

# Issues for ELL students in Science learning

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Science discourse and text-based questions are complex



## Issues

1. **Teachers struggle** to make their **language expectations explicit**, as they often do not receive professional development in this area.
2. There is a **mismatch** between the **everyday knowledge** of **ELLs** and that of their **native English-speaking teachers and peers**. Teachers' talk revolves around habitual experiences unfamiliar to ELLs. (e.g., Teacher: "Here's a histogram of runs scored across 10 innings of a cricket team. What do you notice?" Issue: For ELLs without cultural or experiential knowledge of cricket, the dataset feels meaningless to them.)
3. Even **ELLs fluent in everyday English** still **need development** of their **academic English** through connections between day-to-day English and curriculum language.
4. All students, especially **ELLs**, need **teachers to talk explicitly** about **language expectations associated with school-based tasks**.

## Solutions

1. **Teacher educators** and professional development providers should **prepare teachers in the use of intertextual analysis** of students' responses to text-dependent questions, **to explicitly engage students in discussions of appropriate language use**.
2. **Teachers** of ELLs can **move back and forth between science and everyday language** to support comprehension of science textbooks, rather than following a linear progression.
3. **Teachers** working in multilingual science classrooms **should make abundant, rich, and varied use of meaning-making resources**, including students' L1 and L2, to support learning of scientific language.
4. Successful teaching of science to ELLs involves using **translanguaging**: explicitly clarifying differences between everyday language and discipline-specific science language, **leveraging both L1 and language of instruction**.



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⚠ However, when using ELL's L1, the **meaning** can sometimes be **lost** in translation when discussing statistical concepts, making them confusing or extremely difficult to understand.



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