

Working with ELL students- science and social studies

Speak slowly, distinctly, and write down key terms – Anyone who has learned a foreign language in class, then traveled to a country where the language is spoken, has noticed that it is difficult to understand natives because they seem to “talk too fast”. What seems normal speed to a native speaker is extremely fast to a language learner or to a student with a hearing impairment. The addition of the complex terms and concepts of science can make learning even more difficult. Write down key terms so students can see them and connect them to the spoken word.

Emphasize visual literacy - It is often said that math and music are universal languages –ones that can be read regardless of one’s primary language. Although these claims are debatable, it is clear that an English-speaking student can read and understand an equation in a Swahili textbook, and a Greek musician can play a score drafted by a Japanese composer. Regardless of linguistic background, people around the world can interpret mathematical equations and musical scores. In addition, they can also interpret pictures, and with minimal linguistic skills, can interpret charts and graphs. Visual literacy, or the ability to evaluate, apply, or create conceptual visual representation, is relatively independent of language, and is therefore invaluable to learning science and English simultaneously. Vector diagrams, scientific diagrams, pictorial riddles, photographic analysis, movie analysis, and map development and analysis, are a few of the many activities that can be used to build visual literacy.

Graphic Organizers – Graphic organizers are a means of introducing and assessing concepts in a manner that encourages meaningful learning. Graphic organizers are diagrams or maps that show the relationship between new and existing concepts, thereby facilitating integration of new and familiar ideas. They require minimal language and are therefore helpful tools when teaching science to English language learners. Conceptual grids, Venn diagrams, flow charts, mind maps, and concept maps are some of the more common graphic organizers.

Partner English learners with strong English speakers – The best way to learn something is to teach it. Partnering English learners with strong English speakers benefits both.

Relate to prior knowledge – Make use of student background knowledge of science concepts. Discover what your students already know about a given topic and build upon this knowledge.

Wait time – Teachers are often uncomfortable with silence and either call on the first student to raise their hand, or answer questions themselves, thereby short-circuiting the thought processes of most students, particularly English language learners who are trying to translate terms while formulating an explanation. Let students know that you expect all to be mentally engaged, and for this reason you provide wait-time sufficient for the majority to develop an answer before calling on any individual.

Analogies – Use analogies to relate new concepts to previously learned concepts

Language-based science games – Reinforce vocabulary with Science Bingo, and concepts with Science Pictionary. These games require minimal spoken language and provide an excellent review of science vocabulary.

Picture glossary – One of the best ways to learn the vocabulary of a new language is with pictorial flash cards. A picture of the concept is on one side while the term (in the language to be learned) is on the reverse. The student learns to correlate concepts directly with words, eliminating the need for translation.

Common lexicon – People construct understanding by integrating new ideas with pre-existing knowledge. Ask students what they already know, then develop a common vocabulary that can be used to develop new understandings.

Root words – A knowledge of Greek and Latin prefixes, suffixes, and roots can greatly enhance student understanding of scientific terms and facilitate a better understanding of English and other European languages. Approximately 50% of all words in English have Latin roots, many of which are shared with Spanish, French, Portuguese and Italian. Learning scientific root words thereby helps one understand the vocabulary of a variety of languages, particularly English.

Cognates – Many science terms are used internationally. Identify such terms and ask your students to notify you whenever they recognize a new term that is pronounced or written similarly in their first language. This

helps build your knowledge of cognates (words that are similar in two or more languages) so you can help future learners master science vocabulary.

Word wall – Post new vocabulary terms on the wall in an organized, grouped manner. For example, you may wish to post new biology terms in columns according to the level of organization (cell, tissue, organ, etc.).

Source: <http://www.csun.edu/science/ref/language/teaching-ell.html>