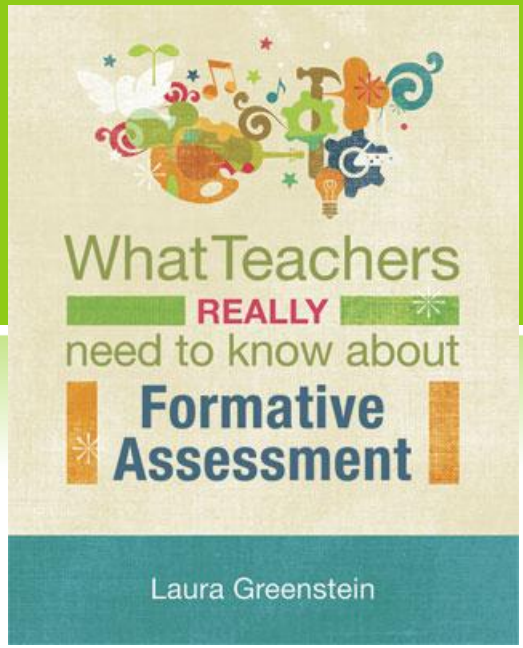
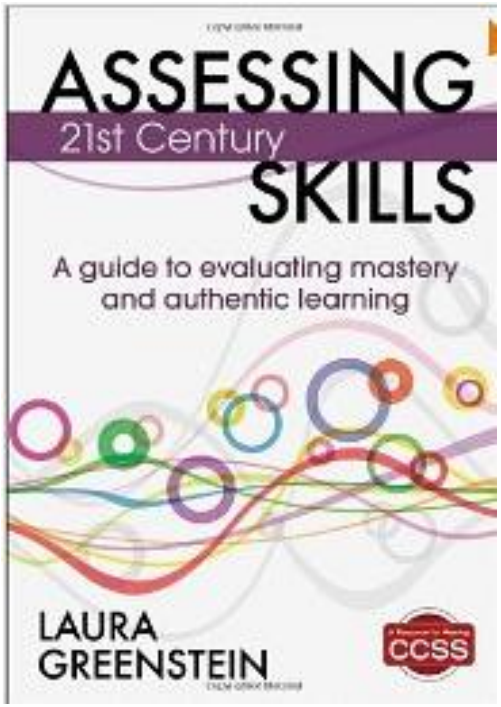
Assessing 21st Century Skills
Products, Processes, Possibilities

ASCD: March, 2013
Laura Greenstein, Ed.D.

Let's Get Acquainted

- About You: Signaling
- About Me: Transitions





What are our Targets Today?

- Define 21st century skills.
- Describe the progression from Common Core to 21st Century.
- Develop 21st century competencies in learners.
- Illustrate strategies for assessing these competencies.

Quick Talk: What are 21st Century Skills

What are 21st C. Skills?

P-21
U. Melbourne
CPE
OECD
Metiri/NCREL

And earlier…
Costa and Kallick
Benjamin Bloom
Edward Glaser

Complexity Simplified

- Thinking
- Acting
- Living

21ST CENTURY THINKING

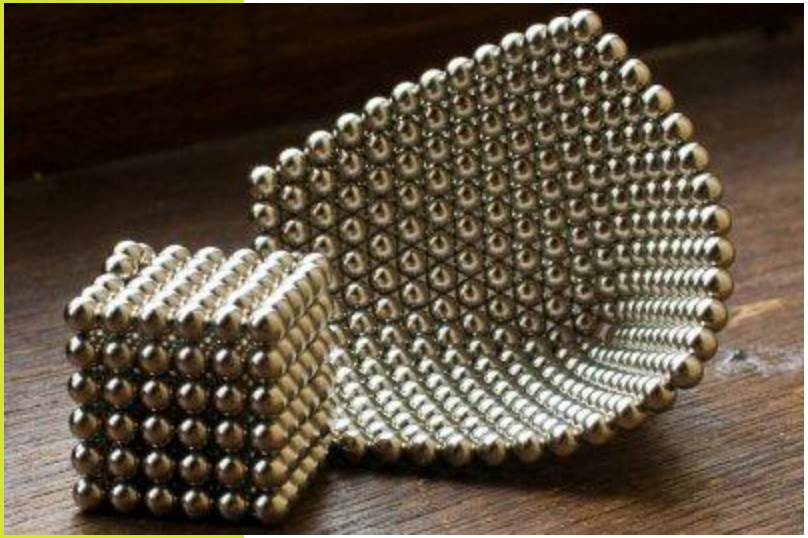
- CRITICAL THINKING
  - Evaluate, Analyze, Synthesize
- PROBLEM SOLVING
  - Reason, Interpret, Apply
- CREATIVITY
  - Curiosity, Innovation
- METACOGNITION
  - Reflection, Mindfulness

Problem Solving

Lucy and Candy Wrapping

CREATIVITY

- Neocube

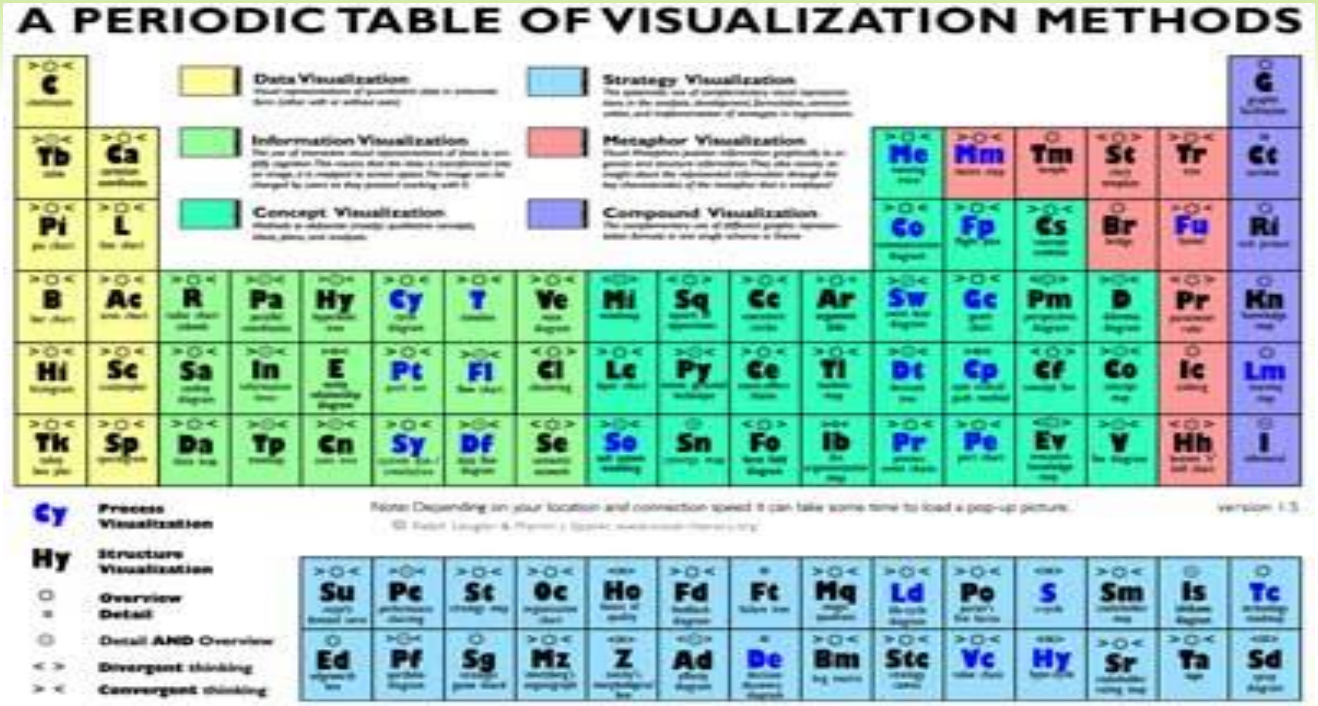


Students use critical thinking, creativity, and problem solving skills every day.

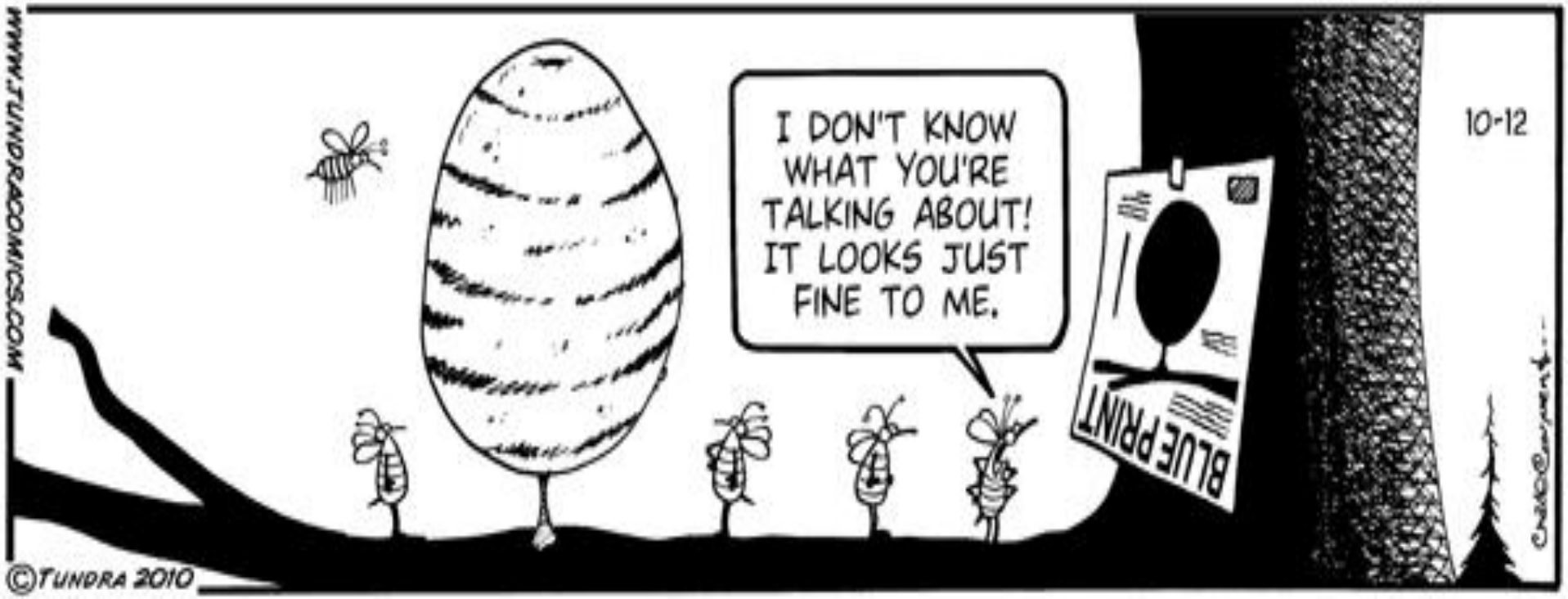
21ST CENTURY ACTIONS

- COMMUNICATION
- COLLABORATION
- DIGITAL LITERACY
- TECHNOLOGY PROFICIENCY

Visual Literacy



Students communicate and collaborate every day.



21ST CENTURY LIVING IN THE WORLD

- CIVIC RESPONSIBILITY
- GLOBAL UNDERSTANDING
- LEADERSHIP AND RESPONSIBILITY
- COLLEGE AND CAREER SKILLS:

  Work Ethic, Goal Setting,

  Time Management, Integrity

Global Awareness

- GAPMINDER
(2:35 min)

A positive work ethic contributes to success

Summary

Collaboratively build a one sentence summary of 21st century skills.

List your top three 21st Century Skills

CCSS ELA and Math New Test Questions

3RD GRADE MATH PROBLEM

SMARTER Released Item

Ms. Clancy uses a backpack on a hiking trip. She took 2 kg of food out of her backpack to make it lighter. The scale below shows how much the backpack weighed after she took out the food.

(Numbers are shown on scale)

How much did the backpack weigh, in kg, before she took the food out?

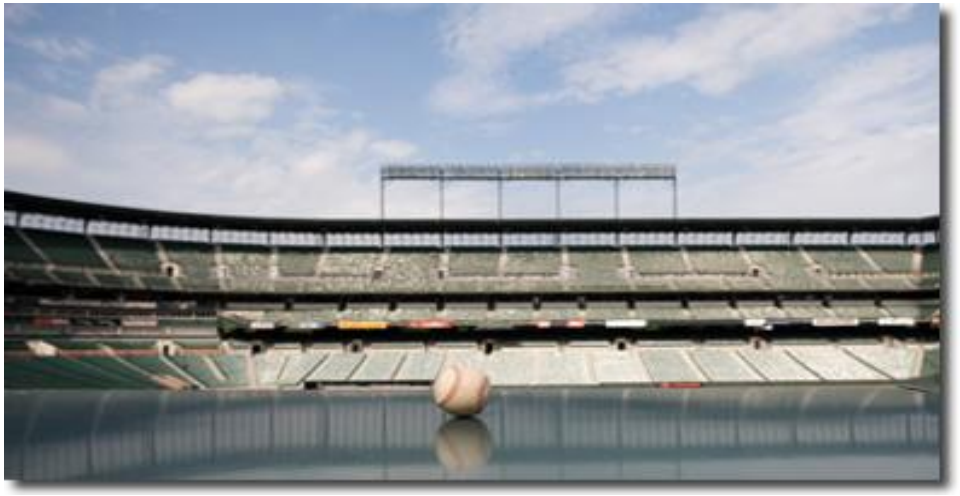
_____kg.

4TH GRADE MATH PROBLEM

PARCC RELEASED ITEMS

Numbers of stadium seats (grade 4)

Baseball stadiums have different numbers of seats. Drag the tiles to arrange the stadiums from least to greatest number of seats.



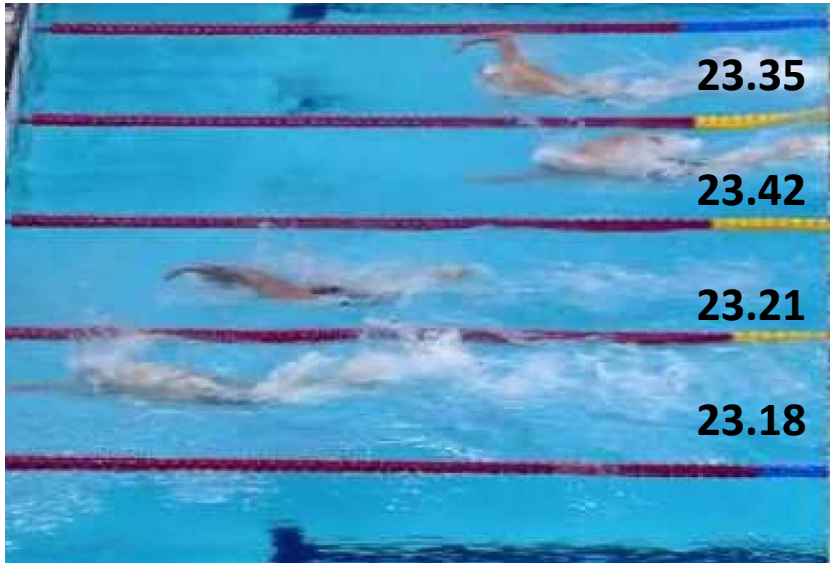
San Francisco: 41,915

Washington: 41,888

San Diego: 42, 445

6TH GRADE MATH

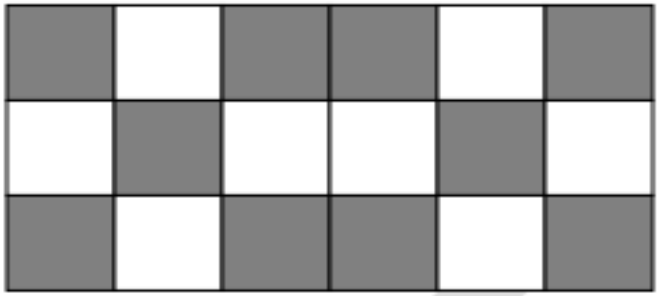
- Four swimmers compete in the 50 meter race. The finish time for each swimmer is shown in the video



- Explain how the results of the race would change if the race used a clock that rounded to the nearest tenth.

6TH GRADE MATH PROBLEM

3 The new floor in the school cafeteria is going to be constructed of square tiles that are either gray or white and in the pattern that appears below:



Part A: What is the ratio of gray tiles to white tiles?

Answer: _____

Part B: What is the ratio of white tiles to the total number of tiles in the pattern?

Answer: _____

Part C: If the total cost of the white tiles is $12, what is the unit cost per white tile?

Answer: $_____

High School Math Problem

The first four terms of a sequence are: 8,12,18,27,…

Write a recursive function for this sequence:

_____

Hannah makes 6 cups of cake batter. She pours all the batter into a rectangular cake pan with a length of 11 inches, a width of 7 inches, and a depth of 2 inches. One cubic inch is approximately 0.069 cup.

What is the depth of the batter in the pan to the nearest 1/8 of an inch. (Empty pan is illustrated)

Grade 3 ELA Questions

- Write an ending for the story that tells what the characters say and describes actions and events.
- Watch an informational video and read two articles about dental health. Take notes on these sources, and then write an informational essay about dental health.

ELA Grade 5

Item Prompt:

In this story, the fox's character can be described as mischievous. Write a paragraph explaining why the fox's character is mischievous. Use details from the story to support your answer.

Writing Assignment:

You have read three articles about child philanthropists. Think about their causes and choose which one you would most like to support. Write an opinion essay explaining why you chose that cause and what you could do to help support it.

ELA Middle School

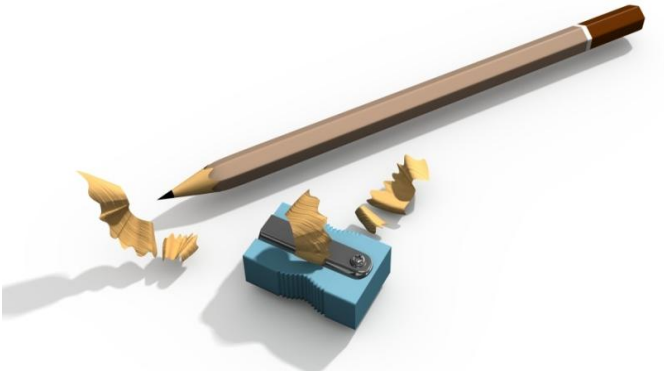
- Grade 7: Explain the meaning and purpose of the metaphor in the final sentence of the text. Use details from the text to support your response.

ELA High School

- Grade 11: Explain why the author most likely provided general information about estuaries BEFORE the “Principles and Concepts” section. Support your answer using details from the passage.

Social Studies, Science, Technical

- Grade 10: (read about political cartoons, review a packet of cartoons) Plan and deliver an oral presentation on the power of political cartoons as a tool for defining issues and influencing public opinion. Support your analysis with details from what you have read and viewed.



Extending The Core

CORE

- **Literacy**
- **Numeracy**
- **ELA in History, Science, Tech**

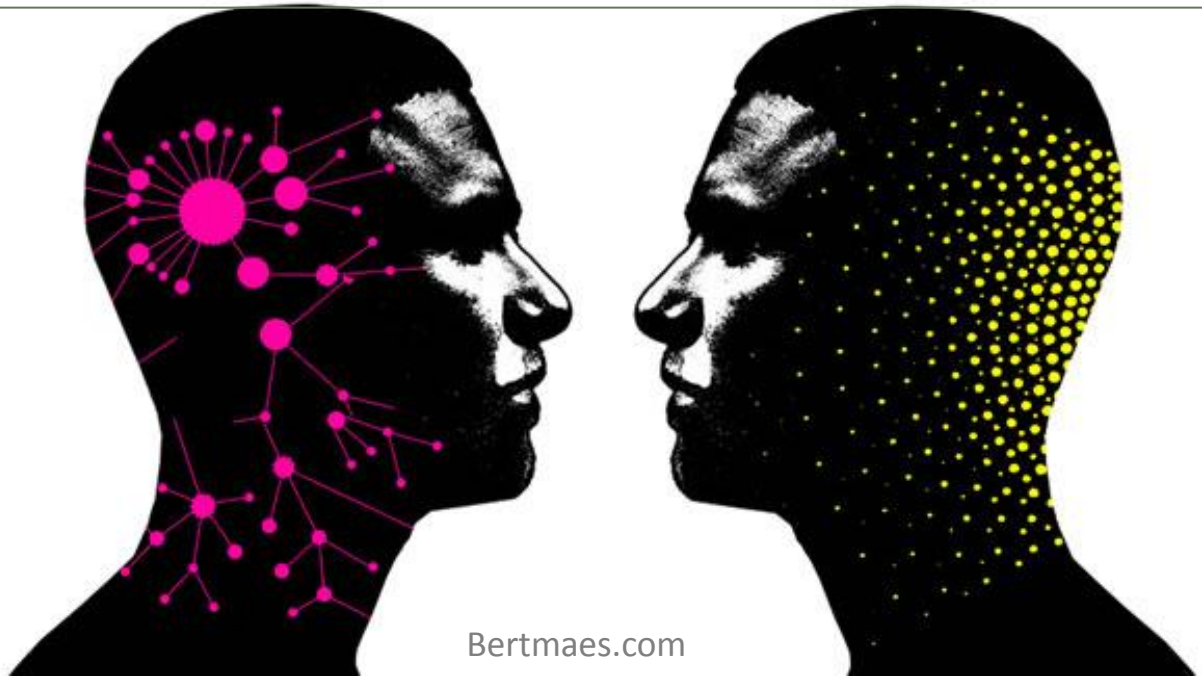
21st CENTURY SKILLS

- **Thinking**: critical thinking, problem solving~~, creativity, metacognition~~
- **Acting**: Communication, ~~Collaboration,~~ Digital Literacy, ~~Technology Proficiency~~
- **Living**: ~~Citizenship, Leadership, Global Understanding, College/Career~~

Global workplace necessities

Core Knowledge	Higher Level Thinking	Inter/Personal Qualities
Reading, Writing, Math, Science, Speaking, Listening	Analysis, Synthesis, Problem Solving, Creativity, Planning, Decision Making, Project & Information Management	Work Ethic, Responsibility, Self Directed/Controlled, Collaboration, Integrity, Adaptability

National Academies, Conference Board, Center for Public Education



Bertmaes.com

Core provides a foundation 21st century skills build the dwellings

Blog.builddirect.com

Agree/Disagree: The core doesn't go far enough?

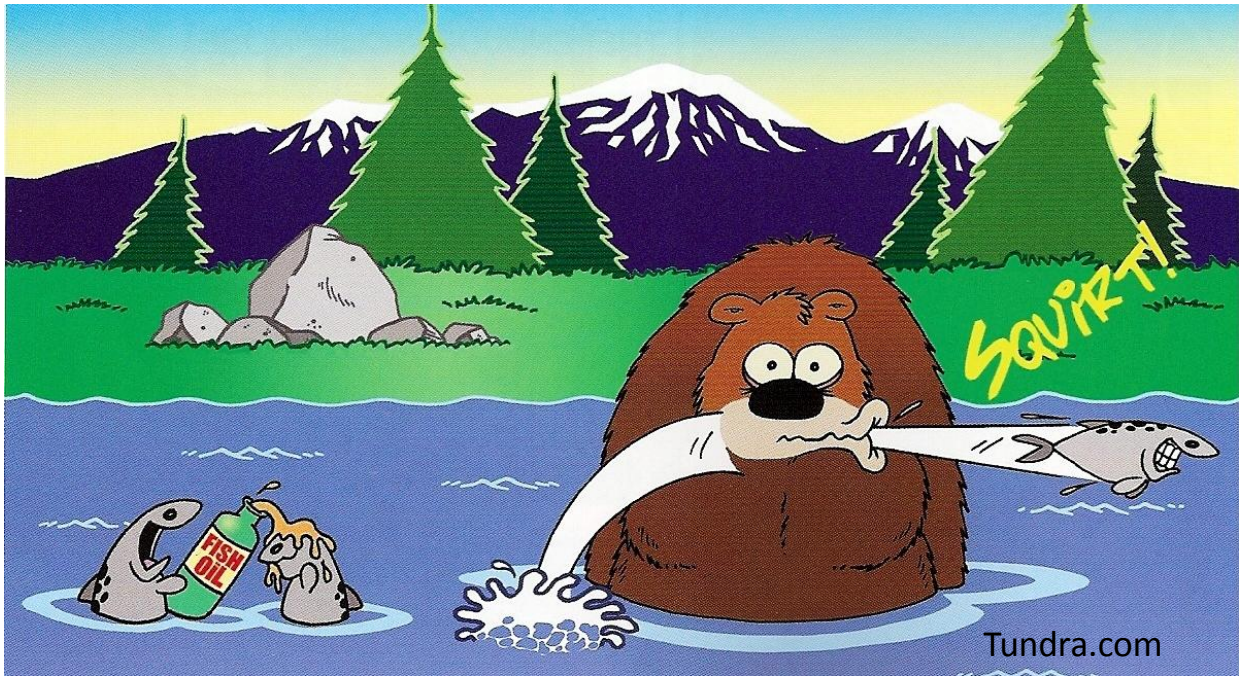
https://www.teachingchannel.org/videos/quick-classroom-warm-up 2 min

Forging New Territory

- “Complicated, multi-dimensional, real-world solutions rarely require mastery of a single, isolated skill or understanding of a single subject matter. Thus, a 21st century assessment must be able to measure or observe a student’s mastery along several different axes.” (route21.p21.org)

PARADIGM: LESSONS WORTH LEARNING

- 20th and 21st century knowledge and skills are not mutually exclusive
- Multi-century skills have been learned since before millennium were counted
- Content-rich learning must be integrated with authentic applications (Go deeper, not wider)



21st Century Demonstrations of Learning

- Performances, Demonstrations
- Publishing: Script, Blog, Reviews
- Products: Games, Inventions
- Presentations
- Debates, Speeches
- Portfolios
- Simulations/Case Studies
- Original Designs: Print, Graphic, and Multimedia
- Artistic expressions

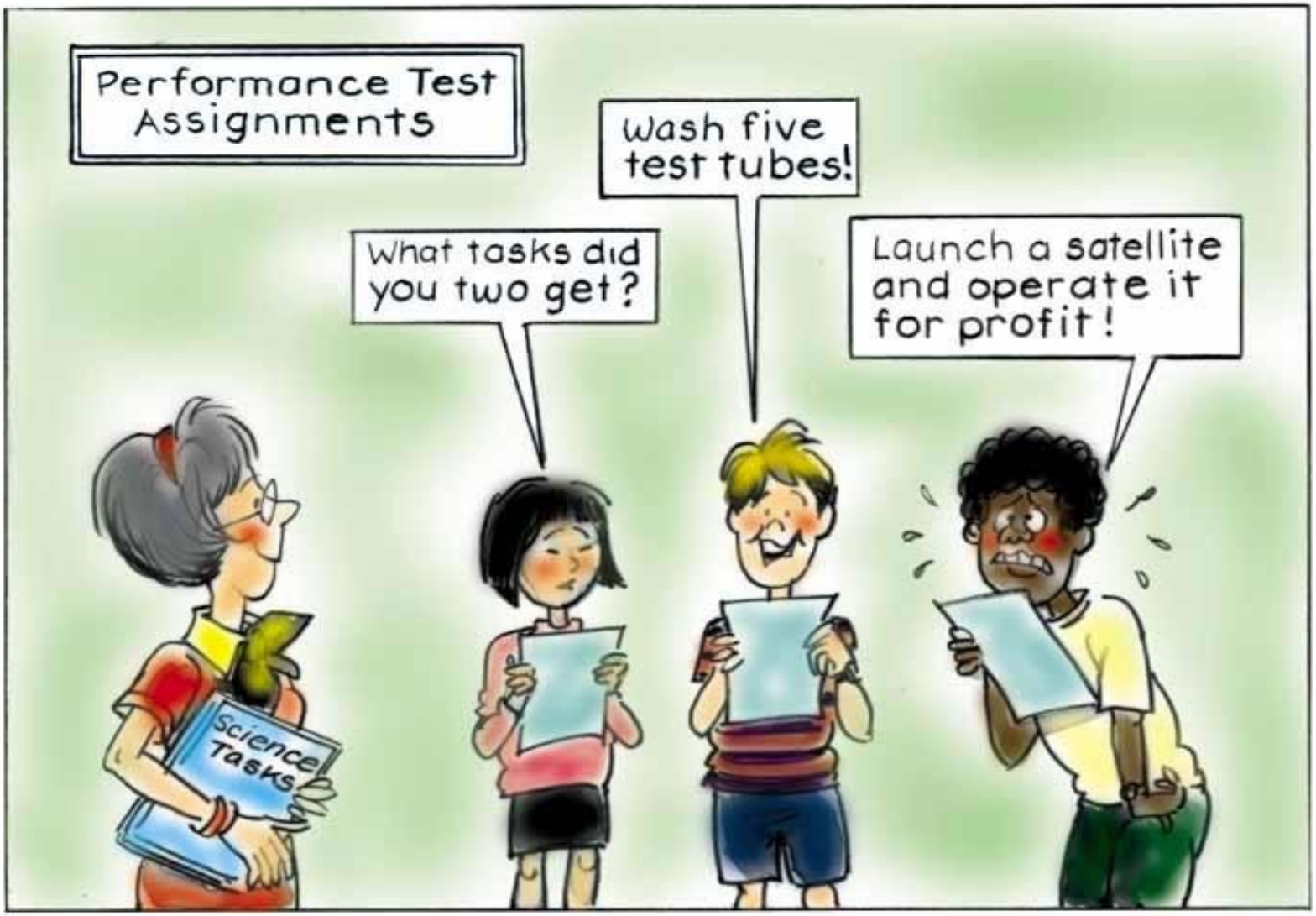
Spectrum of 21st Century Assessments

- Rubrics
- Checklists
- Self Assessment
- Peer Review
- Observations
- Project Logs
- Anecdotal Records
- Journals
- Contracts
- Formal/Informal Questions

Assessment in the 21st Century

- Core Knowledge is **aligned** with 21st Century skills
- **Integrated** with instruction: Embedded formative assessment guides teaching and learning, curriculum and planning
- **Multiple measures** provide numerical data and support informed judgment
- **Feedback** to help students progress towards targets; **Flexible and responsive** to students
- **Skills and application are emphasized in the context of content** knowledge.
- Embed knowledge and skills into **demonstrations of learning**: assess both
- **Fair** (without bias), **Valid** (measures intended targets), **Reliable** (consistent & error free)

IS THIS VALID AND RELIABLE?



PROGRESSIONS

CORE	21st CENTURY	STRATEGY	ASSESSMENT

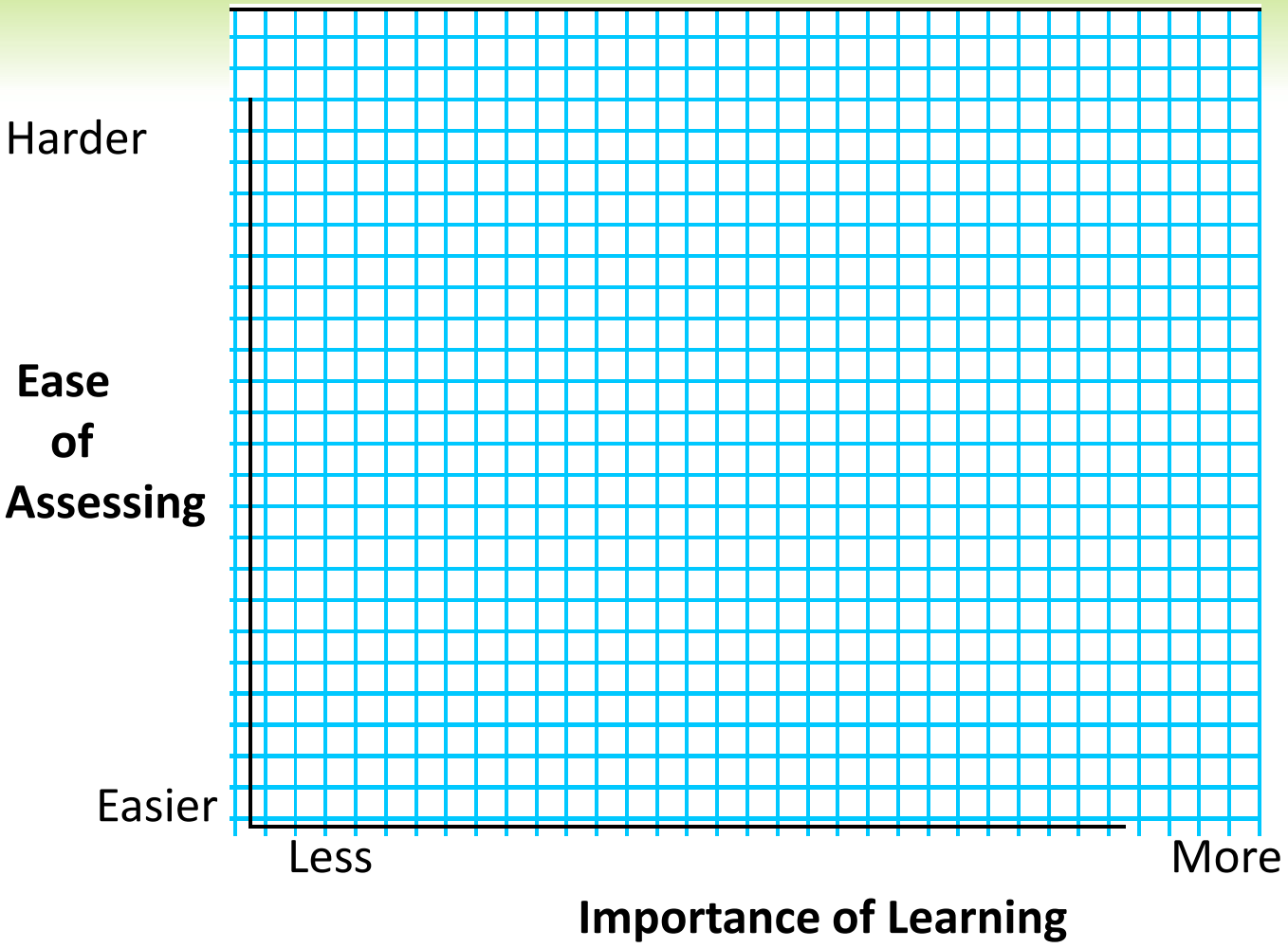
Next Slide:
Complete your own progression

PROGRESSIONS: 20th to 21st Century

20th Century	21st Century	Strategy	Assessment
Understanding- Making sense of core content	**Communication and collaboration**	**Design a webpage or present a webinar**	**Content Knowledge Research Skills Rubric and Feedback**
Utilization- Using the information	Problem solving	Create a wiki and invite people to solve a community problem	Checklist of Prob.Solv.Process Peer Review
Literacy: Determine central ideas	**Verify data in a news report**	**Debate on a current topic**	**Research Skills Debate Rubric**
Numeracy: Solve real world math problems	Class develops and produces a math decathlon	Decathlon is aired	Problem Solving Collaboration Learning Contract

Extending Learning: The Immeasurables

(Based on the work of Will Richardson: Record your ideas)



Content Knowledge
Core Skills: Literacy
Core Skills: Math
Technology Skills
Critical Thinking (i.e. Analysis, Evaluation)
Problem Solving
Creativity
Inquiry/Curiosity
Collaboration
Work Ethic
Global Understanding
Digital Literacy
Metacognition
Civic Responsibility
Leadership

Measuring the Immeasurables: "Tis a Puzzlement, But We Try"

Hybrid Rubric for a Project

Standard/Learning Target Rate each on a 1 to 4 scale Provide feedback on each	**Student Rating**: Exemplary, Proficient, Room for Growth, Novice REFLECTION	**Teacher Assessment**: Exemplary, Proficient, Room for Growth, Novice FEEDBACK
Content: Main ideas are clearly described ____ Information is fully accurate ____		
Creative elements: Original ideas ____ Fluency: multiple ideas ____		
Reliable Research: Multiple sources are used ____ Sources are accurately cited ____ Information is synthesized into a cohesive summary ____		
Presentation: Logical sequence ____ Stays focused on topic ____ Meets required length ____ All members participate ____		

Problem Solving Rubric

Standard:	4 EXPERT	3 COMPETENT	2 APPRENTICE	1 NOVICE	Score
Identifies the problem	I clearly described the problem in relation to the situation and included supporting details	I described the basics of the problem with some clarifying information	I explained parts of the problem but don't think I got it all	I had difficulty recognizing and defining the problem	
Identifies multiple solutions	I came up with at least 4 feasible and clearly described solutions	I offered 2-3 plausible solutions	I described one or two possible solutions	I couldn't think of any solutions	
Defends solution	I analyzed all the solutions and picked one that shows my understanding of the problem and the outcomes	I evaluated the solutions and picked one that is feasible	I gave a simple explanation for one choice	I wasn't able to explain my solution and wasn't sure it would work	

Metacognition
THINKING ABOUT WRITING

Rate/Explain Each:

- Coming up with an idea
- Writing an outline
- Searching for more info
- Reading more about it
- Taking notes
- Synthesizing my ideas
- Writing a draft
- Asking another to read it
- Revising content
- Revising mechanics
- Preparing final work

EASY ……..HARD

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Digital Literacy

- Appraise internet information: i.e. Dihydrogen Monoxide,
- Students evaluate with an annotated checklist

Digital Evaluation Criteria	Annotation/Support for your conclusions
Authority of the source	
Triangulate for accuracy	
Sources of data	
Scope/connectivity of information	
Is it current?	

- Digital Challenge: Students create real and bogus sites for their peers to evaluate

DEBATE RUBRIC

STANDARD	4 Exceeds Expectations	3 Meets Expectations	2 Working Towards	1 Below Standard	SCORE
Content: Opening remarks, rebuttal	Strong argument with clear views. Logical, specific and on target.	Perspective is clear. Arguments are mostly convincing and focused.	Viewpoint is a little nebulous. Remarks are neutral and somewhat vague in detail.	Focus is not established. Unconvincing statements.	
Support	Support is fact-based, detailed and compelling	Support contains facts and data and is purposeful	Support is incomplete in facts, purpose, and focus	Support is not evident	
Presentation	Poised and professional resulting in high audience attention	Effective style that engages the audience	Needs further practice in presentation skills and audience engagement	Disengaged from presentation and audience	
Contribution	Prepared for role. Energizing, respectful, and encouraging of others	Contributes to teamwork and adheres to guidelines. Respectful of others.	Inconsistent use of preparation, respect and teamwork	Lack of respect and responsibility impacts the learning environment	

Public Speaking

Checklist for Public Speaking	Comments
√ if satisfactory performance according to standard X if not satisfactory based on standard or guideline	
_____Introduction captures the attention of the audience	
_____Purpose is evident throughout	
_____Content is understandable and logically sequenced	
_____Speech: Language is appropriate to the purpose. Volume, rate, and articulation are effective.	
_____Engages with audience through body language, eye contact, and gestures.	
_____Used technology to support message	
_____Summary synthesizes main ideas in presentation	

SELECTED CHOICE

20th century selected choice

Which theory best explains the use of rewards and punishments to guide the behavior of children?

A. Psychodynamic B. Sociocultural C. Behaviorism D. Ecological (answer= C)

21st century selected choice

In **comparing** Vygotsky's theory to Skinner's, teachers need to be aware that in the classroom:

A. Rewards can be motivational for students

B. Learning takes place in a social context

C. One theory considers classroom resources more important and the other emphasizes classroom rules

D. One theory is based more on interactions with peers and the other emphasizes reinforcement for following classroom rules.

The first and second choices are correct but require only recall with no comparative analysis.

The last two both include a comparison, but only D has the correct comparison.

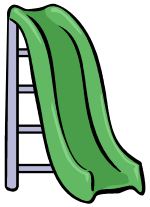
Summarizing

PICK A STRATEGY

Collaborative

Tell it to a Martian: Explain 21st century skills to someone from the planet scan sheet

Quilting Bee: Each member of the group gets a piece of a paper quilt. They write their response to a question such as : Name and describe a 21st century skill. Then the members assemble it.



Individual

Slide/Quick Draw: The slide is your big idea the rungs are your support of it

I used to think_____ but now I know_____

Because_____

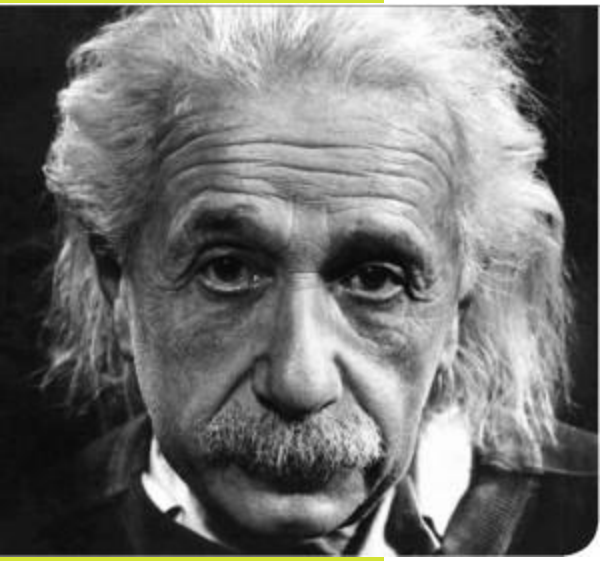
Nobody's sure of what they absolutely know

Leave a Note-Quick write

1. What did you learn, can use, was surprised by

2. One lingering question/comment

Educational Conundrums



- “Not everything that’s counts can be counted and not everything that’s counted counts.” (Attributed to Albert Einstein and William Bruce Cameron)
- What do today’s students need to know and do to be successful in a world that we cannot yet see?

Contact Information

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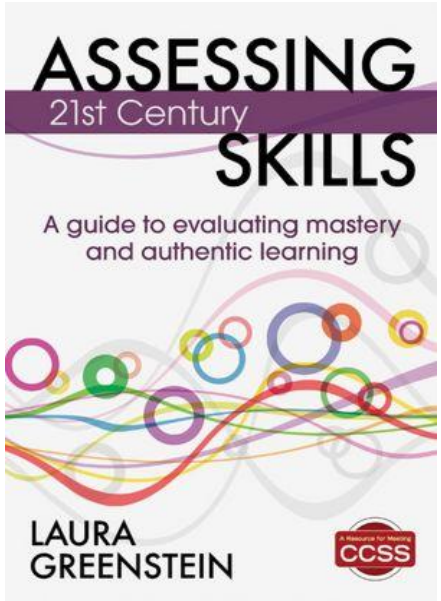
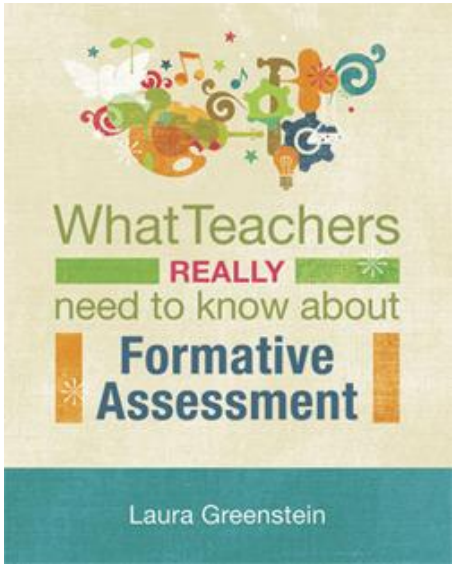
- lauragteacher@hotmail.com
- http://www.assessmentnetwork.net

- *"Assessing 21st Century Skills"* Published by Corwin/Sage
- *"What Teachers Really Need to Know About Formative Assessment": an ASCD Publication*





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- PARCC Information at http://parcconline.org/about-parcc