Assisting in the Movement from STEM to STEAM

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In many ways, agriculture is intertwined with other disciplines in the natural and social sciences, with agriculture professionals using similar approaches and systems as those in other fields. Agriculture now so thoroughly combines basic and applied aspects of the traditional STEM disciplines of science, technology, engineering, and mathematics that the acronym might rightly expand to become STEAM, joining agriculture with the other fundamental disciplines.
STEM to STEAM

Science
Technology
Engineering
Mathematics

Science
Technology
Engineering
Agriculture
Mathematics
What science concept is illustrated?

ADHESION
What science concept is illustrated?

COHESION
Why do we care?

BP Oil Spill 2010

• How does this affect water quality?

• Who are the constituents that are affected?

• What impact on agriculture will this have?
Other Examples

- CC vs. ML
- Cation Exchange

Think of an agricultural, food, or natural resource concept, from within your field, and write it down on the yellow note card.

Think of a core subject concept that is fundamental to the agricultural concept that you previously identified, and write it down on the pink note card.
The Process

1. Identify the agricultural, food, or natural resource concept

2. Identify the “enabling” core concept

3. Describe the connection between the two

4. Implement the deductive model to teach the lesson
<table>
<thead>
<tr>
<th>Agriculture, Food, &amp; Natural Resource Concept</th>
<th>Core Subject Concept</th>
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**AIMED Approach**
Deductive Model

- Introduce the AFNR lesson
- Assess students’ core concept awareness as it relates to AFNR
- Work through the core example embedded in the AFNR lesson
- Work through the related, contextual core subject-in-AFNR examples
- Students demonstrate their understanding
- Formal assessment

Stone, Alfed, Pearson, Lewis, & Jensen, 2007
Resources

Strategies to Integrate Now
www.strategiestointegratenow.com

Achieve, Inc.
www.achieve.org

The Curriculum Matrix
www.leadered.com/curriculumMatrix.html

States’ Career Clusters
www.careerclusters.org/
QUESTIONS??

Please turn in your sheets before you leave and provide me with an email address if you would like the ideas emailed to you.