Math in Action 2016
Grand Valley State University
Saturday, 27 February

Can You Tell CR**P from Crayolas?:
Evaluating Information Sources for Researched Projects
Session B8, 9:50-10:50am

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Introductions

• Who are you?
• What do you teach?
• Do you make any kind of “researched assignments”?
• What do you want your students to understand about “information”?
CCSS Math Practice standards

**CCSS.Math.Practice.MP3** Construct viable arguments and critique the reasoning of others.

- Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They **are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others.** They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. **Later, students learn to determine domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.**

http://www.corestandards.org/Math/Practice/
CCSS English Language Arts >>
College and Career Readiness Anchor Standards for Writing

• Research to Build and Present Knowledge:
  • **CCSS.ELA-Literacy.CCRA.W.7**
    Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.
  
  • **CCSS.ELA-Literacy.CCRA.W.8**
    Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.

  • **CCSS.ELA-Literacy.CCRA.W.9**
    Draw evidence from literary or informational texts to support analysis, reflection, and research.

http://www.corestandards.org/ELA-Literacy/CCRA/W/
Getting interdisciplinary:

[Image of a Venn diagram showing the overlaps between Math, Science, and ELA practices.]

Commonalities Among the Practices in Science, Mathematics, and English Language Arts
Based on work by Tina Chuek, el.stanford.edu

http://teachingcommons.cdl.edu/ngss/science_math/
Getting real-life:

21ST CENTURY 4 C’S
COMPETENCIES

- Communication
- Collaboration
- Critical Thinking
- Creativity

<table>
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<tr>
<th>Project Based Learning vs. Problem Based Learning</th>
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<tr>
<td><strong>Similarities</strong></td>
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<tr>
<td>Both PBLs:</td>
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<tr>
<td>• Focus on an open-ended question or task</td>
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<td>• Provide authentic applications of content and skills</td>
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<td>• Build 21st century 4 C’s competencies</td>
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<td>• Emphasize student independence and inquiry</td>
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<td>• Are longer and more multifaceted than traditional lessons or assignments</td>
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<td><strong>Differences</strong></td>
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<tr>
<td>Project Based Learning</td>
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<tr>
<td>Often multi-disciplinary</td>
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<td>May be lengthy (weeks or months)</td>
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<td>Follows general, variously-named steps</td>
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<tr>
<td>Includes the creation of a product or performance</td>
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<tr>
<td>Often involves real-world, fully authentic tasks and settings</td>
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<td>Problem Based Learning</td>
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<td>More often single-subject</td>
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<td>Tend to be shorter</td>
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<td>Follows specific, traditionally prescribed steps</td>
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<td>The “product” may simply be a proposed solution, expressed in writing or in an oral presentation</td>
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<td>More often uses case studies or fictitious scenarios as “ill-structured problems”</td>
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Finding stuff (“sources”) ...

... in your school’s library/media center:

• Grandville H.S. - Library Media Center + Kent ISD system

• Allendale Public Schools - Media Center Research & Study Tools

• Holland Public Schools - Student Links: Media Center Library Catalogs + Muskegon ISD system
Finding stuff ("sources") ...

... out on the Web:

- Mel Homework Help, part of the Mel Teens gateway
- PBS Learning Media
- Wikipedia
- Google
  - site:.domain
Evaluating “stuff”

You can find *something* about just about *anything* out on the Web ... ...

... but is it *any good*??
Evaluating “stuff”

Let’s see how well you do!

go to:

“The True Cost of Owning a Car”

http://tinyurl.com/MIAcrayolas
Evaluating “stuff”

Query a potential source before you decide to use it. Is it good enough?

• Currency
• Relevance
• Authority
• Accuracy
• Purpose
Evaluating “stuff” – apply...

...the CRAAP Test!
Thank you for your attention!

--Debbie Morrow
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Currency
the timeliness of the information

• When was the information published or posted?
• Has the information been revised or updated?
• Is the information current or out-of-date for your topic?
• Are the links functional?
Relevance
the importance of the information for your needs

• Does the information relate to your topic or answer your question?
• Who is the intended audience?
• Is the information at an appropriate level?
• Have you looked at a variety of sources before choosing this one?
• Would you be comfortable using this source for a research paper?
Authority
the source of the information

• Who is the author/publisher/source/sponsor?
• Are the author's credentials or organizational affiliations given?
• What are the author's qualifications to write on the topic?
• Is there contact information, such as a publisher or e-mail address?
• Does the URL reveal anything about the author or source?
Accuracy
the reliability, truthfulness, and correctness of the content

• Where does the information come from?
• Is the information supported by evidence?
• Has the information been reviewed or refereed?
• Can you verify any of the information in another source?
• Does the language or tone seem biased and free of emotion?
• Are there spelling, grammar, or other typographical errors?
Purpose

the reason the information exists

- What is the purpose of the information?
- Do the authors/sponsors make their intentions or purpose clear?
- Is the information fact? opinion? propaganda?
- Does the point of view appear objective and impartial?
- Are there political, ideological, cultural, religious, institutional, or personal biases?