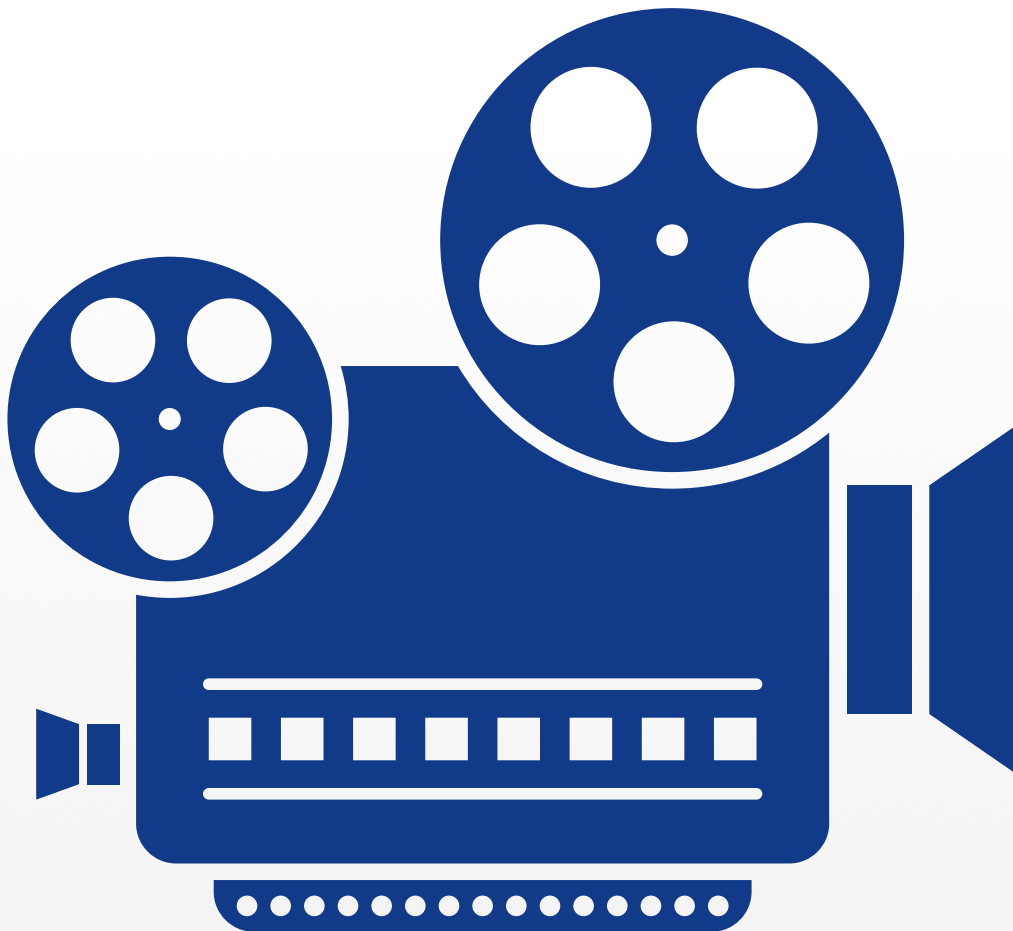


Videos



Method, instruction strategy

Blended learning , 1:1

Used features

Corinth Classroom

- Video
- My Notes
- Introduction
- Share

Lifelique

- AR screenshots

Key learning objectives

Collaboration, Work in Team, Presentation, Use of ICT, Reasoning, Critical-thinking, Problem-solving, and Analytical Skills

Standards

Common Core

CCSS ELA-Literacy

RST.6-8.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.
RST.6-8.7	Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).
RST.6-8.9	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
RST.11-12.7	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.



Common Core

CCSS.Math

MATH.CONTENT.6.G.A.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = l w h$ and $V = b h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

1. Introduction

Explaining some topics in the class can get very dangerous, for instance when you are describing how substances interact in chemical reactions of explosions and other cool stuff. There are many videos online you can show your students, but what if you had a number of videos of guaranteed quality, shot with high-speed camera and enriched by professional commentary including chemical formulas? Well, now you do in Lifeliqe! But that's not all, you can also use time-lapse videos depicting biological processes in Human Biology or show the students how to construct some tricky geometrical shapes with the handy video-tutorials in Geometry!

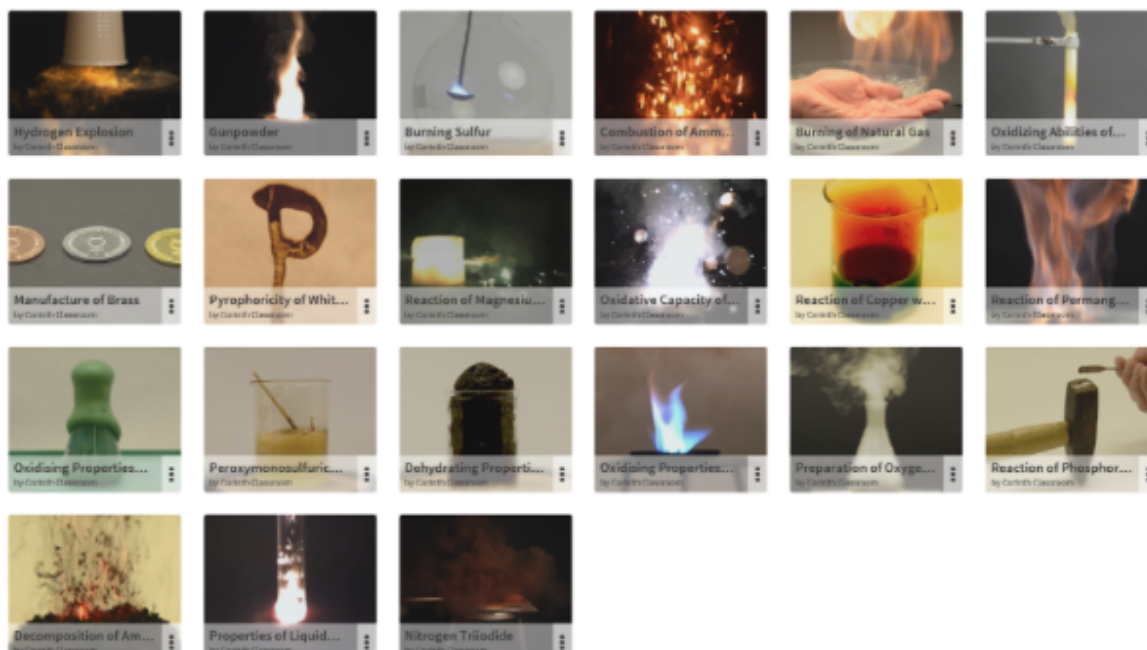
Chemistry high-speed reactions

Chemistry high-speed reactions


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Class with videos of exciting chemical reactions, first you have to open the Lifeliqe app and look for them in the **Chemistry** library - look for pictures:






Open whichever suits your topic. First time you open one of the videos, a warning notice will pop-up - read it carefully and click on “**I agree**” when you are aware of the consequences:



WARNING NOTICE!

All experiments described in these materials should be carried out and supervised only by appropriate individuals educated in chemistry, with a high understanding of safety procedures and in suitable premises. It is necessary to learn the characteristics of individual substances in relevant safety data sheets before the demonstration of such an experiment. Videos are intended primarily as an illustration of the characteristics of substances, not as instruction in carrying out the experiment. Any imitation of the experiment seen in the video is at your own risk. Neither the producer of this application nor its distributors are liable for any harm to health or property damage caused by the imitation of shown experiments.

I hereby acknowledge and confirm that I have read and understood warning notice.



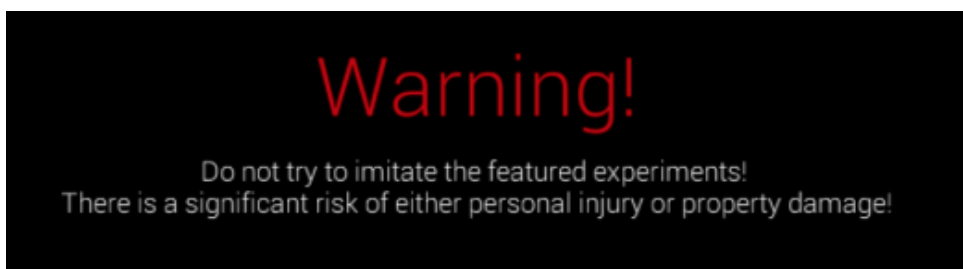
Disagree



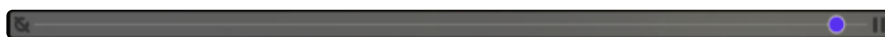
I agree







One more warning will show every time before the video starts - make sure everyone in the class understands it and pays attention to it:



Once the video starts playing, you can control the playback by using the bar at the bottom. The control bar disappears automatically after couple of seconds of inactivity. To summon it back, just move your mouse or tap the screen:



You can pull the blue dot backwards and forward to get to the desired point of the video, press the “Pause” icon  to stop the playback and resume it with the “Play” icon on the left . You can also allow  or forbid  the automatic replay by clicking the “Replay” icons on the right.

Every video of a chemical reaction has an instruction text in the “Introduction” section. Most of them contains the equation of the reaction.

2. Activity: Playing the reaction

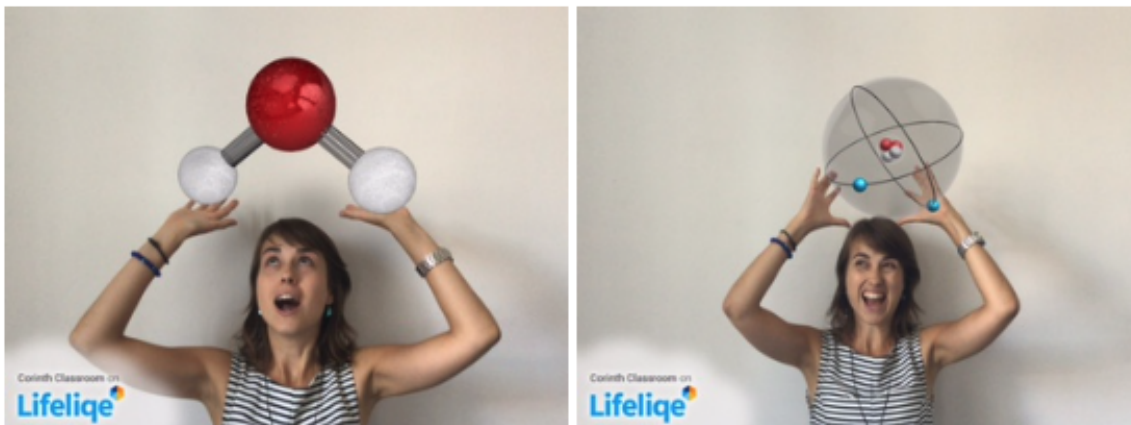
Select one chemistry video and show it to the students. Show them also the equation in the **Introduction** text and write it on the board for everyone to see.

Let students name each element and substance playing role in the reaction and draw their formulas on the board below the equation.

Divide the class in half - one team will be the **Reactants**, the other will be the **Products**.

Have students in each team prepare props for playing the elements or molecules on their side of the equation - it could be a simple name tag pinned on their clothes, drawn representation of the element or an AR screenshot with the model from Lifelique (if applicable):





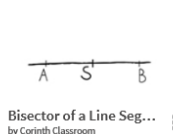
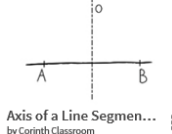
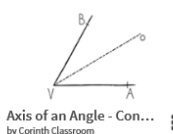
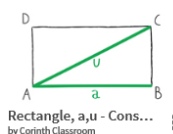
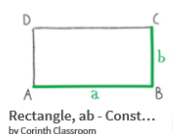
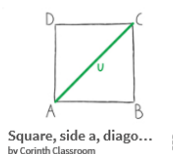
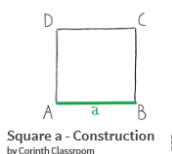
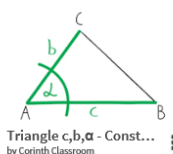
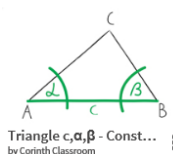
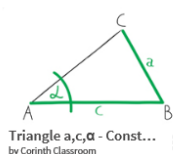
If you have enough students, each can represent one element, so in combination with other students they can create the whole molecules by holding hands (one hand as simple bond, two hands as double bond) or strings (if somebody is representing an element with higher number of possible bonds, e.g. carbon, tie a piece of string to their body for each possible connection).

Then let the students reconstruct the process of the chemical reaction - the team Reactants will rearrange themselves to create the product molecules and elements and the team Product will try to rearrange into the reactants.

The result of this activity should be student's understanding of law of mass conservation, e.g. that no other atoms are added or removed in order to create products from reactants and vice versa.

Geometry construction tutorials

As any other tutorial, the geometry videos are a collection of step-by-step manuals for creation. Construction videos like these can be found in the **Geometry** library:



Construction of a specific geometric shape can be done if sufficient information are given. It may be the length of some lines and angles or there could be a position of certain part of the body already set in the plane - collectively we call them the specified elements. We construct a geometric figure usually with a ruler, compass and sometimes even a protractor. In the traditional process, solving a construction task takes four stages. They are:

- Analysis - drawing a picture of the desired shape, marking specified elements and looking for connections between the specified elements and other parts of the body, which would allow to construct the geometric shape exactly.
- Description and construction - symbolic notation of steps by which the structure itself is made.
- Test of correctness - checking whether the structure is correct.
- And finally a discussion of the number of solutions - to determine under what conditions a task is solvable (including the number of solutions) and conditions when there are no solutions possible.

Geometry videos can be controlled the same way as the reactions described above.

You can use the videos during a class or as a part of an assignment.

3. Activity - Stop-motion animation

Recreate the Lifeliqe stop-motion animations showing volume of a cube and a prism - look for and show students following videos as an inspiration and to understand calculation of volume:



Let students create their own building blocks of a modeling clay or paper blocks (alternatively you can use also Minecraft), build various shapes and calculate their volume.

By using the Lifeliqe's **AR recording feature**, students can make their own videos, or as an advanced challenge, they can take pictures of their products and connect them into a stop-motion animation similar to the ones they saw (note: they would need a graphic software).

