Lumination Learning Lab

Lesson Bytes
Teaching ideas for immersive learning

Solubility Simulations:

Virtual Science with HoloLAB VR

Learning Area(s)
Science

Year Level
Year 8

Introduction

In this immersive lesson, students will explore the concept of solubility through various stations and the virtual reality game HoloLAB Champions. They will engage in hands-on activities and virtual experiments to deepen their understanding of solubility and its applications. Furthermore, students will research and plan an experience to discover various factors that affect solubility.

Application

HoloLAB Champions VR
HoloLAB Champions is a VR game that immerses students in a futuristic game show setting to teach and test chemistry lab skills. Students complete realistic lab challenges that emphasise proper techniques, chemical reactions, and measurements. Ideal for classrooms, HoloLAB Champions provides a safe and interactive way for students of all ages to learn and practice chemistry concepts.

Lesson Overview

Lesson Objectives

- Understand the concept of solubility and its factors.
- Investigate how temperature, agitation, particle size and surface area affect solubility.
- Apply knowledge of solubility to design experiments.

Resources

- Sugar and salt solutions
- Salts & solubility
- Solubility BBC information
- Merge Cube template.

Developed by Sara White

Lesson Outline

Before the Immersive Learning Journey

- Teachers should familiarise themselves with the VR experience using HoloLAB Champions Essentials Guide and ensure that all necessary equipment is set up and functioning properly.
- Students should have a basic understanding of chemistry concepts related to light emission and chemical reactions.
- *Optional activity*: Students are familiar with CoSpaces (Pro version with Merge Cube add-on) and have access to Merge Cubes.

During the Immersive Learning Journey

- **IMVR Station:**
  - Students complete the Mini-lab *'Dissolve to solve'* and *'Read to Succeed',* where they will identify which substances are soluble and insoluble and use visual observations to identify between four different substances based on solubility.
- **Research & Reflection Station:**
  - Students will research factors affecting solubility, such as temperature, agitation and particle size. They will use online resources and textbooks to gather information. Additionally students may use simulations such as Sugar and salt solutions.
  - *Optional reflection activity*: After the IMVR station (this activity will depend on order of rotations), students will create digital lab reports detailing their observations, hypotheses, and conclusions regarding solubility.
- **Experiment Station:**
  - Students will plan a solubility experiment to investigate the effect of one factor (e.g., temperature) on the solubility of a substance.
  - They will design a procedure, identify materials needed, and predict the outcome of the experiment based on their understanding of solubility principles.
- **Creation Station (Optional):**
  - Using CoSpaces and Merge Cubes, students will use a different cube face to demonstrate their understanding of factors affecting solubility.
  - Students can write a short description and/or insert video links to depict their understanding. Students may make a copy of this Merge Cube template to create a paper version if they don't have access to a physical Merge Cube.

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After the Immersive Learning Journey

Students share their thoughts on the learning experience, noting any challenges they faced and how they overcame them. This may be completed either as a class discussion or in student notebooks or forms (digital or paper).

- How did the virtual lab experience compare to planning a real-life experiment?
- Which factor affecting solubility did you find most interesting or surprising?
- How might the principles of solubility apply to everyday situations outside the laboratory?

If students created their understanding of the topic using Merge Cubes, the class may opt to do a Merge Cube learning walk where students can view each other's creations.