COLEGIO ANDINO
DEUTSCHE SCHULE

Short Version - Curriculum for 2023-2024 in der Year 12b

Currículo de 2023-2024 para los cursos 12b

Short Curriculum Biology class 12b Schoolyear 2023-24
Colegio Andino- Deutsche Schule Bogotá

<table>
<tr><td>Biology grade 12 – B course</td><td>Topic 1: Evolution</td></tr>
<tr><td colspan="2">Contents:
Development of evolutionary thought
Lamarck, Darwin
Evidences of evolution
Causes for evolution
Synthetic theory of evolution
Concept of species, origin of species (allopatric, sympatric)
Coevolution, adaptive Radiation
History of life on earth
Human evolution_Review</td></tr>
<tr><td>Topic skills:
The students should know how to:

-Explain relationships between the evolution of living things and changes in ecosystems.
-Compare the theories of Lamarck and Darwin.
-Explain species development according to the synthetic theory of evolution.
-Determine evolutionary factors.
-Define the term "species“.
-Describe methods of phylogenetic research.
-Take into account the significance of findings on evolution for a scientifically based world view.
-Analyze further explanations of the development of living beings from a scientific point of view.</td><td>General skills:

-Describe, compare and classify biological facts and define technical terms.
-Derive cause-effect relationships and justify biological facts.
-Analyze information critically, structure it and present it in different forms.
-Distinguish between every day and technical language and use scientific terminology appropriately.
-Critically reflect on the position of humans, their behavior and actions in the system of nature.</td></tr>
<tr><td>Biology grade 12 – B course</td><td>Topic 2:Neurobiology</td></tr>
<tr><td colspan="2">Contents:
Nerves, nerve cell
Resting potential, action potential
Synapse
Nerve system</td></tr>
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<tr><td><u>Topic skills:</u>
-Outline the importance of information reception and processing by organisms and the importance of communication between organisms.
-Identify electrochemical and molecular biological processes during stimulus reception and transformation into electrical impulses on a sensory cell.
- Analyze structure-function relationships using the example of a neuron.
- Recognize membrane potential as the basis for information transfer.
- Understand the transmission at synapses.
- Examine neurotoxins (using one example each) on synapses and nerve cells, respectively.</td><td><u>General skills:</u>

- Derive cause-effect relationships and justify biological facts.
- Analyze and interpret biological facts.
- Use models in the process of knowledge.
- Analyze information critically, structure and present it appropriately.
- Distinguish between every day and technical language and use scientific terminology appropriately.
- Consider critically different points of view of the same topic.</td></tr>
<tr><td>Biology grade 12 – B course</td><td>Topic 3: Ecology</td></tr>
<tr><td colspan="2">Contents:
• Ecosystems as a structural and functional unit_Review
• Dynamics of ecosystems_Review</td></tr>
<tr><td><u>Topic skills:</u>

- explain the significance of the biosphere, abiotic and biotic factors, the biotope and the biocenosis.
- describe ecosystems as structural and functional units.
- Contrast ecological niche and competitive exclusion principle.
- Understand adaptations to different factors and explain their ecological significance.
- Describe natural matter and energy cycles in an ecosystem.
- Evaluate human pressure on ecosystems and their consequences in an appropriate and critical way.
- Analyze measures for environmental protection (terms biodiversity, sustainability).</td><td><u>General skills:</u>

- Create and interpret diagrams, tables and texts.
- Derive cause-effect relationships and justify biological facts.
- Analyze information critically, structure it and present it appropriately.
- Distinguish between every day and technical language and use scientific terminology appropriately.
- Discuss critically the position of humans, their behavior and actions in nature.</td></tr>
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