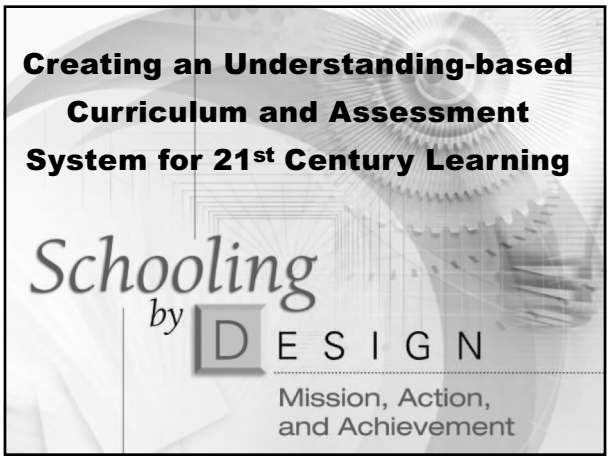

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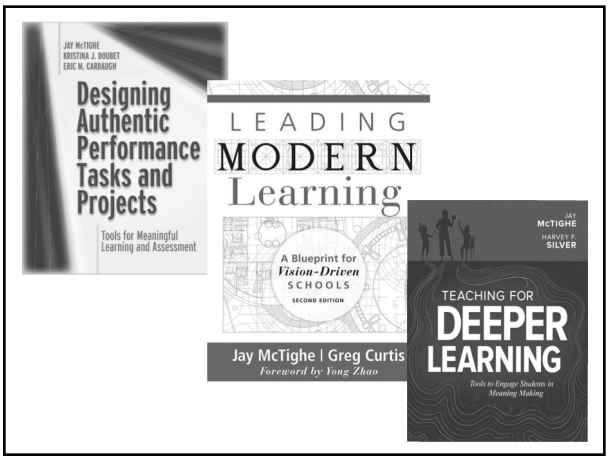

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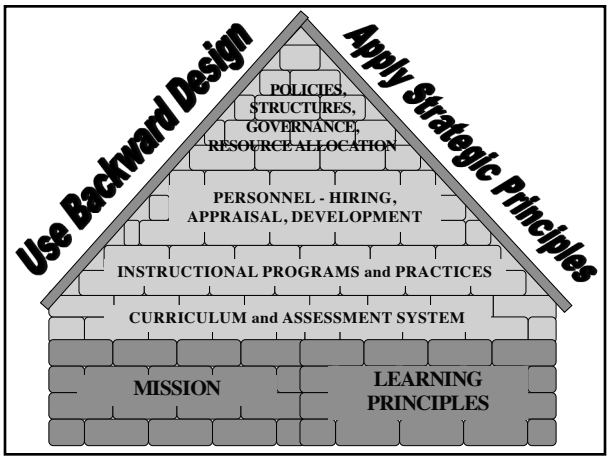

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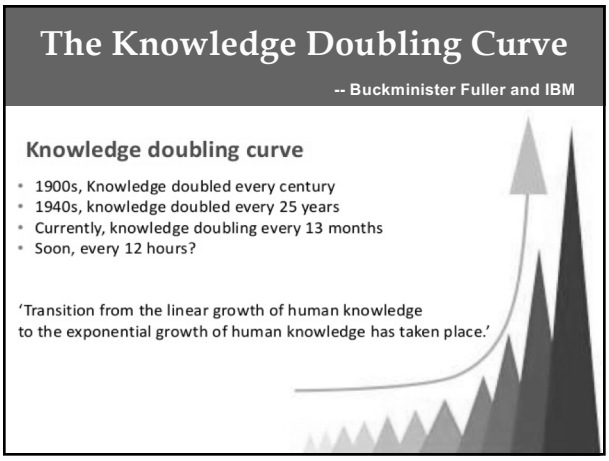

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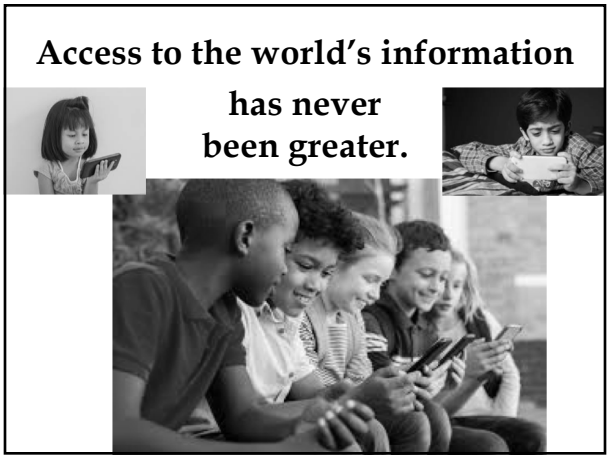

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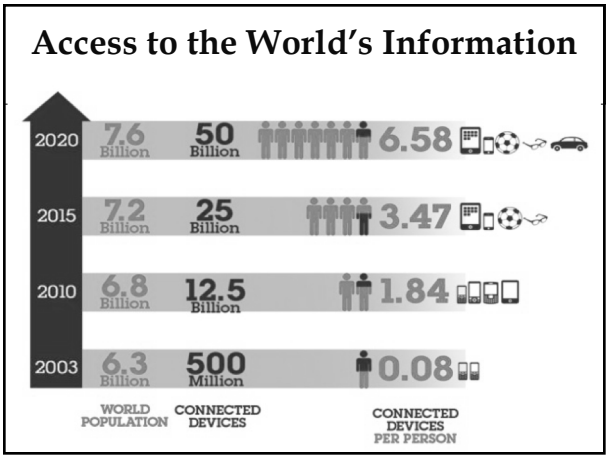

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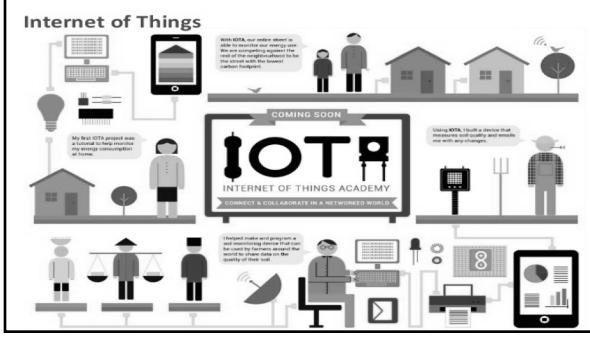
Machine to Machine Connections: The Internet of Things



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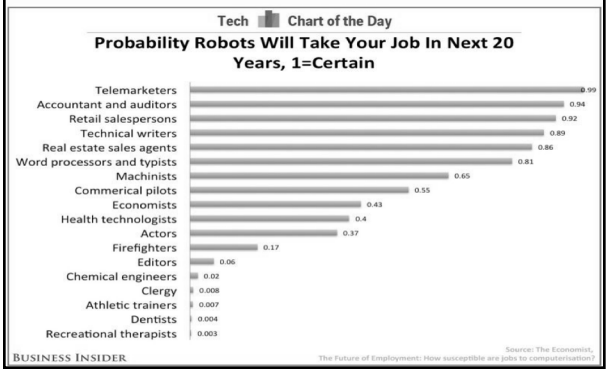
Undeniable Trends: Automation



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National Association of Colleges and Employers Survey Results

ATTRIBUTE	% OF RESPONDENTS
Problem-solving skills	82.9%
Ability to work in a team	82.9%
Communication skills (written)	80.3%
Leadership	72.6%
Strong work ethic	68.4%
Analytical/quantitative skills	67.5%
Communication skills (verbal)	67.5%
Initiative	67.5%
Detail-oriented	64.1%
Flexibility/adaptability	60.7%
Technical skills	59.8%
Interpersonal skills (relates well to others)	54.7%
Computer skills	48.7%
Organizational ability	48.7%
Strategic planning skills	39.3%
Creativity	29.1%
Friendly/outgoing personality	27.4%
Tactfulness	22.2%
Entrepreneurial skills/risk-taker	19.7%
Fluency in a foreign language	4.3%

24

Picture the Graduate

Try to envision the type of person we wish to develop as a result of 12+ years of schooling.

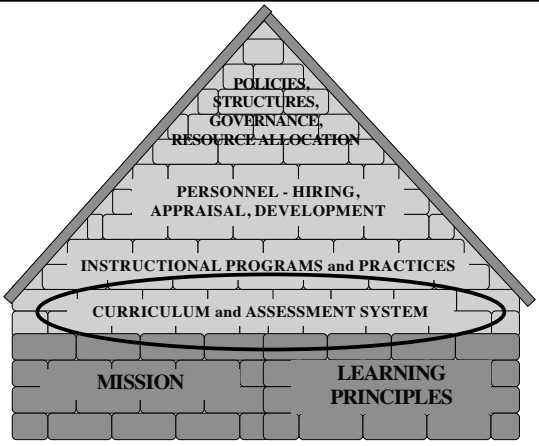
What capabilities and qualities do we seek in our graduates?

28

Portrait of a Graduate

- *Critical Thinker*
- *Creative Innovator*
- *Skilled Communicator*
- *Effective Collaborator*
- *Global Citizen*

29



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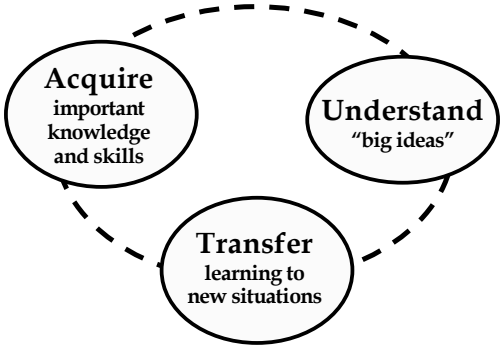
Goals for Teaching and Learning



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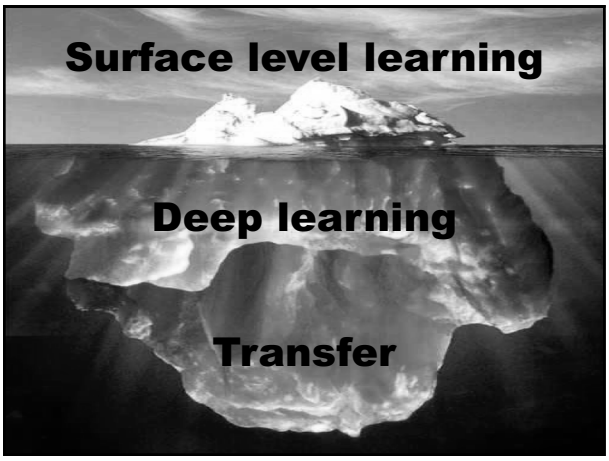


33

Three-Minute Pause

Meet in groups of 3 - 5 to...
√ summarize key points.
√ add your own thoughts.
√ pose clarifying questions.

34

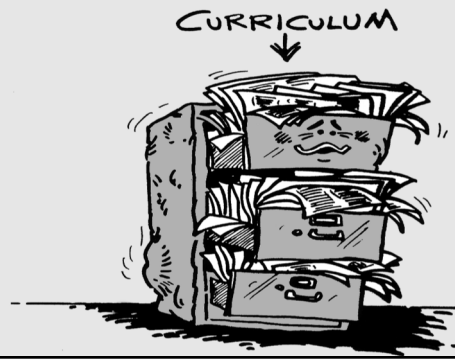
Research Finding…

A "guaranteed and viable curriculum is the #1 school-level factor impacting student achievement."

-- Marzano, *What Works in Schools*

35

A Practical Challenge Of Standards-Based Curriculum



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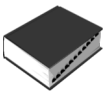
37

Curriculum…

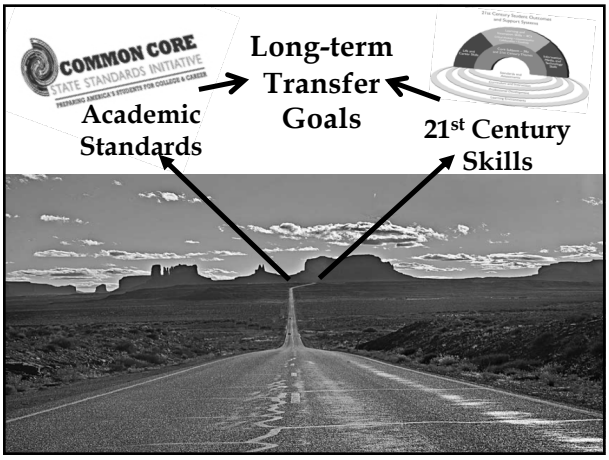


"The course to be run"

Curriculum = a plan to achieve designated goals.

Curriculum ≠ a list of topics and related activities.

39



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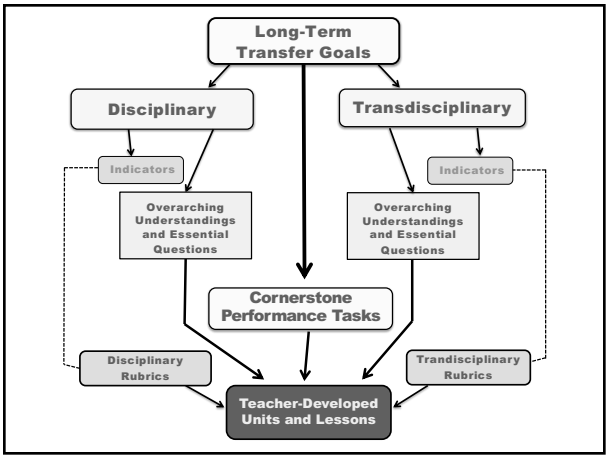
A Model Curriculum Blueprint

41



42

Long-Term Transfer Goal

"Students will be able to independently use their learning to …"

An effective curriculum equips learners for autonomous performance

… by design!

44

Characteristics of Transfer Goals…

- *Long-term (Exit Outcomes)*
- *Performance based*
- *Highlight Autonomy*
- *Distinguish means from ends*

45

Transfer Goal: Writing

Students will be able to independently use their learning to:

- **Effectively write in various genres for various audiences and purposes (inform, explain, entertain, persuade, guide, or challenge/change things).**

46

Transfer Goals: Mathematics

- **Make sense of never-before-seen, "messy" problems and persevere in trying to solve them.**
- **Construct viable arguments and critique the reasoning of others.**

47

Transfer Goal: History/SS

- **Use knowledge of patterns of history to better understand the present and prepare for the future.**
- **Critically appraise historical claims and analyze contemporary issues.**

50

51

Transfer Goals: Science

- **Use knowledge and reasoning to evaluate scientific claims or arguments and analyze current issues involving science or technology.**
- **Conduct an investigation following established scientific protocols.**

52

Transfer Goal: World Languages

Students will be able to independently use their learning to:

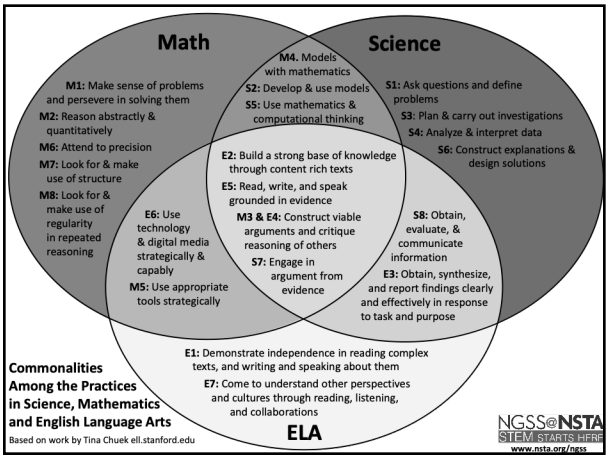
- **Effectively communicate with varied audiences and for varied purposes while displaying appropriate understanding of culture and context.**

53

Transfer Goal: Visual and Performing Arts

- **Create purposeful artistic expressions through various media and styles.**
- **Value, and participate in, the arts throughout one's life.**

55



56

Practice vs. The Game

Learning and practicing
• knowledge
• skills
• strategies

⇒

Requires transfer
• autonomous application

66

T-Chart Process

What would we see...	Non-indicators...
•	•
•	•
•	•
•	•
•	•
•	•

69

T-Chart Process

What would we see in a critical thinker...	A non-critical thinker...
•	•
•	•
•	•
•	•
•	•
•	•

70

Indicators of a CRITICAL THINKER	*Non Examples of a CRITICAL THINKING*
• Asks critical questions • Remains "skeptical" • Questions the accuracy, validity, and reliability of information • Deliberately seeks different points of view and considers their merits • Able to identify personal and cultural biases • Views problems on a "macro" and "micro" level • Recognizes that complex issues are nuanced, containing "shades of grey" and able to tolerate ambiguity • Provides sound reasons and relevant evidence to support their position • Uses evidence to evaluate claims • Willing to change one's mind when presented with new evidence or compelling reasons	• Does not question • Gullible • Accepts things at face value • Does not seek other perspectives • Narrow – only sees one perspective • Egocentric • Sees things in isolation • Uncomfortable with ambiguity; views issues as "black or white" • Only wants "the" answer • Does not support their position with reasons or evidence (or doesn't know what evidence to use) • Inflexible and unwilling to change, even in the face of new evidence or compelling reasons

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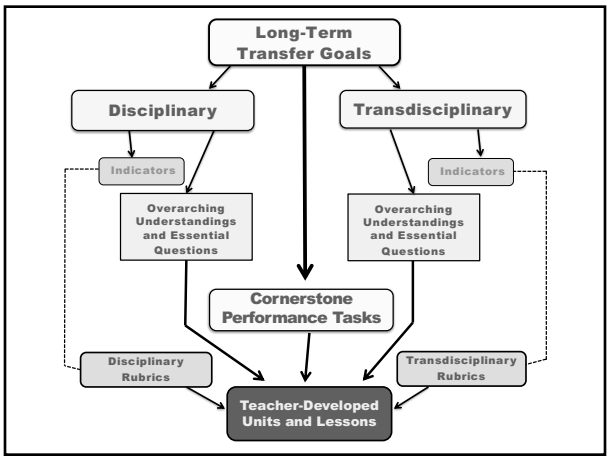

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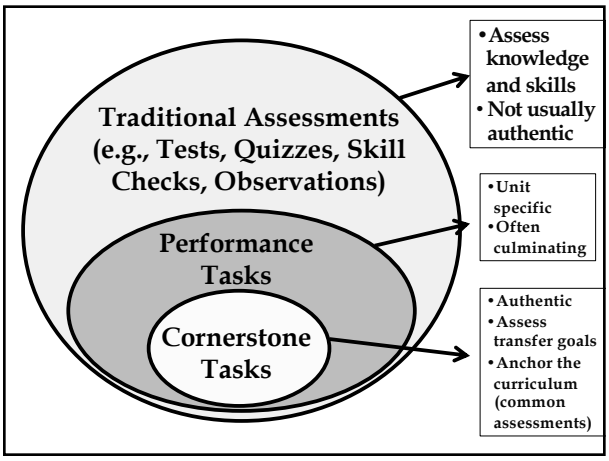

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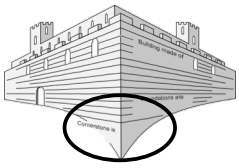
cor·ner·stone (n):

1. **the first stone laid at a corner where two walls begin and form the first part of a new building**



2. **something that is fundamentally important to something**

99

Cornerstone Tasks

- **Anchor the curriculum in important, recurring tasks.**
- **Require understanding and transfer of learning.**
- **Integrate 21st century outcomes.**
- **Provide evidence of authentic accomplishments.**

("Doing the subject" and "playing the game")

100

Transfer Goal: Writing

Students will be able to independently use their learning to:

- **Effectively write in various genres for various audiences and purposes (inform, explain, entertain, persuade, guide, or challenge/change things).**

101

K-12 Cornerstone Task Map for Writing

Grade	Informative/ Explanatory	Narrative	Opinion/Persuasion/ Argumentative
K	Science Observation Picture Book	All About Me Picture Book	XXX
1	My Favorite Animal Book	Imaginary Character Story	XXX
2	How-to Book (illustrated)	Modern-day Fairy Tale	XXX
3	Friendly Letter	Personal Narrative	Opinion Letter
4	Feature Article	Poetry Collection	Issue Analysis
5	Research Project	Descriptive Narrative	Argumentation Essay
6	How-to Guide	Autobiography	Editorial
7	Cause–Effect Essay	Myth, Fable, Fairy Tale, Folktale or Legend	Position Paper
8	Research Project	Narrative/Historical Fiction	Social Issue Essay
9	Problem–Solution Essay	Poetry, Song/Lyrics	Editorial
10	News Article	Memoir	Policy Evaluation
11	Technical Manual	Dramatic Script/ One-act Play	Argumentation Essay
12	Independent Research with Written Product and a Presentation	Parody, Satire, Irony	Position Paper on Issue chosen by student

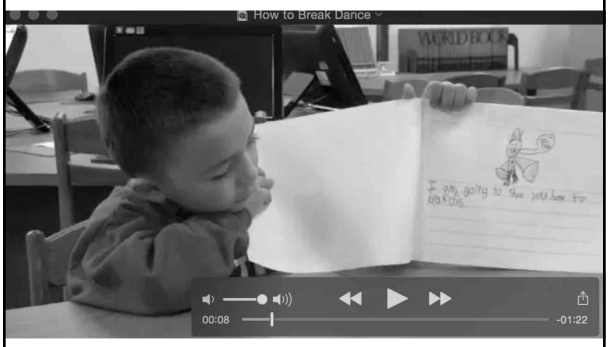
102

example:

A "How To" Guide

Since you have learned about _____, you have been asked to develop a guide to help other people learn this. Offer specific tips and suggestions to help them be successful.

104



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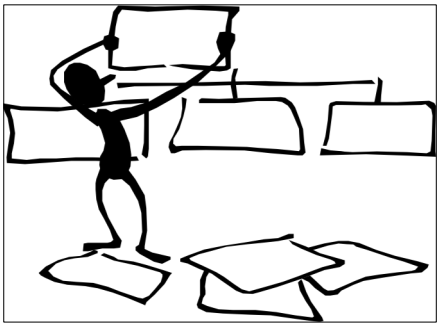
Task Frames



106

Example:

What's Your Position?

After reading _____ (literature or informational texts), write _____ (essay or substitute) that compares _____ (content) and argues _____ (content). Be sure to support your position with evidence from the texts.

109

Example:

Drone On…

Should drones be regulated?
After researching possible commercial uses of drones and examining various opinions on the issue, develop your own position and develop a (policy brief, editorial, blog) that argues for your position. Support your position with evidence from your research, while acknowledging competing views.

110

Example:

What's Your Position?

What makes something funny?
After reading selections from Mark Twain and Dave Barry, write a review that compares their humor and argues which type of humor works for a contemporary audience and why. Be sure to support your position with evidence from the texts.

111

Task Frame:

Involved Citizen

Identify a situation (e.g., issue or problem) that needs a solution.

- **Analyze the issue. – OR - Define the problem.**
- **Consider and evaluate options/possible solutions.**
- **Present your position/solution.**
- **Address (rebut) alternative positions/solutions.**
- **Attempt to convince a target audience to adopt your position or solution though a _____ .**

118

Example:

Involved Citizen

You have an idea that you believe will make your school better, and you want to convince school leaders that they should act on your idea. Identify your audience (e.g., principal, PTSA board, students) and:

1. **Describe your idea.**
2. **Explain why and how it will improve the school.**
3. **Develop a plan for acting on your idea.**

Your idea and plan can be communicated to your target audience in a letter, e-mail, or presentation.

119

Example:

Involved Citizen

After investigating a current political issue, prepare a position paper or presentation for a public policy maker (e.g., Congress person) or group (e.g., school board, legislative committee). Assume that the policy maker or group is opposed to your position. Your position statement should provide an analysis of the issue, consider options, present your position, rebut opposing positions, and attempt to persuade the public policy maker or group to vote accordingly.

Your position can be communicated in a written report, via a web blog, or delivered as a presentation.

120

Playing the Game

121

Practice vs. The Game

Learning and practicing
- **knowledge**
- **skills**
- **strategies**

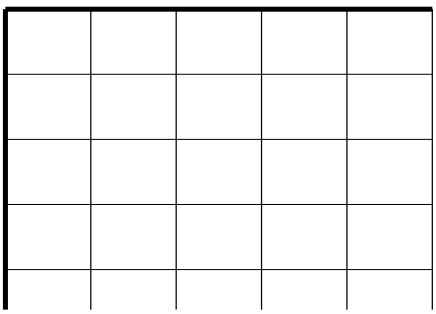
Requires transfer
- **autonomous application**

122

The "Matrix" Method

PROCESS

CONTENT



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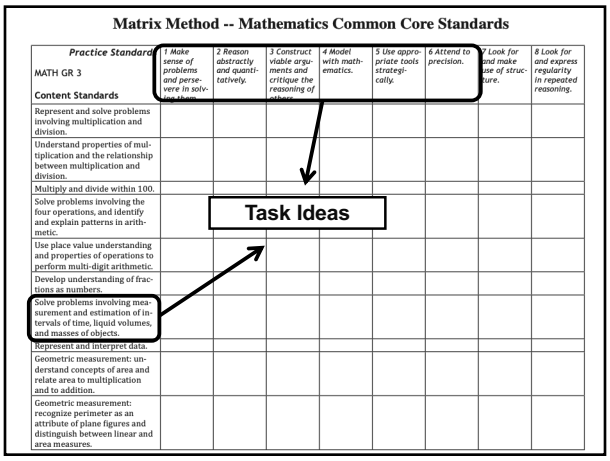

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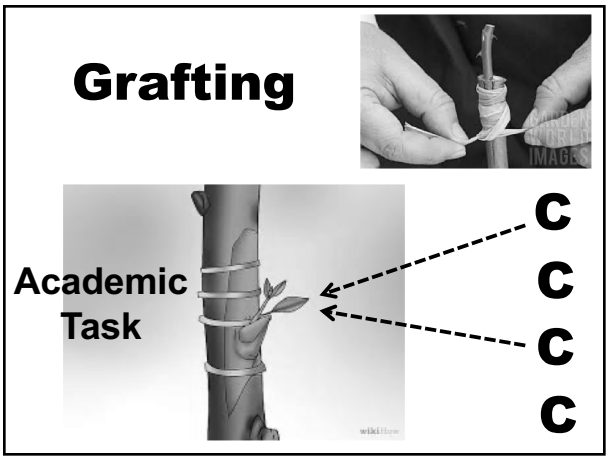

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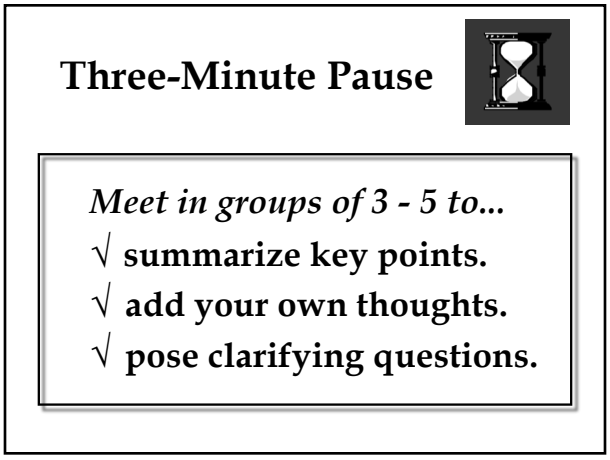

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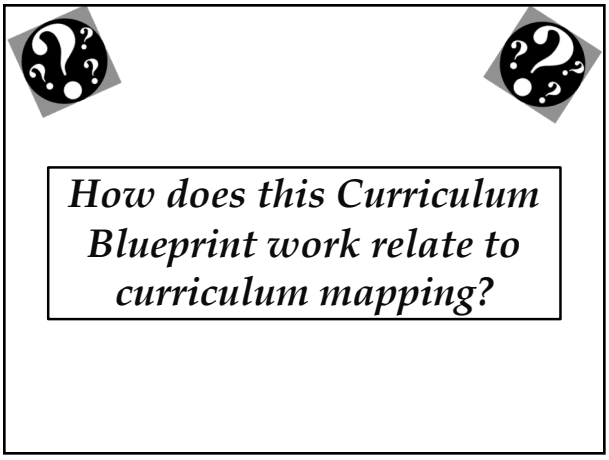

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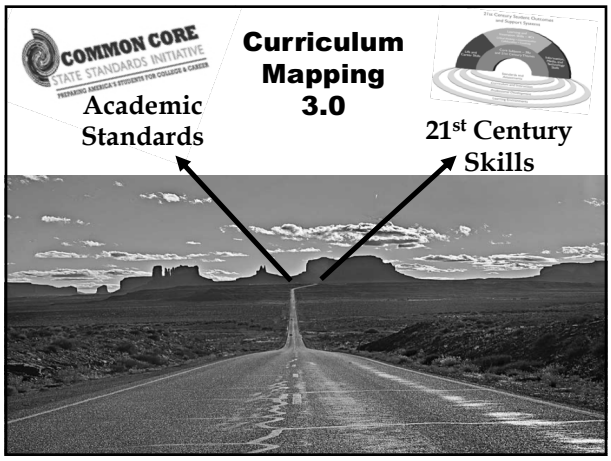


155

It's Time for Curriculum Mapping 3.0

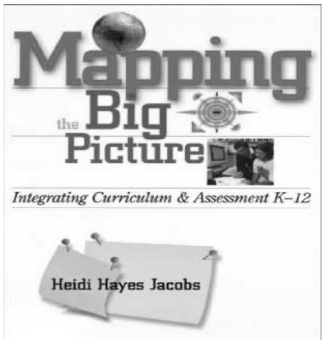
First generation = Diary mapping

Second generation = Consensus mapping against standards

Third generation = Mapping performance backward from long-term transfer goals

156

First generation = Diary Mapping



157

First generation = Diary Mapping

Year-Long Course Map
Sixth Grade – Social Studies

1st 9 Weeks			2nd 9 Weeks		3rd 9 Weeks			4th 9 Weeks	
August	September	October	November	December	January	February	March	April	May
Economics Preview	Europe	→		Latin America	→	Canada	Australia & Oceania	→	Preview 7th Grade Curriculum
Social Studies Skills Matrix	→	→	→	→	→	→	→	→	→
Notes									

158

Second generation = Consensus Mapping from Standards

COMMON CORE
STATE STANDARDS INITIATIVE
PREPARING AMERICA'S STUDENTS FOR COLLEGE & CAREER

159

Second generation = Consensus Mapping from Standards

SAUSD Common Core Aligned Curriculum Map: Math Grade 5 Year at a Glance

Title	Time	Performance Task	Big Idea	Essential Questions	Core Texts
Unit 1: Whole Numbers and Decimals (Number & Operations Base Ten)	1 week Sept	Compare populations of state capitals by converting them to millions with decimal notation.	Different values can be represented in many ways.	• What patterns can we identify in the base ten system? • How does the position of a number affect its value? • How can we simplify the problem solving process? • What kinds of models can be used to represent decimals?	HM Chapter 3
Unit 2: Addition & Subtraction of Decimals (Operations & Algebraic Thinking/ Number & Operations Base Ten)	3 weeks Sept	Plan a trip for your family, adding the mileage between cities, using decimal notation.	Real-world problems can be solved by combining or separating groups.	• How can addition and subtraction of decimals be represented by objects, pictures, words, and numbers? • What are some ways that decimals can be added and subtracted? • How are decimals used to represent numbers in real world situations?	HM Chapter 5, 12
Unit 3: Addition and Subtraction of Fractions (Number & Operations–Fractions)	5 weeks Oct/Nov	Choose the items you would take with you as an immigrant from Europe where each person is allotted a certain weight for all their belongings.	Real-world problems can be solved by combining or separating groups.	• How are fractions related to decimals? • How are common denominators used to compare fractions? • What are some ways that fractions can be combined or separated? • How are fractions used to represent numbers in real world situations?	HM Chapters 2, 4, 7, 8, 9
Unit 4: Multiplication and Division of Whole Numbers (Number & Operations Base Ten)	4 weeks Nov/Dec	Compare the areas of various states in square miles.	Real-world problems can be solved by combining or separating groups.	• What patterns do you notice when multiplying or dividing by the powers of ten? • How does using the algorithm help you to multiply efficiently? • Compare and explain how the size of factors is related to the size of products. • How can you apply the conversion of measurement units to real-life problems?	HM Chapters 1, 6, 21
Unit 5: Volume (Measurement & Data)	3 weeks January	Estimate the number of linking cubes that will fill a classroom.	Objects can be measured and compared by their attributes.	• How are area and volume alike and different? • How do you measure volume? • Why is volume represented with cubic units? • Does volume change when you change the dimensions of a figure? Why or why not? • How can you find the volume of cubes and rectangular prisms? • Why is it important to know how to measure volume?	Getting to the Core Volume Unit

160

Curriculum Mapping: Three Generations

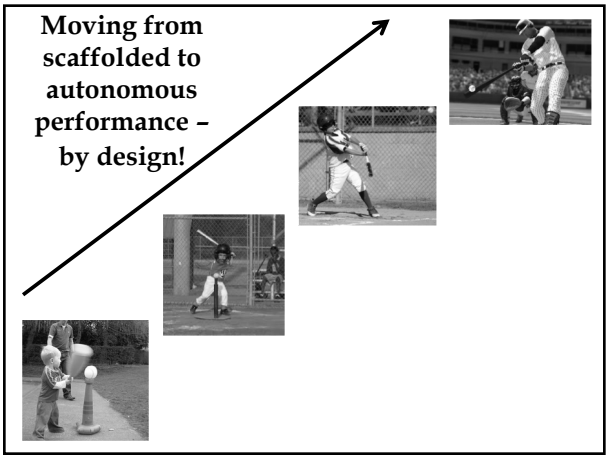
First generation = Diary mapping

Second generation = Consensus mapping against standards

Third generation = Mapping performance backward from *desired performances* based on long-term transfer goals.

161

Moving from scaffolded to autonomous performance – by design!



162

Long-term Transfer Goals

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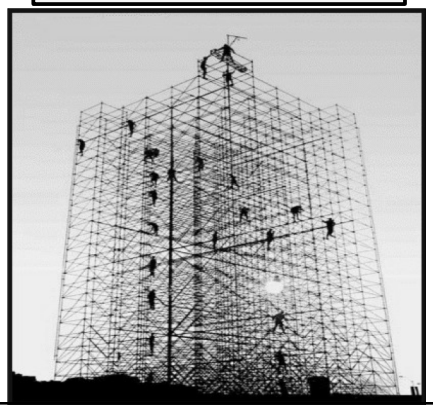

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163

Sample Map of Cornerstone Performance Tasks

	ELA	Mathematics	Science	Social Studies
12	**Independent Study Project** ELA and Science and/or Social Studies [Critical Thinking, Communication]	**Mathematical Modeling Project** (e.g., lifetime savings & investments) [Critical Thinking, Communication]	**Independent Study Project** ELA and Science and/or Social Studies [Critical Thinking, Communication]	**Independent Study Project** ELA and Science and/or Social Studies [Critical Thinking, Communication]
11	**Parody/Satire Skit** ELA and Science and/or Social Studies [Creativity, Collaboration Communication]	**Amusement Park Physics** Linked to Science [Critical Thinking, Collaboration Communication]	**Chemistry Crime Scene** [Critical Thinking, Collaboration Communication]	**Problem–Solution Campaign** [Critical Thinking, Collaboration Communication]
10	**Original Short Story, Song or Poem** [Creativity, Communication]	**How to Lie with Statistics Project** [Critical Thinking, Collaboration Communication]	**Genetics Project** Science and Social Studies [Critical Thinking, Communication]	**Constitutional Checks & Balances** [Critical Thinking, Communication]
9	**Research Project with A-V Presentation** [Critical Thinking Communication]	**Mathematical Modeling with Linear Equations** [Critical Thinking, Communication]	**Earthquake Science** [Critical Thinking, Collaboration, Communication]	**Contemporary Issues Debate** [Critical Thinking, [Communication]
8	**Causes of Conflict Research Project** ELA and Social Studies [Critical Thinking Communication]	**Design Your Dream Bedroom** [Critical Thinking, Communication]	**Consumer Scientist** [Critical Thinking, Collaboration, Communication]	**Causes of Conflict Research Project** ELA and Social Studies [Critical Thinking Communication]
7	**Autobiography** [Communication]	**Evaluate a Contractor's Proposal** [Critical Thinking, Communication]	**Water Quality Testing** [Critical Thinking, [Communication]	**History: Whose Story? Examining Perspectives** [Critical Thinking]
6	**Personal Narrative** [Communication]	**Exercise Studies** Science and Health/PE [Critical Thinking, Creativity, Collaboration]	**Prove It!** [Critical Thinking, [Communication]	**Humans and the Environment** [Critical Thinking, Communication]
5	**People on the Move Research Project** ELA and Social Studies [Critical Thinking, [Communication]	**Fund Raiser Project** [Critical Thinking, Creativity, Collaboration, Communication]	**Conduct Your Own Experiment** [Problem Solving, Communication]	**People on the Move Research Project** ELA and Social Studies [Critical Thinking, [Communication]
4	**Authors' Party Presentations** [Collaboration, Communication]	**Geometry Town** [Critical Thinking, Creativity, Collaboration]	**Seed to Plant Project** [Critical Thinking, Collaboration Communication]	**Where We Live and How We Live** [Critical Thinking, [Communication]
3	**Personal Narrative** [Creativity, Communication]	**Measure This!** [Critical Thinking Creativity, Collaboration]	**Prove It!** [Critical Thinking, Communication]	**Alike and Different: Community & Culture** [Critical Thinking, Collaboration]
	Show and Tell	**Animal Zoo (Habitats)**	**Animal Zoo (Habitats)**	**Wants and Needs**

164

WCPS Blueprint for Curriculum Design

WCPS PREK-GRADE 12 ESSENTIAL CURRICULUM

PreK-Grade 12 Transdisciplinary Transfer Goals

PreK-Grade 12 Discipline Transfer Goals

English Language Arts	Math	Science	Social Studies
Enduring Understandings and Essential Questions	Enduring Understandings and Essential Questions	Enduring Understandings and Essential Questions	Enduring Understandings and Essential Questions

PreK-Grade 12 Cornerstone Task Map

WCPS ELEMENTARY ESSENTIAL CURRICULUM FRAMEWORK

Elementary Cornerstone Task Map

PreK Modules	Kindergarten Modules	Grade 1 Modules	Grade 2 Modules	Grade 3 Modules	Grade 4 Modules	Grade 5 Modules
UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS
Performance Assessments and Other Evidence	Performance Assessments and Other Evidence	Performance Assessments and Other Evidence	Performance Assessments and Other Evidence	Performance Assessments and Other Evidence	Performance Assessments and Other Evidence	Performance Assessments and Other Evidence
Lessons	Lessons	Lessons	Lessons	Lessons	Lessons	Lessons

165

What is the relationship of this to the work of PLCs?

167

Coaches regularly reviewing game performances and plan improvements.

168

GRADE 6

ANNOTED EXEMPLAR
Literary Response

he writer establishes he topic, making an mazing observation to ook the reader, and rites a thesis that uses complex sentence attern to establish the rganization of the ssay.

Conflicts can not be avoided. In life, without conflicts things would be very dull. In the book Sixth Grade Can Really Kill You, this is what the author, Barthe DeClements, demonstrates. Helen is the protagonist with a learning disability that triggers problems and conflicts- conflicts at home, conflicts at school, conflicts within herself.

The most crucial conflicts of the book are the ones she has with herself. Worrying, sulking, frowning, Helen fears that she will flunk the sixth grade. Her teacher has warned her parents of this. Helen fears her report card and her grades on it. She knows what is coming because of her troubles in school. "I didn't lift a book until report cards came back." When Helen worries about school, she creates conflicts with herself. Helen worries that Mr. Marshall does not want her anymore because of the firecracker she sets off at the end of the book. She worries and frowns, making more problems and conflicts. Most of Helen's major conflicts stem from school and her reading difficulties.

The writer's topic statement uses excellent vocabulary (crucial) to make a strong claim and to expand upon its place in her discussion.

The writer uses a direct quote although it isn't embedded clearly in the context of her paragraph.

Helen has conflicts with her mom that emphasize her reading difficulty. Helen argues with her mom about reading. "She kept telling me to please try and read without using my finger (Helen talking about mom). I kept telling her that if I didn't I would lose my place." Helen again tries to get out of reading practice with her mom. And then the reader finds Helen and mom arguing about same thing. Without a doubt, Helen's relationship is affected by her reading problem.

The writer has employed CEI to make a claim about the character's reading difficulty.

172

A common rubric promotes greater evaluative consistency among teachers.

Analytic Rubric for Mathematical Problem Solving

	Reasoning	Computation	Representation	Communications
4	An efficient and effective strategy is used and progress towards a solution is evaluated. Adjustments in strategy, if needed, are made, and/or alternative strategies are considered. There is sound mathematical reasoning throughout.	All computations are performed accurately and completely. There is evidence that computations are checked. A correct answer is obtained.	Abstract or symbolic mathematical representations are constructed and refined to analyze relationships, clarify or interpret the problem elements, and guide solutions.	Communication is clear, complete and appropriate to the audience and purpose. Precise mathematical terminology and symbolic notation are used to communicate ideas and mathematical reasoning.
3	An effective strategy is used and mathematical reasoning is sound.	Computations are generally accurate. Minor errors do not detract from the overall approach. A correct answer is obtained once minor errors are corrected.	Appropriate and accurate mathematical representations are used to interpret and solve problems.	Communication is generally clear. A sense of audience and purpose is evident. Some mathematical terminology is used to communicate ideas and mathematical reasoning.
2	A partially correct strategy is used, or a correct strategy for only solving part of the task is applied. There is some attempt at mathematical reasoning, but flaws in reasoning are evident.	Some errors in computation prevent a correct answer from being obtained.	An attempt is made to construct mathematical representations, but some are incomplete or inappropriate.	Communication is uneven. There is only a vague sense of audience or purpose. Everyday language is used *or* mathematical terminology is not always used correctly.
1	No strategy is used, or a flawed strategy is tried that will not lead to a correct solution. There is little or no evidence of sound mathematical reasoning.	Multiple errors in computation are evident. A correct solution is not obtained.	No attempt is made to construct mathematical representations or the representations are seriously flawed.	Communication is unclear and incomplete. There is no awareness of audience or purpose. The language is imprecise and does not make use mathematical terminology.

174

Data-Driven Improvement Planning

Based on an analysis of achievement data and student work:

• What *patterns* of weakness are noted? • What *specific* areas are most in need of improvement?

- problem solving and mathematical reasoning are generally weak
- students do not effectively explain their reasoning and their use of strategies
- appropriate mathematical language is not always used
-

What *specific* improvement actions will we take?

- ☐ Increase our use of "non routine" problems that require mathematical reasoning.
- ☐ Explicitly teach (and regularly review) specific problem solving strategies.
- ☐ Develop a poster of problem solving strategies and post in each math classroom.
- ☐ Increase use of "think alouds" (by teacher & students) to model mathematical reasoning.
- ☐ Develop a "word wall" of key mathematical terms and use the terms regularly.
- ☐ Revise our problem solving rubric to emphasize explanation & use of mathematical language.

175

Ideas for Action

- ☛ *Think big.*
- ☛ *Start small.*
- ☛ *Go for an "early win" in Iowa.*

184