Relationships and Convergences Found in the
Common Core State Standards in Mathematics (practices),
Common Core State Standards in ELA/Literacy*(student portraits), and
A Framework for K-12 Science Education (science & engineering practices).

These student practices and portraits are grouped in a modified Venn diagram. The letter and number set preceding each phrase denotes the discipline and number designated by the content standards or framework. The Science Framework will be used to guide the production of the Next Generation Science Standards.

Math

M1. Make sense of problems & persevere in solving them
M6. Attend to precision
M7. Look for & make use of structure
M8. Look for & express regularity in repeated reasoning

S1. Ask questions & define problems
S3. Plan & carry out investigations
S4. Analyze & interpret data

S2. Develop and use models
S4. Model with mathematics
S5. Use mathematics & computational thinking

Science

E1. Demonstrate independence in reading complex texts, and writing and speaking about them
E7. Come to understand other perspectives & cultures through reading, listening, and collaborations

E2. Build a strong base of knowledge through content rich texts
E5. Read, write, and speak grounded in evidence
M2. Reason abstractly & quantitatively
M3 and E4. Construct viable arguments & critique reasoning of others
S7. Engage in argument from evidence

E6. Use technology & digital media strategically & capably
M5. Use appropriate tools strategically

S6. Construct explanations & design solutions
S8. Obtain, evaluate & communicate information
E3. Obtain, synthesize, and report findings clearly and effectively in response to task

ELA

Sources:
Common Core State Standards for English Language Arts & Literacy* in History/Social Studies, Science, and Technical Subjects, p.7.
Common Core State Standards for Mathematical Practice p.6-8.

Working Draft v6b, 12-13-11 by Tina Cheuk, elstanford.edu
New Haven Public Schools 21st Century Skills

<table>
<thead>
<tr>
<th>21st Century Competency</th>
<th>As demonstrated by a student’s ability to…</th>
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<tbody>
<tr>
<td>1  Problem Solving and Critical Thinking</td>
<td>• Reason effectively</td>
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<td>• Make insightful judgments and decisions</td>
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<td>• Solve problems</td>
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<td>2  Accessing and Analyzing Information*</td>
<td>• Use research tools to access and evaluate information from multiple sources</td>
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<td></td>
<td>• Organize and synthesize information using multiple methods</td>
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<tr>
<td>3  Communication and Collaboration* (digital)</td>
<td>• Articulate ideas clearly and effectively to a variety of audiences using multiple modes</td>
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<td>• Communicate effectively and work productively with others</td>
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<tr>
<td>4  Creativity and Innovation</td>
<td>• Demonstrate originality and inventiveness in work</td>
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<tr>
<td>5  Initiative, Self-Direction and Accountability</td>
<td>• Set and meet high standards and goals for one’s self and others</td>
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<td></td>
<td>• Manage time and resources to produce high quality results in a timely manner</td>
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<td>• Take responsibility for one’s own learning</td>
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<tr>
<td>6  Citizenship and Responsibility</td>
<td>• Exercise empathy and respect for diverse cultures and perspectives</td>
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<td></td>
<td>• Contribute to and take responsibility for the larger community</td>
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</tbody>
</table>

plan: 11-12 9th grade (select 8th grade) for capstone projects in place in 14-15.
Common Core Instructional Shifts for ELA/Literacy:
1. Building knowledge through content-rich non-fiction and informational texts.
2. Reading and writing grounded in evidence from text.
3. Regular practice with complex text and its academic vocabulary.

Common Core Instructional Shifts for Mathematics
1. Focus strongly where the Standards focus.
2. Coherence: Think across grades, and link to major topics within grades.
3. Rigor: Require fluency, application and deep understanding.

English Language Arts Common Core

READING (10 standards):
- Key Ideas and details (1. Read close, 2. Central/Supporting Ideas 3. Analyze development)
- Craft & Structure (4. Interpret meaning, 5. Analyze structure, 6. Assess point of view/purpose)
- Integration of Knowledge & Ideas (7. Integrate content, 8. Evaluate arguments/claims, 9. Analyze/compare)
- Range of reading and Level of Text Complexity (10. Complex text)

WRITING (10 standards)
- Text Types and Purposes (1. Arguments 2. Informative 3. Narratives)
- Range of Writing (10. Time/Task/Purpose/Audience)

SPEAKING AND LISTENING (6 standards)
- Presentation of Knowledge and Ideas (4. Present info, 5. Strategic Use of media, 6. Adapt to context)

LANGUAGE (6 standards)
- Conventions of Standard English (1. Grammar/usage, 2. Conventions)
- Knowledge of Language (3. Context)
- Vocabulary Acquisition and Use (4. Determine meaning, 5. Figurative language, 6. Acquire/use vocabulary)

See how science and literacy are related at

http://www.newhavenscience.org/ScienceLiteracy.htm
- http://www.newhavenscience.org/CCSSGrades6-12.doc
MATHEMATICS     8 Practices  http://www.corestandards.org/the-standards

1. Make sense of problems and persevere
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

DOMAINS (K-8):       Counting and Cardinality      The Number System
                      Number/Operations in Base Ten      Rations & Proportions
                      Fractions                          Operations and Algebraic Thinking
                      Expressions & Equations            Functions
                      Measurement and Data               Geometry
                      Statistics and Probability

HIGH SCHOOL        Number and Quantity        Algebra
                      Functions                          Modeling
                      Geometry                            Statistics and Probability

Common Core State Standards/Next Gen Science Standards

New Haven Public Schools Science

see also  http://www.newhavenscience.org/ScienceCCSS.htm
http://www.newhavenscience.org/ScienceCommonCore.htm

Next Generation Science Standards  http://www.nextgenscience.org
(see  http://www.newhavenscience.org/NGSSFramework.pdf)

1 Scientific and Engineering Practices
1. Asking questions (for science) and defining problems (for engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information