

Data collection, mean average and range



Name _____ Date _____

To find the **R**..... we need to **s**..... the **s**..... number from the **b**..... .

To find the **A**..... we need to **a**..... the numbers and **d**..... by how many there are.

2, 5, 3, 7, 10, 8, 17, 22, 7, 9

Find the **range** of these numbers:

Now find the **average**:



1. Write the name and shoe size of everyone in the class.

Show your working!



2. What is the range of shoe sizes?

3. What is the average shoe size?

4. How do *you* compare to the average?

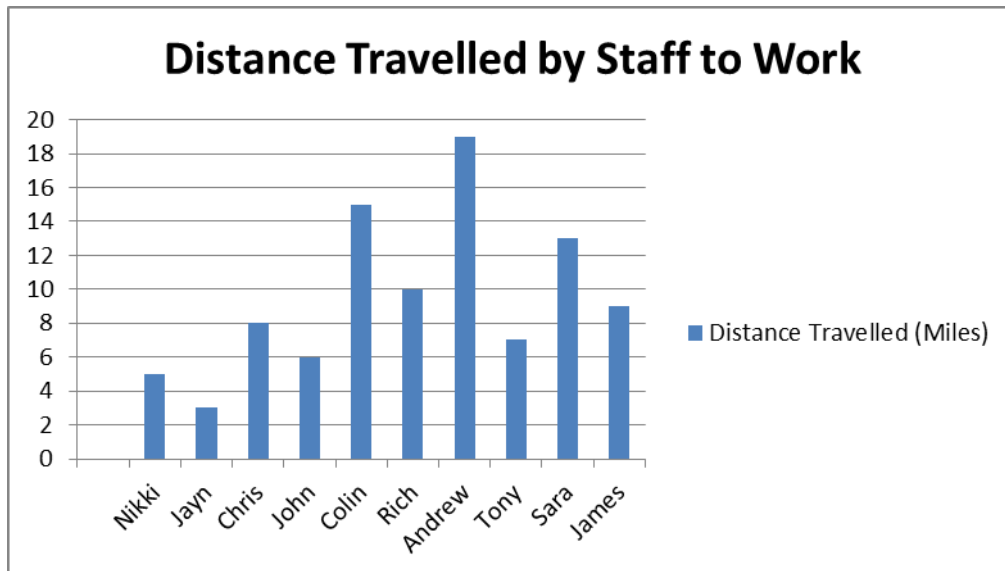
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1. List the ages of students in this class:

2. What is the range of ages?

3. What is the average age?



Use the bar chart above.

1. Who travels the furthest to work?
2. Who lives closest to college?
3. What is the range of distances travelled by staff to get to work?
4. What is the average distance that staff travel?
5. Do you think that is more, or less miles, than you travel to college?

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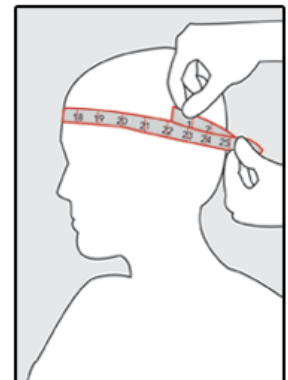
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Now we are going to get measuring!



Work with a partner and complete the table below with the *circumference* of the students' heads in your group; make sure you measure in **centimetres**.

1. Who has got the largest head circumference and what is it?
2. Who has got the smallest and what is it?
3. What is the **range** of head circumferences?
4. Convert this to millimetres.
5. What is the **average** head circumference?
6. What is this in millimetres?
7. Is your head measurement above or below average?



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Geoff is a multi-tradesman.

He has been told by the local builders' merchant that if he spends an average of at least £1000 per month, then they will give him a reward account card which gives him a discount.

The table below shows how much Geoff spent in 2012.

Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
£875	£915	£1005	£2150	£1100	£1000	£1000	£500	£905	£1010	£970	£750

In which month Geoff spend the most?

In which month did Geoff spend the least?

Why do you think he might have spent less in that month?

What is the range of his spending at the builders' merchants?

Does Geoff qualify for a reward card? **Show your working.**

With a reward card, Geoff gets all tools for $\frac{1}{2}$ price in the spring sale.
How much does he now pay for these tools?



£19.50



£78.50



£22.00



£15.00

Original Price	£19.50	£78.50	£22.00	£15.00
New Price				

FUNCTIONAL MATHEMATICS Coverage and Range statements (indicative only)

This resource is ideal for underpinning many Functional Maths coverage and range statements at Level 1 and Level 2 (see highlighted areas of the table below). Coverage and range statements provide an indication of the type of mathematical content candidates are expected to apply in functional contexts. Relevant content can also be drawn from equivalent National Curriculum levels & Adult Numeracy standards. **However, in Functional Maths exams it is the process skills that are assessed; these are key to successful Functional Maths teaching and learning and must always be developed and stressed during teaching (see below).** Ofqual (2009), *Functional Skills criteria for Mathematics: Entry 1, Entry 2, Entry 3, level 1 and level 2.* <http://www.ofqual.gov.uk/>

Entry Level 3

a) add and subtract using three-digit numbers ✓	g) recognise and describe number patterns
b) solve practical problems involving multiplication and division by 2, 3, 4, 5, 10 ✓	h) complete simple calculations involving money and measures ✓
c) round to the nearest 10 or 100	i) recognise and name simple 2D and 3D shapes and their properties
d) understand and use simple fractions ✓	j) use metric units in everyday situations ✓
e) understand, estimate, measure and compare length, capacity, weight and temperature ✓	k) extract, use and compare information from lists, tables, simple charts and simple graphs ✓
f) understand decimals to two decimal places in practical contexts ✓	

Level 1

a) understand and use whole numbers and understand negative numbers in practical contexts	h) solve problems requiring calculation, with common measures, including money, time, length, weight, capacity & temperature ✓
b) add, subtract, multiply and divide whole numbers using a range of strategies ✓	i) convert units of measure in the same system ✓
c) understand and use equivalences between common fractions, decimals and percentages ✓	j) work out areas and perimeters in practical situations
d) add and subtract decimals up to two decimal places ✓	k) construct geometric diagrams, models and shapes
e) solve simple problems involving ratio, where one number is a multiple of the other	l) extract and interpret information from tables, diagrams, charts and graphs ✓
f) use simple formulae expressed in words for one or two-step operations	m) collect and record discrete data and organise and represent information in different ways ✓
g) use data to assess the likelihood of an outcome	n) find mean and range ✓

Process Skills (all levels)

Representing – selecting the mathematics and information to model a situation	Analysing – processing and using mathematics	Interpreting – interpreting and communicating the results of the analysis
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Skill Standards (Entry Level 3)

Understand practical problems in familiar contexts and situations ✓ Begin to develop own strategies for solving simple problems ✓ Select mathematics to obtain answers to simple given practical problems that are clear and routine ✓	Apply mathematics to obtain answers to simple given practical problems that are clear and routine ✓ Use simple checking procedures	Interpret and communicate solutions to practical problems in familiar contexts and situations ✓
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Skill Standards (Level 1)

Understand practical problems in familiar and unfamiliar contexts and situations, some of which are non-routine ✓ Identify and obtain necessary information to tackle the problem ✓ Select mathematics in an organised way to find solutions ✓	Apply mathematics in an organised way to find solutions to straightforward practical problems for different purposes ✓ Use appropriate checking procedures at each stage	interpret and communicate solutions to practical problems, drawing simple conclusions and giving explanations ✓
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