



Collaborative Lesson Design for Multilingual Learners in STEM classes



Welcome & Activity Overview

In this session, you will work collaboratively in small groups to create a STEM lesson plan that integrates Social-Emotional Learning (SEL) and culturally responsive teaching strategies to support multilingual learners. Your goal is to develop a lesson that fosters both academic growth and emotional well-being for students from diverse backgrounds

Activity Objectives:

- **Objective 1:** Design a STEM lesson that incorporates SEL techniques to create an inclusive and supportive classroom environment.
- **Objective 2:** Integrate culturally responsive strategies to make the lesson accessible and relevant to multilingual learners.
- **Objective 3:** Collaborate effectively with your group to share ideas and create a cohesive lesson plan.



Activity Instructions

Choose a STEM Topic:

- Select a topic from one of the following categories:
 - Energy Conservation
 - Ratios & Proportions
 - Forces & Motion
 - Sustainable Engineering Design
 - Others (based on your classroom needs)

Identify Multilingual Learners' Needs

- Discuss what potential language barriers, cultural differences, and emotional challenges your multilingual learners may face in this topic.
- Example questions to guide discussion:
 - What language or vocabulary might be difficult for students?
 - Are there cultural contexts we can integrate to make the lesson more relevant?
 - How can we ensure students feel emotionally supported during the lesson?

Incorporate SEL Strategies

- **SEL Focus:** How will your lesson address students' emotional and social well-being?
- Choose one or two SEL strategies to integrate into the lesson (e.g., team collaboration, self-reflection, peer support).
- Example: "Students will work in pairs, practice active listening, and reflect on how their STEM topic connects to real-world issues."

Incorporate Culturally Responsive Teaching

- **Cultural Relevance:** Discuss how you can adapt the lesson to include students' cultural backgrounds.
- Use real-world examples, references to students' communities, or culturally significant STEM applications.
- Example: "For a lesson on energy, include examples of renewable energy practices from students' home countries."

Choose Group Roles

- **Lead Facilitator:** Keeps the group on task and ensures the lesson incorporates SEL and CRT strategies.
- **Content Designer:** Focuses on the STEM content and how it will be taught.
- **Cultural Specialist:** Ensures the lesson is culturally relevant and accessible to multilingual learners.
- **SEL Specialist:** Integrates social-emotional learning into the lesson plan.



Lesson Plan Template

Lesson Title		Grade		Subject	
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Objectives

- What are the academic objectives of the lesson?
- What SEL goals will you incorporate?

SEL Integration

- Describe how the lesson will promote collaboration, emotional safety, and social engagement.
- Example: "Students will work in teams to complete the activity and reflect on how they felt working with their peers."

Materials Needed

- List any materials, resources, or technology required for the lesson.

Culturally Responsive Strategies

- How will the lesson connect to students' cultural backgrounds or experiences?
- Example: "Use examples from different cultures to illustrate the concept of energy use."

Lesson Activities

- Provide a brief breakdown of the lesson's structure:
 - **Introduction** (How will you introduce the topic?)
 - **Group Work** (How will students collaborate on the lesson?)
 - **Hands-On Activity** (What interactive or practical activity will students engage in?)
 - **Reflection** (How will you incorporate reflection on the lesson and SEL concepts?)

Assessment

How will you assess students' understanding of both the STEM content and the SEL component?



Reflection & Group Feedback

Reflection Questions:

As a group, reflect on your lesson design. Discuss the following:

- How did you integrate SEL into your lesson, and why is it important for multilingual learners?
- In what ways did your lesson reflect cultural relevance for diverse students?
- What challenges did you encounter during this process, and how did your group overcome them?

Feedback Space:

- Each group can use this space to share feedback with their peers after presenting their lesson plan to the rest of the workshop.
- What worked well?
- What could be improved?
- Suggestions for future lessons?



Resources for Further Reading

Here is a curated list of essential books, articles, websites, and digital tools to help you continue exploring Social-Emotional Learning (SEL) and culturally responsive teaching (CRT) in STEM education. These resources will support you in implementing strategies from today's workshop and deepen your understanding of how to foster an inclusive, collaborative environment for multilingual learners.

Books/Articles:

These readings are highly recommended to build a stronger foundation in SEL and culturally responsive teaching practices. They provide valuable insights and practical strategies that can be applied in STEM classrooms.

1. Zaretta Hammond's *Culturally Responsive Teaching & The Brain*

- **Overview:** This book explores how to engage students from culturally diverse backgrounds by connecting neuroscience with culturally responsive teaching practices. It offers practical strategies for helping students feel connected and supported while learning.
- **Why it's valuable:** Essential for understanding how cultural factors influence learning and how teachers can respond effectively.
- **Link:** [Amazon](#)

2. The CASEL *Guide to Schoolwide SEL Implementation*

- **Overview:** Published by the Collaborative for Academic, Social, and Emotional Learning (CASEL), this guide provides comprehensive strategies for implementing SEL across entire schools and classrooms.
- **Why it's valuable:** Offers a framework for embedding SEL in STEM and other subjects to create emotionally supportive environments for all students, including multilingual learners.
- **Link:** <https://casel.org>

3. *STEM Teaching Tools* by the University of Washington

- **Overview:** A collection of practical resources for STEM educators to address equity and cultural responsiveness in science education.



- **Why it's valuable:** Provides research-based guidance on integrating CRT into STEM teaching, with a special focus on supporting diverse student populations.
- **Link:** <https://stemteachingtools.org/>

4. *Building Emotional Intelligence: Techniques to Cultivate Inner Resilience in Children* by Linda Lantieri:

- **Overview:** Focuses on SEL practices to help students develop emotional intelligence, including techniques to cultivate resilience and self-awareness in diverse classrooms.
- **Why it's valuable:** Great resource for teachers looking to build SEL skills in multilingual learners through STEM activities.
- **Link:** <https://lindalantieri.org/2017/03/12/building-emotional-intelligence-techniques-to-cultivate-inner-strength-in-children/>

Websites/Tools:

Explore these websites and digital tools to access additional resources, lesson plans, and collaborative platforms that can support SEL and CRT in STEM education.

1. Google Classroom

- **Overview:** Google Classroom is a free web-based platform that allows teachers to create, distribute, and manage assignments in a paperless format.
- **Why it's valuable:** Useful for collaboration in STEM classrooms, enabling multilingual learners to participate in discussions and complete assignments with built-in tools for peer interaction and group work.
- **Link:** <https://classroom.google.com/>

2. STEM Teaching Tools

- **Overview:** A resource hub offering free tools and guidance for STEM teachers on topics like equity, culturally responsive teaching, and improving STEM outcomes for diverse learners.
- **Why it's valuable:** Provides actionable strategies to make STEM instruction culturally relevant and engaging for multilingual students.
- **Link:** <https://stemteachingtools.org/>

3. Erudyte

- **Overview:** A game-based learning platform that provides personalized STEM instruction with multilingual and multimodal support for diverse learners.
- **Why it's valuable:** Offers tailored learning paths, bilingual content, and real-time feedback, helping teachers engage multilingual learners and track their progress.
- **Link:** <https://erudtion.com/teacher-signup/>



Accelerating Multilingual Students' Mastery of STEM Skills

Erudyte helps teachers accurately determine multilingual students' skill proficiency and helps with getting them quickly up to par on Tier I and Tier II math and science concepts.

We focus on STEM subject matter learning, beyond vocabulary and language acquisition. We aim to improve your students motivation and engagement, resulting in increased class and state test scores.

- ✔ Quick assessments to gauge multilingual students' skill proficiency, providing teachers with insights for lesson tailoring.
- ✔ Standards-aligned lessons (basics to advanced), that address learning gaps. Bilingual support included.



OUR MISSION

To make learning accessible to **all** learners and address achievement gaps, by leveraging emerging technologies.

51 Learner Variability Strategies

We spent time ensuring that Erudyte strengthens students' abstract reasoning, aids how they construct and communicate arguments, and supports all learners as they analyze and represent spatial relationships.

Brief Instruction Steps

Accessible Vocab

Translanguaging

Visual Form

Cultural Awareness

+ more

Contact Us

 info@erudtion.com

 www.erudtion.com



Got any Questions?

Don't be shy! E-mail us at
info@erudtion.com