<table>
<tr><td rowspan="4">Topic 1
<u>What is reliable?</u></td><td colspan="3">KEY SKILLS
Understand texts from different sources
Analyse texts critically, both establishing and applying relevant criteria</td></tr>
<tr><td rowspan="3">Subject:

Optativa Ciències Experimentals

Level: 3r/4t ESO

Timing: 1 session</td><td colspan="3">TRANSFERABLE SKILLS:
Communicative skills
Interact with others, give opinions and develop argument
Justify orally their opinion about the reliability of the statements given
Methodological skills
Develop strategies:
To understand the general meaning of different texts coming from several sources (newspapers, sayings…)
make decisions about the reliability of several documents, while learning to interpret critically different inputs</td></tr>
<tr><td colspan="3">Aims:
To compare scientific knowledge and popular beliefs
To enhance reading skills
To encourage critical thinking
To foster situations to encourage discussion</td></tr>
<tr><td>C1-CONTENT</td><td>C1-CONTENT</td><td>C3-COMMUNICATION</td><td>C4-CULTURE/CITIZENSHIP</td></tr>
<tr><td>Teaching Objectives</td><td>Learning Outcomes</td><td rowspan="5">Language of learning
Types of texts
Vocabulary of criticality

Language for learning
explain and justify their opinions
Language of group discussion

Language through
Vocabulary needed to understand variety of texts</td><td rowspan="5">Pupils will be able to…

Distinguish between popular and scientific knowledge

Understand the importance of being able to think critically.</td></tr>
<tr><td>- To study the features of reliable an unreliable inputs (news, sayings, rumours…)
- To assess critically information</td><td>Pupils will be able to…
- Be aware of the different value of documents, according to their features
- Compare several inputs and apply the critic-table</td></tr>
<tr><td>C2-COGNITION</td><td>C2-COGNITION</td></tr>
<tr><td>Teaching Objectives</td><td>Learning Outcomes</td></tr>
<tr><td>To develop critical thinking
Value information after assessing it with CRITIC criteria</td><td>Pupils will be able to:
Make decisions based on critical analysis in a science context</td></tr>
<tr><td colspan="4">ASSESSMENT CRITERIA: Pupils should be able to distinguish more reliable and less reliable information after assess it in a critical way</td></tr>
</table>

<table>
<tr><td rowspan="4">Topic 2
How scientists work</td><td colspan="4">KEY SKILLS
Understand texts from different sources
Analyse texts critically, both establishing and applying relevant criteria</td></tr>
<tr><td rowspan="3">Subject:

Optativa Ciències Experimentals

Level: 3r/4t ESO

Timing: 1 session</td><td colspan="4">TRANSFERABLE SKILLS:
Communicative skills
Interact with others, give opinions and develop argument
Justify orally their opinion about the reliability of the statements given
Methodological skills
Develop strategies:
To understand the general meaning of different texts coming from several sources (newspapers, sayings…)
Make decisions about the reliability of several documents, while learning to interpret critically different inputs</td></tr>
<tr><td colspan="4">Aims:
To know some features of scientific work
To understand the importance of basing scientific statements on evidences
To apply the critic-table
To enhance reading, listen and arguing skills
To understand benefits of having several sources of information</td></tr>
<tr><td>C1-CONTENT</td><td>C1-CONTENT</td><td>C3- COMMUNICATION</td><td>C4-CULTURE/CITIZENSHIP</td></tr>
<tr><td>Teaching Objectives</td><td>Learning Outcomes</td><td rowspan="5">Language of learning
Vocabulary of an investigation report

Language for learning
Explain and justify their opinions
Language of group discussion

Language through
Vocabulary needed to understand variety of texts</td><td rowspan="5">Pupils will be able to…

Distinguish between popular and scientific knowledge

Understand the importance of being able to think critically.</td></tr>
<tr><td>- To study the features of a summary about a scientific work
- To introduce a scientific way of work
- To assess information critically</td><td>Pupils will be able to…
- be aware of the different value of documents, according to their features
- apply the critic-table
- Identify steps of a scientific work</td></tr>
<tr><td>C2-COGNITION</td><td>C2-COGNITION</td></tr>
<tr><td>Teaching Objectives</td><td>Learning Outcomes</td></tr>
<tr><td>To develop critical thinking
Value information after asses it with CRITIC criteria</td><td>Pupils will be able to:
Make decisions based on critical analysis in a science context</td></tr>
<tr><td colspan="4">ASSESSMENT CRITERIA: Pupils should be able to understand a report about an investigation and assess it critically</td></tr>
</table>

<table>
<tr><td rowspan="4">Topic 3
a) Answering questions
b) Planning a fair test</td><td colspan="4">KEY SKILLS
Understand why some questions can be answered scientifically
Analyze and find answers to contextualized problems starting with questions that can be answered through science
Plan how to find evidence</td></tr>
<tr><td rowspan="3" colspan="4">TRANSFERABLE SKILLS:
Communicative skills
Interact with others, give opinions and develop argument
Can interpret and understand situations she/he will encounter in everyday context
Methodological skills
Can transform information into knowledge activating thinking skills in order to organize, relate, analyze and make inferences</td></tr>
<tr><td>Subject:

Optativa Ciències Experimentals</td></tr>
<tr><td>Level: 3r/4t ESO</td></tr>
<tr><td>Timing: 3 sessions</td></tr>
<tr><td colspan="5">Aims:
To understand the importance of basing scientific statements on evidences
To understand different steps of a scientific research
To enhance reading, listen and arguing skills</td></tr>
<tr><td>C1-CONTENT</td><td>C1-CONTENT</td><td>C3-COMMUNICATION</td><td colspan="2">C4-CULTURE/CITIZENSHIP</td></tr>
<tr><td>Teaching Objectives</td><td>Learning Outcomes</td><td rowspan="5">Language of learning
Vocabulary of an investigation report

Language for learning
Explain and justify their opinions
Language of group discussion

Language through
Language to express any problems during investigation</td><td colspan="2" rowspan="5">Pupils will be able to…

Understand the importance of justifying statements scientifically.</td></tr>
<tr><td>- To study the features of a scientific research
- To assess critically information</td><td>Pupils will be able to…
- Identify the steps of a scientific research
- Identify variables in an investigation</td></tr>
<tr><td>C2-COGNITION</td><td>C2-COGNITION</td></tr>
<tr><td>Teaching Objectives</td><td>Learning Outcomes</td></tr>
<tr><td>- To identify steps of a scientific research on a report</td><td>Pupils will be able to:
Apply their knowledge to plan and carry out the investigation in a scientific way</td></tr>
<tr><td colspan="5">ASSESSMENT CRITERIA: Pupils should be able to understand that scientific statements should be based on evidence</td></tr>
</table>

<table>
<tr><td>Topic 4
Let's investigate what can affect dissolutions</td><td>KEY SKILLS
To plan how to find evidence
Apply the plan to find evidence
To draw conclusions and analyze them critically</td></tr>
<tr><td rowspan="3">Subject:

Optativa Ciències Experimentals

Level: 3r/4t ESO

Timing: 2 sessions</td><td>TRANSFERABLE SKILLS:
Communicative skills
Interact with others, give opinions and develop argument
Can relate observations, explanations, give account of experiences and develop argument
Methodological skills
Can transform information into knowledge activating thinking skills in order to organize, relate, analyze and make inferences
Learning to learn
Can apply study skills that include cooperation and self-evaluation skills</td></tr>
</table>

Aims:

To study some factors that can affect dissolutions
To apply previous knowledge to plan an investigation
To enhance reading, listening, writing and arguing skills

<table>
<tr><th>C1-CONTENT</th><th>C1-CONTENT</th><th>C3-COMMUNICATION</th><th>C4-CULTURE/CITIZENSHIP</th></tr>
<tr><td>Teaching Objectives</td><td>Learning Outcomes</td><td rowspan="5">Language of learning
Vocabulary of material needed for the test

Language for learning
explain and justify their opinions
Language of group discussion

Language through
Language to express any problems during investigation or finding reasons for unexpected outcomes</td><td rowspan="5">Pupils will be able to…

Understand the importance of justifying scientifically statements.

Recognize when a statement is well founded</td></tr>
<tr><td>- To study factors such as amount of water, water temperature, size of beakers in dissolutions
- To revise steps of an investigation</td><td>Pupils will be able to…
- Plan an investigation about the effect of one factor on dissolutions</td></tr>
<tr><td>C2-COGNITION</td><td>C2-COGNITION</td></tr>
<tr><td>Teaching Objectives</td><td>Learning Outcomes</td></tr>
<tr><td>- To apply knowledge independently in carrying out an investigation</td><td>Pupils will be able to:
Apply their knowledge to plan and carry out the Investigation in a scientific way</td></tr>
</table>

ASSESSMENT CRITERIA: Pupils should be able to answer their question finding acceptable evidence from the scientific point of view.

<table>
<tr><td rowspan="4">Topic 5
Big and small crystals</td><td>KEY SKILLS
To plan how to find evidence to answer relevant question in the context of science class
Apply the plan to find evidence
To draw conclusions and analyze them critically</td></tr>
<tr><td rowspan="3">TRANSFERABLE SKILLS:
Communicative skills
Interact with others, give opinions and develop argument
Can relate observations, explanations, give account of experiences and develop argument
Methodological skills
Can transform information into knowledge activating thinking skills in order to organize, relate, analyze and make inferences
Learning to learn
Can apply study skills that include cooperation and self-evaluation skills</td></tr>
<tr><td>Subject:

Optativa Ciències Experimentals</td></tr>
<tr><td>Level: 3r/4t ESO

Timing: 2 sessions</td></tr>
<tr><td colspan="2">Aims:
To study some factors that can affect crystallization
To apply previous knowledge to plan an investigation
To enhance reading, listening, writing and arguing skills</td></tr>
</table>

C1-CONTENT	**C1-CONTENT**	**C3-COMMUNICATION**	**C4-CULTURE/CITIZENSHIP**
Teaching Objectives	*Learning Outcomes*	**Language of learning** Vocabulary of material needed for the test **Language for learning** explain and justify their opinions Language of group discussion Language of self- and peer assessment **Language through** Peer assessment	Pupils will be able to… Understand the importance of justifying statements scientifically.
- To study the effect of factors such as the size of the recipient, the amount of dissolution, the time of evaporation on crystallization - To revise the steps of an investigation - To improve accuracy in planning an investigation by assessment among peers	Pupils will be able to… - Plan and carry out an investigation about the effect of one factor on crystallization - Analyse and correct their partners work		
C2-COGNITION	**C2-COGNITION**		
Teaching Objectives	*Learning Outcomes*		
- To apply knowledge independently in carrying out an investigation. To apply assessment criteria to their own/others' work	Pupils will be able to: Apply their knowledge To plan and carry out the Investigation in a scientific way To evaluate their own work and work of peers		

ASSESSMENT CRITERIA: Pupils should be able to answer their question finding acceptable evidence from the scientific point of view.

<table>
<tr><td rowspan="4">Topic 6
Reporting an investigation</td><td colspan="4">KEY SKILLS
To communicate data, ideas and conclusions in different communicative manners</td></tr>
<tr><td rowspan="3" colspan="4">TRANSFERABLE SKILLS:
Communicative skills
Interact with others, give opinions and develop argument
Can relate observations, explanations, give account of experiences and develop argument
Methodological skills
Can access and communicate information using different supports
Learning to learn
Can apply study skills that include cooperation and self-evaluation skills</td></tr>
<tr><td>Subject:

Optativa Ciències Experimentals</td></tr>
<tr><td>Level: 3r/4t ESO</td></tr>
<tr><td>Timing: 2 sessions</td></tr>
<tr><td colspan="5">Aims:
To study how an investigation should be reported
To enhance reading, listening, writing and arguing skills</td></tr>
<tr><td>C1-CONTENT</td><td>C1-CONTENT</td><td>C3-COMMUNICATION</td><td colspan="2">C4-CULTURE/CITIZENSHIP</td></tr>
<tr><td>Teaching Objectives</td><td>Learning Outcomes</td><td rowspan="4">Language of learning
Vocabulary scientific method

Language for learning
Explain and justify their opinions
Language of group discussion

Language through
Assessment among peers</td><td colspan="2" rowspan="4">Pupils will be able to…

Understand the importance of justifying scientifically statements.</td></tr>
<tr><td>- To study features of a good investigation report in the context of a science class</td><td>Pupils will be able to…
- Identify features to improve the communication of an investigation
- Identify the features of a good presentation</td></tr>
<tr><td>C2-COGNITION</td><td>C2-COGNITION</td></tr>
<tr><td>Teaching Objectives</td><td>Learning Outcomes</td></tr>
<tr><td>- To apply shared criteria on a presentation
- To think critically on their partners' and their own presentation</td><td>Pupils will be able to:
-Plan and carry out a presentation of their investigation about big and small crystals
-Analyse their presentations and modify them if necessary</td><td colspan="2"></td></tr>
<tr><td colspan="5">ASSESSMENT CRITERIA: Pupils should be able to carry out a presentation of their investigation and modify it after being assessed by their partners if necessary</td></tr>
</table>

<table>
<tr><td rowspan="4">Topic 7
Is pineapple really good for digestion?</td><td>KEY SKILLS
To plan how to find evidence to answer relevant question in the context of science class
Apply the plan to find evidence
To draw conclusions and analyze them critically
To communicate data, ideas and conclusions in different communicative manners</td></tr>
<tr><td rowspan="3">TRANSFERABLE SKILLS:
Communicative skills
Interact with others, give opinions and develop argument
Can relate observations, explanations, give account of experiences and develop argument
Methodological skills
Can transform information into knowledge activating thinking skills in order to organize, relate, analyze and make inferences
Can access and communicate information using different supports
Learning to learn
Can apply study skills that include cooperation and self-evaluation skills</td></tr>
<tr><td>Subject:

Optativa Ciències Experimentals</td></tr>
<tr><td>Level: 3r/4t ESO</td></tr>
<tr><td>Timing: 2 sessions</td></tr>
</table>

Aims:

To revise some aspects of digestion, proteins and enzymes
To study the effect of pineapple enzymes on proteins
To apply previous knowledge to plan an investigation
To enhance reading, listening, writing and arguing skills

<table>
<tr><td>C1-CONTENT</td><td>C1-CONTENT</td><td rowspan="6">C3-COMMUNICATION
Language of learning
Vocabulary of scientific method and lab material

Language for learning
explain and justify their opinions
Language of group discussion

Language through
Making a presentation of their investigation
Assessment among peers</td><td rowspan="6">C4-CULTURE/CITIZENSHIP
Pupils will be able to…

Understand the importance of justifying scientifically statements.</td></tr>
<tr><td>Teaching Objectives</td><td>Learning Outcomes</td></tr>
<tr><td>- To revise proteins, enzymes, digestion</td><td>Pupils will be able to…
- Plan a presentation of their investigation about pineapple enzymes
- To present their investigation</td></tr>
<tr><td>C2-COGNITION</td><td>C2-COGNITION</td></tr>
<tr><td>Teaching Objectives</td><td>Learning Outcomes</td></tr>
<tr><td>- Make hypothesis and predict the effect of enzymes
- Design a test to verify their predictions
- Assess all the process</td><td>Pupils will be able to:
plan and carry out a fair test to answer their investigation questions, and present it to their partners
To evaluate their work</td></tr>
</table>

ASSESSMENT CRITERIA: Pupils should be able to carry out a presentation of their investigation taking into account the assessment of their previous works