

National Unit Specification: general information

UNIT Investigating Measurement (Access 1)

CODE DM53 07

SUMMARY

This Unit is designed principally for candidates developing skills in a supported learning environment. The Unit provides opportunities for candidates to use and understand vocabulary in measuring and ordering activities. It also enables candidates to become familiar with some easily handled standard units within the three discreet areas of length, weight and volume: metres, kilogrammes and litres.

OUTCOME

Investigate measurement in familiar situations.

RECOMMENDED ENTRY

Entry to this Unit is at the discretion of the centre and as this is intended as an introductory Unit, no prior knowledge or experience is required.

CREDIT VALUE

1 credit at Access 1 (6 SCQF credit points at SCQF level 1*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Administrative Information

Superclass: HD

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National Unit Specification: statement of standards

UNIT Investigating Measurement (Access 1)

Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit Specification. All sections of the statement of standards are mandatory and cannot be altered without reference to the Scottish Qualifications Authority.

OUTCOME

Investigating measurement in familiar situations.

Performance Criteria

- a) Describe familiar things correctly using long/short, tall/small, order given objects accurately in relation to length and classify familiar things correctly as longer/shorter, taller/smaller than a metre.
- b) Describe familiar things correctly using heavy/light, order given objects accurately in relation to weight and classify familiar things correctly as heavier/lighter than a kilogramme.
- c) Describe familiar containers correctly using full/empty, more/less, order familiar containers accurately in relation to their capacity and classify familiar containers correctly as holding more or less than a litre.

EVIDENCE REQUIREMENTS FOR THIS UNIT

Written and/or oral or and/or performance evidence to show that the candidate can:

PC a) From two possibilities, select the correct word, long/short, tall/small to describe familiar things, order three given objects accurately in relation to their length and correctly classify familiar things as longer/shorter, taller/smaller than a metre.

PC b) From two possibilities, select the correct word, heavy/light to describe familiar things, order three given objects accurately in relation to their weight and correctly classify familiar things as heavier/lighter than a kilogram.

PC c) From two possibilities, select the correct word, full/empty to describe familiar containers, order three given containers accurately in relation to their capacity and classify familiar containers as holding more/less than litre.

For each performance criterion, the candidate should provide evidence of competence on one occasion.

National Unit Specification: support notes

UNIT Investigating Measurement (Access 1)

This part of the Unit Specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

GUIDANCE ON THE CONTENT AND CONTEXT FOR THIS UNIT

In order to provide a meaningful learning experience, this Unit should be integrated into everyday situations wherever possible where the candidate is exposed to a variety of contexts for using measurement. These can be within the classroom but learning can be further enhanced through educational visits in the community to the supermarket, petrol station, swimming pool, park and the hairdressing salon. These may provide stimulating settings to explore measurement and to consolidate the vocabulary used for measurement.

A candidate who successfully completes this unit may wish to progress to Access 2: Using Mathematics in Everyday Situations 1.

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

Candidates should have the opportunity to work individually, in pairs or in small groups depending on the activity. In order to fully explore the concept of measurement, opportunities should be created for experiential learning, where candidates work practically, in real life situations, with concrete objects and use measurement vocabulary to describe everyday things. The ordering of familiar objects can be carried out as a group activity where pupils are encouraged in decision making, using measurement vocabulary in peer discussion. Length, weight and volume should be explored as discrete areas.

Length: Hair, items of clothing and classroom objects can be described using long/short, tall/small and comparisons drawn between objects using longer/longest, shorter/shortest and people, trees and buildings using taller/tallest, smaller/smallest. Long and short objects could be arranged in a labelled table top display so that reinforcement of these concepts could continue, incidentally, within the classroom environment. To develop the concept of shorter than a metre, actual objects can be placed alongside a metre stick – shoelace, trainer, pencil, book etc. For longer than a metre, the metre stick can be held against the door or blackboard, placed on the classroom floor, school corridor and playground to demonstrate that these measure more than a metre. This information could be collected and displayed in a pictorial wall chart headed, longer than a metre, shorter than a metre, with pictures of the above, cut out and glued into relevant columns, thus providing a curricular link to information handling.

Weight: Fruit and vegetables, tinned food, packets, classroom objects and people could be described using heavy/light and comparisons drawn using comparative/superlative forms as above. Candidates could also fill identical containers with sand, feathers, tissues, sugar, flour, and stones to investigate which contents are heavy and which are light. A labelled (heavy/light) table top display could be arranged, as specified above. To develop the concept of heavier/lighter than a kilogram, candidates could handle a kg weight, or a kg bag of sugar, and, in order to draw comparisons, they could handle, lift or try to lift objects which are heavier or lighter than a kg.

National Unit Specification: support notes (cont)

UNIT Investigating Measurement (Access 1)

Alternatively, candidates could use a 2 kg or 3 kg scale and when placing the object on the scale, see if the needle passes the 1 kg mark. The latter can be investigated with fruit and vegetables in the fresh produce aisle at the supermarket. A classroom wall chart could be created, as described above, with practical representation for items which are heavier/lighter than a kilogram.

Volume: The concept of volume, and knowledge of volume vocabulary, can be explored through water activities, pouring juice, filling measuring jugs up to the 1 litre mark. Familiar containers can be described as full/empty and contents compared using more/less, most/least. A labelled (full/empty) table top display could be arranged with common containers. Cans, individual small plastic bottles, cartons for soft drinks, 1 litre, 2 litre, 3 litre, 5 litre plastic bottles for soft drinks and mineral water, milk cartons, bleach, washing up liquid, fabric conditioner, cleaning fluid, shampoo, conditioner, nail polish, and eye drop containers, can all be handled and discussed in terms of holding more or less than a litre. Practical activities could also include pouring the actual contents of these containers into a measuring jug, to discover if they reach the litre mark, or if some remains in the container when the litre mark is reached. A wall chart could be constructed, as detailed above, with pictures of containers holding more/less than a litre.

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

Candidates should be allowed to use their normal mode of communication while undertaking this assessment. This Unit can be assessed in a variety of ways in order to cater for individual candidate's needs. Written and/or oral and/or performance could be used to gather evidence for all the performance criteria. Non verbal indication of selection would be acceptable in the case of speech and language impairment or physical challenge.

Teachers/lecturers should provide adequate opportunities for formative assessment to take place prior to candidates undertaking the required unit assessment which is recorded for assessment purposes. Teachers/lecturers may give candidates advice and support during formative assessment in order to prepare them for the formal assessment.

For parts (i) and (iii) of PCs (a), (b) and (c), assessments may be carried out, on the assessment sheets, using the dual choice format, by ticking the correct box. Assessments may also be completed by providing candidates with a practical assessment situation, with concrete materials, where candidates could select, from a choice of two, the correct measurement word. The word could then be placed beside the real life object or picture. Evidence could be provided by simply giving the teacher or lecturer the correct oral response, from an *or* question, or by simply indicating the response by pointing, nodding or shaking the head.

For part (ii) of PCs (a), (b) and (c), when ordering objects in terms of their length, weight or volume, it would be helpful to provide candidates with classroom tools, pieces of fruit and everyday containers. Ordering tasks is much simpler when the actual objects are used.

National Unit Specification: support notes (cont)

UNIT Investigating Measurement (Access 1)

Records of all assessment instruments used and evidence produced by each candidate should be retained for moderation purposes. As candidate evidence may be generated by written and/or oral and/or performance evidence for this unit, records should be kept of candidate performance. These could be in the form of checklists completed by a responsible person observing the performance or recording the answers to questions, or they may also be in the form of video or audio recordings of candidate performance. All checklists must be signed and dated by the teacher/lecturer who assesses the evidence and authenticates the record as an accurate record of the work of the named candidate.

CANDIDATES WITH ADDITIONAL SUPPORT NEEDS

This Unit Specification is intended to ensure that there are no artificial barriers to learning or assessment. The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering alternative Outcomes for Units. For information on these, please refer to the document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* (SQA, 2004).

Curriculum Descriptors (not certificated)	<p>Curriculum Descriptors provide a framework for describing the learning process for candidates for whom an Access 1 unit is not appropriate. They use performance criteria from Access 1 units as <i>Learning Targets</i>. Progress within the Curriculum Descriptor framework may be recorded by means of Progress File or by a centre's own systems for recording achievement. Curriculum Descriptors belong to Learning and Teaching Scotland and are not certificated by SQA.</p> <p>Some candidates may progress from Curriculum Descriptors to free-standing Access 1 units.</p>
Independent Access 1 units	<p>Independent Access 1 units are designed principally for candidates who are developing basic skills in a supported learning environment. Candidates are not required to have completed any other units prior to undertaking these units. Independent Access 1 units are not derived from the outcomes of Access 2 units. They may provide progression from Curriculum Descriptors for some candidates or be delivered within an integrated programme comprising a mixture of units and Curriculum Descriptors according to the needs of the candidate. On completion of an independent Access 1 unit, candidates may progress to other independent units at Access 1, such as:</p> <p>D9ER 07 Sampling Work: An Introduction D9EV 07 Recognising Time D9EW 07 Basic Communication in a Familiar Setting D9EX 07 Using Basic Computer Skills D9EY 07 Personal Profiling: An Introduction D9F0 07 Working with Others on a Group Activity</p> <p>Alternatively, progression may be to Access 1 units which are derived from Access 2 outcomes or to Access 2 units.</p>
Access 1 units derived from Access 2 outcomes	<p>These Access 1 units are based on outcomes of Access 2 units. This allows candidates to build up to an Access 2 unit in a step by step approach as they achieve the appropriate component outcomes. Access 1 units derived from Access 2 outcomes may be a starting point for some candidates or may provide progression from the above independent Access 1 units.</p>
Access 2 units	<p>Access 2 units enable progression from Access 1 units although for some candidates, they may be a starting point. Candidates who have achieved an Access 2 unit may progress to other Access 2 units or to Access 3 units. They may also progress laterally to a Scottish Group Award at Access 2 (single, double or triple) or to the more vocational Skillstart Group Award at Access 2.</p>

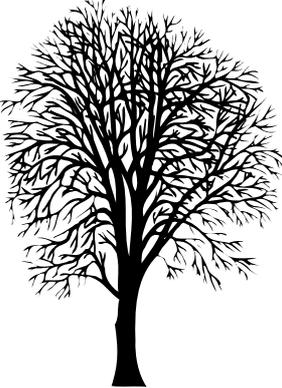
Investigating Measurement — Assessment Exemplar

Performance criteria (a) Length

These pictures are given as examples. Centres are free to choose other pictures and to use everyday objects where appropriate.

(i) Look at the following pictures and tick the correct box.

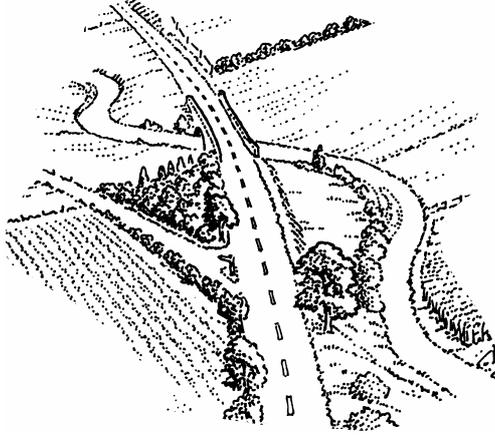
Woman 	Woman 
Long hair	Short hair
Long hair	Short hair

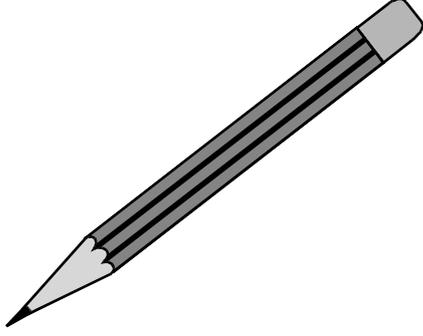
Tree 	Baby 
Tall	Small
Tall	Small

(ii) Place the objects in order of length (shortest to longest)

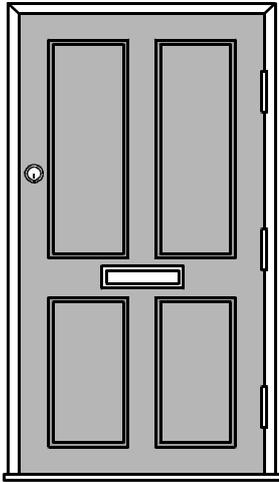
GLUE STICK RUBBER RULER (real objects)

(iii) Look at the following pictures and tick the correct box.

Road	
	
Longer than a metre	Shorter than a metre

Pencil	
	
Longer than a metre	Shorter than a metre

Ice Cream	
	
Taller than a metre	Smaller than a metre

Door	
	
Taller than a metre	Smaller than a metre

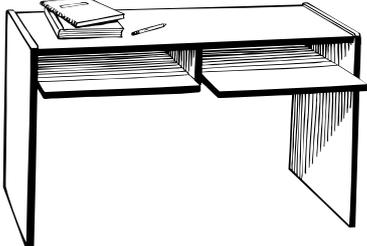
Assessment Exemplar

Performance criteria (b) Weight

These pictures are given as examples. Centres are free to choose other pictures or to use everyday objects where appropriate.

(i) Look at the following pictures and tick the correct box.

Balloon	
	
Heavy	Light

Desk	
	
Heavy	Light

Computer	
	
Heavy	Light

Ball	
	
Heavy	Light

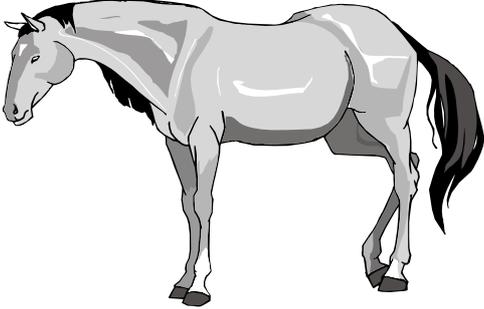
(ii) Place the objects in order of weight (lightest to heaviest)

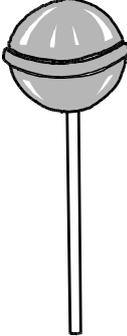
MELON GRAPE APPLE (real fruit)

(iii) Look at the following pictures and tick the correct box.

Man	
	
Heavier than a kilogram	Lighter than a kilogram

Feather	
	
Heavier than a kilogram	Lighter than a kilogram

Horse	
	
Heavier than a kilogram	Lighter than a kilogram

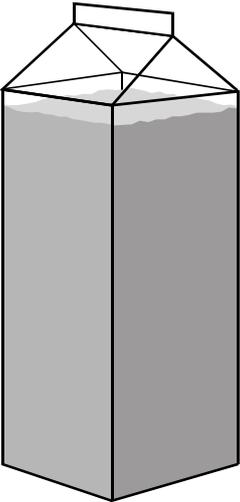
Lollipop	
	
Heavier than a kilogram	Lighter than a kilogram

Assessment Exemplar

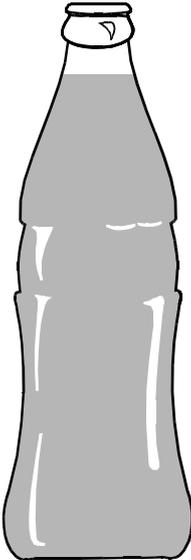
Performance criteria (c) Volume

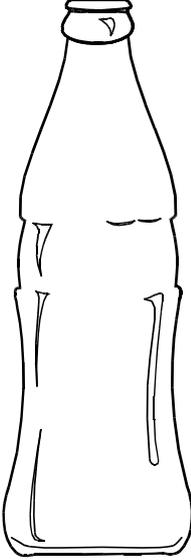
These pictures are given as examples. Centres are free to choose other pictures or to use everyday objects where appropriate.

(i) Look at the following pictures and tick the correct box.

Carton	
	
Full	Empty

Tea Cup	
	
Full	Empty

Bottle	
	
Full	Empty

Bottle	
	
Full	Empty

(ii) Place the objects in order of volume (least to most)

LARGE BOTTLE OF WATER
SHAMPOO BOTTLE

NAIL POLISH BOTTLE
(real containers)

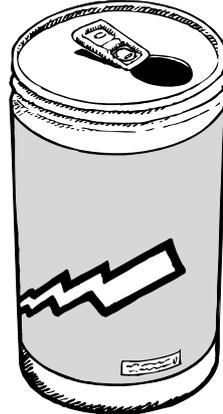
(iii) Look at the following pictures and tick the correct box.

Tea Cup



More than a litre	Less than a litre
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Soft Drinks Can



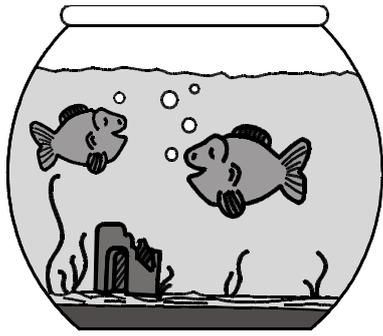
More than a litre	Less than a litre
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Swimming Pool



More than a litre	Less than a litre
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Fish bowl



More than a litre	Less than a litre
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