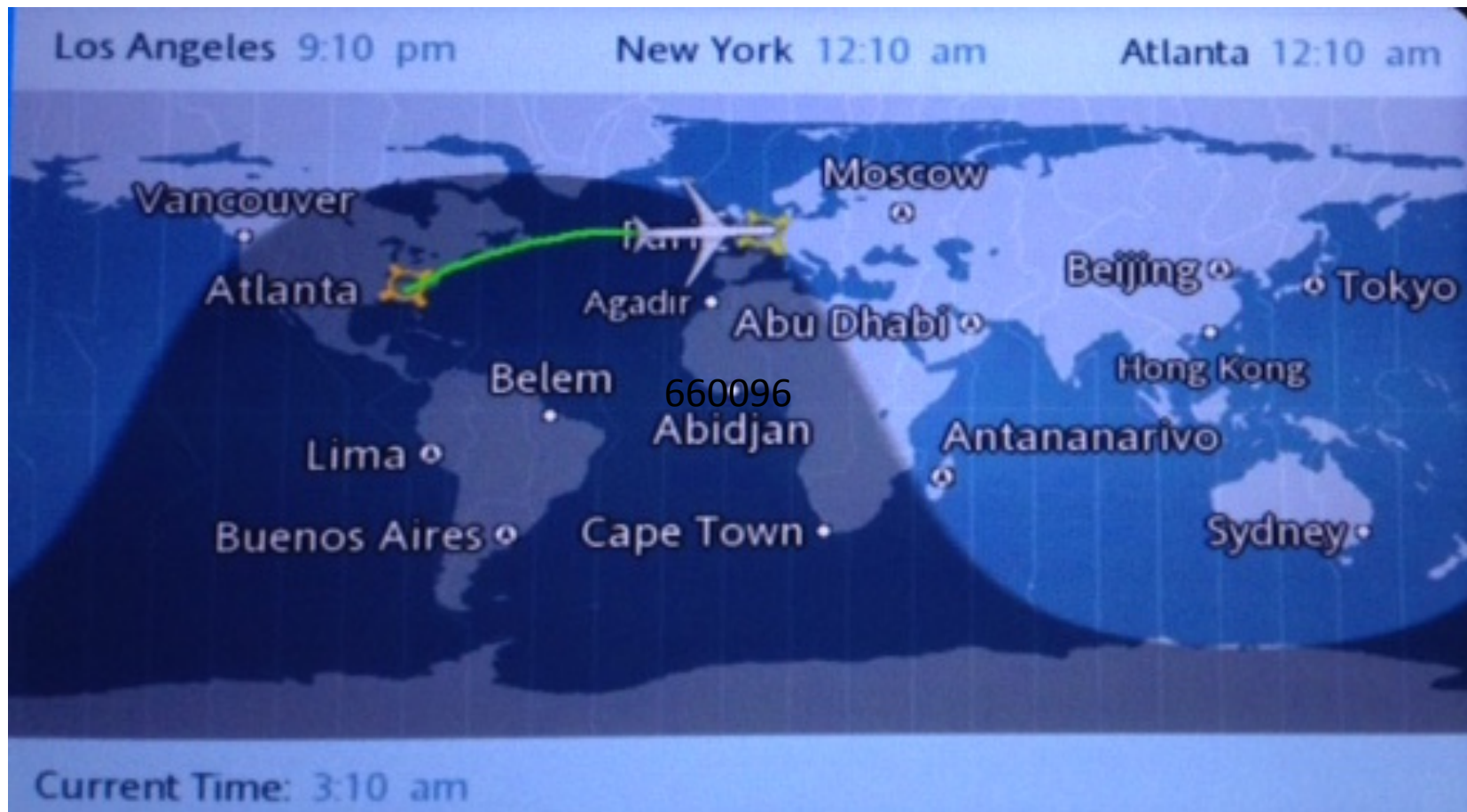


# The **M** in **STEM** and **CCSSM**: Resources for Problem-Based Learning **AND** Mastery of Standards



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# Defining the “Problem”: Hopes & Fears



We hope that PBL will be rewarded with excellent growth and achievement.

We fear that time invested in PBL is time taken from standards-based instruction.

# Defining the “Problem”: Hopes & Fears



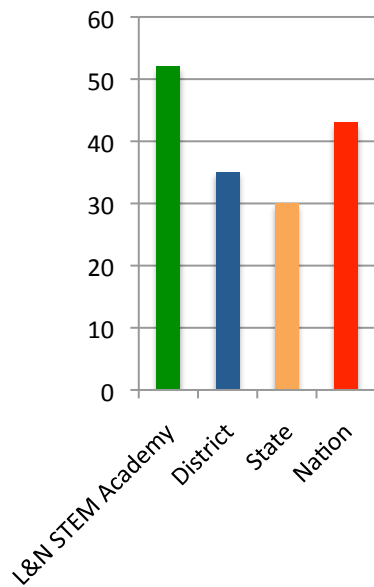
Genuine learning is not a zero-sum game. How do we design for that?

We fear that time invested in PBL is time taken from standards-based instruction.

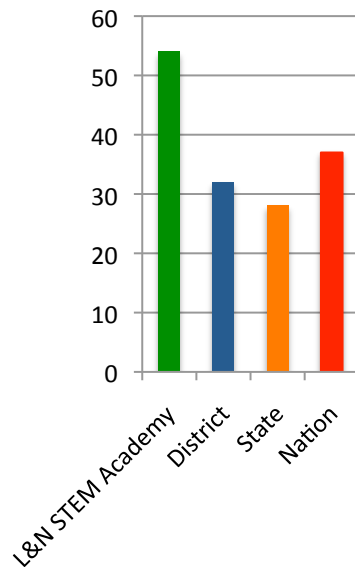
Great teaching is not about teaching. It's about learning.

# Defining the “Problem”: Collaboration

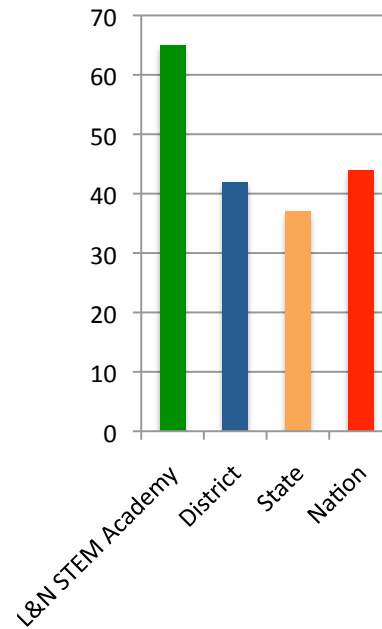
**% Ready for College Algebra**



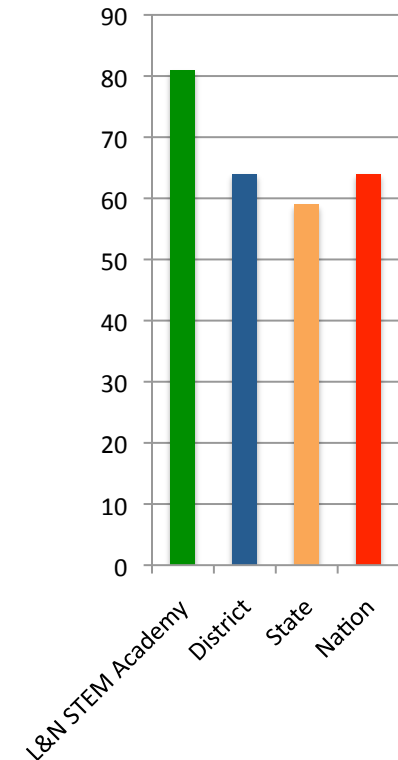
**% Ready for College Biology**



**% Ready for Social Sciences**

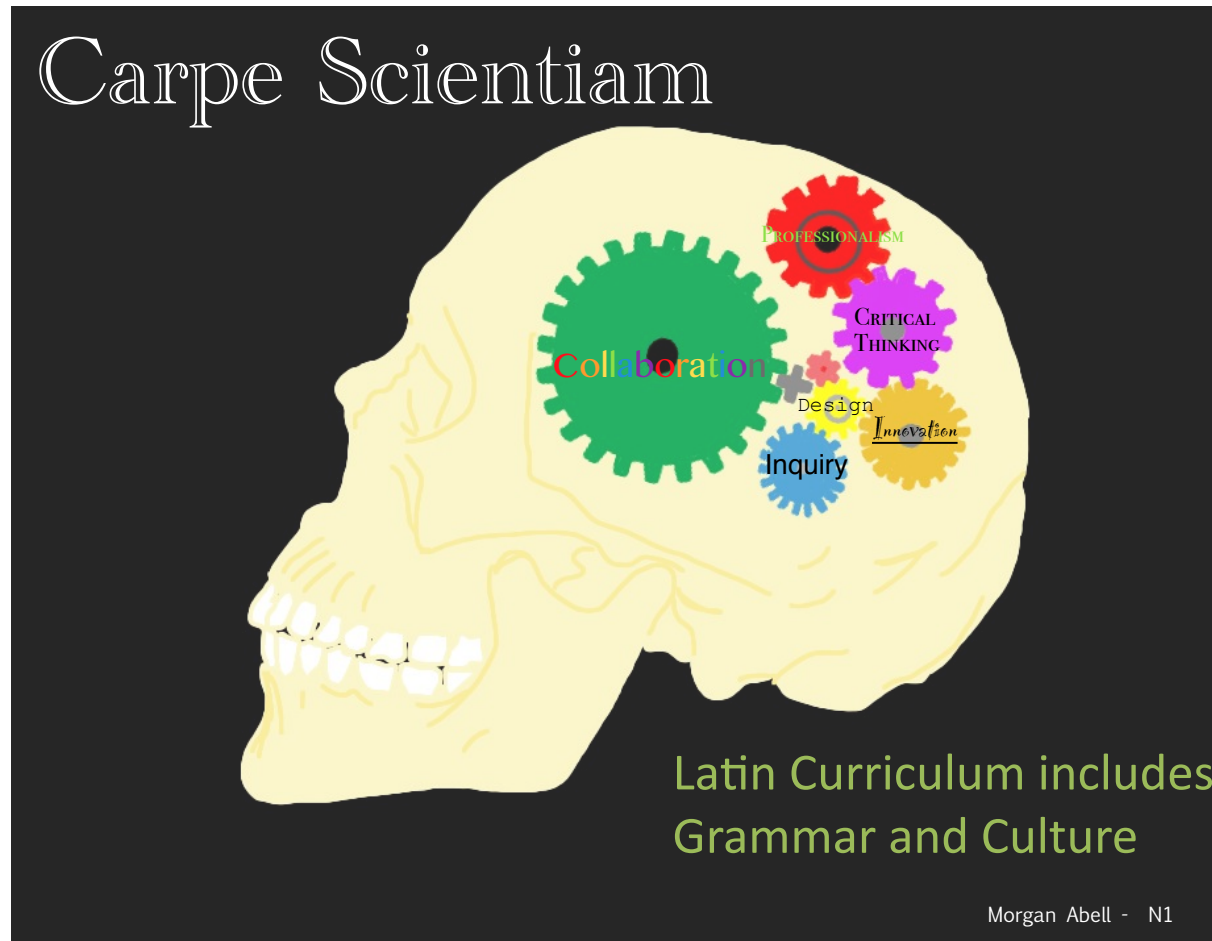


**% Ready for English Composition**



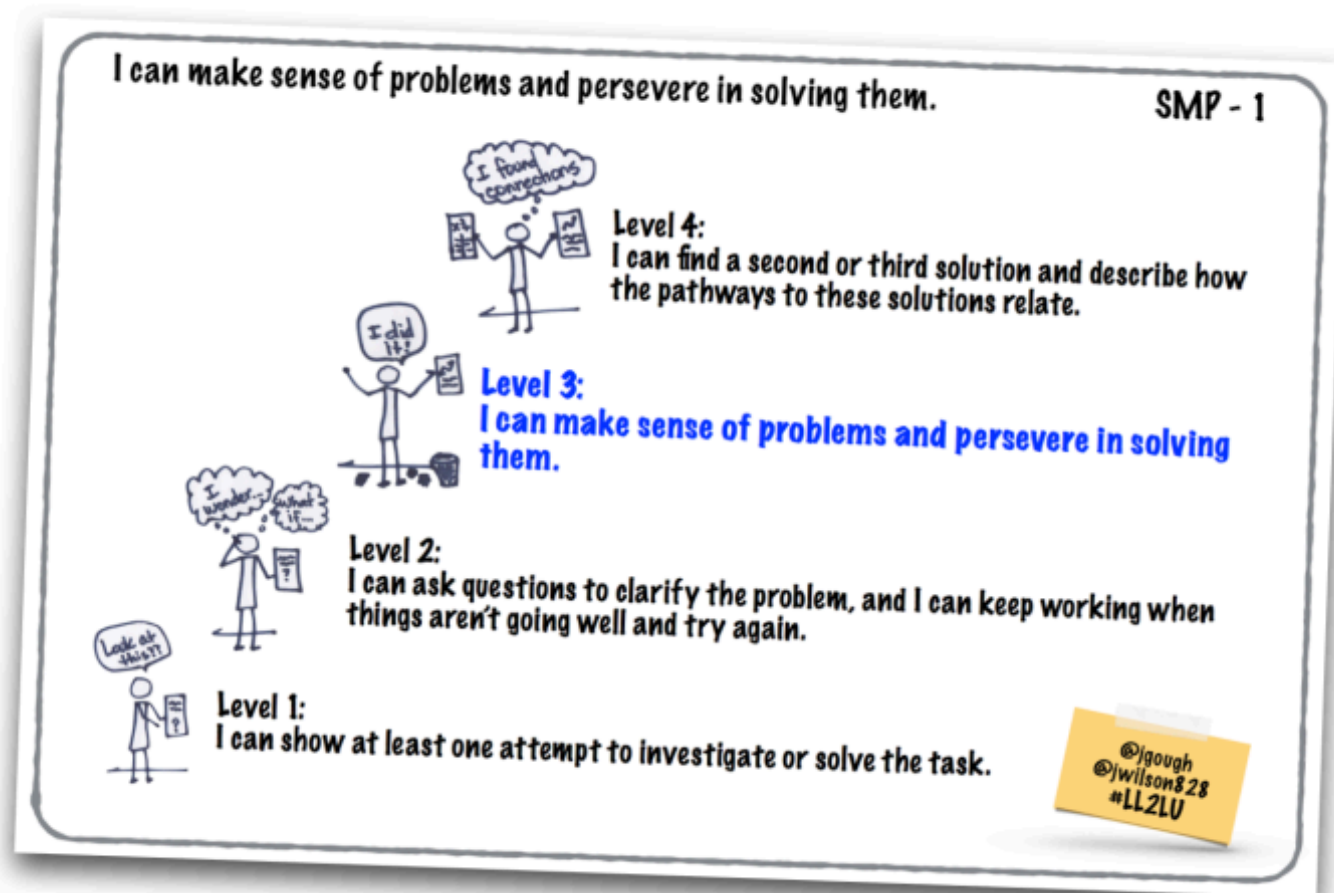
**Class of 2014 ACT Data: L&N STEM Academy**

# Defining the “Problem”: Curriculum



Too often, Math standards are essentially all “Grammar”.

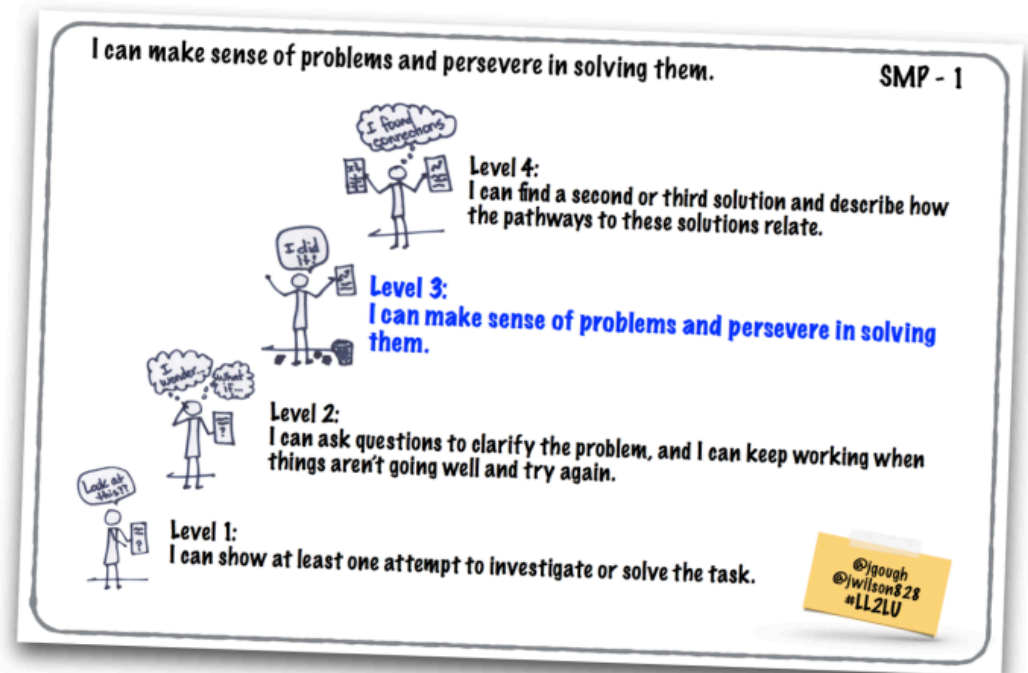
# Resource for Teaching Math Practices: (Honoring All Learners' Hopes and Fears)



<https://jplgough.wordpress.com> (Shared by Jeff McCalla)

# Perseverance Rubric for a 5 point question

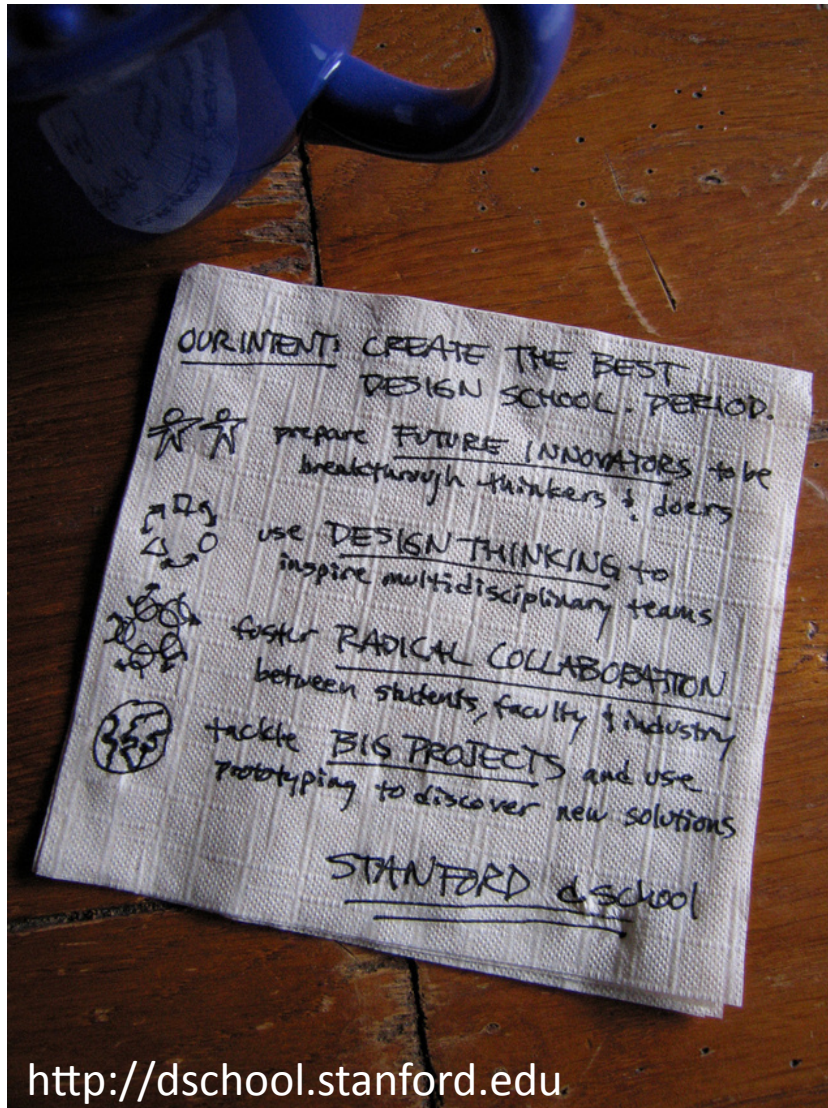
1. I show at least one attempt to *investigate* or solve the task.
2. I *ask questions* to clarify the problem, and I keep working.
3. I *make sense* of the problem.
4. I find a justifiable *solution*.
5. I *explain/justify* my solution.
6. If 4 and 5 come easily, I find additional solutions.



<https://jplgough.wordpress.com>

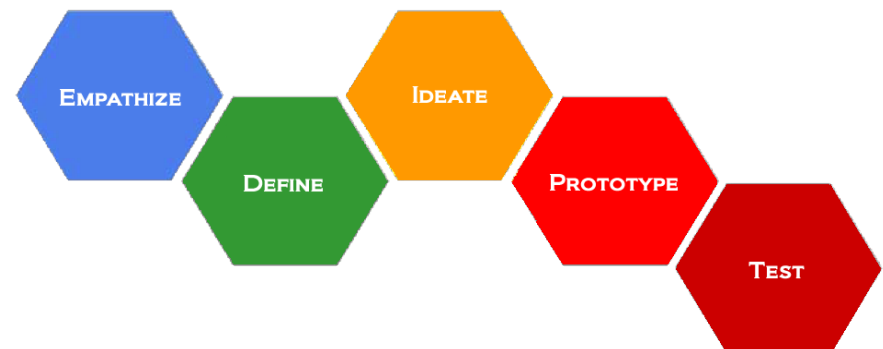
How might this apply to my professional practice?

# Resource for Collaboration



The d.school process:

- Administration and faculty and students
- Community partners
- Families



<http://dschool.stanford.edu/wp-content/uploads/2011/03/BootcampBootleg2010v2SLIM.pdf>



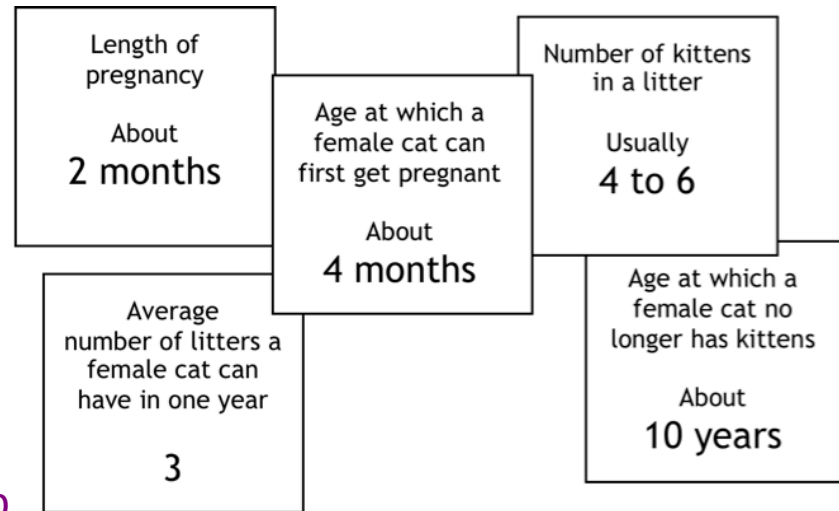
# Resource for Concept Development and Problem Solving (Curriculum)



**Cats can't add but they do multiply!**

In just 18 months, this female cat can have 2000 descendants.

Work out whether this number of descendants is realistic. Here are some facts that you will need:



<http://map.mathshell.org/materials/index.php>

**COLLEGE READY**

*Together we will ensure all students graduate prepared to succeed in college, careers, and community.*

# Resource for Problem-Based Learning



BUCK INSTITUTE  
FOR EDUCATION  
PROJECT BASED LEARNING FOR THE 21ST CENTURY

[at www.bie.org](http://www.bie.org)

# PBL on the Scale of the Building: Trans-Disciplinary Numeracy

- TI Nspire Activity
- James Watt Activity

<http://education.ti.com/en/us/home>

