

4

Nursing in the community

Coverage

This unit is about measures of length, capacity and temperature. It covers specific metric measurements and some non-specific measures. There is some reference to imperial units.

Learners should be expected to estimate measurements and then check their accuracy by measuring in the units required. Learners are expected to read scales that have divisions and that are not labelled.

At Entry 3, learners need practice choosing appropriate measuring instruments and measuring units. Temperatures are measured using a variety of scales in degrees Celsius (°C).

Skills

MSS1/E3.5 read, estimate, measure and compare length using non-standard and standard units (e.g. metre, millimetre)

MSS1/E3.6 read, estimate, measure and compare weight using non-standard and standard units (e.g. grams, kilograms)

MSS1/E3.7 read, estimate, measure and compare capacity using non-standard and standard units (e.g. millilitres, litres, units)

MSS1/E3.8 choose and use appropriate units and measuring instruments (e.g. tape measures, kitchen scales, measuring jugs)

MSS1/E3.9 read, measure and compare temperature using common units and instruments (e.g. thermometers, degrees Celsius)

N2/E3.3 read, write and understand decimals up to two decimal places in practical contexts (such as common measures for money e.g. £3.57)

Resources needed for effective teaching of this unit:

o/m

Demonstration	Group	Pair	Individual
Metre rule		Metre tape, marked in cm and mm	Metre tape, marked in cm and mm
Metre tape, marked in cm and mm		Food labels	2 metre measuring frame
2 metre measuring frame		Various thermometers	Peak flow measuring instrument
Kitchen scales		Access to the Internet (desirable)	Access to the Internet (desirable)
Medicine spoon (double headed 5 ml and 2.5 ml)			Calculator
Liquid medicine measure			Tin of beans
Empty 500 ml can and 250 ml beer bottles 175 ml wine glass, 350 ml glass			Small tin of baby food
Letter scales, kitchen scales, bathroom scales			Kitchen scales
			Money (real or other)

Measuring jug with markings up to 500 ml
Various thermometers including temperature strips for young children
Calculator
Money
Tins of baby food

Reminder

In the 'Links' H means Help, E means Extension and M means Mini-project.

Remember

Throughout the unit, be aware of the reading needs of learners.

You may need to read out parts of the text.

Words **highlighted** in **bold** will need particular clarification.

Context

Discuss the scenario in a group.

Be aware that some people may have had little experience of nurses whereas others may have a lot.

Stimulus questions

- Do you know of an example where a nurse visited someone in his or her home?
- Why would a nurse visit someone in his or her home or why might someone visit a nurse?
- Why do nurses run baby clinics? Has anyone been to one?
- Why would it be important to check a baby's growth?
- How do you measure someone's height or weight? What units do you use?
- Why is it important to know the temperature of a person or a room?
- How do you measure temperature? How do you measure a person's temperature?
- Do you think a nurse needs to use much maths? What would he or she need to know?

Keep the discussion general at this stage so that the learners can share experiences.

Page2 and 3 How big?

Introduction to activity 1

- As a group, discuss reasons for measuring a baby's head and length at a baby clinic.

- Introduce the use of a tape to measure the circumference of a baby's head. Make sure learners understand what the circumference is and how to use a tape to measure it accurately.
- Make sure learners understand how to measure length using a metre tape, reading to the nearest cm and marking the measurements on the tape if appropriate.
- Ensure learners have a chance to see weight and length growth charts on the Child Growth Foundation website. All nurses use these charts. The charts can be found at:
http://kidshealth.org/parent/general/body/growth_charts.html
- Discuss how a baby is expected to grow over the first year and how weight at one year is related to weight at birth.

Activity 1

- Working in pairs, learners compare estimates of length and compare estimates with accurate measurements.
- Discuss why babies may or may not be in the growth range. Understand that this may not be a problem in itself but may indicate other health concerns.

Activity 2

- Use measuring tapes to discuss mm and cm. 10 mm = 1 cm. Look at and discuss mm on a ruler or tape measure. Emphasise that 5 mm is halfway between whole centimetres and is often shown as a longer mark than the mm marks.
- Discuss abbreviations: m = metre, cm = centimetre, mm = millimetre.
- Working in pairs, learners measure the circumference of someone's head in cm and mm. Be aware that cultural differences may affect learners' willingness to join in this activity.
- Discuss why the learners' estimates may be different from the measurement using a tape measure. Is the estimate close to the accurate measure? How close should it be?

Introduction to activity 3

- Discuss with the group how to measure and write in metric measurements of metres and centimetres. (e.g. 1 m 24 cm = 1.24 m, 1 m 7 cm = 1.07 m etc.) Discuss with the group how to write metres and centimetres as decimals of a metre.
- Acknowledge imperial units (if learners introduce them), but emphasise that we are working in metric measures.

Activity 3

- Use measuring tapes to measure m and cm.
- Working in pairs, learners measure heights in m and cm.
- Discuss why they might have different results. Which is the most accurate?

LINKS: H1, E1, M1

Pages 4 and 5 Healthy weight

Introduction to activity 4

- Discuss where the information for a healthy weight chart can be found.
- Look on the Internet at www.bbc.co.uk/cgi-bin/health/fightingfat/bodymassindex.pl for an example of a body mass index chart and a ready reckoner.
- The body mass index is a ratio between height and weight and interprets the ratio as healthy, overweight or underweight.
- Discuss with the group how measurements are made using the metric system e.g. metres and kilograms in this exercise. Acknowledge that they may be used to measuring in the imperial system (feet and inches, stones, pounds and ounces) but work in metric.
- Introduce 1000 g = 1 kg. A bag of sugar is 1 kg.
- Discuss abbreviations for metric weights: g = gram, kg = kilogram.

Activity 4

- Read expected weights for given heights. Treat readings that are slightly above or below expected values with sensitivity. People may be just out of a category for many reasons. If underweight, they may have had a recent illness; if overweight they may have just had a baby or suffer from a medical condition.
- Work through the examples. Give further examples until learners are confident in using the table.

Introduction to activity 5

- Demonstrate weighing with kitchen and bathroom scales to show the differences between weighing in grams and kilograms.

Activity 5

- Learners complete the activity individually or in pairs.

Introduction to activity 6

- Demonstrate weighing with kitchen scales. Explain how to read in grams.
- Work through the example.
- Discuss the scales and the amounts.
- With the group, discuss the concept of doubling the ingredients in a recipe to feed twice as many people. Do some similar calculations.

Activity 6

- Learners complete the activity individually or in pairs.

LINKS: H2, E2

Pages 6 and 7 Liquid measures

Introduction to activity 7

- Discuss in a group why measuring small amounts accurately is very important when administering medicines, especially for babies.

- Discuss litres and millilitres; 1000 ml = 1 litre. Stress that litre is the base unit of liquid measurement.
- Discuss abbreviations for metric units of capacity: ml = millilitre, l = litre.
- Demonstrate measuring small amounts of liquid, e.g. medicines with a medicine spoon.
- Compare a medicine spoon with a teaspoon. Have a variety of spoons to show how they differ in size and thus the importance of using a measuring spoon.

Activity 7

- Learners may use medicine spoons to measure the dose required. Discuss the answers.
- Learners could use either end, but it would be more accurate to use the exact one (5 ml).

Introduction to activity 8

- Demonstrate measuring small amounts of liquid, e.g. medicines, with a 'liquid medicine measure', which looks like a syringe without a needle.
- Ensure learners understand that it measures in ml.

Activity 8

- Learners must use the scale on the 'liquid medicine measure' to measure the dose required accurately.

Introduction to activity 9

- Discuss in a group why not limiting alcohol intake may affect a person's health.
- Be sensitive to learners who may have direct or indirect experience of alcohol abuse or have a cultural and/or religious view on alcohol.
- Discuss positive aspects of limiting alcohol intake in examples, using simple measures of units, rather than judging individuals.
- Use empty bottles, glasses and cans to demonstrate reading capacity in ml and the strength of alcohol. Link these measurements to the concept of units to help limit intake.

Activity 9

- Work through the example.
- Learners must understand the link between unit numbers and capacity measurements of alcohol.

LINKS: H3, E3, M2

Page 8 Equipment

Introduction to activity 10

- Have various measuring instruments available for learners to refer to, e.g. a 30-cm ruler, at least two 1-metre rulers, letter scales, kitchen scales, baby scales and bathroom scales. A 2 m measuring frame would be useful. (This is a measuring instrument, usually fixed to the wall, with a horizontal bar that is lowered on to the child's head. Community Nurses may carry a portable version with them.)
- Discuss what each instrument might be used for and why.

Activity 10

- Learners complete the activity individually or in pairs.
- Discuss learners' answers.

Introduction to activity 11

- Have various measuring instruments available for learners to refer to, e.g. a 500-ml measuring jug.
- Introduce the word capacity.
- Discuss the capacity of the items listed.

Activity 11

- Discuss the answers.
- Learners could check their answers using the measuring instruments provided.
- Learners can measure one litre of liquid by filling the jug twice.

LINKS: H1, H2, E2, M1, M2, M3, M4

Pages 9 and 10

Temperature

Introduction to Activities 12–15

- The method given for taking a child's temperature is taken from *Birth to Five*, which is given free of charge to first-time mothers in England. *Birth to Five* is published by Health Promotion England, 40 Eastbourne Terrace, London W2 3QR.
- Discuss the different ways a baby's temperatures can be taken e.g. armpit, ear or using temperature strips. Discuss the pros and cons of these methods. Temperature strips can show skin temperature rather than body temperature. Ear thermometers take the temperature in one second but are expensive.
- Get examples of thermometers with different Celsius scales so that learners can see the difference, or use diagrams on a flipchart or OHT.

Activity 12

- Learners mark the same temperature on different scales.

Introduction to activity 13

- Approach this activity with sensitivity – some learners may have had personal experience of cot death.
- For information on room temperatures for babies, or cot death news, send a large stamped addressed envelop to The Foundation for the Study of Cot Deaths (FSID), Cot death research and support, Artillery House, 11–19 Artillery Row, London SW1P 1RT.
- For free leaflets write to the Department of Health, PO Box 777, London SE1 6XH; telephone 0800 555 7777 or visit the Department of Health website on www.doh.gov.uk/cotdeath to read and download the leaflet.
- Discuss why it is important to have the right temperature in rooms for young and older people.

- Get examples of thermometers with different Celsius scales so that learners can see the differences, or sketch diagrams on a flip chart or OHT for discussion of points not marked on the scales.

Activity 13

- Learners read a thermometer and assess if the temperature is too hot, about right or too cold.
- Learners complete the activity individually or in pairs.

Activity 14

- Learners read a thermometer and assess whether the temperature is normal or the action that should be taken if the baby is too hot or too cold.
- Learners complete the activity individually or in pairs.

Activity 15

- Learners read the thermometer and suggest what action should be taken.

LINKS: H4, E1, M3

Pages 11 and 12

Buying medicines

Introduction to activity 16

- Invite learners to show you how to use money (real or otherwise) and to count accurate amounts in pounds and decimals of a pound. Ask for amounts such as £1.50 and £1.05.
- Be sensitive to those who may not have this skill, but try to recognise those who have.
- Write down amounts on the board or OHP, starting with pence and then moving on to pounds and pence e.g. 90p, one pound and thirty-two pence, £2.10.
- Remind learners that 123p is the same as £1.23 but is never written as £1.23p.
- Ask learners to give coins to make these amounts. Ask for alternative ways to ensure that learners realise that there are usually several possible answers.

Activity 16

- Use money, real or otherwise, to count accurate amounts of pounds and decimals of a pound.
- Discuss how amounts given in £ and pence can be converted to pence.
- Write down how many pence there are in each amount.
- Learners complete the activity individually or in pairs. They may use coins to help.

Introduction to activity 17

- Each learner or pair of learners should have a calculator.
- Remind and discuss with learners how to add pence as whole numbers using a calculator. If working in pairs, get partners to check the answers.
- Remind and discuss with learners how to add pounds as whole numbers using a calculator. If working in pairs, get partners to check the answers.
- Demonstrate on the board how to enter pence and pounds as decimals of a pound. Then give learners exercises to enter into the calculator e.g. £1.73 is [1][.][7][3], 90p is £0.90, which on a calculator is [0][.][9][0].

Activity 17

- Learners convert pence into a decimal of a pound and then enter these into the calculators.

Introduction to activity 18

- Discuss with the group, the equivalence of $\frac{1}{2}$ as a fraction with 0.5 as a decimal.
- Discuss with the group how forms must be filled in in a standardised way.

Activity 18

- Ask learners to complete the form-filling exercise by converting fractions into decimals.

LINKS: H5, M3

Pages 13 and 14 Help

H1

- Working individually or in pairs, give learners access to tape measures marked in mm and cm.
- Learners may require more than one 1-metre tape measure to measure the heights of 25–45-year-old men.
- Discuss how to make measurements if only one 1-metre tape is available.

H2

- Working individually or in pairs, give learners access to a tin of beans and a small tin of baby food to estimate the weights of. Learners should then weigh accurately the tins using kitchen scales and compare the actual weights with their estimations.

H3

- Learners work individually or in pairs. Refer learners to the empty bottles and cans that you used in activity 9 (page 7).
- Ask learners to check the answers with another person or with you.

H4

- Working individually or in pairs, read the temperatures of each person's room.
- If ICT facilities are available, visit the website on: www.doh.gov.uk/kwkw/winterguideheat.htm to get general information on the campaign *Keep Warm, Keep Well* to keep older people warm in the winter.
- Ask learners to discuss the answers with another person or with you.

H5

- Learners work individually, then discuss the answers with others in the group. See how many combinations of coins can be found to make up the correct amount of money.

Page 15

Extension

E1

- Working in pairs, learners choose the units to work with and the instruments to use to measure, then decide how to record their results.
- Comments for heights may be something like, 'You get taller as you get older, until you reach about 25', or 'generally men are taller than women', or 'the temperature in the living room is warmer than the bedroom'.
- Learners may choose to do all three activities. However, the activities should be done separately to avoid confusion on units and instruments for measuring.
- Be aware of cultural differences that may affect learners' willingness to join in this activity.

E2

- Learners work in pairs.
- Access the following websites: www.bbc.co.uk/health/nutrition/ or www.foodstandards.gov.uk and click on food labelling in the menu for information on claims on labels, additives, GM labelling etc. Alternatively, find other source materials such as health magazines with information on food labels.
- Ask learners to bring in food packaging to investigate labelling.

E3

- Learners work in pairs using calculators.
- They may need to be reminded of skills learned in N1/E1.7 and N1.7 / E2.8.

Page 16

Mini-projects

M1

- In a group, discuss the names of different bones in the body.

- Where ICT facilities are available use the Internet to visit sites that give information about the skeleton, e.g. www.science.ubc.ca/~biomania/tutorial/bonesk/outline.htm.
- Either provide learners with a drawing of a skeleton or ask them to produce a simple drawing themselves.
- Discuss how you could label the drawings with names and measurements.

M2

- Learners work in pairs.
- Identify how to read information from bottles and cans.
- Decide how to record bottle or can size and alcohol strength.
- Ask learners to plan when, where and how they will gather information.
- After they have collected information, interpret the alcohol contents into units of alcohol using Pam's recommendations (see page 7). If ICT facilities are available, visit the website www.bbc.co.uk/health/mens/lifealcohol.shtml or other similar sites.
- Decide on categories for a table on alcohol.

M3

- Learners work in pairs.
- Encourage learners to plan when, where and how they will gather information.
- They should consider writing to a leisure facility to ask if they can visit, or you may ring on their behalf.
- Learners may need to pay if they want to go inside the facility.
- Learners may be able to get all the information they need from a receptionist.
- Learners should decide how to keep notes and leaflets to use when visit is over and they want to write up the information.

M4

- Learners work individually or in pairs.
- This mini-project is most likely to be chosen by learners who have asthma or who are related to asthma sufferers. This may help obtaining a peak flow meter needed to measure the force of breath when a person blows out. Measurement is the force of breath in litres per minute.
- If ICT facilities are available, learners can visit www.lungusa.org/asthma/astpeakchrt.html or a similar site to get information on peak flow meters and charts, and units used to measure breath flows.
- Care must be taken that the project does not get too complicated. Keep the measurements simple and limited. Also be aware of implications regarding hygiene.

Pages 17 and 18

Check it

Use these questions to assess how the learners have coped with the skills in this unit. Ask learners to indicate the areas in which they would like help.

How am I doing?

Learners should complete this individually or with teacher support.

Acknowledgement

We would like to thank the nurses at Hertsmere Primary Care Trust for their help in explaining the work of nurses in primary care.