

Nuestra disciplina Idioma Inglés debe contribuir a resolver la realización del proceso de auto instrucción de los estudiantes es decir, debe coadyuvar al desarrollo de las habilidades de localizar fuentes de información; utilizar diferentes técnicas de estudio para asimilar la información contenida, en la literatura de la especialidad, planteada en el modelo del profesional de las carreras pedagógicas, a través del estudio del idioma inglés

Objetivos

- Comprender la expresión oral en la lengua inglesa a fin de — reaccionar verbalmente en correspondencia con la situación - presentada

- adquirir un sistema de conocimientos y desarrollar las habilidades lingüísticas necesarias en el plano de la morfosintaxis

que les permitan establecer las entre las estructuras gramaticales estudiadas y sus diversas funciones comunicativas según. el contexto, a fin de comprender conscientemente los materiales de lectura

- evaluar críticamente de forma oral o escrita publicaciones originales en idioma inglés, de contenido científico técnico, político-social, cultural y pedagógico como medio de obtener información y ampliar su preparación política, profesional y cultura

- utilizar eficientemente diccionarios bilingües y de la especialidad objeto de estudio.

- desarrollar hábitos y habilidades de trabajo independiente.

- utilizar fuentes de información en lengua inglesa para las tareas que se le asignen en cualquiera de los componentes del plan de estudio,

- utilizar diferentes técnicas de estudio para asimilar la información contenida en la literatura de la especialidad publicada en idioma inglés

En el segundo nivel se estudian los propósitos del autor a través de los cuales se manifiestan las diversas funciones comunicativas del lenguaje científico. En este nivel se mantiene la expresión oral como objetivo concomitante, es decir los estudiantes se comunicarán en idioma extranjero durante el desarrollo de la clase.

Se recomienda como literatura básica los siguientes textos;

English For The Students of Physics.

English For The Students of Mathematics.

English For The Students of Chemistry.

English For The Students of Biology

English For The Students of Labor Education: Francisca Castaño Fernández, et. al.

English For Computer Science, Muller and Brown, Edición Revolucionaria.

La Habana, 1987 .

La literatura docente a utilizar debe incluir publicaciones periódicas y diversas fuentes de referencia, además de los diccionarios bilingües y de la especialidad con que cuenta la Facultad y el centro de Documentación e Información Pedagógica del I.S.P.

Literatura docente;

- Serie SPECTRUM, A Communicative Course in English., Diane Warshawsky et al
Regents Publishing Company Inc, U. S. A, 1982.

Folleto de lecturas complementarias elaborado por los autores del programa.

- ENGLISH FOR THE STUDENTS OF PHYSICAL SCIENCES,
- ENGLISH FOR THE STUDENTS OF MATHEMATICS,
- ENGLISH FOR THE STUDENTS OF CHEMICAL SCIENCES,
- ENGLISH FOR THE STUDENTS OF BIOLOGICAL SCIENCES,
- ENGLISH FOR THE STUDENTS OF LABOR EDUCATION,

Francisca Castaño Fernández et al.

- ENGLISH FOR COMPUTER SCIENCE, Muller and Brown, Edición
Revolucionaria, LA Habana, 1987 •
- Libros de texto y fuentes de referencia en existencia en las facultades y Centros
de Documentación de los ISP. Literatura complementaria.
- Diccionarios bilingües y de la especialidad objeto de estudio
- Textos de la especialidad sugeridos por los profesores de las facultades

1-The author's purpose: to give instructions

A. HELPING YOU TO READ:

READING INSTRUCTIONS

When the author's purpose is to give instructions, it is the reader's task to interpret them correctly, so as to be able to follow them. This requires the reader's active participation.

Some of the information we read appears in the form of instructions or directions. The most evident instructions appear in boxes containing merchandise that must be taken to other places, for example: Handy with care;

This side up. Sometimes instructions of this type are illustrated to make them easier to understand by everybody. Instructions are also given regarding objects that must be assembled before being put to work, with methods of procedure like following a medical treatment, cooking, working with certain types of machinery, etc.

Students are frequently expected to follow instructions. In textbooks, directions are easily differentiated from any other type of information. Authors of textbooks use different devices to make these instructions clear and easy to follow. Two of these devices are to number the steps and to accompany instructions with diagrams and illustrations. But instructions are also given along with information about a particular topic, or an author may prefer to consider different possibilities for doing something, and thus he may present instructions in the form of suggestions.

In order to follow directions accurately the reader should:

1. Skim the material in order to get a general idea of what he must do.
2. Read each step of the directions and think about what he is required to do.
3. Note the steps or sequence he must follow
4. Note the materials he will need.
5. Read and understand any information that tells how to follow the directions.

Exercise

Do Exercise 1, Unit Two, in your workbook.

2-The author's purpose: to give information

- A. Helping You to Read: Reading to find specific information
- B. Working with Words: Forms used to express opposition

A. HELPING YOU TO READ:

READING TO FIND SPECIFIC INFORMATION

When the author's purpose is to give information, it is the reader's task to analyze it critically so as to be able to determine to what extent the information given is valid.

When your purpose in reading is to find information for answering questions requiring only facts, to state reasons for and against a point, or a similar task, you must understand the author's particular point of view. If you are not aware of this, you may be misled and consider as fact what is only a matter of opinion.

It is important to consider the prestige of authors and publications, as well as the year of publication. Whenever possible, consult different sources. Another aspect to take into consideration is to analyze if the author, together with the facts presented, uses language which contributes to influence your own opinion,

Of course, pure information is infrequent. Weather forecasts are a good example of pure information.

Exercise

Do exercise 1, Unit three, In your workbook.

B. WORKING WITH WORDS:

FORMS USED TO EXPRESS OPPOSITION

You have learned in Section A in this unit that an author's purpose may be to give information. When giving information, an author may want to contrast ideas to make his purpose clearer.

In this section you will find some other connectives used by authors to express opposition. Analyze the examples given in the following chart and learn these new connectives.

CONNECTIVES USED TO EXPRESS OPPOSITION	
Yet	The assignment is not difficult, yet it is necessary to study it
Still	We all know the importance of our free time; still we do not always benefit the most from it.
On the other hand	On the one hand, rest is necessary for our health on the other hand a sedentary life is harmful.
Otherwise	We must be conscious of the need of keeping our cities clean; otherwise, public health may be infected.
Despite	Despite the great importance of keeping our cities and towns clean, some people do not contribute to this end.

While	Intellectual workers need active physical relaxation, while physical workers need rest of an intellectual type.
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3-The author's purpose: to describe

A. HELPING YOU TO READ

DESCRIPTIONS

Descriptions intend to give a mental image of something (as a machine, a place, a scene, a person, a sensation). Descriptions may be technical or literary.

Technical descriptions are characterized by being as impersonal as possible; physical and functional descriptions are included in this group:

physical description tells the readers the names of the parts and gives those physical factors that the writer feels are important to the discussion: size, shape, color, texture, space relationships, etc. For example, the descriptions of equipment, buildings, living organisms, atmospheric phenomena, etc.

functional description tells the reader what something does, what its purpose is, and how the parts work together. For example, the descriptions of how a machine operates, how an organ of the human body functions, etc.

In literary descriptions, authors are more interested in conveying a feeling, in creating an attitude, than in giving factual information. Therefore, they may select the objective details they want to emphasize and omit those which are not important for their purpose; they are also free to tint objective details with subjective impressions. We may find such descriptions in stories and novels.

As readers, we must decide:

if the description given fits our purposes

if the factors given - according to the type of description - "conform" a complete picture if the description is essential or incidental to the information we need.

Exercise

Do Exercise 1, Unit Four, in your workbook.

4-The author's purpose. to describe a process

A. Helping You to Read: Reading the description of a process

B. Working with Words; Meanings conveyed by the use and omission of articles, Verbs and nouns used to refer to measurements

A.HELPING YOU TO READ:

READING THE DESCRIPTION OF A PROCESS

We already know that descriptions may be technical or literary, It was also explained that physical and functional descriptions are considered technical descriptions. The description of a process is also included among the technical descriptions.

The description of a process tells the reader when the action of one part depends on the action of a preceding part, that is, when there is a chain of actions, each of which is dependent on the previous action. Process description states the steps that must be taken to achieve a result and in what order the steps are taken.

Examples of process descriptions are how the circulatory system of an animal works, how sugar cane is changed into sugar, etc.

Exercise

Do Exercise 1, Unit Five, in your workbook.

B. WORKING WITH WORDS:

MEANINGS CONVEYED BY THE USE AND OMISSION OF ARTICLES

In English the use of the article conveys an implicit meaning to the language. By using the definite article the, the indefinite article a, an, or no article, a writer adds information to the noun being used. Therefore, when reading, you should pay special attention to the use or omission of the article in order to fully understand what you read.

Analyze the following chart in order to understand the additional information given by the article or by its omission.

Use and omission of articles		
Information about nouns	Provided by	Examples
1- The noun used represents an entire group of the same thing that is, the noun is general	No article	Bilingual dictionaries give the meanings of words in two languages
	A	A bilingual dictionary gives the meanings of words in two languages
2- The noun used represents any one of an indefinite number of the same thing; that is, the noun is not-specific	A	Bring a bilingual dictionary to class. Give me a bilingual dictionary please
3- The noun used represents a particular one (or ones) or a particular group; that is, the noun used is specific	THE	The dictionary you brought is very good. The dictionaries in the library are very good.
4- The noun used represents the only of a kind in existence	THE	The earth rotates around the sun. The Morro Castle is at the entrance of the

Exercise

Do Exercise 2, Unit Five, in your wordbook.

VERBS AND NOUNS USED TO REFER TO MEASUREMENTS

When we refer to measures, the nouns used represent different standard units of measurement, or a system of such units; for example, the metric system. In logical correspondence, the verbs used express the action of measuring. Thus, it is frequent to see nouns such as meter, hectare, tons, kilowatt-hour, gallon, length, width, capacity, etc. and verb such as measure, produce, yield, increase, reduce, reach, save, etc. when we want to express measurement.

Analyze the following examples which illustrate the use of some of these nouns and verbs.

Examples:

The new factory produces 80 million square meters of textiles.

The productive capacity of the new plant will increase up to 47 000 tons a year. It will yield almost 4 000 tons a month.

The new process saves several thousand kilowatt-hours of electricity.

It also reduces the water needed by 90 gallons per day.

5- The author's purpose: to explain

- A. Helping You to Read: Reading explanations
- B. Working with Words: Different uses of the verb have

A. HELPING YOU TO READ:

READING EXPLANATIONS

As students you are quite familiar with explanations in textbooks, and you have probably noticed that articles published in newspapers and magazines are not always limited to giving factual information or to describing something; some articles are written with the purpose of explaining.

Although the organization of the ideas may vary, a great number of writers consider it necessary:

to make an assertion: assertions are generally given using precise language and simple grammatical structures

to explain the assertion: to explain an assertion, writers use words which, while maintaining the same idea, make it easier to understand;

that is, they reword the assertion

to illustrate the assertion: illustration of the assertion may be examples, descriptions, graphs, drawings, etc.

Therefore, when you are reading a textbook or an article which explains something, don't stop to analyze the assertion. In all probability, it will be thoroughly analyzed and illustrated by the author himself a few lines below.

For example:

The Advanced Learner's Dictionary of Current English defines the word assertion as a strong statement; that is, an idea expressed without doubt of what is being said. Examples of assertions are scientific laws, declarations made by political parties, political leaders, slogans and so on.

Exercise

Do Exercises 1 and 2, Unit Six, in your workbook.

B. WORKING WITH WORDS:

DIFFERENT USES OF THE VERB HAVE

As you know, the verb have may be used in different ways:
as a principal verb meaning possess, e.g : Professor
Smith has many books on Anthropology

as an auxiliary verb with the past participle to form perfect tenses; when used as an auxiliary verb, have is equivalent to the Spanish verb haber; e.g.: I have already studied these uses of have.

I had studied them before entering the University. I will have learned a new use of have by the end of this unit.

as a modal auxiliary, the verb have is equivalent to must and expresses obligation or necessity;

e.g.: Students have to return borrowed books to the library.

Another important use of the verb have is as a causative verb. In this use, the subject of the sentence does not perform the action himself; he causes something to be done by somebody else;

e.g.: Tom had his house painted.

(Tom did not paint his house himself; he asked somebody to paint the house.)

Exercise Do Exercises 3 and 4, Unit Six, in your workbook.

6- The author's purpose: to persuade

- A. Helping You to Read: Analyzing articles written to persuade.
- B. Working with Words: Forms used to persuade
- C. Working with Reference Sources: Atlases

A. HELPING YOU TO READ:

ANALYZING ARTICLES WRITTEN TO PERSUADE

Some articles in newspapers and magazines are written with the specific purpose of persuading readers to adopt a certain viewpoint.

Reading this type of articles requires an active participation on the part of the reader:

first of all he must analyze the author's prestige and ideological position. This will give the reader a starting point for a more profound analysis

in the second place, good readers analyze the validity of the information according to the data given and to the source from which these have been obtained

another important aspect in this type of article is the way in which the author substantiates his point of view: he may be objective in the explanations, reasons and arguments presented, or he may adopt a subjective attitude.

Analyze, for example, certain ads that appear in some magazine. They urge the reader to ask for certain services without giving objective reasons. On the other hand, the same magazine publishes objective articles on fashions, good manners, etc., with the purpose of persuading people to improve these aspects of everyday life.

In our country, we can find no better example of positive persuasion than many of the speeches made by Commander in Chief Fidel Castro Ruz. Throughout all our revolutionary struggles, his speeches, both about national and international situations, are the best examples possible of honesty and revolutionary thought.

Exercise

Do Exercise 1, Unit Seven, in your workbook.

B. FORMS USED TO PERSUADE

As you have probably learned from personal experience, there is not a uniform way of convincing others to adopt a certain point of view. Specific situations demand specific attitudes and a specific language.

Nevertheless, when an author's purpose is to persuade his readers to adopt a particular point of view, he frequently uses words which express need, obligation, advisability and prohibition.

Analyze the following example and notice how the forms which express those ideas serve to emphasize the author's point of view.

FORMS USED TO PERSUADE		
THE FORM	GENERALLY EXPRESS	EXAMPLE OF THE SAME FORMS USED TO PERSUADE
must	need or obligation	There are two factors that must be taken into consideration when planning open space in big cities: it must be

have to be to		planned for different uses (sports grounds, athletics, children's play grounds and quiet gardens) and it has to be near the homes of the users.
should	advisability recommendation	Open spaces the absolute right of all the hundreds or thousands of young people in each locality and they should learn to demand their sports grounds in their sports grounds in their own neighborhoods and regions
must not be not to	prohibition	Nearness to home is even more clearly necessary to small children's playgrounds and old people's gardens. Children must not wander unprotected in the streets. They, as well as old people, are to receive continuous attendance and should have the best conditions society can afford

Exercise

Do Exercise 2, Unit Seven, in your workbook.

C. WORKING WITH REFERENCE SOURCES:

ATLASES

An atlas is one of the most valuable reference books. An atlas is much more than just a book of maps. It contains information about the cities and countries of all the world, - facts about population, resources, industries, climate, exports and imports, history, etc.

7-. The author's purpose: to create an image

A. Helping You to Read: Analyzing articles written to create an image

B. Working with Words: Meanings conveyed by some punctuation marks.

Meanings expressed by the modal auxiliaries may, must, can, could, should, might and the perfect infinitive

C. Working with Reference Sources: Selecting the adequate reference source

A. HELPING YOU TO READ:

ANALYZING ARTICLES WRITTEN TO CREATE AN IMAGE

There are instances when authors are interested in conveying to their readers the impressions they have received about a person's feelings, the emotional aspect of tragedy or of a happy event. That is, their purpose is to "create" an image, because those aspects of reality are rather felt than seen. Expressions such as "as free as a bird", or in Spanish, "libre como el viento" are images which help us understand the author's ideas more rapidly and exactly than a detailed description.

We should not infer from the preceding paragraph that images are always given in a simile - a figure of speech that compares two unlike things. Images can also be created by giving different values to details. In the examples given in the paragraph above, we don't know if the author is telling us about a man or a woman, we don't know if that person is tall or short, etc., we only know one of the characteristics of that person. Similarly, in writing about an event, the author may choose to write about the physical aspect, the attitude of the persons taking part in it, the consequences of the event, etc. pointing out his impressions but not necessarily giving every detail.

From the reader's point of view, it is important to analyze these images critically, especially when the subject discussed by the author has scientific or social implications. As Harold Priditis said :

"Frederick Engels. for instance, noticed that the novels of the great writer Balzac offered a far richer picture of the French history from 1815 to 1848 than relevant historical treatises."

Exercise

Do Exercise 1, Unit Eight, in your workbook.

B. WORKING WITH WORDS:

MEANINGS CONVEYED BY SOME PUNCTUATION MARKS

Punctuation marks may be compared to signals in a road: both call our attention to what comes next. A good reader takes advantage of these marks to make his task easier.

We will analyze what each of the following punctuation marks points out, but first you have to know some concepts used by grammarians in explaining the use of punctuation marks:

apposition: a syntactic relation between expressions, usually consecutive, which have the same function and the same relation to other elements in the sentence; in an apposition, the second expression identifies or supplements the first. Its use is justified by the intention of the speaker;

E.g.: Israel's policy in the occupied Palestinian territories -to try to crush the Palestinian people's spirit of struggle- can only lead to encouraging the Palestinians" tremendous fighting spirit.

Main clause: independent component of a complex sentence, having its own subject and predicate;

E.g.; when they detect a leader they send him to southern Lebanon.

Parenthetical expression: addition of one word or group of words without syntactical relationship to the main clause;

E.g.: In Israel, military courts judge people (including children) for throwing stones.

Punctuation mark	Use	Example
comma	1. to set off words in a series.	Israel's current policy can only lead to further unemployment poverty, corrupt, cruelty and inflation.
	2. to set off parenthetical expressions.	Fighting against oppression is a long struggle, but, like our Palestinian friends, we keep our spirits high.
semi-colon	1. to set off main clauses in apposition.	The Israeli occupation of Arab territories is a sea of blood and tears; it also shows the deep optimism of the Palestinian people in struggle.
	2. to set off main clauses joined by connectives expressing addition, opposition, cause and effect or example.	Israel commits brutal war crimes; for example the Israel occupation forces have destroyed around 20 000 Palestinian homes in order to terrorize the civilian population.

colon	1. to set off non parenthetical appositive units.	Tricontinental interviewed Israeli lawyer Felicia Langer about her work: defending the Palestinian patriots and as units Vice-President of the Israeli League of Human Rights.
dash	1. to set off parenthetical expressions in apposition.	By judging people (including children) for throwing stones -as well as for raising the Palestinian flag or even having patriotic feelings- Israel has given stones almost as much importance as they had in the Stone Age.
parentheses		

Exercise

Do Exercise 2. Unit Eight, in your workbook.

MEANINGS EXPRESSED BY THE MODAL AUXILIARIES MAY. MUST, CAN. COULD. SHOULD, MIGHT AND THE PERFECT INFINITIVE

You are already familiar with the use and meaning of must should, may. might can and could plus the simple form of the verb. Now you will see other meanings of these modal auxiliaries when the form of the verb that follows is the perfect infinitive. In these cases, they convey similar (but not exactly the same) meanings in reference to actions in the past. Analyze the following chart.

MODAL AUXILIARY MEANING	EXAMPLES OF MODAL. AUXILIARY FOLLOWED BY THE PERFECT INFINITIVE	SPECIFIC SHADE OF MEANING
Should advisability or recommendation	I should have written to him before he left. (but I didn't)	to express a past unfulfilled duty or sensible action which was not performed
May, might	He may/might have come = It is possible that he came. (The use of might	to express speculations about past actions.

possibility	m-creases the doubt.)	
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MODAL AUXILIARY MEANING	EXAMPLES OF MODAL AUXILIARY FOLLOWED BY THE PERFECT INFINITIVE	SPECIFIC SHADE OF MEANING
Can. could ability or capability	He can't have done it because he wasn't there. He couldn't have done it because he wasn't there	to express negative deduction about a past action
	He could have climbed the mountain, but he didn't.	to express past unused ability
Must logical supposition	He must have seen her because they were in the same room.	to express a (present) affirmative deduction about a past action.

Now analyze these new uses and meaning.

MODAL AUXILIARY MEANING	EXAMPLES OF MODAL AUXILIARY FOLLOWED BY PERFECT INFINITIVE	SPECIFIC SHADE OF MEANING
Would hypothetical future	I would have liked to go.	to express an unfulfilled wish
Might remote possibility	You might have told us that the trip was dangerous.(but you didn't	to express irritation at or reproach for the nonperformance of an action in the past.

Exercise

Do Exercise 3, Unit Eight, in your workbook.

C. WORKING WITH REFERENCE SOURCE.**SELECTING THE ADEQUATE REFERENCE SOURCE**

In addition to the reference books that have been discussed throughout this textbook, there are other sources of information in every library.

Some libraries have special sections on subjects which are in great demand in the area, or they may have a detailed index or articles on a specific subject, or they may receive specialized magazines, etc. The possibilities are numerous, so the best thing to do is to talk to the librarian in order to know the specific facilities your school library offers. This is the best way to select the most adequate source of reference.

8-Definition

DRAWS THE STUDENTS ATTENTION TO THE NATURE OF DEFINITION AND THE WAYS OF EXPRESSING IT.

READING DEFINITIONS Definition

In making a definition we usually give:

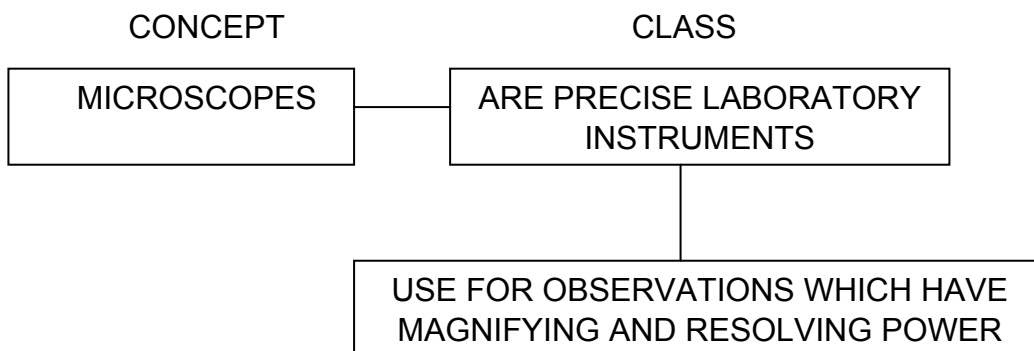
- a) The specific concept being defined.
- b) The class to which the specific concept belongs to.
- c) The specific characteristics of the concept which makes it different from other members of the same class.

Main types of definitions

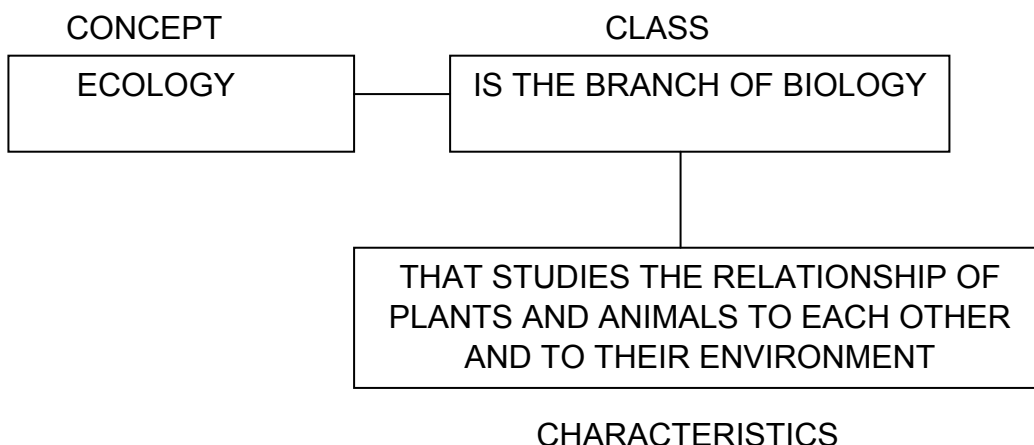
We can identify two main type of definitions; formal (complete) and informal (incomplete).

When definition includes the concept + class + characteristics it is called a formal definition.

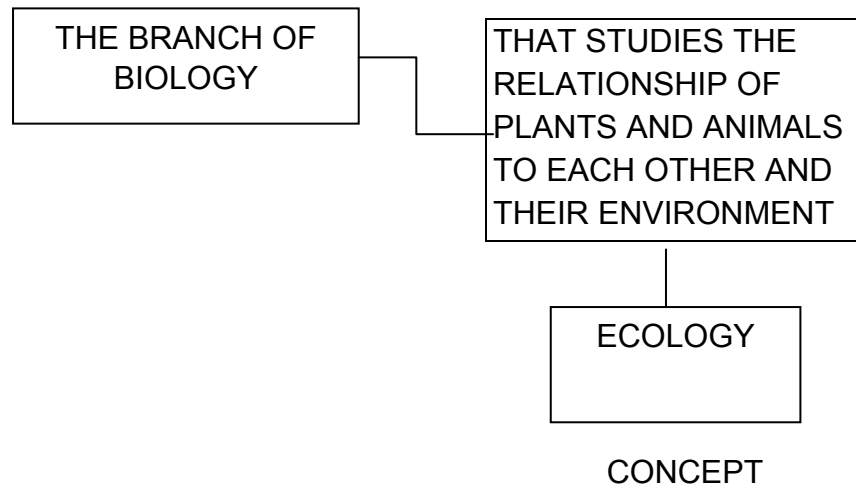
For example: Ecology is the branch of biology that studies the relationship of plants and animals to each other and to their environment.



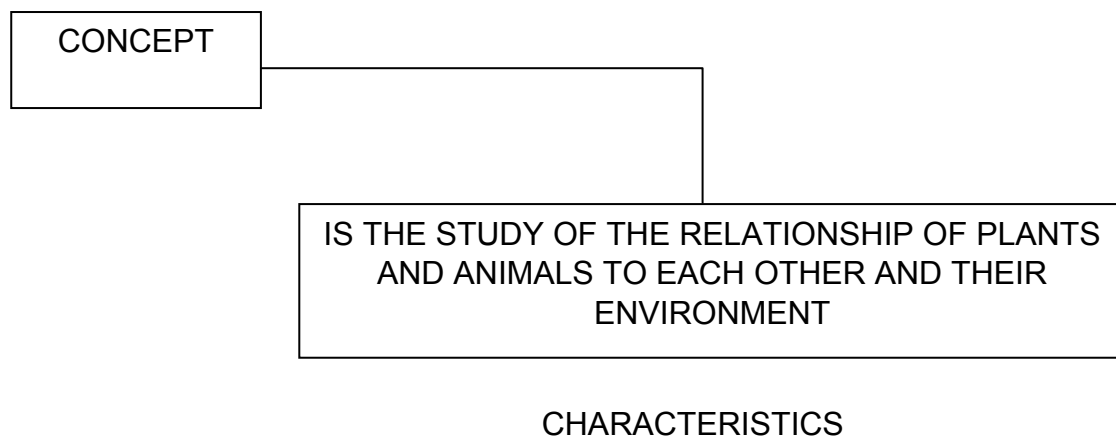
Another example: The branch of biology that studies the relation-ship of plants and animals to each other and their environment is called Ecology.



When definition includes only the concept + characteristics it is called an informal definition.



For example: Ecology is the study of the relationship of plants and animals to each other and their environment.



Forms used to express definitions

There are different ways of expressing definitions.

- a) Concept class + characteristics
- is defined as
 - may be defined as
 - "can be defined as
 - is

e.g.: A vector is defined as an organism that transmits infectious diseases.

Notice that sometimes the relative words that, which, etc. may be omitted as in the following examples. e.g.: *Aedes aegypti* is the name given to the mosquito vector of yellow fever and dengue.

- b) class+ characteristic concept

is known as
is defined as
is called
is spoken of

e.g.: An acid produced by the mold *Penicillium notatum* that is effective in treating and preventing acute infections is known as penicillin.

9-Classification.

PROVIDES INFORMATION ON THE NATURE OF CLASSIFICATION AND THE FORMS USED TO SIGNAL THE TWO GENERAL TYPES OF CLASSIFICATION.

READING CLASSIFICATION

Scientists and technicians usually need to classify things into groups and subgroups. They can classify things according to certain common characteristics.

Elements included in classification

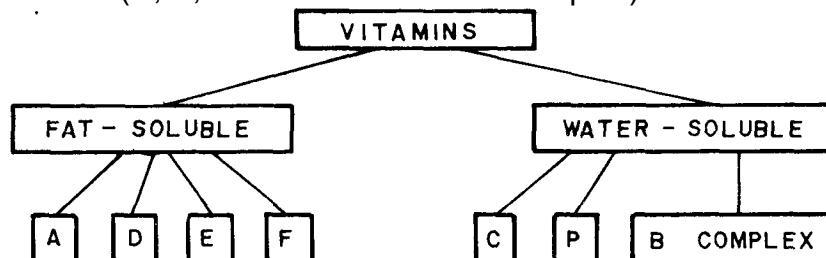
Entity: Object being classified, for example: mammals.

Criterion: Common characteristic used as the basis for classification.

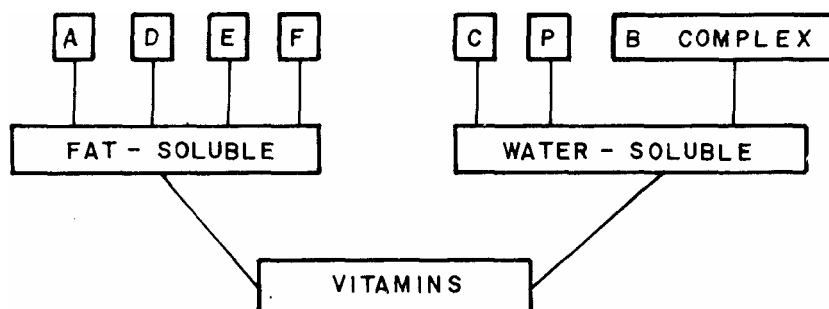
Groups or subgroups: Members of the class, for example: monotremes, marsupials and placentals.

There are two main ways in which classifications can be organized: from the general to the specific (1), or from the specific to the general (2): For example:

1. At present the study of vitamins has become an important branch of Science, Vitaminology. Vitamins are divided into two types: fat-soluble (A, D, E and F) and water-soluble (C, P, and number of the B complex).

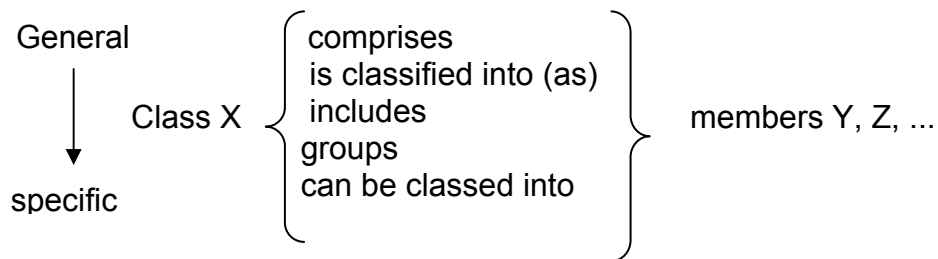


2. Vitamins, A, D, E and F belong to the class of vitamins that are fat-soluble, whereas vitamins C, P and a number of the B complex are water-soluble. The study of vitamins has become an important branch in science: Vitaminology.



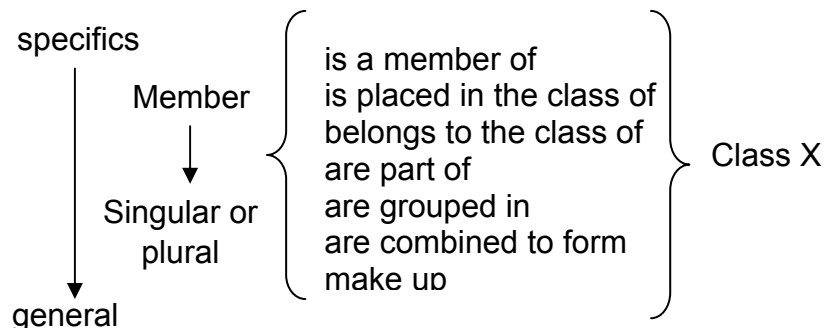
Forms used to express classification

When we proceed from the general to the specific we follow this pattern.



For example: vitamins are classified as: water-soluble (C, P, B complex) and as fat-soluble (A, D, E, F).

When we proceed from the specific to the general we follow this pattern.



For example: C, P, B complex are water-soluble and A, D, E, F are fat-soluble, they both belong to the class of vitamins.

Criterion for classification

For example, animals can be classified:

...according to

....on the basis of...

...in terms of...

...depending on...

according to their body temperature. They may be poikilothermic animals (fishes, reptiles, amphibians) or homoiothermic animals (birds and mammals)

10.Argument

CONTENTS

PART I, draws the students attention to
the nature and structure of texts
based on argument.

PART II, makes emphasis on the information conveyed through argument.

PART I READING ARTICLES BASED ON ARGUMENT

Argument presents points of view. It involves defending and at-tacking points of view, persuading and recommending solutions.

Scientists now believe that spontaneous generation of living organisms is not possible at present on Earth, and that specific conditions are required for the appearance of life. Mechanists simplify this complex problem, reducing it to simpler (purely chemist) laws. But according to dialectical materialism life originated on Earth as the result of the historical development, evolution, and constant change of inorganic matter.

- How many arguments of the origin of life are there in the fragment given above?

PART II READING WITH A PURPOSE

Read the following article and tell if the author is in favor or against of what is said in the report that appears at the beginning.

Incommensurability of Evolution and Special Creation The following report was published in Science Framework for California Public Schools at the insistence of the State Board of Education. It explains evolution as follows:

...¹Another order of interactions is that of evolutionary events, which produce predictable changes in certain kinds of objects over long periods of time. One theory claims that atoms, interacting with one another and evolving over eons of time, gave rise to the present assemblage of various kinds of elements. "Another evolutionary thesis describes the progress of stars all the way from young gaseous nebulae to pulsating dying stars. "Still. another inter-acting series of events has produced the evolution of rocks from igneous to sedimentary and metamorphic.

All scientific evidence to date concerning the origin of life implies at least a dualism or the necessity to use several theories to fully explain relationships between established data points. This dualism is not unique to this study but is also appropriate in other scientific disciplines such as the physics of light.

While the Bible and other philosophic treatises also mention creation, science has independently postulated the various theories of creation. ⁸Therefore, creation in scientific terms is not a religious or philosophic belief. Also note that creation and evolutionary theories are not necessarily mutual exclusives.¹⁰ Some of the scientific data (e.g.; the regular absence of transitional forms) may be explained by a creation theory, while other data (e.g.: transmutation of species) substantiate a process of evolution.

11-Hypothesis

DEALS WITH TEXTS INVOLVING THE FORMULATION AND VERIFICATION OF HYPOTHESIS.

READING ARTICLES BASED ON HYPOTHESES

Hypothesis is knowledge based on supposition. A hypothesis is a provisional explanation which expresses a relation between two circumstances. It is based on observation and is tested by further observation and experiment.

The organization and demonstration of a hypothesis presupposes the existence of a problem, the formulation of a hypothesis, the search for evidence, for or against the hypothesis through observation and experiment and the analysis of the results obtained.

When reading an article containing a hypothesis you usually find these elements:

The problem, supported by evidence or explanation and perhaps the research topic in an explicit form.

The hypothesis.

The testing of that hypothesis through observation and experiment.

Conclusions.

Suggestions.

Example:

Problem: Young rats may be retarded in growth either as a result of deficiency of thyroxin or deficiency of a hormone S secreted by the pituitary gland.

Observation: There are two approaches. First, to produce normal growth on the group of deficient rats by making good the deficiency.

Hypothesis: If giving them thyroxin leads to normal growth, then they were probably deficient in thyroxin. If giving them hormone S leads to normal growth, they were probably deficient in hormone S.

Observation: The second approach is to operate on normal rats in such a way as to produce the same pattern of retarded growth.

Hypothesis: If removing the thyroid glands leads to this type of retarded growth, the original rats were probably suffering from deficiency in thyroxin. If removing the pituitary leads to retarded growth, then the group of retarded rats were probably suffering from deficiency of hormone S.

Further observations and conclusion: A final experiment should be done. In this the operated rats are given either thyroxin or hormone S as appropriate. Assuming that this leads to normal growth, there will be strong confirmation that the conclusions from the results of the operation are correct.

Ways of expressing a Hypothesis

Since a hypothesis expresses the relation between two circumstances it can be expressed by clauses introduced by if, unless or when. for example:

Aluminum can impede the growth of human bones when it assumes the function of an antagonist of phosphorus in the body. If aluminum intensifies

digestion, it will stimulate human growth and physical development.

Aluminum would stretch the bones and cartilages if it participated in the creation of epithelial, connective tissues and bones. If these assumptions were confirmed, the problem of physical acceleration would be clarified.