# Educator's User Guide for the Learning Management System (LMS)

## Getting Started with the Learning Management System (LMS)

This guide will help educators and students navigate the LMS to access the resources for implementing Authentic Research Experiences (AREs) and Course-based Undergraduate Research Experiences (CUREs), from signing up to submitting project data and completing impact surveys. The LMS has three portals dedicated to educators, students, and scientists.

## LMS Access and Account Setup

- Follow the link provided to access the ARE LMS site, where you will see options for "Sign In" and "Sign Up" under the educator section.
- Start by selecting "Sign Up" to create your account for either of these two options:
  - "Public Schools", if you represent a public school.
    - Search for your state, district, and school name.
    - Include a link to your webpage on your school website, if available.
  - "Other Institutions" for private schools, undergraduate institutions (colleges or universities), and institutions with informal learning programs.
    - Search for your institution. If your institution is not listed, click on the box and complete the fields to add your institution to the list.
    - Include a link to your webpage on your institution's website, if available.

    **Note:** After you register, your account will need to be approved by the ARE team before you can access all features. You will receive an email confirmation once your account has been approved.

## Exploring Available AREs/CUREs

Once logged in into the Educator Portal, you will land on the homepage of the AREs (6-12 grade level) or the CUREs (undergraduate level), which displays the current activities available.

- On the left-side menu "Contacts & Info",  you will find the contact information of the ARE/CURE team and the lead scientists of the specific ARE/CURE. You can reach out to them for questions about the project implementation or research process.

- Click "More Info" to access the information about a specific ARE or CURE (e.g., Genotype to Phenotype). On the right-hand menus, you will have access to:
    - o "Protocols & Worksheets" and "Scientific Articles": these menus include educational resources that will help you with the implementation process. These resources include learning standards, user guides, background information, protocols, videos, scientific articles, research data entry forms, and worksheets.
    - o "Forms & Surveys": this menu includes links to track the completion of the forms and surveys that students and parents of minors will complete for our education research project, which examines students' outcomes, learning expectations, and challenges arising from participation in the AREs or CUREs to inform educators and education policy.
    - o In the "Forms & Survey" menu, there is also a link to the "Educator Survey". This survey is to be completed by educators at the end of the ARE/CURE to share their experiences implementing the activities, teaching outcomes, challenges, and suggestions for improving the program.
    - o We encourage educators to promote the completion of these forms and surveys among students and parents, as applicable. See the sections below, "IMPORTANT: Complete Pre-Surveys First" and "Data Entry and Project Completion" for additional information.
    - o "Data": this menu includes a link to download the research data collected by the students.

## Requesting an ARE

- To participate in an ARE or a CURE, click "Request this ARE" in the left-hand side.
- Complete the short form indicating:
    - o The ARE or CURE of your choice
    - o Intended start date
    - o Interest in a scientist visit (virtual or in-person).
    - o Number of students participating
    - o Grade level
    - o Course or activity name
- After your request is approved, the ARE team will contact you via email to arrange the supply pickup or mailing and discuss implementation details.
- You will also receive access to the student account information, which you will share with your students.

## Student Account Setup
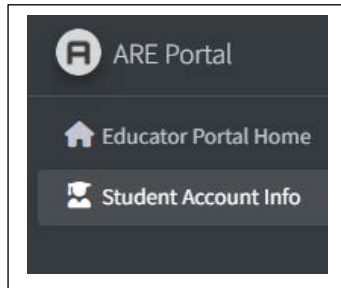
- To access the student account information, hover over the top-left sidebar and click "Student Account Info".
- You will find a unique student username and password. All your students will use the same account to access the Student portal.
- Share this account information with your students to allow them to log in to the Student Portal via the LMS login site here.

## Student Portal: Project Workflow

- After logging in, students will see a landing page with one or more panels representing the requested AREs/CUREs. By clicking on "More Info" on a panel, students will access a specific ARE/CURE site.
- In the left menu, students can find the contact information of the ARE/CURE team and lead scientists for the ARE/CURE, whom students can contact if they have questions about their projects.
- The right-side, as in the Educator Portal, there are the same menus "Protocols & Worksheets", "Scientific Articles", "Forms & Surveys", and "Plant Research Data", to facilitate students' implementation of the AREs/CUREs.
- In the "Forms & Surveys" menu, students use the links to complete forms and surveys for our education research project.
  - See below the sections "IMPORTANT: Complete Pre-Surveys First" and "Final Steps: Post-Surveys" for more information.
- In the "Plant Research Data" menu, there is a link to a form where students will enter their plant research data, and a link to download the recorded data. See the section "Data Entry and Project Completion" below for more information.

## IMPORTANT: Complete Pre-Surveys First

- **Before starting any project work**, students must complete the forms and pre-surveys in the "Forms and Surveys" menu.
  - Parental Consent form: Parents or guardians of minor students (younger than 18 years old) should complete this form to grant or withhold consent for the student to participate in the education research project. Encourage your students to discuss this with their parents.

- o Photo Consent form: This form should be completed by parents of minors or adult students (18 years or older) to allow the ARE team to use photos of participants conducting the projects for reporting and dissemination of the ARE program.
  - o Student Assent: All students should complete this form to give assent to participate in the education research project.
  - o Pre-surveys for AREs (6-12 grade):
    - PRE-SciID Survey
    - PRE-STEM Semantics Survey
  - o Pre-surveys for CUREs (undergraduate level):
    - PRE-PITS Survey

## Final Steps: Post-Surveys

- **After the project is complete**, students should complete post-surveys in the "Student Forms and Surveys", including:
  - o Pre-surveys for AREs (6-12 grade):
    - POST-SciID Survey
    - POST-STEM Semantics Survey
    - POST-LCAS Survey
  - o Pre-surveys for CUREs (undergraduate level):
    - POST-PITS Survey
    - POST-LCAS Survey

## Educator Monitoring

As an educator, you can see which students have completed their pre- and post-surveys (but not their actual responses) through your Educator Portal. This will help you track compliance both before starting the research activities and upon their completion.

- o Navigate to the "Forms & Surveys" menu and click on links to check completion status. At each link, you will see a list of the individuals who have completed the forms or surveys.
  - o What you CAN see:
    - Names of students who completed the survey
    - Date/time stamps of completion
    - Which specific surveys each student has finished

- What you CANNOT see:
  - Actual student responses or answers
  - Survey content or what students wrote
  - Individual student data

## Data Entry and Project Completion

- After completing the projects, students will access their portal to enter their research data in the "Plant Research Data" menu. In this menu, students can access the data entry forms to submit their research data and to download it.
- Students submit data as teams or individuals, and provide the following information, depending on the form for the specific ARE/CURE:
  - Teams/individuals information: name, grade, and semester
  - Environmental parameters: growth environments, temperature, and humidity
  - Experimental design information: planting date, number of seeds, genotype number, and number of replicates.
  - Plant data: germination date, plant measurement dates, manual/digital values, notes (e.g., no germination or unusual conditions).
- After students have entered the research data, they will be able to download it.
- **Educator Access:** Through the Educator Portal, you can view both who has submitted data and download the data recorded by the students.

## Educator Responsibilities

- Survey Tracking: Monitor student completion of pre- and post-surveys, as well as consent and assent forms, through your Educator Portal to ensure all students participate in the evaluation components of the ARE/CURE.
- ARE Educator Survey: Complete this survey at the end of your ARE/CURE implementation. This helps the program improve and understand your experience.
- Student Data Download: You can download and review all student plant research data submitted by your class through the "Student Research Data Download" feature.

## Troubleshooting and Feedback

- If you have any questions, please feel free to reach out to the ARE team at ARE@danforthcenter.org
- The ARE team appreciates your participation!

## Key Reminders

- Pre-surveys must be completed BEFORE students begin their research activities. This step is crucial for program evaluation and should not be skipped.
- Use the LMS's tracking features to monitor student progress through surveys and data submission.
- Complete your "Educator survey" at the end of the program.