

Professional Reflection-Oriented Focus on Inquiry-based Learning and Education through Science

## PROFILES IBSE Teaching/Learning Materials – Overview

Compiled by the PROFILES Working Group of the Masaryk University, Czech Republic



# Carbon – nature of life

## A Module for IBSE

Instruction: **Science** (especially **Chemistry and Biology**)

Grades: **5<sup>th</sup> to 9<sup>th</sup>**

### Abstract

*The essence of this module is to show students that carbon is the fundamental building block of living organisms. Students verify the presence of carbon in organic materials using simple experiments. Students become familiar with the composition of organic compounds. They look for a link between carbon, coal, and wood and burned dish in a pan. They draw conclusions about the importance of carbon. It is possible using simple experiments to present not only carbon but also hydrogen and oxygen in organic matter.*

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**Subject:** Science, Physics, Biology

**Grade level:** 5<sup>th</sup> to 9<sup>th</sup> grade

**Curriculum content:** Composition of organic substances; evidence C, an essential element of organic compounds.

**Kind of activity:** Inquiring, experimenting, creating of hypotheses, development of experimental apparatus, group activities etc.

**Anticipated time:** 4 hours (per 45 minutes) - 3 hours of instruction and 1 hour of homework. The number of hours can be adjusted according to the conditions at the school.

**Objective of the module:**

To provide students and teachers with motivational content “Carbon – nature of life” based on science inter-disciplinarily, knowledge and skills application in everyday life.

**General objectives:**

To increase students’ interest in chemistry linking the curriculum with everyday life.

To acquaint students with the basic composition of organic matter

Clarify to students relationships and connections between coal and and e.g. burned food.

Develop critical thinking based on the processing of information obtained from literature and experiments.

Using simple experiments to prove the presence of C, H and O in organic substances.

Development of inquiry skills through the implementation of (possibly designing) experiments with organic substances (wood, flour)

Develop skills related to teamwork.

**Competencies:** inquiry skills, team work, assessment and self-assessment, creative work, manual skills, communication skills.

Sections included	
1.	<p><a href="#">Student activities</a></p> <p>Describes the scenario in more detail and the tasks the students should perform</p>
2.	<p><a href="#">Teacher guide</a></p> <p>Suggests a teaching approach</p>

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