TEAM-BASED CHALLENGE

HANDBOOK

TREES | THREE RIVERS EDUCATION FOR EMPLOYMENT SYSTEM
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PURPOSE

Three Rivers Education for Employment System (TREES, EFE 100) has developed this handbook to assist Career and Technical Education teachers in implementing Team-Based Challenges in their courses that align with the required elements of the Illinois State Board of Education's College and Career Pathway Endorsements (CCPE). This edition is our first attempt at this product, and we plan to revise and improve it in future school years. If you have suggestions, please email them to cteintrees@gmail.com.

TEAM-BASED CHALLENGES AND CCPE CRITERIA

Per the Illinois State Board of Education, in order for a student to earn a College and Career Pathway Endorsement on their high school transcript, they must participate in a minimum of two team-based challenges within their identified pathway. Ideally, these challenges are embedded in courses within the career-focused instructional sequence identified for the CCPE. This makes record keeping a bit easier and ensures equity for student participation (versus extracurricular Team-Based Challenges that may prevent some students from participating outside of regular school hours.) According to the Illinois Career Pathways Dictionary, a Team-Based Challenge is:

> *a group problem-based learning project relating to an individual's career area of interest that involves a problem relating to employers within that area, including mentoring from adults with expertise in that area, and requires the individual to present the outcomes of the project* (Illinois State Board of Education, (2018).

GETTING FROM PROBLEM-BASED LEARNING TO TEAM-BASED CHALLENGE

Quality CTE programs have embedded Problem-Based Learning. Using existing PBL assignments with some modifications will get you into alignment with Team-Based Challenges for your students pursuing CCPE. For this reason, we're going to spend some time in this handbook discussing the similarities between PBL and Team-Based Challenge.

Problem-Based Learning introduces students to likely scenarios that exist in business and industry, developed and graded by teachers, typically without industry input. PBL may be done individually, although it's often a group project with an emphasis is on students demonstrating content mastery through application. Generally, PBL moves students through several steps in order to define and solve the problem posed, and it encourages students to apply knowledge and skills while also identifying gaps in their knowledge and skills. In PBL, instructors serve as facilitators as part of students' collaborative process, assisting students in identifying gaps in knowledge and sources of additional information needed to solve the problem (Cornell, 2024a; Cornell, 2024b).

Team-Based Challenges also introduce students to problems and likely scenarios that exist in business and industry. Team-Based Challenges, incorporate industry collaboration either in the design, mentoring, or evaluation of student solutions. To be clear, teachers as the instructor of record grade these assignments, but industry partners may serve in a mentoring role and provide students with feedback about their solutions. This industry partner collaboration is one of the distinguishing characteristics between PBL and Team-Based Challenge.

The other distinguishing characteristic of Team-Based Challenge is that it is designed to address a specific Career Pathway Technical Competency along with a Cross-Sector Essential

Employability Skill, as defined by ISBE (Illinois Career Competencies by Pathway - Google Docs). These skills are likely to be skills currently embedded in the coursework in a given pathway course, but unlike PBL, in a Team-Based Challenge, teachers have to identify these skills and connect how the challenge addresses them. Each Team-Based Challenge must have a minimum of one skill (and a maximum of two skills) from the Technical Competency list and one skill (and a maximum of two skills) from Essential Employability Skills list.

Because they are quite similar in design, teachers may already have a PBL assignment that could become a Team-Based Challenge. If teachers have an existing project in their course that meets the criteria set out by Career Connected Illinois and the Illinois State Board of Education, then they have a Team-Based Challenge already embedded in the course. To see if a current assignment will work as a Team-Based Challenge, it must meet the following criteria:

- ☐ Solves an Authentic problem
  - ☐ …identified from or in collaboration with industry partners
  - ☐ … is local or regionally relevant to the community as a whole
  - ☐ …is connected to a "global issue"
- ☐ Results in a real solution that can be partially/fully implemented in the community
- ☐ Relates to the College and Career Pathway Endorsement area students are pursuing
- ☐ Creates a final product/presentation (group PowerPoint, recorded media, fair, or live event)

INTEGRATING LOCAL INDUSTRY PARTNERS

Industry partners can be integrated into Team-Based Challenges in various ways. No two Challenges are created the same way. Consider the relationship between the program and

local industry to determine the most likely ways in which industry will support the Challenges. For example, teachers may identify an idea from an article in a newspaper and then bring that idea to their industry partner to provide a mini lecture via Zoom or prerecorded video about how that issue impacts their work environment, providing students with some background information about the Challenge they'll be asked to address.

As students work through their solutions, the industry representative may or may not be able to be involved in more intensive student work such as mentoring and feedback during the process. But they may be interested in hearing students' final presentations and providing feedback on those finished concepts. Again, depending on the regularity with which CTE programs are interacting with industry partners, there may be varying degrees of involvement by industry.

Some ways in which industry partners may be involved in Team-Based Challenges are:

- ✓ Identification of the Team-Based Challenge problem and/or competencies to demonstrate
- ✓ Kick-off/Launch (Note: This part can be virtual or via recorded video)
- ✓ Mentoring, instruction, or feedback during Challenge
- ✓ Feedback on final presentation
- ✓ Annual review/validation of the Team-Based Challenge problem in advisory committees or via email

DESIGNING TEAM-BASED CHALLENGES

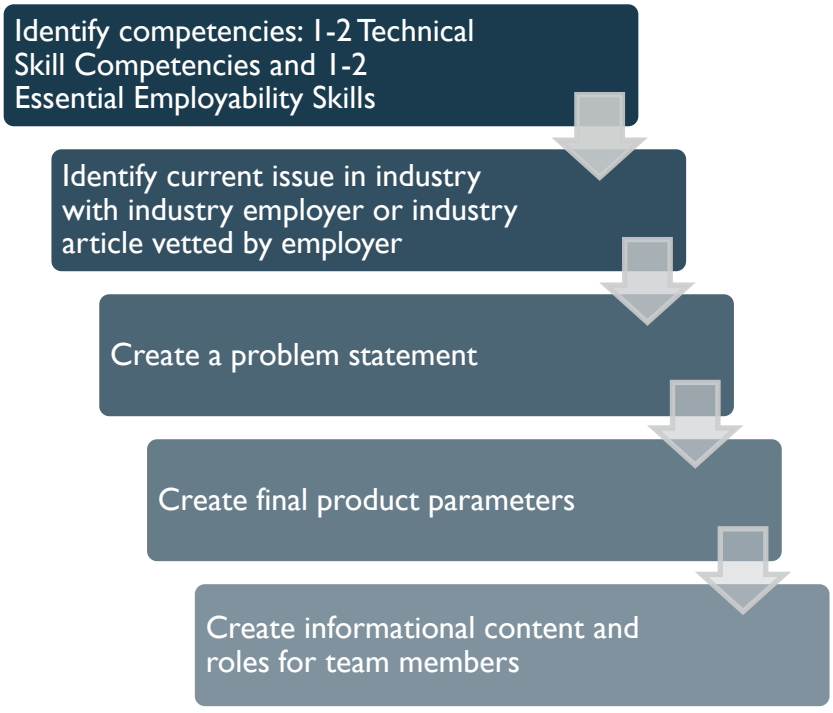
Use Backward Design to develop Team-Based Challenges. Backward Design starts with the end objective and then designs assessments/final projects that will demonstrate that

objective as the next step of design. From there, the design process considers activities that will provide students with practice towards those end assessments. This then is broken down into smaller lesson activities, resources, and information that will serve to inform students' abilities as they move through the lesson.

When applying Backward Design to Team-Based Challenges, begin with the Technical Competency and the Essential Employability Competency you want students to demonstrate in the challenge. This is another place where industry partners can provide some insights into which of these competencies are the most timely or critical. When designing the final assessment, consider several current industry issues which could provide context for the competencies. Note that this can also be a place where employers can give some support to your Team-Based Challenge process.

Once a current issue has been identified, write your problem statement that incorporates the issue and the Technical and Essential Competencies. Then shape the final product parameters so that it's clear for students what they will need to produce to complete the challenge. Then design informational and practice elements for students so that they will have experiences that inform their solution to the challenge.

Figure 1: Backward Design Process for Team-Based Challenges



RESOURCES BY ENDORSEMENT AREA

CCPE area	Resources for Team-Based Challenge
Agriculture, Food, and Natural Resources	1. National FFA Organization (has Team Based Challenges on this page) 2. University of Illinois-Extension Crop Scouting Competition 3. Leaf Education National Food, Farming and Environment Competition 4. Earth Team Soil Management thru the USDA-Natural Resources Division 5. Junior Chef Competition
Arts & Communication	1. Illinois Snow Sculpting Competition 2. The Art Throwdown 3. BioenergizeME Infographic Challenge (graphics and social media) 4. Lowell Milken Center Unsung Heroes Competition 5. Morris Museum of Arts Combining Voices Competition
Finance and Business Services	1. Conrad Foundation - Conrad Challenge 2. ASA Statistics Project Competition 3. Blue Ocean Business and Entrepreneurship Competition 4. DECA a. Disability is Diversity Challenge b. Fashion Institute of Design & Merchandising (FIDM) Video Challenge
Health Sciences & Technology	1. Genes in Space 2. ITEEA Reach Challenge 3. National Center for Case Study Teaching in Science (Must have a membership to download case studies 4. Project Lead the Way: Resources, Materials, and Case Studies
Human and Public Services	1. Robert F. Kennedy Human Rights Video Contest 2. C-Span Student Cam Video Contest 3. The National High School Ethics Bowl 4. Educators Rising: Competition Guidelines and Scoring Rubrics

Information Technology	1. Project Lead the Way: Resources, Materials, and Case Studies 2. Guidebook of Professional Learning Experiences within Information Technology 3. Vex Robotic Competition 4. Department of Defense Cyberpatriot Competition 5. Technovation Challenge 6. Lawrence Technological University Robofest
Manufacturing, Engineering, Technology and Trades	1. Project Lead the Way: Resources, Materials, and Case Studies 2. SkillsUSA: Contest Descriptions for Championships Competitions 3. Illinois Tech Innovation Challenge 4. 120 Hours Engineering Challenge 5. REC Foundation Aerial Drone Competition 6. StellarXplorers Space Competition 7. The Architectural Foundation of San Francisco 2022 AFSF Design Ideas Collective
General Resources	1. Problem Library | Institute for Transforming University Education (udel.edu) 2. Illinois Career Competencies by Pathway - Google Docs

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