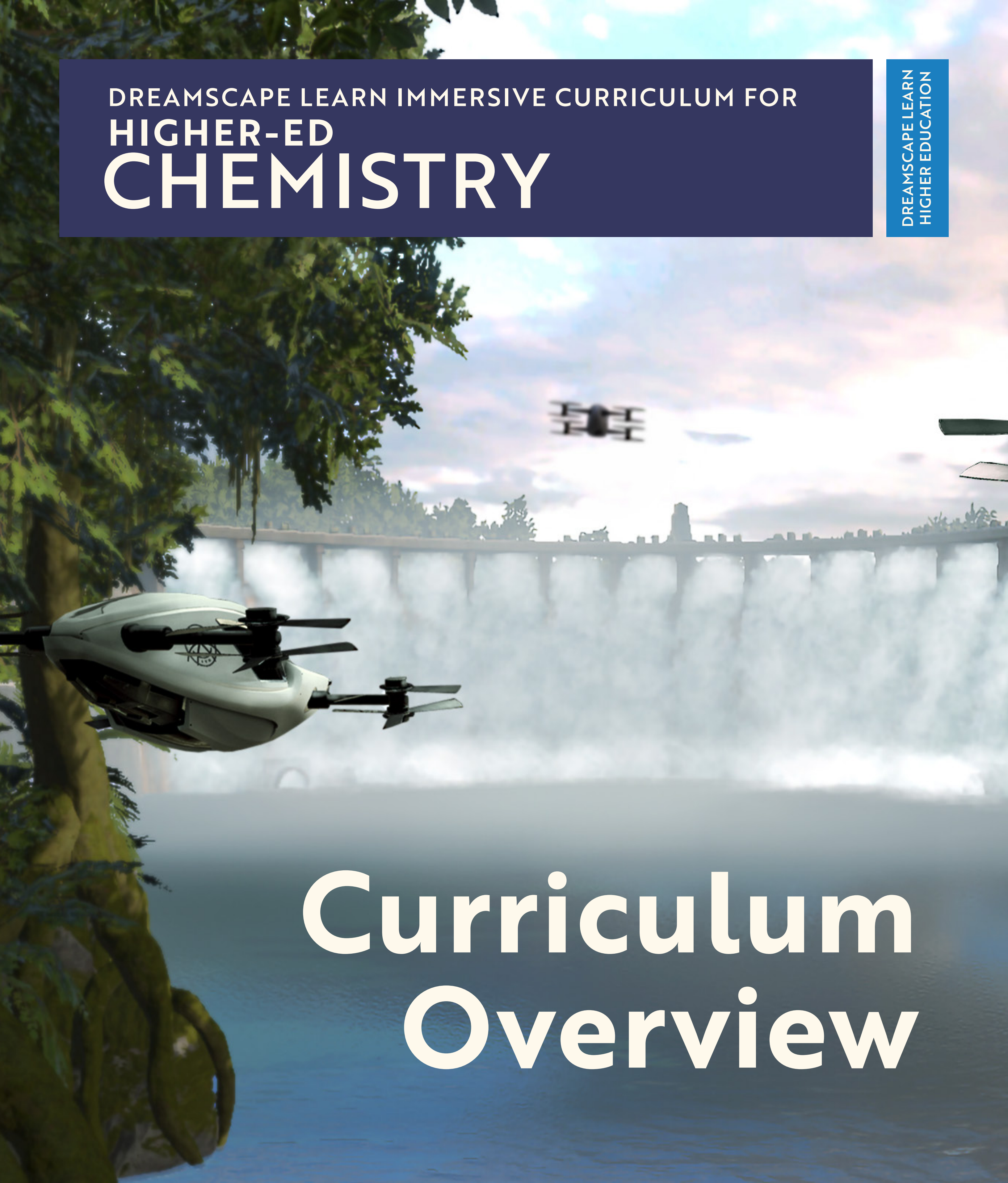
DREAMSCAPE LEARN IMMERSIVE CURRICULUM FOR

HIGHER-ED CHEMISTRY

DREAMSCAPE LEARN
HIGHER EDUCATION



Curriculum Overview

DREAMSCAPE LEARN™

What is Dreamscape Learn's Immersive Curriculum?

Dreamscape Learn (DSL) is a new way of learning that combines Hollywood storytelling, advanced pedagogy, and immersive technology.

The Chemistry learning sequence begins with an immersive experience in which students join the Institute for Tele-present Exploration (ITE), a network of government and humanitarian agencies that monitor potential global catastrophic events. Guided by an ITE Field Director, students follow unfolding events, gather critical data, and build an evidence-based understanding of the situation to help restore balance to the world.

In the classroom, the mission continues!

Students use data from the immersive experience to perform hands-on chemistry experiments, test hypotheses, and interpret results. Working collaboratively, they analyze findings and use evidence-based conclusions to shape the next step in the storyline.

Dreamscape Learn gives students repeated opportunities to practice core chemistry skills while building scientific reasoning, quantitative analysis, and teamwork, mirroring how scientists investigate problems and refine solutions in the real world.

DSL Chemistry Modules

MODULE 1: ATOMS, & BONDING

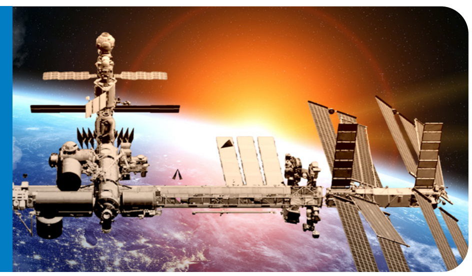
When a sophisticated cyberattack known as the Chameleon Code threatens a secure data vault, students are recruited by the ITE to track the source before disaster strikes. Acting as forensic chemists, they analyze trace evidence using conductivity testing, density analysis, flame tests, and isotopic data to uncover hidden patterns and narrow a suspect's path.

MODULE 2: AQUEOUS SOLUTIONS

Students will return to the ITE to confront a new challenge: an unexplained illness spreading rapidly through livestock and humans in a remote valley of the Himalayas. But all is not as it seems, as the cause of the illness is a chemical pollutant that that has permeated the region's most precious resource – water. Only a commitment to scientific inquiry will help get to the bottom of the crisis and save the lives of the people and animals in the valley.

MODULE 3: THERMOCHEMISTRY

On the ITE's maiden voyage to space, agents will travel to the Orbital Research Station to conduct an unprecedented experiment: evaluating a prototype device that generates oxygen through artificial photosynthesis. However, an unexpected collision with a massive cloud of space debris threatens not only the station but the lives of the brave astronauts on board.



MODULE 4: ENTROPY

In the small European nation of Lukovia, imprisoned opposition leader Theodor Tomović is being poisoned by the repressive regime. Driven by moral clarity, and allied with a cyborg insect, agents of the ITE must infiltrate the notorious prison in which he's being held hostage, identify the mysterious toxin, and synthesize an antidote powerful enough to save his life.

MODULE 5: REDOX REACTIONS

Coming Soon.

MODULE 6: KINETICS & CATALYSTS

Coming Soon.

THE IMMERSIVE NARRATIVE LEARNING CYCLE

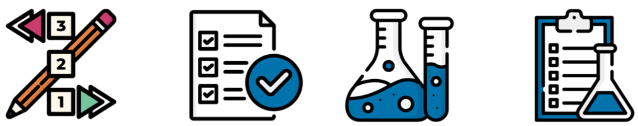
The Immersive Narrative Learning Cycle is a learning model built around a repeating rhythm of immersive exploration and classroom sensemaking, continuing until a central chemical challenge is resolved.

Each module unfolds across three acts—Discovery, Investigation, and Resolution—each marking a new phase of the mission. At the start of each act, students enter an immersive world as members of the Institute for Tele-Present Exploration (ITE) to encounter a chemical problem, make observations, and gather evidence.

Back in the classroom, students collaborate to analyze data, conduct chemistry investigations, and apply experimental design to draw evidence-based conclusions that shape the next phase of the mission.

ACT 1: DISCOVERY
Engage

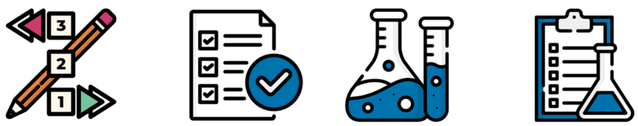
ACT 1: CLASSROOM ACTIVITIES
Explore, Explain, Execute & Evaluate



Rewind & Reflect | Pre- Lab | Lab | Post-Lab

ACT 2: INVESTIGATION
Engage

ACT 2: CLASSROOM ACTIVITIES
Explore, Explain, Execute & Evaluate



Rewind & Reflect | Pre- Lab | Lab | Post-Lab

ACT 3: RESOLUTION
Engage

ACT 3: CLASSROOM ACTIVITIES
Apply knowledge to real-world problems through investigation design.

Authentic Lab Investigation

A COMPLETE INSTRUCTIONAL PACKAGE

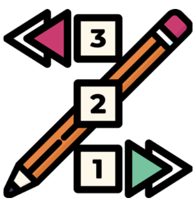
Every mdoule of Dreamscape Learn Chemistry is supported by a coordinated set of instructional resources designed to make implementation straightforward. Together, these materials guide instructors through discussions, investigations, assessments, and evidence-based learning that advances the mission.

MISSION OVERVIEW

This high-level roadmap outlines the entire mission, including storyline progression, act summaries, and suggested lab activity pacing.

MISSION LEADER GUIDES

This primary instructor resource provides laboratory setup procedures, driving questions, learning goals, facilitation strategies, answer keys, and suggested student feedback for each act.



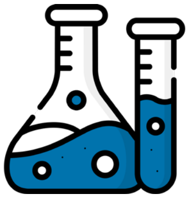
REWIND & REFLECT INSTRUCTIONAL SLIDES:

These instructional slides are designed to facilitate class discussions about their immersive experience, share observations, clarify the problem, and plan their next steps in the mission.

Each act is followed by a lab investigationbroken down into three activities: Pre-Lab, Wet-Lab, and Post-Lab. After act 3, students complete a performance assessment

PRE-LAB:

A preparatory activity that introduces the scientific concepts, mission context, and investigative questions students will explore during the wet-lab.



WET-LAB:

A hands-on laboratory investigation in which students collect experimental data, make observations, and apply scientific practices to solve mission-related challenges.

POST-LAB:

An analysis activity in which students interpret experimental results, evaluate evidence, draw conclusions, and connect their findings to the mission objectives.

PERFORMANCE ASSESSMENT:

An authentic laboratory investigation that challenges students to apply the chemistry concepts and data analysis skills developed in Acts 1 and 2.

MODULE 1
Atoms, Structure & Bonding

ACT 1

PRE-LAB

- Classify compounds as ionic or covalent using electronegativity differences.
- Explain how molecular structure and bonding influence solubility and dissociation in water.

WET-LAB

- Measure conductivity using a calibrated probe.
- Construct a conductivity–salinity standard curve and apply the linear model to predict the salinity of an unknown sample.
- Compare predicted salinity values to global seawater salinity patterns to infer the most likely geographic origin of the crime scene evidence.

POST-LAB

- Explain how isotopes of the same element differ in neutron number and how isotopic mass influences evaporation and precipitation patterns.
- Use isotopic maps and isotopic ratios preserved along a hair strand to infer the suspect's movement over time.

ACT 2

PRE-LAB

- Analyze the structure of polymers to infer the materials density and durability.
- Predict how different metals would respond in a flame test.

WET-LAB

- Design a sugar-water solution to test and infer an unknown polymer chemical make-up.
- Perform flame tests to identify the metal compound within the crime scene evidence.

POST-LAB

- Synthesize density and flame-test data make a claim about the origin of the evidence.
- Interpret an ion mobility spectrum to identify compounds within crime scene evidence.

ACT 3

PERFORMANCE ASSESSMENT

- Conduct rapid colorimetric tests to infer the chemical composition of unknown field samples based on observable reaction outcomes.

MODULE 2
Aqueous Solutions

ACT 1

PRE-LAB

- Explain how elemental arsenic dissolves in water and transforms into dissolved acids.
- Identify the oxidation state of arsenic in arsenous acid and arsenic acid.

WET-LAB

- Measure the absorbance of solutions using a colorimeter.
- Estimate the concentration of an unknown solution using a standard curve.
- Convert concentrations between molarity and mass-per-volume units.
- Estimate the probability that a value falls within a specified range using relative frequency.

POST-LAB

- Use mass spectrometry data to estimate the abundance of elements in Earth's crust.

ACT 2

PRE-LAB

- Use the principle of electrostatic attraction to determine which forms of arsenic is most likely removed by an alumina filter and present in river water.

WET-LAB

- Titrate a sample of contaminated ground water to determine how much potassium permanganate is needed to convert arsenous acid to arsenic acid.
- Calculate the molarity of arsenous acid in groundwater using stoichiometric relationships.

POST-LAB

- Create and interpret a frequency distribution of arsenic concentrations in filtered water
- Estimate the probability that filtered water is safe to drink.

ACT 3

PERFORMANCE ASSESSMENT

- Measure arsenic acid concentration across multiple pH conditions using colorimetry
- Calculate filtration efficiency to determine which pH most effectively removes arsenic acid

MODULE 3
Thermodynamics

ACT 1

PRE-LAB

- Explore how specific heat capacity affects a substance's ability to absorb energy.
- Analyze heating curves to predict which liquids may function as effective coolants.

WET-LAB

- Conduct an investigation to compare the heating behavior of candidate coolants.
- Analyze heating curves and calculate specific heat capacities using data.
- Determine which liquid has the highest specific heat capacity and is therefore the strongest candidate coolant.

POST-LAB

- Apply laboratory findings to evaluate which coolant can absorb enough thermal energy to stabilize the station.

ACT 2

PRE-LAB

- Calculate enthalpy change using bond energies.
- Determine which reactants function as fuels and oxidizers in a chemical reaction.
- Evaluate which hydrogen–oxygen reaction releases the most energy and is most suitable for rocket propulsion

WET-LAB

- Test how different hydrogen-to-oxygen fuel ratios affect rocket performance by analyzing flight-distance data produced by each fuel mixture.
- Identify the fuel ratio that generates the greatest thrust.

POST-LAB

- Calculate how different fuel mixtures affect exhaust temperature.
- Determine which fuel ratio provides sufficient thrust while keeping the thrusters below their failure temperature.

ACT 3

PERFORMANCE ASSESSMENT

- Collect and analyze calorimetry data to determine how much energy is released when hydrogen peroxide decomposes.