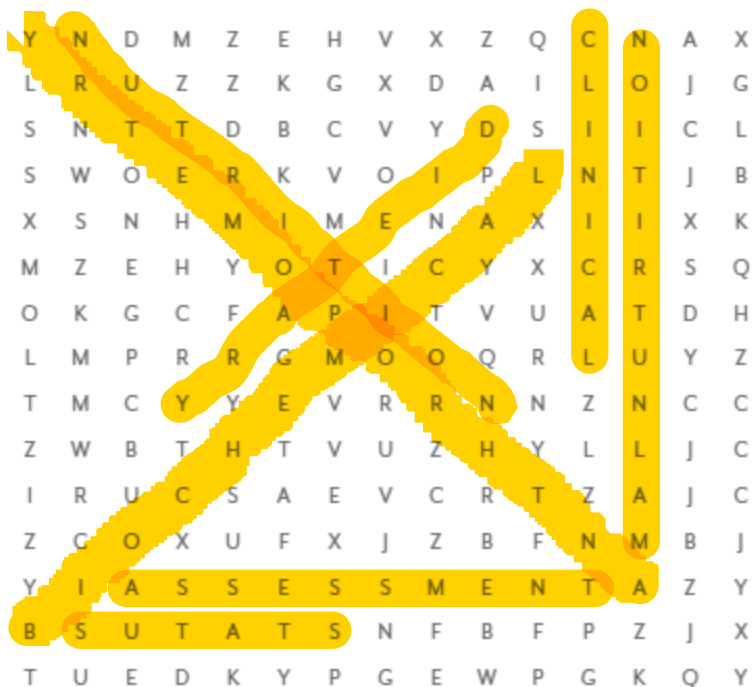


6.1 Anthropometry

STARTER Word search

Find the keywords listed below.



ANTHROPOMETRY	ASSESSMENT	BIOCHEMICAL	CLINICAL
DIETARY	MALNUTRITION	NUTRITION	STATUS



Activity 1

Dietitians



In your own words, explain what a dietitian does.

A dietitian is an expert in dietetics that is human nutrition and the regulation of diet

Where would you find a dietitian?

by contacting your local hospital or GP surgery.



Activity 2

Malnutrition and undernutrition



Match the terms with the correct meaning.

Malnutrition

Someone who does not eat enough food or get enough energy.

Undernutrition

Someone who does not have enough nutrients in their body.



Activity 3

Waist circumference



The table below shows various peoples' waist circumference. Decide if their waist circumference is desirable, high risk, or very high risk.

Name	Waist circumference	Classification
Meera	82cm	High risk
Fatima	76cm	Desirable
Ahmed	98cm	very High risk
Suhail	105cm	very High risk



Activity 4

Measuring waist circumference



Identify which of the statements below are true about measuring waist circumference.

Take the measurement when breathing in.

The tape should not be too tight or too loose. ✓

Tense the abdominal muscles for the measurement. ✓

The measurement can be taken over clothes.

Use the following space to correct the false statements from above so that they become true.

- The measurement can be taken over clothes,
correct : Place the tape at the mid-point between the top of the hip bone and lower ribs.



Activity 5

My waist circumference



Have a go at measuring your own waist circumference.
Which classification do you belong to?

High risk



Activity 6

My weight



Have a go at measuring your weight. Remember to take bulky items out of your pockets.

Make sure the weighing scale is accurate.



Activity 7

My height



Have a go at measuring your own height. Remember all the steps that you need to take in order to measure your height correctly.

Measure shoes as they can add extra height.



Activity 8

Measuring height



The following images show doctors measuring the height of patients. What is incorrect in each of the images?



Measuring height and weight

.....

.....

.....



Measuring height

.....

.....

.....



Measuring height

.....

.....

.....



Activity 9

Growth charts



Using the WHO growth charts provided in your textbook, identify the correct percentile for each of the following people.

Age	Height	Gender	Percentile
11 years 9 months	150cm	Boy	3rd
6 years 6 months	109cm	Girl	15
15 years 3 months	175cm	Girl	97
17 years 9 months	168cm	Boy	15
10 years	150cm	Boy	3rd



Activity 10

Plotting my height



Using the WHO growth charts provided, plot where you are on the growth chart.

My gender	My age (in years and months)	My height (in centimetres)
female girl	23 years 6month	85th

Which percentile do you belong to on the growth chart?

85

What does this mean?

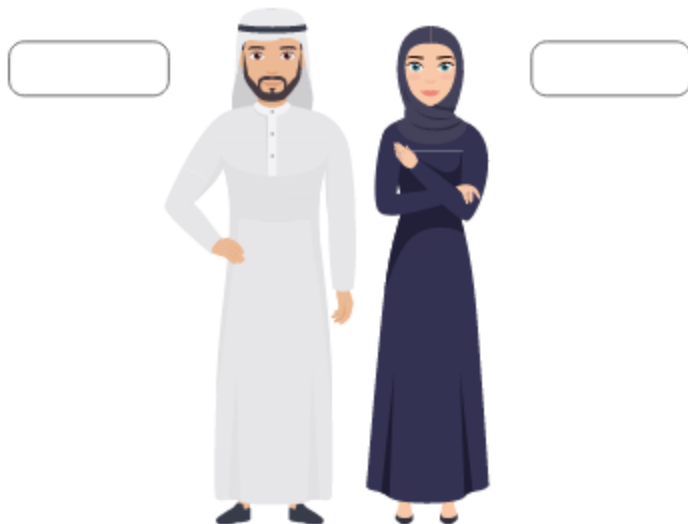
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Research: Average height in UAE

Research the average height of adult men and women in the UAE. Write your answers in the boxes below.



Choose two other countries and investigate how their average heights compare to the UAE.

Name of country 1	Average male height	Average female height
america	49.7 +- 2.0	
Name of country 2	Average male height	Average female height
British	49.96 +- 1.9	

6.2 Body mass index (BMI) and body fat percentage

STARTER What do you know already?

Why would someone want to calculate BMI?

$$\text{BMI} = \text{Weight (kg)} / \text{height}^2 (\text{m}^2)$$

What two things are needed in order to calculate BMI?

under weight
healthy weight
over-weight
obese

What is body fat percentage used for?

32%

What three things are needed in order to calculate body fat percentage?

- Total body weight TBW
- Body fat in kilograms kg
- Age



Activity 11

BMI formula



Write the formula that is used to calculate BMI. Don't forget to include the units.

$$\text{BMI} = \text{Weight (kg)} / \text{height}^2 (\text{m}^2)$$



Activity 12

BMI ranges



Write the correct BMI range (numbers) beside each classification of BMI.

BMI classification	BMI
Underweight	<18.58
Normal	18.5 - 24.9
Overweight	25 - 29.9
Obese	30 - 34.9

6.2 Body mass index (BMI) and body fat percentage



Activity 13

Calculate BMI



Calculate each person's BMI and decide their BMI classification.

Hind

Height: 1.62m Weight: 68kg

$$\text{BMI} = 1.62 \times 1.62 = 3.24$$

$$68 / 3.24 = 20.98$$

BMI classification 20.98

Shouq

Height 1.58m Weight 60kg

$$\text{BMI} = 1.58 \times 1.58 = 3.16$$

$$60 / 3.16 = 18.98$$

BMI classification 18.98

Mohammed

Height 1.79m Weight 55kg

$$\text{BMI} = 1.79 \times 1.79 = 3.2041$$

$$55 / 3.2041 = 17.16$$

BMI classification 17.16

Rashid

Height 1.77m Weight 85kg

$$\text{BMI} = 1.77 \times 1.77 = 3.1329$$

$$85 / 3.1329 = 27.131$$

BMI classification 27.131

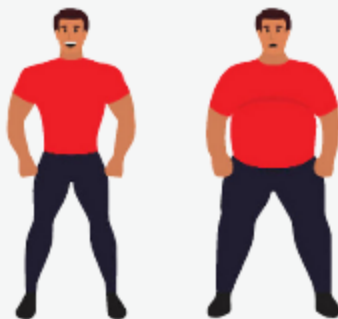


Activity 14

Reliability of BMI



The image below shows two men. Both men have a BMI of 32.



What is the BMI classification of someone with a BMI of 32?
increase the risk of developing non- communicable disease.

Do you agree that this weight status is the correct label for both men? Explain your answer.

yes

What else should you measure to achieve a more accurate result?

Dexa scanner, that shows an exact breakdown of mass. bone density and muscle mass .



Activity 15

Measuring body fat



Circle the methods of measuring body fat.

Bioelectrical impedance ✓	Weighing scales	Tape measure
BMI	DEXA scanner ✓	Skinfold thickness ✓



Activity 16

Body fat percentage calculation



Write the formula that is used to calculate body fat percentage.

$$\text{body fat} / \text{TBW} \times 100$$

What other piece of information do you need from a person in order to interpret their body fat percentage?

the body of person and age.



Activity 17

Calculate body fat percentage

Calculate the body fat percentage of each person below, then write the colour group they fit into based on your answer.

Khalifa

Body fat: 28kg

TBW: 87kg

Age: 38 years

$$28 / 87 = 0.321$$

$$0.32 \times 100 = 32\%$$

Colour group Green

Mansoor

Body fat: 12kg

TBW: 84kg

Age: 25 years

$$12 / 84 = 0.14$$

$$0.14 \times 100 = 14\%$$

Colour group Blue

Mouza

Body fat: 18kg

TBW: 75kg

Age: 58 years

$$18 / 75 = 0.24$$

$$0.24 \times 100 = 24\%$$

Colour group Green

Amal

Body fat: 29kg

TBW: 72kg

Age: 67 years

$$29 / 72 = 0.40$$

$$0.40 \times 100 = 40.27$$

Colour group orange

6.3 Biochemical methods



Research: Biochemistry

What do you think is meant by the term 'biochemistry'?

Hint: Breaking down the word might help.

Discuss in groups and write your ideas in the space below.

A part of science that explores the chemistry of living things.



Activity 18

Vitamins and minerals

Biochemical methods can be used to check for vitamin and mineral levels in the blood. Name some vitamins and minerals that can be checked using biochemical methods.

Chemicals and nutrients are released into your bloodstream.



Research: Analysing blood

Research some nutrient deficiencies and diseases related to nutrition that can be found by analysing blood.

it is easy to spot if someone is deficient in any nutrients by looking at their biochemical markers.



Activity 19

Extra information

What other information does a doctor need to know about a person when analysing the results of their biochemical markers?
Select the correct answers.



Medical history

Eye colour



Clinical exam report



Current medicines

Physical activity level

Current mood

6.4 Clinical methods

STARTER

Clinical check-ups

Name some of the things that doctors check in a clinical check-up.

- Skin
- Eyes
- Gums
- Hair
- Nails
- Mouth



Activity 20

Medical history

Give some reasons why a medical history is also needed when carrying out a physical exam.

- diarrhoea and other digestive issues.
- Medications
- Previous or current medical conditions.
- physical appearance.



Research: Clinical signs

Read the following diseases caused by malnutrition and undernutrition. Explain what causes each disease and research the clinical signs that would suggest that a person has this disease.

Rickets

is a disease that causes the bones of children to become soft.

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Anaemia

Easy fatigue and loss of energy. unusually rapid heart beat, particularly with exercise.

.....

.....

.....

Anorexia nervosa

The highest priority in the treatment of anorexia nervosa is addressing any serious health issues that may have resulted from malnutrition.

.....

.....

.....

6.5 Dietary methods

STARTER

Your dietary intake

Think about everything you ate yesterday. List the foods you ate from each of the food groups named below.

Food group	Foods you have eaten today from this food group
Cereals and their products	
Milk and dairy products	
Meat, fish, eggs, and legumes	
Fats and oils	
Other foods	



Activity 21

Twenty-four-hour recall



Think about everything you ate yesterday (include all 24 hours). Write in the table below. Try to include as much information as possible.

Mealtime	Food/drinks	Portion size eaten	Cooking method
Breakfast			
Lunch			
Dinner			
Snacks			



Activity 22

MyFitnessPal



For this activity, you are going to analyse your dietary intake using an online tool called MyFitnessPal.

Go to myfitnesspal.com or scan the QR code below to access the website. You could also use the MyFitnessPal app.



After setting up your personal account, in the section labelled 'food', you can add what foods you ate for breakfast, lunch, dinner and snacks.

Try to be as accurate as possible when making entries. If you don't know the weight of the food you have eaten, you should estimate it.

When you are finished entering your food for the day, you can view a full report showing a breakdown of calories and nutrients that you have eaten in one day.

Insert the information from your report in the table below. Don't forget to include the correct units.

Calories	
Carbohydrates	
Protein	
Fat	
Sodium	
Sugar	



Activity 25

