

The way we weigh

Name _____ Date _____

1. Collect a group of similar objects or use those provided by your teacher.

2. Estimate the weight of each item. Write it down.

3. Weigh them as accurately as possible.

4. Compare your estimate to the actual weight.

5. Work out the mean (average) weight of your set of items.

6. Work out the range.



Extension task

Discuss with your tutor what the results of mean and range calculations tell you about your group of items.



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Item	Estimated weight <i>(remember the units of measurement)</i>	Actual weight <i>(remember the units of measurement)</i>

Tutor notes

Use groups of similar objects e.g. different sized text books. Other groups that can be used but require digital scales – jars or packets of spices (difference between “powders” and something like bay leaves or saffron), highlight the difference between the stated weight on the label and the actual weight including packaging. Matching sets of bowls or cups (the cheaper the better) vary in weigh despite looking identical.

Functional Skills Mathematics mapping – coverage and range statements

This resource is ideal for underpinning many Functional Maths coverage and range statements – particularly at Entry Level 3 and Level 1 (see ticked statements below). 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 next page).

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 and the Adult Numeracy standards.

✓ *Indicates the main coverage and range skills covered in this resource, although these will vary with the student group and how the resource is used by the teacher.*

Entry Level 2

- | | |
|---|---|
| <ul style="list-style-type: none"> a) understand and use whole numbers with up to two significant figures b) understand and use addition/subtraction in practical situations c) use doubling and halving in practical situations d) recognise and use familiar measures, including time and money ✓ | <ul style="list-style-type: none"> e) recognise sequences of numbers, including odd and even numbers f) use simple scales and measure to the nearest labelled division ✓ g) know properties of simple 2D and 3D shapes h) extract information from simple lists |
|---|---|

Entry Level 3

- | | |
|--|--|
| <ul style="list-style-type: none"> a) add and subtract using three-digit numbers b) solve practical problems involving multiplication and division by 2, 3, 4, 5, 10 c) round to the nearest 10 or 100 d) understand and use simple fractions e) understand, estimate, measure and compare length, capacity, weight and temperature ✓ f) understand decimals to two decimal places in practical contexts ✓ | <ul style="list-style-type: none"> g) recognise and describe number patterns h) complete simple calculations involving money and measures ✓ i) recognise and name simple 2D and 3D shapes and their properties j) use metric units in everyday situations ✓ k) extract, use and compare information from lists, tables, simple charts and simple graphs ✓ |
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Level 1

- | | |
|---|---|
| <ul style="list-style-type: none"> a) Understand and use whole numbers and understand negative nos. in practical contexts b) Add, subtract, multiply and divide whole numbers using a range of strategies ✓ c) Understand and use equivalences between common fractions, decimals and percentages d) Add and subtract decimals up to two decimal places ✓ e) Solve simple problems involving ratio, where one number is a multiple of the other f) Use simple formulae expressed in words for one- or two-step operations | <ul style="list-style-type: none"> g) Solve problems requiring calculation, with common measures, including money, time, length, weight, capacity and temperature ✓ h) Convert units of measure in the same system i) Work out areas and perimeters in practical situations j) Construct geometric diagrams, models and shapes k) Extract and interpret information from tables, diagrams, charts and graphs ✓ l) Collect and record discrete data and organise and represent information in different ways m) Find mean and range ✓ n) Use data to assess the likelihood of an outcome |
|---|---|

References: Ofqual (2009), *Functional Skills criteria for Mathematics: Entry 1, Entry 2, Entry 3, level 1 and level 2.*

<http://www.ofqual.gov.uk/files/2009-11-functional-skills-criteria-for-mathematics.pdf>

This resource also covers many adult numeracy curriculum elements inc. MSS1/E2.5-7,9, 10; MSS1/E3.5-8; MSS1/L1.4-5; MSS1/L2.3-4; HD1/L1.3-4; HD1/L2.3-4; N1/E2.9; N1/E3.8; N1/L1.9; N1/L2.6

<http://www.excellencegateway.org.uk/sfcurriculum>

The way we weigh Notes and curriculum mapping

FUNCTIONAL MATHEMATICS PROCESS SKILLS

Process Skills (all levels)	Entry 3 skills standards	Level 1 skill standards
Representing <i>Selecting the mathematics and information to model a situation</i> <ul style="list-style-type: none"> Recognise that a situation has aspects that can be represented using mathematics Make an initial model of a situation using suitable forms of representation Decide on the methods, operations and tools, including ICT, to use in a situation Select the mathematical information to use 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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
Analysing <i>Processing and using mathematics</i> <ul style="list-style-type: none"> Use appropriate mathematical procedures Examine patterns and relationships Change values and assumptions or adjust relationships to see the effects on answers in models Find results and solutions 	<ul style="list-style-type: none"> Apply mathematics to obtain answers to simple given practical problems that are clear and routine Use simple checking procedures 	<ul style="list-style-type: none"> Apply mathematics in an organised way to find solutions to straight-forward practical problems for different purposes Use appropriate checking procedures at each stage
Interpreting <i>Interpreting and communicating the results of the analysis</i> <ul style="list-style-type: none"> Interpret results and solutions Draw conclusions in light of situations Consider the appropriateness and accuracy of results and conclusions Choose appropriate language and forms of presentation to communicate results and solutions 	<ul style="list-style-type: none"> Interpret and communicate solutions to practical problems in familiar contexts and situations 	<ul style="list-style-type: none"> Interpret and communicate solutions to practical problems, drawing simple conclusions and giving explanations

Skillsworkshop tips

✓ = works particularly well with this resource
 To develop this skill, encourage learners to:



Represent

- Highlight information they need and/or cross out unneeded information.
- Arrange or reorganise given or selected information as needed e.g. design their own data entry tables, use a spreadsheet. ✓
- Show all their working out (Q5&6). ✓
 Note that calculators are permitted at all levels of Functional Maths assessment but learners should get into the habit of recording all their working out – whether or not a calculator is used.

Analyse

- Check all their calculations or procedures and show proof that they have done so. ✓
- Investigate other options / situations (e.g. use different sets of objects, different scales). ✓
- Create new questions about given information and try them out on others.
- Mark each other's work.

Interpret

- Draw conclusions
- Discuss and justify their choice of method and their answer.
- Explain their answers and conclusions to others – verbally ✓ and in writing.