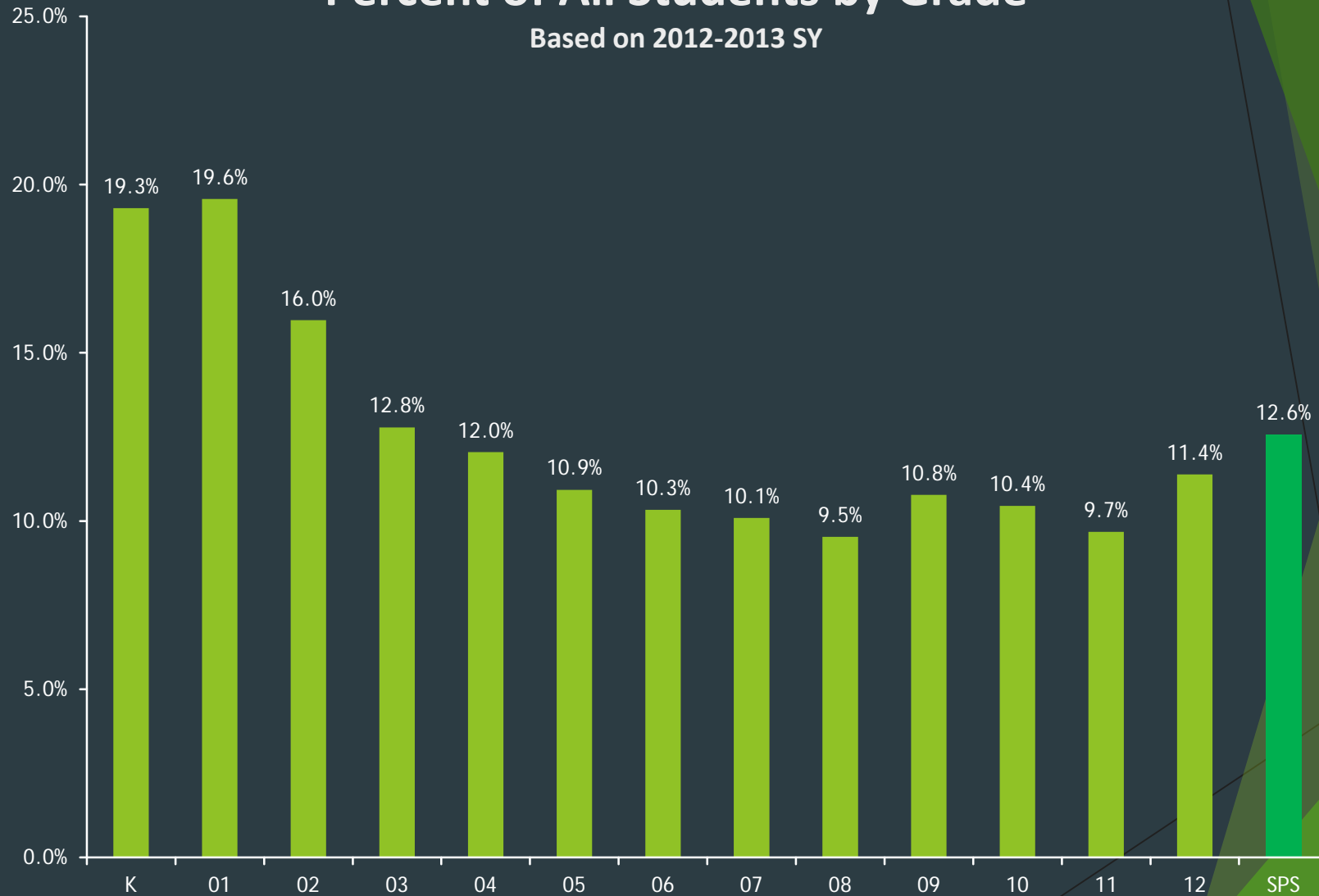


Overcoming 5 Obstacles to Working with ELL students in STEM

Rise above the language barrier

English Language Learners as a Percent of All Students by Grade

Based on 2012-2013 SY



English Language Learner Student Profiles

- ▶ Javier, a 11-year-old from Zacatecas, Mexico
- ▶ Bisrat, a 13-year-old girl from Addis Ababa, Ethiopia
- ▶ Thahn, a 9-year-old from South Vietnam



1. Academic Vocabulary

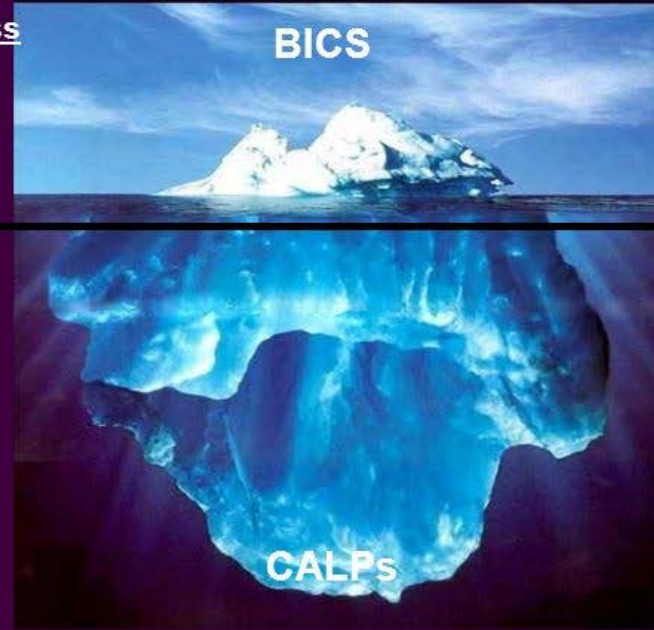
- ▶ Concrete vs. Abstract Language
- ▶ Unfamiliar with academic vocabulary in either language
- ▶ Use homework and other resources to build academic vocabulary

ELL Iceberg

Cognitive Process

- Knowledge
- Comprehension
- Application

- Analysis
- Synthesis
- Evaluation



Language Process

- Vocabulary
- Pronunciation
- Grammar

- Semantic meaning
- Functional meaning

2. Using visual content

- ▶ ELL students benefit from drawing pictures, charts, and diagrams.
- ▶ Use visual content to demonstrate STEM ideas
- ▶ Students can keep visual aid work in a special folder

MATH SIGNS

GREATER THAN

THIS GROUP IS GREATER THAN THIS GROUP

LESS THAN

EQUAL TO

positivemy.com

3. Step-by-step procedures

The Scientific Method

Question

Ask a question, and then research your topic.

Hypothesis

What's your best guess?

Procedure

Write very specific directions for your experiment.

Experiment

Observe closely and record data.

Data Analysis

Organize and evaluate your data.

Conclusion

What did you find? Was your hypothesis correct?

Abstract

Summarize your experiment.

Presentation

Create a display and present to the judges.



Scientist image courtesy of ScottSchantz, Flickr.com

- ▶ Work with students to write a break down of multi-step assignments into manageable chunks
- ▶ Ask students to explain the assignment as though they were speaking to a younger student.
- ▶ Ask which step in completing the assignment the student is working on

4. Socratic questioning

- ▶ Socratic questioning is a method of communicating ideas with students by asking them guiding questions.
- ▶ Ask open-ended questions; continue until the student grasps the concept
- ▶ Active listening on your part is crucial. Allow the student plenty of time to answer questions.



5. Recognizing signs of trauma



- ▶ English Language Learners often deal with special challenges.
- ▶ Modern school culture offer few resources for students dealing with high levels of stress.
- ▶ Stress and trauma can influence ELL students in several ways

Questions and Comments

What sparked your interest in this presentation?