

LabXchange

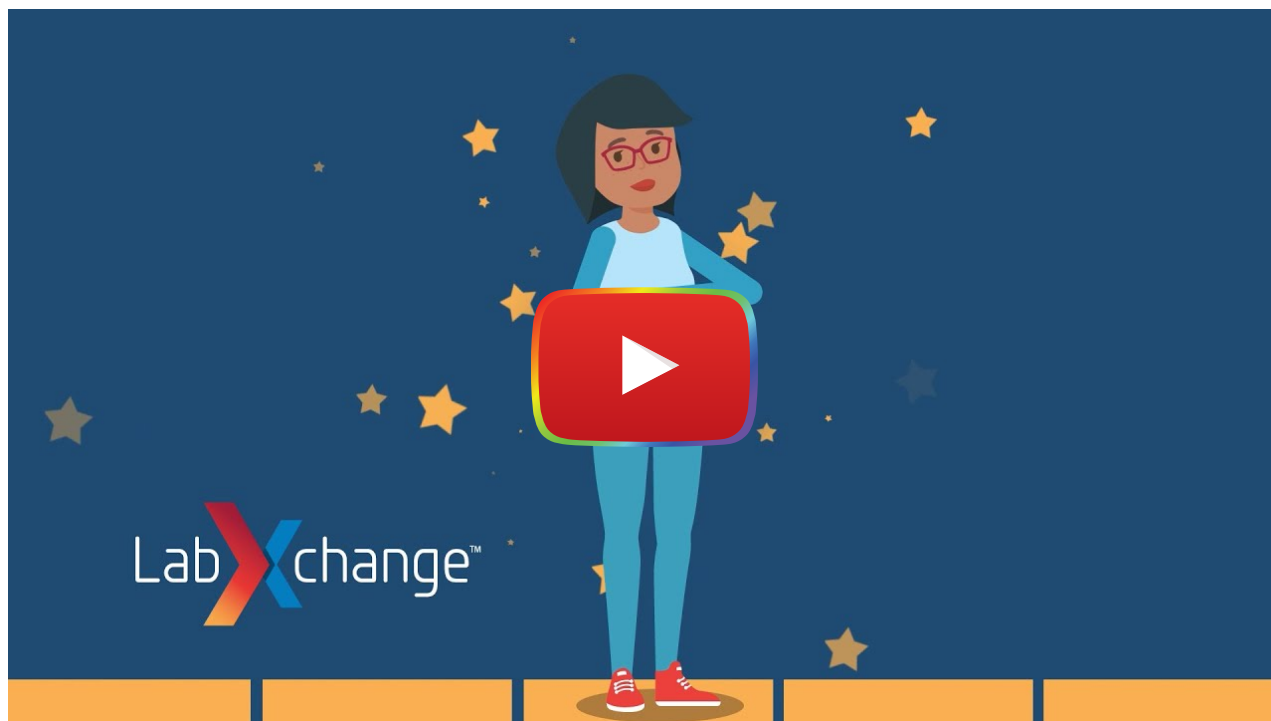
Virtual Classrooms

Behaviorism

Science

Constructivism

[LabXchange](#) is an online science classroom where students and educators can communicate about a variety of topics through [discussion forums](#) as well as the [direct messaging](#) feature. Primarily designed for higher education students (users must be 13 years or older), LabXchange users can create and explore complex material revolving around the world of science through **virtual manipulatives, simulations, videos, and various interactives**. LabXchange is notable for creating individualized learning pathways based on the abilities and knowledge of students. LabXchange stays true to its motto of **science made possible**: "We envision a world with equal opportunity for success in science for anyone, anywhere" ([Robert Lue, PH.D., Faculty Director and Principal Investigator, 2020, para. 1](#)).



[Watch on YouTube](#)

Tool Snapshot

[Price](#)

Free

Learning	Behaviorism & Constructivism
Ease of Use	★★★★☆
Privacy	★☆☆☆☆
Accessibility	★★★★☆
Class Size	300 Persons
Login	To explore content on LabXChange: No login required. To be a part of an online classroom: Login is required.
ISTE*S	Empowered Learner, Knowledge Constructor, Global Collaborator
COPPA/ FERPA	No FERPA/COPPA policy found. Check with your school IT administrator.

Price

LabXchange is a completely [free](#) online platform for all users, both educators, and students, due to the help of the [Amgen Foundation](#). However, it is important to remember, that if you are not paying for the product, you are the product, so make sure to closely read the [privacy_policy](#) before determining whether to use the tool.

Type of Learning

LabXchange supports behaviorist learning as virtual interactives and simulations offer immediate feedback for correct and incorrect responses. In addition, LabXchange supports cognitivist learning through interactive tutorials that take students step-by-step through specific concepts and constructivist learning through open-ended virtual manipulatives that encourage students to construct their understanding of a topic rather than seek one right answer.

Ease of Use

I gave LabXchange 3 stars since the tool is relatively easy to use, but it does require a short amount of time to get familiar with. LabXchange has an extensive amount of information it provides in all different forms ([clusters](#), [pathways](#), [interactives](#), [simulations](#), [method videos](#), and articles) which require some exploration, especially if you are unfamiliar with Labxchange and the environment of an online classroom. LabXchange provides [excellent tutorials](#) for your convenience and there is also a [Help Center](#). You can [Submit A Request](#) for further questions and concerns and also [share your experience](#).

Privacy


I gave LabXchange one star for its [privacy_policy](#) because, to create an account or browse the website and its content, personal information has to be shared, and there is no control over how this information is interpreted and used. LabXchange does integrate third-party companies into this data collection.

LabXchange is neither [COPPA](#) nor [FERPA](#) compliant as it collects personally identifiable information (name, email address, and any other information that personally identifies an individual) of anyone who registers for a user account, accesses the LabXchange website, creates a profile of the LabXchange website, or uses services that communicate with the LabXchange company. LabXchange claims that any data that has been taken from an individual under the age of 13 who has registered, will be deleted, but this is not proven. Designed for high school and higher education students, LabXchange is not compatible with users under the age of 13 due to COPPA restrictions. LabXchange violates The

Children's Online Privacy Protection Act (COPPA) as parents do not have control over what information LabXchange takes, as this information is collected at the time the child accesses the website. Read the [Terms of Service](#) and the [Privacy Policy](#) to learn more.



Screenshot of age verification when creating an account

edX and its Members use cookies and other tracking technologies for  performance, analytics, and marketing purposes. By using this website, you accept this use. Learn more about these technologies in the [Privacy Policy](#).

Screenshot of data collection notice

Accessibility

I gave this tool three stars for accessibility. When testing the [“no mouse challenge”](#) it was possible to navigate the site using a keyboard, however, it was very time-consuming and might become frustrating for users who struggle to locate exactly where they are on the website. Voice control does not work with this application. Additionally, when running the website through the [WAVE Web Accessibility Evaluation Tool](#), there were some errors, but nothing major that would prohibit the use by disabled users. LabXchange was created by the Amgen Foundation and Harvard University, therefore the accessibility statement is included under [Harvard University's Digital Accessibility Policy](#).

Class Size

Educators can host a classroom of up to 300 students. However, there are many different classroom options available depending on the number of learners in a class, including 5, 10, 25, 50, 100, and up to 300. No matter the class size, LabXchange remains a compatible tool free of charge.

Login

A login is [not necessarily required](#), but you get the best experience by doing so. When accessing LabXchange as a guest, you can explore the content that it has to offer such as videos, simulations, interactives, and virtual manipulatives.

Unlike using a guest profile, when creating an account, LabXchange offers a plethora of options for educators and their students. Not only can both teachers and students explore the content offered, teachers can create [clusters](#), and customized learning journeys, that broaden their students' perspective of the topic.

ISTE Standards

Empowered Learner

- LabXchange offers virtual manipulatives that provide immediate feedback to students. Through the power of online experiments, learners can learn in context, use interactive simulations, and troubleshoot experimental designs.

Knowledge Constructor

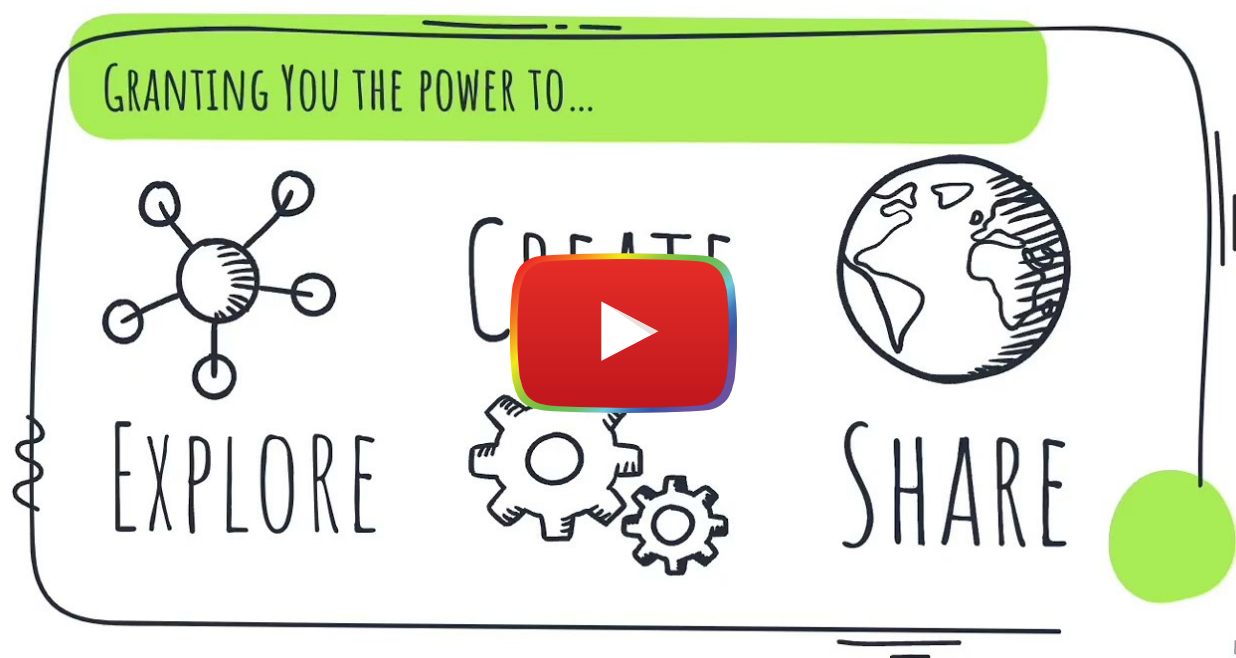
- Students learn and understand the material by diligently taking part in simulations and interactives which represent real-world scenarios.

Global Collaborator

- Students can [create personal content to share](#) with other LabXchange users to experiment with in real-time, expanding their [learning network](#), and forming communities of practice. Students can also share solutions, act as a mentor, and try out other users' creations.

Note: Based on your credentials, you may be eligible to receive a license to reach a larger audience. This can be found in part four of the [Terms of Service](#).

LabXchange in 120 Seconds Video



[Watch on YouTube](#)

[Transcript](#)

LabXchange & the SAMR Model

Dr. Ruben Puentedura's [SAMR model](#) offers a lens for examining how technology is adopted in a classroom. As you strive to incorporate online tools into your classroom, I encourage you to use this model as an analytic tool.

Here is an example of how **LabXchange** might fit within the SAMR model:

Imagine you are trying to teach your students about the tools and techniques of biotechnology...gel electrophoresis in particular...

- **Substitution:** Students can read text about gel electrophoresis on LabXchange rather than using a physical textbook.
 - Check out this [What Is Gel Electrophoresis article](#) on LabXchange.
- **Augmentation:** Students can engage in virtual asynchronous discussions about gel electrophoresis within, and outside of school.
 - Check out these [discussion boards](#) on LabXchange, where users can add new threads, sparking new discussions with their peers within their classroom, and their online community.
- **Modification:** Students can construct their understanding of gel electrophoresis based on virtual manipulatives, providing a more authentic learning experience.
 - Check out this [gel electrophoresis simulation](#) on LabXchange, as well as this [question board](#) where students get immediate feedback to confirm their understanding of the topic.
- **Redefinition:** Students can design their learning pathways and share their knowledge with the community through images, videos, text documents, and pathways.
 - Check out this [pathway](#) designed to help students better understand the tools and techniques of biotechnology.

Far too often, technology is used as a direct substitute for other low-tech tools (e.g., pencil and paper). While substitution has some benefits (e.g., students develop their technology skills and knowledge), I encourage you to think about how you might use LabXchange to modify or redefine learning.

Learning Activities

Math

Explore different videos about the world of math, from the discovery of mathematics to its invention, and complete free worksheets such as this [worksheet](#), all about healthy oceans and sustainable seafood, integrating maths and other computational challenges into learning. Get insight into real-world applications, and take a peek at how different variables can be measured in modern-day issues such as Covid-19. This [simulation](#) gives learners an idea of the mathematics behind the spread of Covid-19, based on different variables. Within different interactives, mathematics hides out, and it can be useful to have students demonstrate how to point out these variables to enhance their learning. In other words, while exploring scientific videos, students can be encouraged to find mathematics that may be hidden within. For example, in this [simulation about DNA](#), educators may ask students to locate and count the base pairs within the DNA double helix.

Science

Learn new concepts and conduct research via the library, where you can explore different topics and [trustworthy organizations](#). Check out the [trending topics](#) to see what scientists on LabXchange are most interested in now. Check out this [interactive](#) about the symptoms of Covid-19 on a spectrum ranging from mild to critical. Students can continue to broaden their knowledge by searching for a [mentor](#) to better support their learning, and by communicating with them via the chat feature.

English/Language Arts

Engage in effective [online discussions](#) with classmates and message experts in the field. Diving deeper, examine how the text is used in a scientific context with complex words unveiling a deeper meaning behind scientific reasonings.

Additionally, educators and students have the opportunity to build [scientific literacy](#) skills. LabXchange will even introduce you to a [critical reading analysis](#), as well as [create a scientific research article](#)!

History

Dive into the broad history of science, and many topics within. Understand the history of so many different important keystones such as the [history of black history month](#), [the history of the drug naltrexone](#) and where it is headed, the [history of the Mauritian Exploration](#), and so much more!

Other

- online classroom community.
- Create virtually tangible masterpieces.
- Explore [mindfulness](#) techniques/[music](#) used in a therapeutic manner.
- Learn how to apply to [college](#) and how to use the [common application](#).
- [Engineering](#).

Resources

Account:

- [Do I Need An Account?](#)
- [Creating An Account](#)
- [Activate Your Account](#)
- [Logging In](#)
- [Your Dashboard](#)
- [Account Settings](#)
- [Managing Your Profile](#)
- [Troubleshooting Login Difficulties](#)
- [User Support](#)

Educator:

- [Educator Tour](#)
- [Create a Class and Community](#)
 - [How to Make a Class](#)
 - [How to Join a Class](#)
 - [How to Track Learner Progress in Classes](#)
 - [Enrolling Learners in a Class](#)
 - [Managing Learners in a Class](#)
 - [Understanding Learners' Progress in Classes](#)
 - [Common Questions About Classes](#)
 - [Tutorial 3: Creating a Class](#)
- [Facilitating Effective Online Discussions](#)
- [Supporting Your Learning Community Online](#)
- [LabXchange: The World's Science Classroom](#)
- [Tutorial 1: Creating a Question](#)
- [BACK TO SCHOOL WITH LABXCHANGE: REMOTE LEARNING](#)
- [Education Levels and Curriculums](#)
- [Teaching Guides](#)
- [Resetting Progress](#)
- [Using Google Forms for Longer Assessments](#)

Student:

- [How to Join a Class](#)
- [Understanding Your Progress in Classes](#)
- [Resetting Progress](#)
- [Activity Completion](#)
- [Common Questions About Classes](#)

Fundamental Features

- [Searching the Content Library](#)
- [Your Dashboard](#)
- [Adding Content to your Private Library](#)
- [Public and Private Content](#)
- [Messaging](#)
- [Community Discussion Forums](#)

Community

- [Sharing Content](#)
- [Mentorship](#)
- [Supporting Your Learning Community Online](#)
- [Inspiring the Scientists of Tomorrow with LabXchange](#)

Viewing Content:

- [Clusters](#)
- [Pathways](#)
 - [Tutorial 2: Creating a Pathway](#)
 - [Creating and Editing Pathways](#)
 - [Learning Objectives](#)
- [Simulations](#)
 - [Simulations as a Teaching Tool](#)
- [Scrollable Interactives](#)
- [Case Studies](#)
- [Digital Textbooks](#)
- [Narratives](#)

Creating and Editing Content:

- [Creating a Text Asset](#)
- [Creating an Image Asset](#)
- [Creating and Editing a Document](#)
- [Creating an Audio Asset](#)
- [Creating a Video Asset](#)
- [Creating and Editing a Question](#)
- [Creating and Editing a Question Set](#)
- [Creating and Editing a Case Study](#)
- [Creating and Editing Pathways](#)
- [Creating and Editing a Narrative](#)

Other Miscellaneous Resources:

- [LabXchange Collaborators](#)
- [Making the Most of Online Learning](#)
- [Technical Requirements](#)
- [Reporting Content](#)
- [Submitting Feedback on Translated Resources](#)
- [Citations and References](#)
- [Guidance for Network Administrators](#)
- [Become a Collaborator](#)

How to Use LabXchange

Tutorials/Videos:

- [Welcome to LabXchange](#)
- [LabXchange: A Guided Tour](#)
- [LabXchange: The World's Science Classroom](#)
- [Personalize Online Learning with LabXchange: A Virtual Tour with Jessica Silverman, Content and Collaborations Manager](#)
- [LabXchange Pathways](#)
- [How to Make a Pathway](#)

[How To Create A LabXchange Account](#)

1. Go to [LabXchange](#) and click Sign Up.
2. Click "Join for Free" and register for an account
3. Verify your age
4. Understand that your LabXchange account is also an [edX.org](#) account
5. Click "Get Started" if you comply
6. Register your profile
 - a. Full Name
 - b. Email
 - c. Public Username
 - d. Password
 - e. Country/Region
7. Review [Terms of Service and Honor Code](#) and acknowledge that edX and each member will process and collect your personal information, aligning with the [Privacy Policy](#).
8. Complete your profile by adding your [demographic information](#)
 - a. Highest level of education completed (optional)
 - b. Gender (optional)
9. [Activate Your Account](#) with a verification email

[How to Make a Class](#)

1. Navigate to the educator dashboard.
2. Select the far right tab labeled "Classes".
3. Select "Create a new class".
4. Add a title to the class and a brief description of what learners should expect.
5. Invite learners with unique class codes.
6. Approve learners prior to class entry.

How to Join a Class

1. Collect unique class code from the instructor. You will need this to enroll in the correct class.
2. Navigate to your Learner Dashboard through the drop-down menu labeled 'Browse'.
3. Select "Join a Class" and enter the code provided by the instructor.
4. Request to join the class, and a request will be sent to your instructor to be approved.

How to Assign Content

1. After creating a class, search for content in the library to assign it to your students. You can explore the library catalog through the search icon on the top right of the screen.
2. When you have located the material you would like to assign, select the blue tab underneath labeled "Assign to class"
3. From here, you will be prompted to select a class that you would like to assign it to.
4. Once selecting the class, press the yellow tab to the bottom right labeled "Assign to class".
5. Once assigned, you will receive a message confirming the addition of new material.

How to Track Learner Progress In Classes

1. Navigate to the "Progress" tab located in the class you are tracking progress in.
2. Search for specific learners and analyze the progress provided. The link above will answer frequently asked questions educators have.

How to Add Content to your Private Library

1. Navigate to your dashboard
2. Click "Add your content". When prompted, select the type of content you wish to add to your private library. You will have the following options: assessment, document, image, narrative, pathway, text, or video.
3. Navigate to this [link](#) to understand more about how to create content based on these individual fields.

Research

[Making virtual learning engaging and interactive](#)

[Measuring Medical Student Preference: A Comparison of Classroom Versus Online Instruction for Teaching](#)

Schimming L. M. (2008). Measuring medical student preference: a comparison of classroom versus online instruction for teaching PubMed. *Journal of the Medical Library Association: JMLA*, 96(3), 217–222.

<https://doi.org/10.3163/1536-5050.96.3.007>

Sweetman D. S. (2020). Making virtual learning engaging and interactive. *FASEB bioAdvances*, 3(1), 11–19.

<https://doi.org/10.1096/fba.2020-00084>

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