

IES MARAGALL. BARCELONA



SCIENCES DEPARTMENT

PROGRAMMING OF BIOLOGY AND GEOLOGY

I. COMPULSORY SECONDARY EDUCATION

FIRST YEAR

TIMING:

FOUR HOURS PER WEEK: Two theoretical and two practical.

Didactic units

- The Universe and the solar system
- The Earth
- The atmosphere
- The hydrosphere
- The Earth crust
- Living Beings and cells
- Species: their origin and classification
- Viruses, bacterias, protozoon, algae and fungi.
- Plants
- Invertebrate
- Vertebrate.

THIRD YEAR

TIMING:

Three hours a week: two of theory and one practice with half of the group class.

Didactic units

- Human Reproduction.
- Nutrition in human beings.
 - Socializing
 - The Environment

FOURTH YEAR (Optional subject)

TIMING

Three hours a week: two of theory and a practice one.

Didactic units

- The Earth: Its internal structure
- Plate Tectonics
- Hotspots
- Evolutionary history of life on the Earth
- The cell, a basic unit of life
- Hereditary biological information
- Evolution
- Dynamics of ecosystems

PROGRAMMING ON BIOLOGY

II. HIGH SCHOOL

BIOLOGY 1

**First course scientific branch (High school)
Subject of Modality**

TIMING:

Four hours a week: three theoretical and one practical.

Didactic units

- Cell behaviour
- Carbohydrates
- Lipids
- Proteins
- Nucleic Acids
- Hereditary Laws
- Structure outside the Cell
- Structure inside the cell
- The cell vital cycle
- Reproduction
- Cell differentiation and Biotechnology
- Structure and function of neuron

PROGRAM OF EARTH AND ENVIRONMENTAL SCIENCES 1

First course Scientific branch (High school)

TIMING:

Four hours a week: Three on theory and one practice in the Lab.

Didactic units

- Introduction to Earth Sciences
- Earth Materials, rocks and minerals
- Earth structure
- Magmatism
- Mountain Belts
- External geological problems
- Layered Earth
- Teledetection: the geological map
- History of the Earth

PROGRAM OF SCIENCES for TODAY'S WORLD

**Compulsory Subject for all first course students of
higher education.**

TIMING:

Two hours a week

Didactic units

- The origin of the Universe and the beginning of Life.
- The Theory of Evolution and the origin of human beings.
- Health and Medical Research
- Biotechnology and Reproduction
- Environmental Problems
- Natural Hazards and Earth ecological management
- Materials and their applications
- The Consumer society and the New Technologies
- Globalization of communications

PROGRAM of BIOLOGY 2

**Second Course of the Scientific branch (High School).
Modality Subject.**

TIMING:

Four hours a week: three on theory and one practice.

Didactic units

- Bio molecules
- Metabolism and Respiration
- Synthesis of the organic materials of living organisms
- Living organisms and the ecosystem
- Variability of living organisms
- Microbiology
- Immunology

PROGRAM OF Earth SCIENCES and ENVIRONMENT 2

**SECOND COURSE OF Scientific branch (High
School)**

Modality Subject

TIMING:

**Four hours per week: three theoretical and a
practical one in the Lab.**

Didactic units

- A new Science
- The Atmosphere and climatology.
- Dynamics and atmospheric risks
- Risks caused by earthquakes and volcanism.
- Risks due to geological external phenomena.
- The soil: processes and risks
- The hydrosphere
- Resources of exosphere and edafosphera
- Water Resources
- Energy resources
- Impacts on the atmosphere
- Impacts on the hydrosphere
- Impacts on the floor
- Environmental management