? Consider what happens with an even number of pupils.
Mode: Which group is most representative of the average class height? Why?
Mean: How can we work out a value which represents the class height from the situation you are in?

To collect the pupils heights, either measure individually and place in spreadsheet. Or participate in one of CensusAtSchools online questionnaires and use the data from there. Pupils could either process the data by hand or learn how to use a spreadsheet. This link gives good advice http://www.censusatschool.ntu.ac.uk/files/findingaveragesusingExcel.doc
When using the South African data, please select and appropriate sample size. E.g. 30 pupils.

Your Own Notes/Questions:

Notes on Lesson/Evaluation