# LESSON PLAN FORMAT

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| **SUBJECT** | Science | **GRADE** | 6th |
| **TOPIC** | Water as universal solvent | **LENGTH** | 100 Minutes |

**AIMS**

(What are the main aims of your lesson (content, language skills and language items)? What do you want your learners to have learnt by the end of this lesson?)

**MAIN AIM:** By the end of the lesson, learners will be able to explain the relevance of water properties as solvent to ecosystems and living organisms, giving examples of different solutions.
**SUBSIDIARY AIM:** Learners will also be able to…

- Describe why water is the universal solvent.
- Give and follow instructions.
- Identify the solute and solvent in a solution.
- Identify if a substance is soluble or insoluble

**TEACHING OBJECTIVES**

| **Content** | **Cognition** | **Culture** |
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| *(New knowledge, skills and understanding)* | *(High-order thinking skills, problem-solving, challenges and reflection)* | *(Awareness of self and other, identity, citizenship, and pluricultural understanding)* |
| • *Recognize vocabulary related to water properties.*<br>• *Learn that some substances are solute and others are solvent.* | • *Identify what substances dissolve in water and why they do or do not dissolve.*<br>• *Classify substances into soluble or insoluble.* | • *Recognize the relevance of taking care of water.* |

**Communication** *(**What** and **how**) considering the relevance of*

| **Language of Learning** | **Language for Learning** | **Language through learning** |
|---|---|---|
| *(Key vocabulary – content-obligatory)* | *(Functional language e.g. language while learners participate in the lesson – thinking skills)* | *(Language progression, practice and extension – emerging language, and what you will do with this* |
| • *Solute - Solvent - Soluble - Insoluble*<br>*Ss will read about this topic and watch some videos in order to make this content easy for them to understand.* | • *Using simple present tense to describe actions and states.*<br>• *Using present perfect to ask for previous actions.*<br>• *Following instructions to prepare a lemonade.*<br>*Have you ever made lemonade? Yes, I have. No I haven't.*<br>*This substance dissolves in water…*<br>*That substance does not dissolve in water…* | *Monitoring and giving feedback to Ss production in order to identify the most common mistakes to design a specific activity to revise the mistakes produced.* |

**CRITERIA FOR ASSESSMENT**

(What kind of assessment will be used in class? (teacher, peer, self?) What are you assessing, how?)

| **Formative Assessment** | **Summative Assessment** |
|---|---|
| Checklists for self assessment<br>Peer feedback and assessment<br>Teacher monitoring and assessment | Exam |

<table>
<tr><th colspan="4">LESSON PROCEDURE / ACTIVITIES</th></tr>
<tr><th>Time</th><th>Stage</th><th>Procedure</th><th>Materials & Resources</th></tr>
<tr><td>10´</td><td>Activate prior knowledge</td><td>T will Ss to complete a table putting the words in the correct category:<br><br><table><tr><th>Food</th><th>Objects to cook</th><th>Verbs to describe cooking</th></tr><tr><td></td><td></td><td></td></tr></table><br>knife - sugar - pan - cut - bread - meat - orange - banana - pepper - mix - stirr -<br>T makes a quick revision and feedbacks Ss work.</td><td>Notebooks<br>Markers<br>Board</td></tr>
<tr><td>15´</td><td>Task 1</td><td>T will tell Ss: Today we will explore what happens to some substances when they are added to water.<br>T will ask Ss: HAVE YOU EVER MADE LEMONADE? Ss will answer and T will correct if they have forgotten about the structure to answer.<br>Ss will put the following instructions in the correct order.<br>Instructions:<br>● Add some ice.<br>● Add the instant lemonade mix.<br>● Pour water into the pitcher.<br>● Stir the sugar until it dissolves.<br><br>T will monitor and feedback their decisions. T will ask Ss to do the activity in small groups ( follow the instructions to make the lemonade).<br>T will write on the board: WHAT HAPPENED WITH THE INSTANT LEMONADE MIX?<br>Ss will have to choose whether:<br>a. Disappears in the presence of water.<br>b. Dissolves in water.</td><td>instant lemonade mix<br>sugar<br>water<br>pitcher<br>some ice<br><br>Ss will be asked to bring it to the class in small groups.</td></tr>
<tr><td>10´</td><td></td><td>T will show Ss some quizlet flashcards with the vocabulary required to understand that water is the universal solvent.<br>Ss will learn the vocabulary throughout different activities.</td><td>https://quizlet.com/554470448/solvent-solute-flash-cards/</td></tr>
<tr><td>15´</td><td>Task 2</td><td>Ss will receive a handout with the following instructions:<br>a. Add some warm water to the cup till you cover the M&M.<br>b. Place the M&M in the middle of the cup without stirring the water up too much.<br>c. Observe for two minutes. (The coating will disappear).<br>d. Answer the following questions:<br>● Is the M&M soluble or insoluble?<br>● Is the M&M coating soluble or insoluble?<br>● Why is the coating soluble?<br>● What substance is the M&M</td><td>Handouts</td></tr>
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| | | | |
|---|---|---|---|
| | | coating made of? | |
| 15´ | **Task 3** | Once Ss have answered, T will ask Ss to complete the following sentences with the information on the reading:<br><br>Water is a _____ solvent.<br>Because it _____ any substance.<br>This is important because water takes along _____, chemicals and _____. | https://www.usgs.gov/special-topics/water-science-school/science/water-qa-why-water-universal-solvent#overview |
| 15´ | **Task 4** | T will ask SS: Which of these substances are soluble?<br>**Sugar - Salt - Baking soda - Maple syrup - Vegetable Oil - Rocks**<br>Ss will answer in their notebooks. Then, Each small group of students will be asked to test which of these substances are soluble and which ones are not.<br>Each group will be given one of the substances and a glass of water. Ss will check if the substance assigned is soluble or not.<br>Ss will report their findings and draw what happens at the beginning and at the end. T will monitor the whole process. | Plastic glasses<br><br>Rocks<br><br>Sugar<br><br>Salt<br><br>Baking Soda<br><br>Maple Syrup<br><br>Vegetable Oil |
| 15´ | **Wrap up** | Ss prepare to show their finding to the whole class following the model:<br><br>After our previous task we can say that _____ dissolves in water. _____ is the solute and the _____ is the solvent.<br><br>T will monitor the presentations. Then, T will show again some flashcards with the same substances and will ask Ss: Is it soluble? Ss will answer **Yes it is, No it isn't.** | Notebooks<br><br>Drawings |

## Annexes

**Annex 1:**

**Put the following words in the correct column:**

knife - sugar - pan - cut - bread - meat - orange - banana - pepper - mix - stirr -

| Food | Objects to cook | Verbs to describe cooking |
|---|---|---|
| | | |

**Annex 2:**

**Put the instructions in the correct order:**

- Add some ice.
- Add the instant lemonade mix.
- Pour water into the pitcher.
- Stir the sugar until it dissolves.

**Annex 3:**

**Follow the instructions given:**

a. Add some warm water to the cup till you cover the M&M.
b. Place the M&M in the middle of the cup without stirring the water up too much.
c. Observe for two minutes. (The coating will disappear).
d. Answer the following questions:

- Is the M&M soluble or insoluble?
- Is the M&M coating soluble or insoluble?
- Why is the coating soluble?
- What substance is the M&M coating made of?

**Annex 4:**

**After reading the following text, complete these sentences:**

Water is a _____ solvent.
Because it _____ any substance.
This is important because water takes along _____, chemicals and _____.

## Why is water the "universal solvent"?


*Sources/Usage: Public Domain.*

Water is capable of dissolving a variety of different substances, which is why it is such a good solvent. And, water is called the "universal solvent" because it dissolves more substances than any other liquid. This is important to every living thing on earth. It means that wherever water goes, either through the ground or through our bodies, it takes along valuable chemicals, minerals, and nutrients.

It is water's chemical composition and physical attributes that make it such an excellent solvent. Water molecules have a polar arrangement of the oxygen and hydrogen atoms—one side (hydrogen) has a positive electrical charge and the other side (oxygen) has a negative charge. This allows the water molecule to become attracted to many other different types of molecules. Water can become so heavily attracted to a different molecule, like salt (NaCl), that it can disrupt the attractive forces that hold the sodium and chloride in the salt molecule together and, thus, dissolve it.