

Computer Science Essentials

Workshop Description

The workshop is designed for PLTW Computer Science Essentials (CSE) teachers in Massachusetts who have completed PLTW Core Training and would like additional training to enhance their skills and ability to teach the CSE course and meet their students' needs. The one-day, in-person workshop is led by a PLTW Master Teacher and comprises multiple sessions in which participants collaborate in small groups and share and learn with their cohort.

Workshop Objectives

In the workshop, CSE teachers work with their peers to:

- Discover ways to invigorate and elevate the student learning experience.
- Explore customization examples of activities, projects, and problems (APBs) within the course.
- Explore students' diverse needs and interests.
- Investigate local connections.
- Personalize the student experience to respond to your students' diverse needs and interests and their local community.

Note: To make the most out of this experience, please bring a mobile device (Android or iOS tablet or phone) to this workshop.

CSE Agenda

| Session | Time | Topic |
|---------------------------------------|--------------------------|--|
| Welcome | 8:30–9:30 (60 min.) | Introduction and overview of the workshop and day’s logistics. |
| Personalize: Know Your Students | 9:30–9:40 (10 min.) | Introduction and overview of the Personalize: Know Your Students session. |
| | 9:40–10:10 (30 min.) | Investigate student readiness with Activity 1.2.3 Procedural Abstraction: Price Per Slice and Activity 2.1.2 Coding Fundamentals: Dead Reckoning. <ul style="list-style-type: none"> • Explore the activities with a focus on student readiness. • Look at the activities from the lens of two given student vignettes—a student who needs foundational support and a student who needs further challenges. • Examine personalization plan examples for these students. |
| | 10:10–11:00 (50 min.) | Extend your expertise in the skills used in Activity 1.2.3 Procedural Abstraction: Price Per Slice, using CloudDB database functionality within MIT App Inventor to store persistent data across devices. Note This segment includes a 10-minute break. |
| | 11:00–11:30 (30 min.) | Investigate student learning barriers with Activity 2.1.1 Transitioning from Blocks to Text. <ul style="list-style-type: none"> • Examine common student learning barriers and strategies. • Explore and examine the activity from the lens of a given student vignette with specific learning barriers. • Examine a personalization plan example for this student. |
| | 11:30–11:45 (15 min.) | Investigate student interests with Activity 3.2.1 Lists and Elements. <ul style="list-style-type: none"> • Explore the activity from the lens of a given student vignette and think about what could interest and excite this student. • Examine a personalization plan example for this student. |
| | 11:45–12:15 (30 min.) | Implement: Examine the varying needs of your students. Participate in a group discussion of common student readiness challenges, learning barriers, learning preferences, and interests you have experienced in the classroom. |
| Personalize: Know Your Students | 12:15–1:15 (60 min.) | Lunch and Networking |
| | 1:15–1:55 (40 min.) | Implement: Create a personalization plan for an activity, project, or problem of your choosing to customize for your students. |

PLTW Energize Training

| Session | Time | Topic |
|---|------------------------|---|
| | 1:55-2:10 (15 min.) | Share your personalization plan with your cohort and give feedback. |
| Personalize: Connect to Your Community | 2:10-2:40 (30 min.) | Introduction and overview of the Personalize: Connect to Your Community session. Participate in a group discussion about the benefits of connecting projects and problems to your local community and share interests and values that are important to your local community. |
| | 2:40-2:55 (15 min.) | Investigate personalization plan examples for connecting course projects and problems to one's local community. |
| | 2:55-3:15 (20 min.) | Implement: Create a personalization plan to connect a project or problem of your choosing to your community. |
| | 3:15-3:30 (15 min.) | Share your personalization plan with your cohort and give feedback. |

Design and Modeling

Workshop Description

The workshop is designed for PLTW Design and Modeling (DM) teachers in Massachusetts who have completed PLTW Core Training and would like additional training to enhance their skills and ability to teach the DM unit and meet their students' needs. The one-day, in-person workshop is led by a PLTW Master Teacher and comprises multiple sessions in which participants collaborate in small groups and share and learn with their cohort.

Workshop Objectives

In the workshop, DM teachers work with their peers to:

- Discover ways to invigorate and elevate the student learning experience.
- Explore customization examples of activities, projects, and problem (APBs) within the unit.
- Explore students' diverse needs and interests.
- Investigate local connections.
- Personalize the student experience to respond to your students' diverse needs and interests and their local community.

DM Agenda

| Session | Time | Topic |
|---------------------------------------|--------------------------|--|
| Welcome | 8:30–9:30 (60 min.) | Introduction and overview of the workshop and day’s logistics. |
| Personalize: Know Your Students | 9:30–9:40 (10 min.) | Introduction and overview of the Personalize: Know Your Students session. |
| | 9:40–10:10 (30 min.) | Investigate student readiness with Activity 2.3 It’s For the Birds. <ul style="list-style-type: none"> • Explore the activity with a focus on student readiness. • Look at the activity from the lens of two given student vignettes—a student who needs foundational support and a student who needs further challenges. • Examine personalization plan examples for these students. |
| | 10:10–11:00 (50 min.) | Extend your expertise in the skills used in Activity 2.3 It’s For the Birds, including using more advanced solid modeling practice using Tinkercad. Note This segment includes a 10-minute break. |
| | 11:00–11:30 (30 min.) | Investigate student learning barriers with Activity 1.1 Foot Orthosis Instant Design Challenge. <ul style="list-style-type: none"> • Examine common student learning barriers and strategies. • Explore and examine the activity from the lens of a given student vignette with specific learning barriers. • Examine a personalization plan example for this student. |
| | 11:30–11:45 (15 min.) | Investigate student interests with Project 1.6 Investigate the Inside. <ul style="list-style-type: none"> • Explore the project from the lens of a given student vignette and think about what could interest and excite this student. • Examine a personalization plan example for this student. |
| | 11:45–12:15 (30 min.) | Implement: Examine the varying needs of your students. Participate in a group discussion of common student readiness challenges, learning barriers, learning preferences, and interests you have experienced in the classroom. |
| Personalize: Know Your Students | 12:15–1:15 (60 min.) | Lunch and Networking |
| | 1:15–1:55 (40 min.) | Implement: Create a personalization plan for an activity or project of your choosing to customize for your students. |

PLTW Energize Training

| Session | Time | Topic |
|---|------------------------|---|
| | 1:55-2:10 (15 min.) | Share your personalization plan with your cohort and give feedback. |
| Personalize: Connect to Your Community | 2:10–2:40 (30 min.) | Introduction and overview of the Personalize: Connect to Your Community session. Participate in a group discussion about the benefits of connecting projects and problems to your local community and share interests and values that are important to your local community. |
| | 2:40–2:55 (15 min.) | Investigate personalization plan examples for connecting Problem 3.1 Therapeutic Toy to one’s local community. |
| | 2:55–3:15 (20 min.) | Implement: Create a personalization plan to connect the problem to your community. |
| | 3:15–3:30 (15 min.) | Share your personalization plan with your cohort and give feedback. |

Introduction to Engineering Design

Workshop Description

The workshop is designed for PLTW Introduction to Engineering Design (IED) teachers in Massachusetts who have completed PLTW Core Training and would like additional training to enhance their skills and ability to teach the IED course and meet their students' needs. The one-day, in-person workshop is led by a PLTW Master Teacher and comprises multiple sessions in which participants collaborate in small groups and share and learn with their cohort.

Workshop Objectives

In the workshop, IED teachers work with their peers to:

- Discover ways to invigorate and elevate the student learning experience.
- Explore customization examples of activities, projects, and problems (APBs) within the course.
- Explore students' diverse needs and interests.
- Investigate local connections.
- Personalize the student experience to respond to your students' diverse needs and interests and their local community.

IED Agenda

| Session | Time | Topic |
|---------------------------------------|--------------------------|--|
| Welcome | 8:30–9:30 (60 min.) | Introduction and overview of the workshop and day’s logistics. |
| Personalize: Know Your Students | 9:30–9:40 (10 min.) | Introduction and overview of the Personalize: Know Your Students session. |
| | 9:40–10:10 (30 min.) | Investigate student readiness with Activity 1.3.4 CAD Modeling Skills. <ul style="list-style-type: none"> • Explore the activity with a focus on student readiness. • Look at the activity from the lens of two given student vignettes—a student who needs foundational support and a student who needs further challenges. • Examine personalization plan examples for these students. |
| | 10:10–11:00 (50 min.) | Extend your expertise in the skills used in Activity 1.3.4 CAD Modeling Skills, using cloudDB database functionality within MIT App Inventor to store persistent data. <ul style="list-style-type: none"> • Including using more advanced solid modeling practice using Tinkercad. • Including using sketch patterns, shell, loft, and tapered extrude features. <p>Note This segment includes a 10-minute break.</p> |
| | 11:00–11:30 (30 min.) | Investigate student learning barriers with Activity 2.3.1 Materials Properties. <ul style="list-style-type: none"> • Examine common student learning barriers and strategies. • Explore and examine the activity from the lens of a given student vignette with specific learning barriers. • Examine a personalization plan example for this student. |
| | 11:30–11:45 (15 min.) | Investigate student interests with Activity 3.1.1 Reverse Engineer a Product. <ul style="list-style-type: none"> • Explore the activity from the lens of a given student vignette and think about what could interest and excite this student. • Examine a personalization plan example for this student. |
| | 11:45–12:15 (30 min.) | Implement: Examine the varying needs of your students. Participate in a group discussion of common student readiness challenges, learning barriers, learning preferences, and interests you have experienced in the classroom. |

PLTW Energize Training

| Session | Time | Topic |
|---|-------------------------|---|
| Personalize: Know Your Students | 12:15–1:15 (60 min.) | Lunch and Networking |
| | 1:15–1:55 (40 min.) | Implement: Create a personalization plan for an activity, project, or problem of your choosing to customize for your students. |
| | 1:55–2:10 (15 min.) | Share your personalization plan with your cohort and give feedback. |
| Personalize: Connect to Your Community | 2:10–2:40 (30 min.) | Introduction and overview of the Personalize: Connect to Your Community session. Participate in a group discussion about the benefits of connecting projects and problems to your local community and share interests and values that are important to your local community. |
| | 2:40–2:55 (15 min.) | Investigate personalization plan examples for connecting course projects and problems to one’s local community. |
| | 2:55–3:15 (20 min.) | Implement: Create a personalization plan to connect a project or problem of your choosing to your community. |
| | 3:15–3:30 (15 min.) | Share your personalization plan with your cohort and give feedback. |