

Creating Instructional Materials for ELs: The Impact of Climate Change on the Environment

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Overview/Introduction

- Instructional materials for English Learners (ELs) in K-12 schools commonly separates language development from academic content (Grapin, 2021).
- Consequently, teachers have limited resources to teach ELs, and the mandate to teach both academic content and language continues to intensify.
- To complicate matters further, research asserts that academic content becomes more rigorous and challenging in secondary schools, especially in the subjects like math and science.
- Therefore, this research study's purpose is to present a lesson plan and activity differentiated for ELs for a high school environmental science classroom.



Impact/Conclusions

- This study contributes to the field of second language teaching because the lesson plan and template are appropriate for secondary ELs.
- This is a free resource that teachers can use to help their ELs access and master the NGSS for environmental science
- Future directions should continue to create additional lesson that include both content and language development.



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Key Findings/Results

- The lesson plan aligns to the Next Generation Science Standards (NGSS) for high school.
- The lesson activity includes a Google slides presentation where students explore how variations in and out of the Earth's energy results in climate change.
- The presentation is interactive and explains the impact of climate change on students' everyday lives.
- Evidence of differentiation includes two specific language supports to increase access and opportunities for standard mastery.
 1. **Bilingual language support** without reducing academic rigor
 2. **Interactive mastery checks** to monitor students' progress



Explanation/Conceptual Framework

- Grapin's (2021) conceptual framework for instructional materials guided this design.
- This framework highlights the importance of three components in instructional design:

1. **Instructional organization** tailored to ELs' prior knowledge and language development
2. Science **disciplinary focus**
3. Multiple **modalities**
4. Content **registrars**