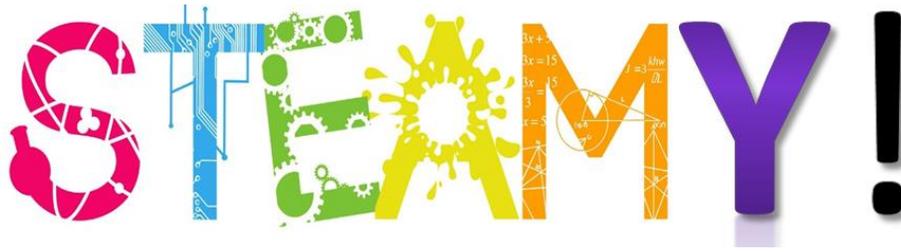


Languages can be



How science, technology, engineering, the arts, and mathematics can liven up your language classroom.

Presenter: Dr. Lori Langer de Ramirez

NYSAFLT ALOUD Conference

Marist College | May 6, 2017

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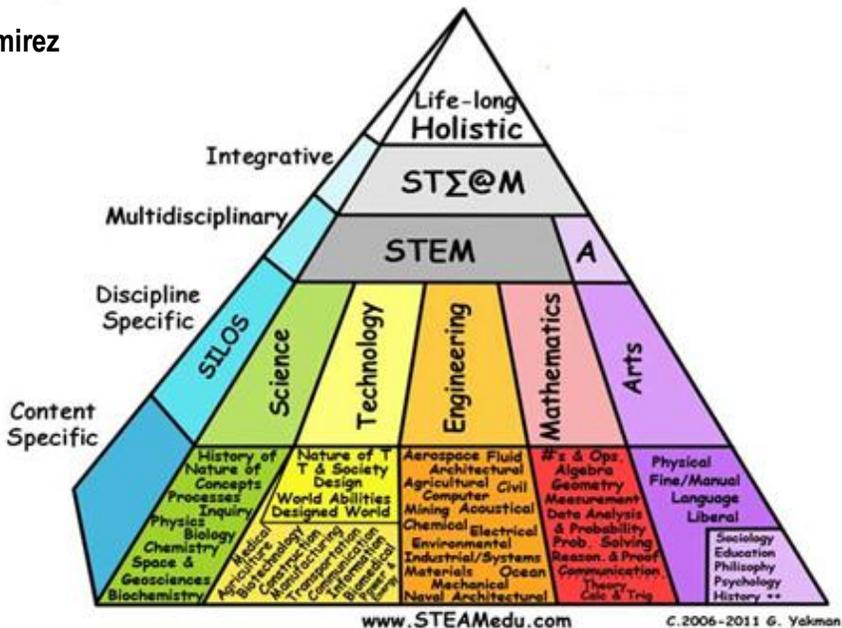
Visit the companion website for resources from this workshop:

<http://www.miscositas.com/workshops.html>

Principles of STEM Curriculum Design

(adapted from:

<http://enhancinged.wgbh.org/research/eeeeee.html>)



- **Engage:** An "engage" activity makes connections between past and present learning experiences, anticipate activities and focus students' thinking on the learning outcomes of current activities. Students become mentally engaged in the concept, process, or skill to be learned.
- **Explore:** This phase provides students with a common base of experiences. They identify and develop concepts, processes, and skills. Students actively explore their environment or manipulate materials.
- **Explain:** This phase helps students explain concepts they have been exploring. They have opportunities to verbalize their conceptual understanding or to demonstrate new skills or behaviors. Teachers introduce formal terms, definitions, and explanations for concepts, processes, skills, or behaviors.
- **Elaborate:** This phase extends students' conceptual understanding and allows them to practice skills and behaviors. Through new experiences, the learners develop a deeper and broader understanding of major concepts, obtain more information about areas of interest, and refine their skills.
- **Evaluate:** This phase of the 5 E's encourages learners to assess their understanding and abilities and lets teachers evaluate students' understanding of key concepts and skill development.

World Readiness Standards: CONNECTIONS (adapted from: <https://www.actfl.org/sites/default/files/publications/standards/World-ReadinessStandardsforLearningLanguages.pdf>)

Connect with other disciplines and acquire information and diverse perspectives in order to use the language to function in academic and career-related situations

→ **Making Connections:** Learners **build**, **reinforce**, and **expand** their knowledge of other disciplines while using the language to develop critical thinking and to solve problems creatively.

STEAM resources

- **Pinterest collection** of STEAM lesson ideas, projects, infographics and other resources. <https://www.pinterest.com/miscositaspix/ciencias-y-steam/>
- **NCELA resource article:** Integrating STEM topics in the Foreign Language classroom http://www.ncela.us/files/uploads/promising_FL/ForeignLg_STEM.pdf
- **STEM modules:** Lesson plans and handouts designed with an interdisciplinary and problem-solving approach for teaching science in Arabic, Mandarin Chinese, Spanish, and English to K-5 students. http://marylandpublicschools.org/MSDE/divisions/instruction/wl_escm.htm
- **Article: "Putting the FL in STEM: The Link Between Foreign Languages and the STEM Fields":** <http://blogs.transparent.com/language-news/2013/08/12/putting-the-fl-in-stem-the-link-between-foreign-languages-and-the-stem-fields/>
- **Science Materials in Spanish and Other Languages:** From NASA and the GLOBE Project. <http://www.flbrain.org/NASALanguageMaterials2.htm>
- **Multilingual Periodic Table of the Elements:** <http://www.periodni.com/index.html>
- **Climantica:** A fun interactive game about the environment. <http://xogo.climantica.org/?locale=es>
- **Mi Primer Jardín:** This website is meant for upper elementary students to learn about planning, nurturing and enjoying the benefits of gardening. http://urbanext.illinois.edu/firstgarden_sp/index.cfm
- **Article: "STEM to STEAM: Art in K-12 is Key to Building a Strong Economy":** A rationale for adding Art to the STEM curricula. <http://www.edutopia.org/blog/stem-to-steam-strengthens-economy-john-maeda>
- **Float or Sink Interactives:** Don't have a big fish tank lying around for your "Float or sink" activity? Use one of these virtual/interactive pages to allow students to make their predictions and everyone stays dry in the process! <http://interactivesites.weebly.com/float-or-sink.html>

Think-Pair-Share: What are some **STEAM** topics you already cover in your language classes? What are some new **STEAM** topics you might consider?

