

Leaving Certificate

Home Economics

Food Science and Nutrition

Please see *Teachers' Notes* for explanations, additional activities, and tips and suggestions.

| | | |
|------------------------------|---|-------------|
| Levels | Students' English language skills should be developed to Level B1 during funded Language Support. Mainstream subject learning will require the development of skills at Level B2 if students are to cope with public examinations. | |
| Language focus | Key vocabulary, word identification, sentence structure, extracting information from text, writing text, grammar. | |
| Learning focus | Using Home Economics textbooks and accessing curriculum content and learning activities. | |
| Acknowledgement | The <i>English Language Support Programme</i> gratefully acknowledges the permission of Gill and Macmillan to reproduce excerpts from <i>Get Living! Complete Leaving Certificate Home Economics</i> by Edel Conway and Lorna Freeborn. | |
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Using this unit

Language support and mainstream subject class

The sections *Activating students' knowledge*, *Focus on vocabulary*, and *Focus on grammar* have been designed, in particular, for Language Support classes.

Focus on reading and *Focus on writing* are suitable for use in either Language Support or subject classes.

Answer Key

Answers are provided at the end of the unit for all activities except those based on free writing.

Textbooks

This unit focuses on the topic, Food Studies (in particular Food Science and Nutrition) from the Leaving Certificate Home Economics curriculum. Students will need to use their textbooks if they are to gain the most benefit from the activities.

Learning Record

The Learning Record is intended to help students monitor their progress. This can be downloaded or printed from the website in the section *Advising Students and Record of Learning for the Leaving Certificate*. A copy of the Learning Record should be distributed to each student for each unit studied.

Students should:

1. Write the subject and topic on the record.
2. Tick off/date the different statements as they complete activities.
3. Keep the record in their files along with the work produced for this unit.
4. Use this material to support mainstream subject learning.

Symbols

Symbols are used throughout the unit to encourage students to develop their own learning and support materials.



prompts students to file the sheet when they have completed the activity. This is used for activities which can be used as a reference in the future e.g. for subject classroom, revision, homework etc.



prompts students to add vocabulary, definitions, or examples of vocabulary in use to their own personal glossary for the topic. A personal glossary makes study and revision more efficient.

Keywords

The list of keywords for this unit is as follows:

Nouns

| | | |
|----------------|-----------------|---------------------------|
| absorption | fatigue | oxygen |
| acid | fibre | pectin |
| adolescents | foods | peptide |
| adults | formation | phosphorus |
| alkalis | forms | polypeptide |
| allowances | fortified | polysaccharide |
| amino | found | polyunsaturated |
| anaemia | fructose | potassium |
| antioxidant | fruit | pregnancy |
| appetite | functions | properties |
| atoms | galactose | protein |
| beta | gelatinisation | pulses |
| blood | germ | rancidity |
| body | glucose | RDA |
| bonds | glycerol | removal |
| bones | glycogen | retinol |
| | grains | rickets |
| calcium | growth | saturation |
| carbohydrates | heat | sensitive |
| carbon | hormones | skin |
| carboxyl | hydrogen | source |
| carotene | hydrolysis | starch |
| cells | infections | stomach |
| cellulose | intake | structure |
| chains | intestine | teeth |
| cholesterol | iron | thirst |
| classification | lactation | thyroid |
| collagen | levels | tiredness |
| component | lipids | tissue |
| composition | lipoproteins | utilisation |
| condensation | liver | vitamins |
| converts | loss | water |
| cramps | maltose | weakness |
| dairy | membranes | wheat |
| deficiency | metabolism | yeast |
| dehydration | mg | |
| diet | molecule | Nouns (food/drink) |
| digestion | monosaccharides | broccoli |
| disaccharides | muscle | cakes |
| disulphide | niacin | cereals |
| emulsions | nutritional | eggs |
| energy | oils | fish |
| enzymes | osteomalacia | margarine |
| fat | overload | meat |

NAME: _____ **DATE:** _____
LC Home Economics: Food Science and Nutrition

offal
potatoes
poultry
sugar
vegetable

Verbs

absorb
assist
clot
convert
digest
eat
effect
form
fortify
found
function

grow
heal
heat
overload
prevent
process
regulate
repair
store

Adjectives

anaemic
biological
dietary
dry
elemental
essential
excess

fatty
fortified
functioning
green
healthy
inhibited
insoluble
leafy
nutritional
polyunsaturated
processed
recommended
saturated
sensitive
soluble
stable
unaffected
unsaturated

NAME: _____ DATE: _____
LC Home Economics: Food Science and Nutrition

Vocabulary file (1) for the topic
Food Science and Nutrition

| Word | Meaning | Page(s) in my textbook | Note |
|---------------|----------------|-------------------------------|-------------|
| nutrition | | | |
| protein | | | |
| amino acids | | | |
| carbohydrates | | | |
| glucose | | | |
| starch | | | |
| digestion | | | |
| saturates | | | |



NAME: _____ DATE: _____
LC Home Economics: Food Science and Nutrition

Vocabulary file (2) for the topic
Food Science and Nutrition

| Word | Meaning | Page(s) in my textbook | Note |
|--------------|---------|------------------------|------|
| vitamins | | | |
| deficiency | | | |
| minerals | | | |
| iron | | | |
| requirements | | | |
| dehydration | | | |
| fatigue | | | |
| recommended | | | |
| functions | | | |



Introduction

Activating students' existing knowledge

Use a spidergram to activate students' ideas and knowledge on the key points in this chapter. See **Teachers' Notes** for suggestions.

Possible key terms for the spidergram:

Food

My Favourite Food

Healthy Eating

- Invite students to provide key words in their own languages.
- Encourage dictionary use.
- Encourage students to organise their vocabulary into relevant categories (e.g. meaning, nouns, keywords, verbs etc.).



Students should record vocabulary and terms from the spidergram in their personal dictionaries.

Level: B1
Individual / pair

Focus on vocabulary

1. Missing words

The following paragraph is taken from your textbooks, (from an introduction to nutrition), but some key words are missing. First, check you understand the meanings of the key words in the box below, then read the sentences and fill in the gaps.

Food is a basic requirement for living. Without food a person would not survive. The main _____ of food are:

- *To supply heat and _____;*
- *For _____ and repair of body cells*
- *To protect the body from infection and _____.*

Most foods contain several different _____, for example, milk; whereas others contain only one nutrient. Oil only contains fat (also called lipid). Foods which contain several different nutrients are considered to be _____, milk and meat are examples of these.

nutritious disease functions nutrients energy growth

2. Vocabulary in use

Write a short sentence using each of the following words/phrases. Check your text book or dictionary if you need help.

nutrients _____

food choices _____

protein _____

carbohydrates _____

vitamins _____



3. Matching

Match each expression in Column A with a definition in Column B. Draw a line between the matching expressions.

| Column A | Column B |
|-------------------------------------|---|
| Recommended Dietary Allowance (RDA) | The rate at which a person burns up energy. |
| malnutrition | The total number of elements in the molecule. |
| metabolic rate | An imbalance of nutrients in the diet (this may lead to under nutrition or over nutrition.) |
| enzymes | The function that a nutrient fulfils in the body. |
| chemical formula | The amount of a nutrient that meets the daily needs of a healthy person. |
| biological function | Chemical substances that speed up and/or control reactions in the human body. |

4. Key phrases in use

The sentences below are all from your text books, but the key phrases from exercise 3 are missing. Select the correct ones.

- The _____ for protein is based on grams per kilogram of bodyweight.
- One of the _____ of protein is that it is necessary for growth and repair of all body cells.
- The _____ for water is H₂O.
- The basal _____ is the energy required to live, such as the heartbeat, breathing.
- All _____ need correct temperatures and pH levels in order to function correctly and efficiently.
- Obesity and anaemia are two possible results of _____.



| |
|--------------------------------|
| Level: B1 Individual / pair |
|--------------------------------|

Focus on grammar

5. Nouns to adjectives

Below are ten nouns commonly used when studying food science and nutrition. Change the nouns to adjectives, then put each adjective into a phrase or sentence. This phrase may be written by you, or taken from your textbook. Doing this exercise will help you to remember these words and how to use them. You can use your textbook to help you. The first one is done for you.

(Noun: a word that refers to a person, place or quality. For example book, beauty. Adjective: a word that describes a noun. For example - big, boring).

| Noun | Adjective | Sample sentence |
|-------------|------------------|---|
| anaemia | anaemic | She became anaemic because her body couldn't absorb iron. |
| biology | | |
| diet | | |
| fat | | |
| function | | |
| health | | |
| leaf | | |
| nutrient | | |
| recommend | | |
| saturate | | |



Level: B1 / B2
Individual / pair

Focus on reading

6. Reading to extract the main ideas.

- You are going to read a text about eating patterns (*when/how often you eat*). Before you read think about what influences (*affects*) **your** eating patterns.
- If you are working with another student, share your ideas.
- This extract from our textbook has six paragraphs; however we have taken the six headings away.
- Read the six headings in the boxes, and then quickly read the paragraphs to get the main idea, until you decide where each heading belongs.

| | | |
|--------------------|--------------------------|------------------------|
| Convenience foods | Family size | The working/school day |
| Leisure activities | Number of adults working | Culture |

Eating patterns are influenced by:

1. _____: This depends on:
 - The type of work done and the working pattern, for example, whether it is shift work or not.
 - The breaks allowed during the working or school day and at what times the breaks are.
 - The facilities available at work/school, i.e. whether there is a canteen, the use of a microwave, or simply nothing.
2. _____: Whether both parents in a family are working, one parent is working outside the home, or if it is a single parent family.
3. _____: The more a person is involved with other activities the less time there is to spend cooking.
4. _____: There is an increase in the use of convenience foods in recent years and eating out has become extremely popular.
5. _____: In some cultures it is considered important for the whole family to sit down and eat together, spending a long time over a meal. In other instances, family members dine at different times, usually in a hurry. These families may try to make a special effort to eat together sometimes, perhaps for Sunday lunch.
6. _____: Eating patterns are also influenced by the size of a family and the ages of the children in a family. For example, dual career couples, students and single people will differ in their eating patterns.

7. Reading to remember.

a. First look at the title (in the box below) of this extract from your textbook.

Before you read, try to guess some of the functions and write them in the space below.

b. Next read the article and underline or highlight all the functions.

c. Turn over the page and try to remember as many of the 7 functions as possible. Give yourself 10 points for each one you remember and see who gets the highest score!

| |
|-------------------------------|
| Functions of Vitamin C |
|-------------------------------|

1. The main role of Vitamin C is in the manufacture of collagen. This protein collagen forms the basis of connective tissue, which acts as a cementing substance between cells.
2. Essential for formation of bones and teeth.
3. Vitamin C is critical to the immune system as it is involved in antibody production and white blood-cell function and activity.
4. It is a powerful water soluble antioxidant and plays a vital role in protecting against oxidative damage.
5. It neutralises potentially harmful reactions in the body. It also helps to protect HDL cholesterol (HDL is 'good' Cholesterol which helps to lower the risk of coronary heart disease) against free radical damage. This antioxidant action helps to protect against cancer, the effects of ageing, heart disease and many other health problems.
6. Necessary for the absorption of iron and for healthy blood vessels.
7. Vitamin C prevents scurvy.

Level: B1 / B2
Individual / pair

Focus on writing

8. Writing exam answers

In the Leaving Certificate exam, many answers are written as simple sentences. This exercise will give you practice in writing these sentences. Below are sample questions from LC exam papers on the topic Food Science and Nutrition. We have given you the answers, but they are jumbled! Rewrite the sentences correctly.

- (a) State **two** functions of Vitamin C.

absorption / important /it is / of iron /in the

it/ connective /tissue /form /helps

- (b) State **two** function of iron in the body.

it is /in the formation /in the red blood cells /of the pigment hemoglobin / essential

Plays /it /enzyme /a part /activity /in

- (c) State **two** functions of calcium in the body.

formation /the /of /bones /strong

prevents /decay /it /tooth

Answer key

1. Missing words

Food is a basic requirement for living. Without food a person would not survive. The main **functions** of food are:

- To supply heat and **energy**;
- For **growth** and repair of body cells
- To protect the body from infection and **disease**.

Most foods contain several different **nutrients**, for example, milk; whereas others contain only one nutrient. Oil only contains fat (also called lipid). Foods which contain several different nutrients are considered to be **nutritious**; milk and meat are examples of these.

3. Matching

| Column A | Column B |
|-------------------------------------|---|
| Recommended Dietary Allowance (RDA) | The amount of a nutrient that meets the daily needs of a healthy person. |
| malnutrition | An imbalance of nutrients in the diet (this may lead to under nutrition or over nutrition). |
| metabolic rate | The rate at which a person burns up energy. |
| enzymes | Chemical substances that speed up and/or control reactions in the human body. |
| chemical formula | The total number of elements in the molecule. |
| biological function | The function that a nutrient fulfils in the body |

4. Key phrases in use

- The **RDA** for protein is based on grams per kilogram of bodyweight.
- One of the **biological functions** of protein is that it is necessary for growth and repair of all body cells.
- The **chemical formula** for water is H₂O.
- The basal **metabolic rate** is the energy required to live, such as the heartbeat, breathing.
- All **enzymes** need correct temperatures and pH levels in order to function correctly and efficiently.
- Obesity and anaemia are two possible results of **malnutrition**.

5. Nouns to adjectives

Anaemia – anaemic, Biology – biological, Diet – dietary, Fat – fatty/fattening, Function – functioning/functional, Health – healthy, Leaf – leafy, Nutrient – nutritional/nutritious, Recommend – recommended, Saturate - saturated

6. Reading to extract the main idea.

1. The working/school day.
2. Number of adults working.
3. Leisure activities.
4. Convenience foods
5. Culture
6. Family size

7. Reading to Remember

The main role of Vitamin C is in the manufacture of (1) **collagen**. This protein collagen forms the basis of connective tissue, which acts as a cementing substance between cells.

Essential for formation of (2) **bones and teeth**.

Vitamin C is critical to the (3) **immune system** as it is involved in antibody production and white blood-cell function and activity.

It is a powerful water soluble (4) **antioxidant** and plays a vital role in protecting against oxidative damage.

It (5) **neutralise potentially harmful reactions in the body**. It also helps to protect HDL cholesterol (HDL is 'good' Cholesterol which helps to lower the risk of coronary heart disease) against free radical damage. This antioxidant action

helps to protect against cancer, the effects of ageing, heart disease and many other health problems.

Necessary for the (6) **absorption of iron** and for healthy blood vessels.

Vitamin C prevents (7) **scurvy**.

9. Writing exam answers

- (a) It is important in the absorption of iron.
It helps form connective tissue.
- (b) It is essential in the formation of the pigment haemoglobin in the red blood cells.
It plays a part in enzyme activity.
- (c) The formation of strong bones.
It prevents tooth decay.