ASCD Professional Development Conferences & Institutes

PD13PC008 –Understanding Design: Advanced Institute in Curriculum Design

Grant Wiggins/Jay McTighe

March 13-15, 2013

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Chicago, IL

ASCD Professional Development Institutes Handout Copyright

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- Use established wireless network SSID or 4G connections. Avoid tethering or establishing networks with your own device-this can decrease network performance and staff ability to troubleshoot problems.

DAILY SCHEDULE

Continental Breakfast (provided)	**7:30 a.m.**
Session Begins	**8:30 a.m.**

There will be a 15-minute coffee break between 10:00 and 10:30 a.m.

Lunch (on your own)	**11:30 a.m.**
Session Continues	**1:00 p.m.**

There will be a 15-minute soda break between 2:00 and 2:30 p.m.

Session Adjourns	**3:30 p.m.**

Advanced Institute in
Curriculum Design

March 13–15, 2013

Curriculum Design Process

Grant Wiggins *Jay McTighe*

1a. FRAME: The curriculum design goal.

Notes	Clarifying the ultimate user outcomes
The key 'backward design' task is to identify what – in the end – you wish to accomplish in this curriculum design/reform project. Examples: • to prepare students to independently transfer their learning to new situations. • Students will use their understanding of fractions and decimals to solve non-routine math problems in which it is unclear which form of expression of 'part' is best. • apply a 'gradual release' model to develop students capacity to independently meet the demands of challenging performances tasks	*What's the purpose/goal of the curriculum (be it the teacher thinking about students or the system thinking about teachers and students)?* *i. The point of curriculum, and this project, is…* *ii. The goal has been achieved if students are able to use what they have learned to…* *iii. The goal has been achieved if teachers are able to use the curriculum to…* *Note: you will likely edit or develop a new goal statement as the work unfolds, so leave room for edits and notes*

1b. FRAME: the problems related to the goal.

Notes	Clarifying the difficulties in achieving the goal(s)
Every design must grapple with conditions/tensions/ limits that make achieving the goal(s) demanding. Consider the following categories of problem: ▪ Limited time ▪ Limited resources to support learning ▪ Limited resources to support curriculum writing and review ▪ Number of students ▪ Number of teachers ▪ Variety of students and teachers - abilities, interests, and background experiences ▪ A lack of experience with alternative approaches to teaching this content ▪ Lack of student and/or teacher motivation ▪ Lack of pre-requisite skills ▪ Lack of deep content knowledge by teachers ▪ transiency (students, teachers, and/or leaders)	*i. We face the following difficulties in achieving our curricular goal(s):* *ii. In learning this content/new curriculum, students/teachers seem to have difficulty –* *Note: you will likely edit or develop a new problem statement as the work unfolds, so leave room for edits and notes*

1c. FRAME: The design challenge.

Notes	1st draft of the design challenge
The design challenge is framed to look forward in a focused optimistic way – while acknowledging the difficulties. The assumption is that elements of the design (people, time, resources, space, pedagogy) can be tweaked to address the difficulties and achieve our goals. TIP: Try to flip the difficulties into a question that suggests interesting opportunities and possibilities (while acknowledging the difficulties): **How might we…?** **Example:** ▪ *How might we* honor diverse student interests while still achieving our content goals? ▪ *How might we* honor varied teacher needs in writing curriculum to make it more likely to be owned and effectively used by all?	*How might we –* *Note: you will likely edit or develop a new design challenge statement as the work unfolds, so leave room for edits and notes*

2a. INVESTIGATE: best-designed learning.

Notes	What is the best-designed learning you were ever in?
Our focus is on good design, not good teaching, strictly speaking. The two are somewhat related but clearly different; e.g., the teachers' personality or style could be fascinating but the design of the course be a mess or a bore. Or vice versa: a teacher with a bland style may plan an incredibly stimulating and varied experience while 'teaching' very little as part of it. In the exercise think back to how a class, course, workshop, internship or other experience was designed to make the learning engaging and effective through good use of – ▪ People ▪ Time ▪ Assignments ▪ Assessments ▪ Sequence of activities ▪ Types of activities ▪ Learner needs and interests ▪ Texts and other resources	Part I – Individually: *Consider the best designed learning experience you have ever encountered – inside or outside of formal schooling? What made it so engaging and effective? List the salient design features (not the teacher or teaching style):* Part II – Share and generalize: *What was common to the various examples in terms of well-designed learning? "Based on all our stories, to be highly engaging and effective learning must be designed so that…"* Part III – Categorize: *What patterns or groupings to the list in Part II did you notice? What important elements must curriculum design include?*

2b. INVESTIGATE: understanding as a goal

Notes	What is understanding?	
When we say we want people to "understand" what they are learning, what do we mean? What are the key indicators of understanding? How is understanding different from merely "knowing" something? **Similarly with skills: what's the difference between understanding how to use the skills vs. just having learned individual skills?** You can approach the exercise in terms of a very specific topic or skill (e.g. World War II or persuasive writing) and/or in more general terms: *Regardless of content or age of the learner, someone who really understands can…*	*Someone who really understands (something) can…*	*Someone who only knows things can…*
	Which "understanding" verbs will you commit to, moving forward?	

2c. INVESTIGATE: the student via survey data

Notes	Empathy for the user of your design – the students
Whether it is education, iPads, furniture, clothes, or software we design for the user – the students (and teachers). The essence of Phase 2 in the design process is to get out of our 'educator' heads, intentions, and experience and consider the user's motivation, attitudes and experience**.** After looking at the student survey data (provided), draw some conclusions about what is needed in order to make the curriculum more user-friendly, and how best to meet the design challenge. Back in your own setting you'll want to investigate your own students through surveys, interviews, in-class observations, shadow students for a day, etc.	*Who are the students?* *i. What stands out for you in the data and in the students' own words as to what works and what doesn't (in terms of an engaging and effective curriculum)?* ii. *Given your answers to the exercise on Best Design (p. 5) how do the student survey responses confirm, go against, and/or suggest needed additions to your criteria?*

2d. INVESTIGATE: the student via 3-4 profiles

Notes	Empathy for the user of your design – the teachers
We design for the user – in the case of curriculum, the students The essence of Phase 2 in the design process is to get out of our heads, intentions, and experience and consider the user's motivation, attitudes and experience**.** Here we can consider the *student-user* of the curriculum. What does a curriculum need to be to be student-friendly? Back in your own setting you'll want to investigate your own students through surveys, interviews, in-class observations, shadow students for a day, 'walk-throughs' looking at student engagement, etc.	*Who are the (varied) students?* Part I – Profile*: Consider 3 different students to provide a revealing sample of the challenges and opportunities in making curriculum student-friendly. Provide a brief summary profile of each by considering their interests, abilities, attitudes/beliefs about learning and school, etc.* **Student #1 –** / **Student #2 –** / **Student #3 –** Part II – List curriculum-related demographic/performance data (e.g. most student read below grade level) Part III – Implications: *Given these specific profiles and a more general consideration of your student population, what curriculum implications do you see? List your thoughts below:*

2e. INVESTIGATE: the teacher via 3-4 profiles

Notes	Empathy for the user of your design – the teachers
We design curriculum for the user – in this case, the teachers (as well as the students) The essence of Phase 2 in the design process is to get out of our heads, intentions, and experience and consider the user's motivation, attitudes and experience**.** Here we can consider the teacher-user of the curriculum. What does a curriculum need to be to be teacher-friendly? Back in your own setting you'll want to follow up these sketches with observations, interviews, and other research into and feedback from teacher-users.	*Who are the (varied) teachers?* Part I – Profile*: Consider 3 different teachers (varied ages/subjects/grades) to provide a revealing sample of the challenges and opportunities in making curriculum teacher-friendly. Provide a brief summary profile of each by considering their interests, abilities, attitudes/beliefs about teaching and learning, etc.* **Teacher #1 –** | **Teacher #2 –** | **Teacher #3 –** Part II – Implications: *Given these specific profiles and a more general consideration of your teaching staff (e.g., 40% are within 5 years of retirement; 20% have only 1-3 years of experience), what curriculum implications do you see? List your thoughts below:*

2f. INVESTIGATE: the teacher via survey data and fishbowl

Notes	Empathy for the user of your design – the teachers
We design for the user – in the case of curriculum, the teachers (as well as the students) The essence of Phase 2 in the design process is to get out of our heads, intentions, and experience and get into the users' heads, emotions, intentions, and experience**.** Here we can consider the teacher-user of the curriculum. What does a curriculum need to be to be teacher-friendly? Back in your own setting you'll want to follow up these sketches with observations, interviews, and other research into and feedback from teacher-users.	*Who are the teacher users?* *i. What questions/observations/ideas do you have prior to, during, and after the fishbowl?* *ii. What ideas about teacher-users of curriculum do you have from considering the survey data?* *iii. If you have any initial thoughts about follow-up investigations, jot them below, for later inclusion in your action planner*

2g. INVESTIGATE: the curriculum via the curriculum audit questions

Notes	The current status of curriculum locally: design, implementation, review
It is vital to do a thorough curriculum audit, based on the goals, problems, challenge; and other investigations The audit has two distinct parts: 1) a series of questions that ask about the current status of the curriculum design, implementation, and review process; and 2) an opportunity to consider what the ideal would be for the same questions. Since some of these questions were asked in the pre-Institute survey, you might want to discuss your survey answers, too.	*How is curriculum currently design, implemented and reviewed locally? As a team, respond to the questions on the document titled* Curriculum Audit Questions *Identify 5-6 priority audit questions and, as a team, discuss what would be ideal answers to those questions. Adjust your curriculum goal or design challenge statement as needed to guide your action planning.*

2h. INVESTIGATE: the curriculum via UbD design standards

Notes	The current status of curriculum locally in terms of the UbD design standards
Consider a curriculum like an written document: What is its purpose? Who is its audience? What follows for how a curriculum should be assessed? Most of the current weaknesses in curriculum design, implementation, and review stem from a failure to have explicit criteria against which each of the three phases of curriculum development is assessed.	*Are there any explicit criteria used currently to write, implement, and review locally –developed curriculum, including:* • *the overall curriculum?* • *courses?* • *units?* • *lessons?* *Look over the document titled UbD Curriculum Audit Criteria. Individually rate, then collectively discuss, where your curriculum stands against all the criteria.* *if your design goal and challenge are focused primarily on course and unit development, look at the UbD Unit Design Standards in the Design Guide,* *As a group, consider the implications of these review criteria for designing and refining your curriculum.*

3a. Brainstorm: What if…?

Notes	Brainstorm of ideas for our design challenge
In brainstorming you think divergently. In this phase, you generate as many different ideas as possible, no matter how wild or seemingly impossible. The more ideas, the better! Follow the rules of brainstorming: • 5-10 minutes of fast think-alouds, • Avoid any criticisms or self-censorship. • Do not ask questions about the ideas of others. • No need to clarify or explain your ideas. • Record each idea on a post-it for grouping and moving ideas around in the next step of the process.	Your team design challenge: *How might we…* Keep asking: *What if…*

3b. Make meaning: emerging ideas, directions, and understandings

Notes	Make meaning of your brainstormed ideas
In the meaning-making phase, you think convergently about what you brainstormed. You are now looking for patterns and connections expressed as themes and understandings. These big ideas will provide the focus for developing answers and building products related to your design challenge. Example: • Common to most ideas is "student voice" and "teacher voice" so we'll need to find ways to give them a say in curriculum. • A common theme to our proposals is the need for more hands-on and authentic learning experiences.	*What patterns, threads, themes – big ideas – emerged from considering and grouping the brainstormed ideas?* *What understandings arose from your meaning-making? "I understand from looking at all the ideas and making sense of them that…"*

2i. INVESTIGATE standards via the "5 Big Ideas" white paper

Notes	The current status of curriculum locally: design, implementation, review
In order to address standards properly it is vital to understand the relationship between curriculum and standards. We have provided a white paper for reading and discussion to help you better understand the relationship. We will "jigsaw" a discussion of the reading: you will join a group focused on one of the 5 ideas and all become an "expert' in that idea. You will then return to your team to share what you have learned, discuss the ideas, and pose and explore any questions that remain	**Individual Reading** – *Record a summary of the key ideas from the section you read:* **Sub-Group Discussion** – *Record notes on ideas from your sub-group discussion:* **Full-Group Discussion** – *Record notes on ideas from your discussion of the entire paper:* *What ideas from the paper apply to your action plan?*

2j. Investigate analog cases: fruitful follow-up investigations

Notes	Notes on analog cases
Creative problem solving is greatly enhanced by carefully investigating <u>analog cases</u> – cases that take us out of education in order to see things from helpful new perspectives. What can we learn about curriculum, and user-friendly resources from studying interesting models from other fields? Examples of potentially useful analog cases for looking at curriculum differently: • Video games • Scout merit badges • Suzuki musical training • Athletics • Extra-curriculars (e.g., debate club, Yearbook, theater) • Vocational and professional training • Red Cross swimming curriculum	*Analog cases(s) consdered:* _____ **Characteristics and key features:** / **Implications for our curriculum:** *What other analog cases will you investigate more carefully at home:*

2k. Investigate model cases and examples: follow-up cases to investigate in more depth

Notes	Model cases to explore and consider for helpful ideas
It is always helpful to study exemplars – whether we are talking about students looking at model essays or teachers looking at model teaching on video. Curriculum is approached in many different ways both within and outside of education. Here you can brainstorm and reach consensus on 3-4 model cases that you want to consider in greater depth. Examples: • Montessori • Waldorf • Success for All • Problem Based learning • Project Based Learning • Junior Great Books • Near-by schools and districts that use UbD to frame curriculum • Other resources provided in the Supplementary packet	*Which models and examples seem to have promise, given our goal, problems & challenge? What ideas do they suggest for our curriculum?* *Which ones should we investigate more thoroughly on our return home and why?*

4a. Create a product for others to review and provide feedback on

Notes	A product prototype

It is vital to turn ideas into product in design, early and often. Early prototypes or drafts are crucial for making your ideas more concrete and for getting the feedback you need to improve the work.
 	
Back home, this stage is critical once you have begun developing a curriculum. You'll want to solicit feedback from teachers and students, multiple times, before finalizing the full draft document.
 	
Examples:
 	
• Build a unit and try it out on some students, getting feedback from them and your own observations
 	
• Build a curriculum map framework and solicit feedback from select teachers
	You and your team will draft 1 or more products of some kind to turn your many ideas into something concrete for you to consider and others to review. Sample ideas for prototypes include –
	
	• *Curriculum Audit Questions: work on targeted items in "ideal" column*
	• *Curriculum Map categories (titles of fields)*
	• *Bare-bones unit sketch*
	• *Flow-chart of new curriculum design process*
	• *Outline of new model assessments*
	• *Analysis of analog cases*
	• *Written job description for curriculum writers*
	• *1-page graphic of:*
	  ○ *current initiatives (against your design goal)*
	  ○ *curriculum elements/plan*
	• *Outline of a Professional Development plan to support curriculum implementation*
	• *An "advertisement" for our new curriculum*
	• *Outline of a presentation to the Board of Education*
	• *other?*
	
	Product ideas to work on:

5a. Self-assess your product and findings

Notes	Self-assessment and feedback
In design the mantra is "the more feedback, more often, the better." 1. What did you learn from looking at other products that might help you further develop your own product specifically and design challenge generally? 2. What did you learn from any feedback you received about your product?	*Self-assessment of our product thus far:* *What I learned from looking at other products:* *Ideas for moving our work forward:*

6a. **Begin to complete action planner** (to be continued at home)

Curriculum Reform – the long-term desired results:	
GOALS that are most likely to lead to 'mission accomplished' in this project:	***The RATIONALE(s) for each goal, justified by its alignment with project desired results***

ACTION PLAN DESIRED RESULTS & GOALS – EXAMPLE:

Curriculum Reform – the long-term desired results:	
By the end of Year 5, we will have a fully-functioning engaging and effective UbD-based curriculum for all programs, courses and units that meets the criteria of being user-friendly and aligned internally & externally	
GOALS that are most likely to lead to 'mission accomplished' in this project:	***The RATIONALE(s) for each goal, justified by its alignment with project desired results***
1. TRAINING YEAR 1: All staff will have been successfully trained in the basics of UbD; and be receptive to UbD as the local planning framework. The training will emphasize how UbD addresses real and priority needs and goals.	The DESIRED RESULT of making UbD central to how we plan and assess depends in part on everyone seeing the virtues of UbD and its responsiveness to need (in spite of its demands).
2. UNIT DESIGN a. YEAR 1: Selected teams/individuals, based on selection and willingness, will have drafted, implemented, assessed the success of, and revised two model UbD units. b. YEAR 2: All teachers will have written (or adopted and adapted) 2 UbD units, implemented them, evaluated their success, and made recommendations to leaders on what UbD-related success requires moving forward. c. YEAR 3: All teachers and curriculum supervisors will have written (or adopted and adapted) 1 UbD-based course (or subject-strand at the Elem. Level) d. YEAR 4: Half of all courses/strands will be written in UbD form e. YEAR 5: All courses/strands will be written in UbD form	The project can only yield ALIGNMENT if units are developed in all school divisions and in all programs against design standards, to ensure fidelity and consistency The project can only yield ALIGNMENT if, as soon as possible, model units have been used with 'our kids' and if they show the promise and direction, and that this approach is user-friendly. User-friendliness demands a gradual increase in the demand on teachers concerning UbD unit design, to ensure that they are not overwhelmed.
3. OBSERVATION & SUPERVISION a. YEAR 1: All instructional leaders will have implemented UbD-focused walk-throughs and audits of units, and begun focusing on UbD-related PD in staff meetings. b. YEAR 2: All supervisory and evaluative conversations and reports (formal as well as informal) make reference to the quality of teacher designs, based on UbD Design standards.	The work can only become ALIGNED and USER-FRIENDLY if it is constantly reinforced via PLCs, observations, and informal walk-thrus and staff discussions.

Goal The intended result(s) of actions, linked to desired results & identified design challenge(s)	Actions What will likely advance the goal(s)	Rationale Why it makes the most sense to take this action and not others	Deliverables The specific outcomes (products /results) to be achieved by this action, by what date	Indicators The specific indicators of success for self-assessment, adjustment and final assessment of deliverables	Who/When Who will lead and participate in this action, and the dates of the actions	Resources Funding, time, materials, etc. needed

Goal The intended result(s) of actions, linked to desired results & identified design challenge(s)	Actions What will likely advance the goal(s)	Rationale Why it makes the most sense to take this action and not others	Deliverables The specific outcomes (products /results) to be achieved by this action, by what date	Indicators The specific indicators of success for self-assessment, adjustment and final assessment of deliverables	Who/When Who will lead and participate in this action, and the dates of the actions	Resources Funding, time, materials, etc. needed
GOAL 2b: YEAR 2: All teachers will have written (or adopted and adapted) 2 UbD units, implemented them, evaluated their success, and made recommendations to leaders on what UbD-related success requires moving forward.	A. TRAINING & COACHING: • 4 days of training in UbD • 2 weeks of walk-throughs when ubd units are implemented B. TEACHER LEADERSHIP • Merit-based application for 'master designers' written and posted • Master designers selected by steering committee	Without sufficient training, coaching, and feedback the project cannot succeed: this is challenging work that involves overcoming deep habits Without teacher leadership, 'this, too, shall pass' since there will not be ownership of the initiative and understanding of its importance	Training will be provided by McTighe & Wiggins and their staff, district staff development personnel, and online courses. Coaching will be provided by supervisors, teacher coaches and AE staff Leadership will be provided by a Steering Comm., of admins & teachers. Due dates: 1. Comm formed by October 1st YEAR 1 (by Asst. Supt and Principals) 2. Preliminary schedule of training and implementation time-frames – January YEAR 1	Through formal and informal surveys and observations, we will look for – • Staff understanding of value of ubd using modified CBAM rubrics • Staff developing skill in ubd Through informal and formal review of units, we will look for – • Quality of draft units, as assessed against ubd design standards • Staff self-assessment of units against ubd design standards	UbD online course by June YEAR 1 Guide on how to design, pilot and review the UbD units June YEAR 1 2-page summary on Why UbD? For staff, Board, parents Implementation schedule by June YEAR 1	$$ for sub. Teachers to accommodate training, PLCs, Learning Walks, additional planning time, and visits to analog and model sites UbD Guide to Unit Design UbD Guide to Advanced Topics in Unit Design

Goal The intended result(s) of actions, linked to desired results & identified design challenge(s)	Actions What will likely advance the goal(s)	Rationale Why it makes the most sense to take this action and not others	Deliverables The specific outcomes (products /results) to be achieved by this action, by what date	Indicators The specific indicators of success for self-assessment, adjustment and final assessment of deliverables	Who/When Who will lead and participate in this action, and the dates of the actions	Resources Funding, time, materials, etc. needed
	[Sample actions] 1. Develop a Steering Committee composed of key teacher-leaders and administrators 2. Bring in consultants for 4 days of training and coaching of all staff and 3 days of training and coaching for leaders 3. Steering committee drafts curriculum planning flowchart, in light of UbD curriculum audit; and develops an ongoing approach to gathering feedback from teachers, supervisors, and Principals 4. Steering Comm. Members shadow students for a day and interview students and parents to better understand how student friendly the curriculum currently is and how it might be improved 5. Staff volunteer to sign up for online courses & webinars on UbD, and action research around key curricular questions 6. Audit sample lessons/units/courses to determine and market the need for UbD as a design framework 7. Report to faculty on audit and the need for a more robust planning framework 8. Audit local assessments to determine current alignment, rigor, and authenticity of current summative assessments 9. Review current curriculum maps/frameworks to determine the quality of the map categories in light of Mission and UbD elements 10. Establish PLCs and Study Groups on teaching and learning for genuine understanding 11. Organize site visits to model and analog case sites 12. Conduct a targeted item analysis with local assessment results to determine the greatest deficits in Transfer and Meaning-making					

Advanced Institute in
Curriculum Design

March 13–15, 2013

Tools and Resources

Stage 1 – Desired Results

Established Goals

Local district or school Mission(s) and the academic standards to which participants are obligated

Transfer

Participants will be able to independently use their learning to...

Use UbD processes, tools, and ideas to successfully develop an action plan for achieving 1) an engaging and effective UbD-based curriculum and 2) a curriculum design process that meets local needs and overcomes flaws in traditional approaches.

Meaning

UNDERSTANDINGS

Participants will understand that...

- Standards are not curriculum: curriculum needs to reflect best practice and user needs while also honoring standards.
- Traditional approaches to curriculum writing and implementation contain flaws. New processes, tools, and criteria are needed to avoid time-honored mistakes in "writing" curriculum.
- Curriculum design and implementation is an on-going process needing on-going monitoring and revision based on results and feedback from users.

ESSENTIAL QUESTIONS

Participants will keep considering...

- *What is a curriculum? What is its purpose? Who are its "users"? What follows?*
- *By what criteria is a curriculum best assessed?*
- *What's working and what isn't in our current curriculum design, implementation, and review process?*
- *What actions and changes to our approach to curriculum design, implementation, and review are needed? How will we continually self-assess and adjust (revise) the curriculum as needed?*

Acquisition of Knowledge & Skill

Participants will know...

- The key steps in the curriculum design process.
- Design standards for curriculum at the micro (unit) and macro (course and program) levels.
- the UbD curriculum elements.

Participants will be skilled at...

- using the curriculum design process and associated tools explicitly to avoid habitual, ineffective practices in writing and implementing curriculum
- self assessing and revising curriulum based on design standards

Stage 2 – Evidence

Evaluative Criteria

- aligned with desired results
- user-friendly (for teachers and students)
- meets Design Standards

Assessment Evidence

Participants will need to show their learning by...

PERFORMANCE TASK(S):

- Short-term (at the ASCD Institute): Action plan for the design (or re-design) and implementation of an understanding-focused and standards-based curriculum
- Long-term: An engaging and effective understanding-focused and standards-based curriculum design standards

- honest self assessment
- actionable feedback

OTHER EVIDENCE:

- Self-assessment of the process and product (action plan)
- Revision of the curriculum action plan based on investigations and design standards
- Formal evaluation of the Institute

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction

The teaching and learning needed to achieve the unit goals...

Pre-assessment survey (completed in advance of Institute)

1. Institute Overview – agenda, materials, resources, process and schedule
2. Introduction to Design Thinking and Design Process
3. Overview of, and practice in, our curriculum design process & action planner
4. Design time in teams, with support and guidance (design tools, examples, mini-lessons on UbD elements and design process)
5. Ongoing assessment of work in progress, interests and needs
6. Sharing and feedback in role-alike groups
7. Institute evaluation

UbD Curriculum Development Audit Questions

Stage 1 – The desired results of curriculum design, implementation and review
What is your educational Mission (and other key long term student outcomes)?
What are your beliefs (and concomitant commitments) about curriculum and its purpose?

- *What is a curriculum? What is its purpose? Who are its audiences? What follows?*
- *What is the relation of Mission to curriculum?*
- *What is the relation of curriculum to standards?*
- *What is the relation of curriculum to best practice?*
- *How should a curriculum be framed? What elements should be included?*
- *How detailed should a curriculum be?*
- *What should be mandated, recommended, open in a curriculum?*
- *What inherent tensions exist in curriculum and implementation design?*
- *How should curriculum implementation be supported?*

Stage 2 – Evidence of successful development and implementation
How is curriculum design and implementation assessed and evaluated?

- *By what criteria is curriculum assessed during its design and implementation?*
- *By what criteria is the impact of curriculum evaluated?*
- *By whom is curriculum and its impact evaluated?*
- *By what process is curriculum and its impact evaluated?*
- *By what process is the curriculum design process evaluated?*

Stage 3 – Action Plan for Curriculum DESIGN
How is curriculum designed?

- *What research and experimentation "feeds" curriculum (re--)design?*
- *Who designs curriculum?*
- *Under what conditions is curriculum designed?*
- *Who reviews & field tests curriculum?*
- *How much iteration of design and review is needed?*
- *When is an initial design "done" and released?*
- *How is curriculum (as a 'living' document) refined on the most timely and responsive basis?*

Stage 3 – Action Plan for Curriculum IMPLEMENTATION
What does successful implementation require, given purpose and audiences?

- *Who teaches the curriculum?*
- *How is curriculum "rolled out"?*
- *How is curriculum packaged and delivered to staff?*
- *How are users of curriculum supported in initial use?*
- *What is the organizational commitment to the curriculum?*
- *How does curriculum become "owned"?*

STAGE 3 – Action Plan for QUALITY CONTROL
How will curriculum be carefully and continually refined?

- *Who monitors implementation?*
- *How are results and effects monitored?*
- *How is feedback gathered?*
- *Who provides feedback?*
- *How is feedback used?*
- *How responsive is the curriculum (before a cyclical major review)?*

UbD Curriculum Development Audit Questions Worksheet

Curriculum Audit Question	Current Status	Ideal Status
Stage 1 – The desired results of curriculum design, implementation and review: *What is your educational Mission (and other key long term student outcomes)?* *What are your beliefs (and concomitant commitments) about curriculum and its purpose?* *What is a curriculum? What is its purpose? Who are its audiences? What follows?*		
• What is the relation of Mission to curriculum?		
• What is the relation of curriculum to standards?		
• What is the relation of curriculum to best practice?		
• How should a curriculum be framed? What elements should be included?		
• How detailed should a curriculum be?		
• What should be mandated, recommended, open in a curriculum?		
• What inherent tensions exist in curriculum and implementation design?		
• How should curriculum implementation be supported?		
Stage 2 – Evidence: How is curriculum design and implementation assessed and evaluated?		
• By what criteria is curriculum assessed during its design and implementation?		
• By what criteria is the impact of curriculum evaluated?		
• By whom is curriculum and its impact evaluated?		
• By what process is curriculum and its impact evaluated?		
• By what process is the curriculum design process evaluated?		

UbD Curriculum Development Audit Questions Worksheet

(continued, p. 2)

Curriculum Audit Question	Current Status	Ideal Status
Stage 3 – Action Plan for Curriculum DESIGN: How is curriculum designed?		
• What research and experimentation "feeds" curriculum (re-)design?		
• Who designs curriculum?		
• Under what conditions is curriculum designed?		
• Who reviews & field tests curriculum?		
• How much iteration of design and review is needed?		
• When is an initial design "done" and released?		
• How is curriculum refined on the most timely and responsive basis? (to be a 'living' document)		
Stage 3 – Action Plan for Curriculum DESIGN IMPLEMENTATION: What does successful implementation require, given purpose and audiences?		
• Who teaches the curriculum?		
• How is curriculum "rolled out"?		
• How is curriculum packaged and delivered to staff?		
• How are users of curriculum supported in initial use?		
• What is the organizational commitment to the curriculum?		
• How does curriculum become "owned"?		

UbD Curriculum Development Audit Questions Worksheet

(continued, p. 3)

Curriculum Audit Question	Current Status	Ideal Status
STAGE 3 – Action Plan for QUALITY CONTROL: How will curriculum be carefully and continually refined?		
• Who monitors implementation?		
• How are results and effects monitored?		
• Who provides feedback?		
• How is feedback gathered?		
• How is feedback used?		
• How responsive is the curriculum (before a cyclical major review)?		
Other questions you think worth auditing		

Notes:

UbD Curriculum Audit Criteria

CRITERIA	SE	E	PE	NE
1. LEARNER-FRIENDLY: engaging, sensitive to individual needs & interests, based in best practice				
a. *Purposeful:* explicitly and regularly addresses the 'why?' question for students				
b. *Engaging:* designed for active intellectual engagement				
c. *Personalized:* designed to address learners' differences in interests, abilities, and learning preferences				
d. *Transparent:* key performance goals, tasks, criteria, and work samples (high and low quality) with commentary are available to support student learning/performance				
e. *Valid:* sequence reflects how engagement and understanding are best achieved and developed over time				
f. *Responsive:* there is built-in time for feedback to students with opportunities to use it				
2. TEACHER-FRIENDLY: rich and useful guidance, on implementation and modification				
a. *Clear:* specific guidance is provided on how to implement and adjust the curriculum				
b. *Justified:* rationales are provided for recommended instruction & assessment (to assist teachers in making valid choices and adjustments to the curriculum)				
a. *Adjustable:* units offer appropriate flexibility with ideas for possible modifications				
c. *Expectant:* anticipates misconceptions, transfer deficits, and other rough spots				
d. *Adaptive:* provides formative assessments and trouble-shooting guidance to help teachers to anticipate difficulties (e.g., misconceptions, performance deficits) and make needed adjustments (e.g., modify the pacing)				
e. *Responsive:* constantly refined/updated in terms of what works and what doesn't (via ongoing teacher feedback and student results)				
3. ALIGNED: coherent and grounded in organizational goals and appropriate external standards				
a. *Aligned internally:* all curriculum is mapped 'backward' to reflect Mission, Standards and other established goals (e.g., 21st Century Skills, key intellectual habits of mind).				
b. *Aligned externally:* all curriculum and performance standards are anchored by or calibrated to appropriate external standards (e.g., college and career).				
4. RIGOROUS: challenging, understanding-focused & performance-based				
a. *Prioritized:* framed by key focusing and recurring intellectual abilities and ideas				
b. *Challenging:* demanding and authentic assessments requiring autonomous and skilled performance anchor the work				
c. *Spiraling:* designed around recurring big ideas, essential questions and tasks requiring increasingly-complex and autonomous transfer performances				

SE = strong evidence. **E** = Evidence. **PE** = Partial Evidence. **NE** = No Evidence

A Summary of Key Research Findings Supporting Understanding by Design

• Views of how effective learning proceeds have shifted from the benefits of diligent drill and practice to focus on students' understanding and application of knowledge.

• Experts' knowledge is organized... Their knowledge is not simply a list of facts and formulas that are relevant to the domain; instead, their knowledge is organized around core concepts or 'big ideas' that guide their thinking about the domain (e.g., Newton's second law of motion); it is "conditionalized" to specify the contexts in which it is applicable; it supports understanding and transfer (to other contexts) rather than only the ability to remember. Novices' knowledge is much less likely to be organized around big ideas; they are more likely to approach problems by searching for correct formulas and pat answers that fit their everyday intuitions.

• Learning must be guided by generalized principles in order to be widely applicable. Knowledge learned at the level of rote memory rarely transfers; transfer most likely occurs when the learner knows and understands underlying principles that can be applied to problems in new contexts. Learning with understanding is more likely to promote transfer than simply memorizing information from a text or a lecture.

• Skills and knowledge must be extended beyond the narrow contexts in which they are initially learned. For example, knowing how to solve a math problem in school may not transfer to solving math problems in other contexts. It is essential for a learner to develop a sense of *when* what has been learned can be used -- the conditions of application. Failure to transfer is often due to learners' lack of this type of conditional knowledge.

• Curricula that are a "mile wide and an inch deep" run the risk of developing disconnected rather than connected knowledge. Research on expertise suggest that a superficial coverage of many topics in the domain may be a poor way to help students develop the competencies that will prepare them for future learning and work."

• Feedback is fundamental to learning, but feedback opportunities are often scarce in classrooms. Students may receive grades on tests and essays, but these are summative assessments that occur at the end of projects. What are needed are formative assessments, which provide students with opportunities to revise and improve the quality of their thinking and understanding.

• Assessments must reflect the learning goals that define various environments. If the goal is to enhance understanding and applicability of knowledge, it is not sufficient to provide assessments that focus primarily on memory for facts and formulas. Many assessments measure only propositional (factual) knowledge and never ask whether students know *when, where,* and *why* to use that knowledge. Given the goal of learning with understanding, assessments and feedback must focus on understanding, and not only on memory for procedures or facts.

Principles of Curriculum for Understanding*

Students presented with vast amounts of content knowledge that is not organized into meaningful patterns are likely to forget what they have learned and to be unable to apply the knowledge to new problems or unfamiliar contexts (Haidar, 1997). Curriculum for understanding provides ample opportunity for students to apply their knowledge in a variety of contexts and conditions. This helps them transfer their learning to new situations and better prepares them for future learning (Bransford and Schwartz, 2000). Providing students with frequent opportunities to apply what they learn in multiple contexts requires a reallocation of instructional time. Allowing time for in-depth learning means decisions must be made about what knowledge is of most worth. For this reason, the curriculum needs to specify clearly the appropriate balance between breadth and depth of coverage in terms of student learning outcomes.

A mathematics or science curriculum for advanced study that promotes learning with understanding:

1. Structures the concepts, factual content, and procedures that constitute the knowledge base of the discipline around the organizing principles (big ideas) of the domain.
2. Links new knowledge to what is already known by presenting concepts in a conceptually and logically sequenced order that builds upon previous learning within and across grade levels.
3. Focuses on depth of understanding rather than breadth of content coverage by providing students with multiple opportunities to practice and demonstrate what they learn in a variety of contexts.
4. Includes structured learning activities that, in a real or simulated fashion, allow students to experience problem solving and inquiry in situations that are drawn from their personal experiences and real-world applications.
5. Develops students' abilities to make meaningful applications and generalization to new problems and contexts.
6. Incorporates language, procedures, and models of inquiry and truth verification that are consistent with the accepted practice of experts in the domain.
7. Emphasizes interdisciplinary connections and integration and helps students connect learning in school with the issues, problems, and experiences that figure prominently in their lives outside of the classroom.

*Source: Committee on Programs for Advanced Study of Mathematics and Science in American High Schools

Schooling by Design: Key Learning Principles

1. Learning is purposeful and contextual.
Therefore, students should be helped to see the purpose in what they are asked to learn. Learning should be framed by relevant questions, meaningful challenges, and authentic applications.

2. Experts organize or chunk their knowledge around transferable core concepts ("big ideas") that guide their thinking about the domain and help them integrate new knowledge.
Therefore, content instruction should be framed in terms of core ideas and transferable processes, not as discrete facts and skills.

3. Different types of thinking, such as classification and categorization, inferential reasoning, analysis, synthesis, and metacognition, mediate and enhance learning.
Therefore, learning events should engage students in complex thinking to deepen their learning.

4. Learners reveal and demonstrate their understanding when they can apply, transfer, and adapt their learning to new and novel situations and problems.
Therefore, teachers should teach for transfer, and students should have multiple opportunities to apply their learning in meaningful and varied contexts.

5. New learning is built on prior knowledge. Learners use their experiences and background knowledge to actively construct meaning about themselves and the world around them.
Therefore, students must be helped to actively connect new information and ideas to what they already know.

6. Learning is social.
Therefore, teachers should provide opportunities for interactive learning in a supportive environment.

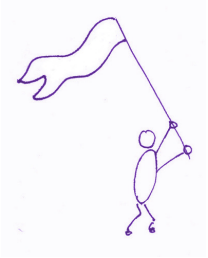
7. Attitudes and values mediate learning by filtering experiences and perceptions.
Therefore, teachers should help students make their attitudes and values explicit and understand how they influence learning.

8. Learning is nonlinear; it develops and deepens over time.
Therefore, students should be involved in revisiting core ideas and processes so as to develop deeper and more sophisticated learning over time.

9. Feedback enhances learning and performance.
Therefore, ongoing assessments should provide learners with regular, timely, and user-friendly feedback, along with the opportunity to use it to practice, retry, rethink, and revise.

10. Effectively accommodating a learner's preferred learning style, prior knowledge, and interests enhances learning.
Therefore, teachers should pre-assess to find out students' prior knowledge, learning preference, and interests; then differentiate their instruction to address the significant differences they discover.

STANDARDS



Definition

Standards specify established learning goals. A *content* standard provides a written description of what students should know and be able to do in a particular discipline or subject area. A *performance* standard specifies how well students need to perform in order to meet the standard.

Some standards are broad and overarching (e.g., *Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence*), while others are grade/level-specific (e.g., *Grade 4 – Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers*.)

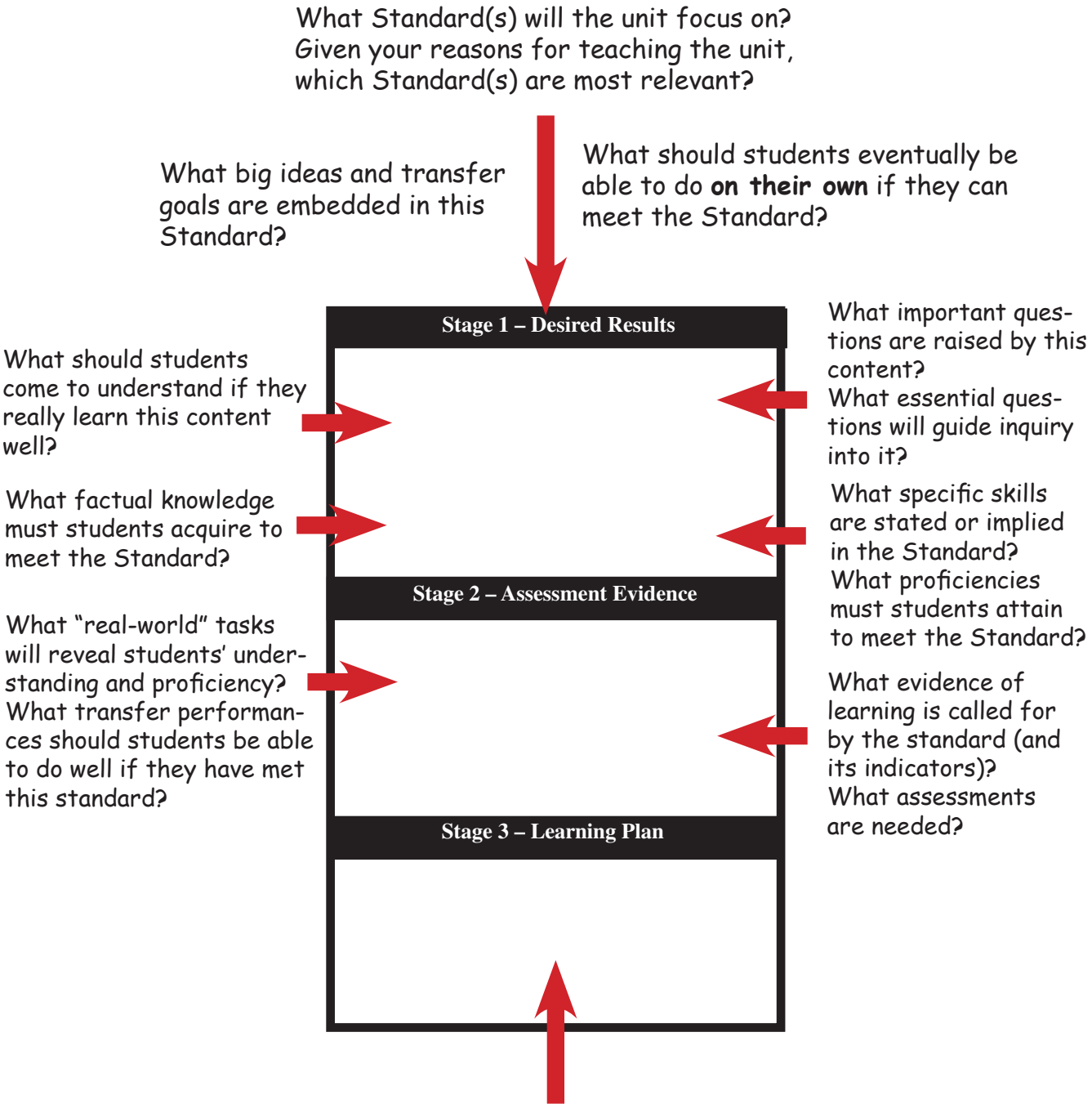
Standards specify goals related to **content** (e.g., *Grade 6 – Write and evaluate numerical expressions involving whole-number exponents*) as well as **process** (e.g., *Make sense of problems and persevere in solving them*).

Recommendations

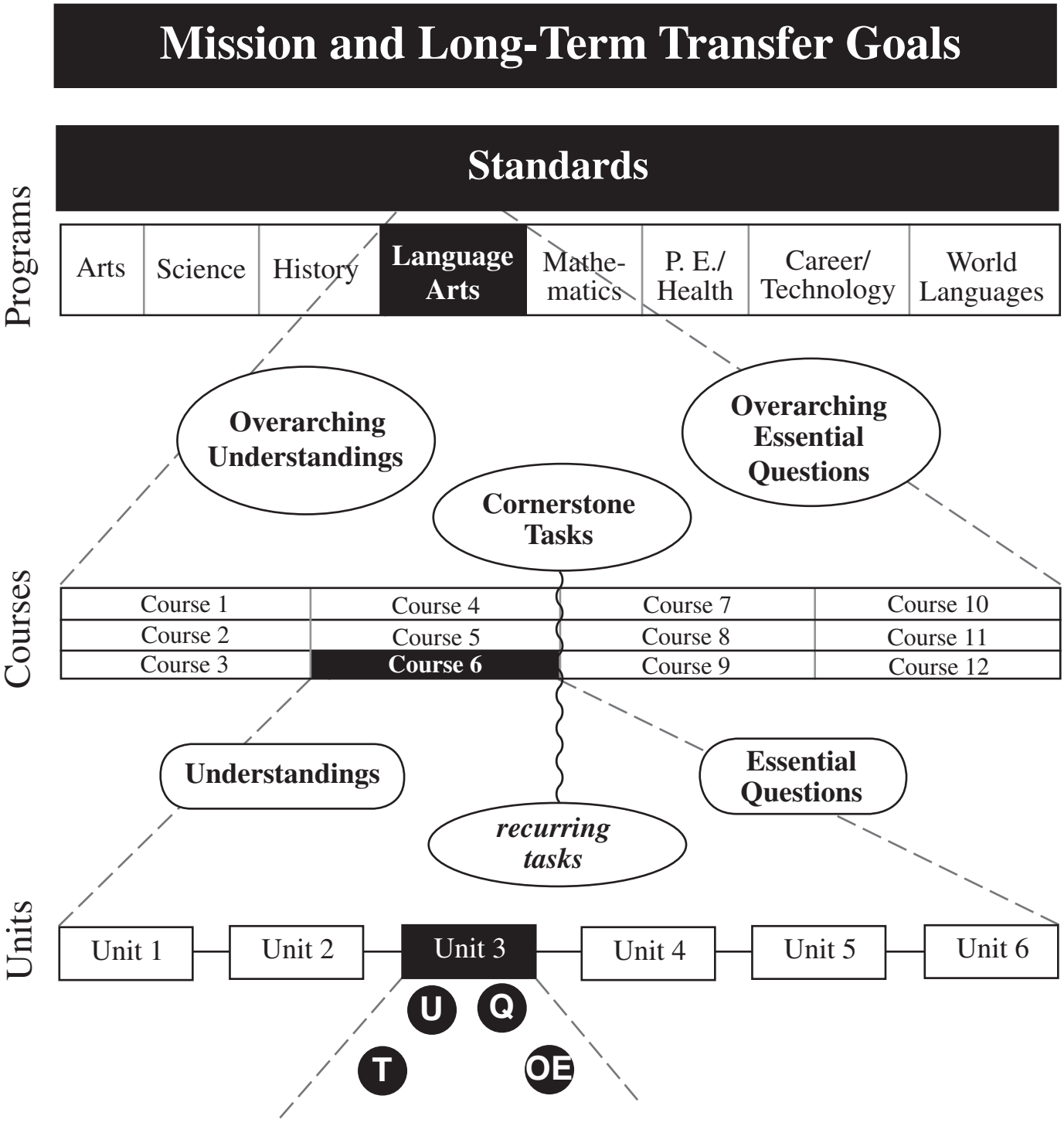
Standards are not curriculum; they provide the framework upon which curricula are developed. Educators must translate Standards into a teachable curriculum to insure a guaranteed set of desired results. Since Standards documents often contain a mix of knowledge, skills, conceptual understandings, transfer abilities and habits of mind, it is necessary to "unpack" them to clarify the desired results and develop appropriate assessments and instruction.

The Common Core Standards have been developed with long-term outcomes in mind (e.g., College and Career Anchor Standards in English Language Arts), and their components are intended to work together (e.g., Content and Practice Standards in mathematics). It is important for educators to understand the intent and structure of the Standards in order to work with them most effectively. Accordingly, I recommend that schools set the expectation and schedule the time for staff to read and discuss the Standards, beginning with the "front matter," *not* the grade-level Standards. Consider using the following essential question to guide staff reading and discussion: *What are the new emphases in these Standards and what do they mean for our practice?*

Curriculum Planning with Standards using UbD



Curriculum Design: Macro and Micro Views



TRANSFER GOALS

Definition

Transfer Goals highlight the effective uses of understanding, knowledge, and skill that we seek in the long run; i.e., what we want students to be able to do when they confront new challenges – both in and outside of school. There are a small number of overarching, long-term transfer goals in each subject area. For example, a long-term aim in mathematics is for students to be able to solve "real world" problems on their own. A long-term transfer goal in history is for students to apply the lessons of history when considering contemporary issues.

In every case, the ability to transfer learning manifests itself in not just one setting but varied real-world situations. Transfer is about independent performance in context. You can only be said to have fully understood if you can apply your learning without someone telling you what to do and when to do it. In the real world, no teacher is there to direct and remind you about which lesson to plug in here or there. Transfer is about intelligently and effectively drawing from your repertoire, independently, to handle new contexts on your own. In the real world, no teacher is there to direct and remind you about which lesson to plug in here or there: transfer is about intelligently and effectively drawing from your repertoire, independently, to handle particular contexts on your own. The goal of transfer thus requires that an instructional plan (in Stage 3) help the student to become increasingly autonomous, and the assessments (in Stage 2) need to determine the degree of student autonomy.

Transfer goals have several distinguishing characteristics:

- They require application (not simply recognition or recall).
- The application occurs in new situations (not ones previously taught or encoun tered; i.e., the task cannot be accomplished as a result of rote learning).
- The transfer requires a thoughtful assessment of which prior learning applies here – i.e. some strategic thinking is required (not simply "plugging in" skill and facts).
- The learners must apply their learning autonomously (on their own, without coaching or teacher support).
- Transfer calls for the use of habits of mind (i.e., good judgment, self regulation, persistence) along with academic understanding, knowledge and skill.

Long Term Transfer Goals

examples

Students will be able to independently use their learning to:

History
• Apply lessons of the past to current and future events and issues, and to other historical eras
• Critically appraise political, social, and historical claims/decisions in light of available evidence and reasoning

Health and Physical Education
• Make healthful choices and decisions regarding diet, exercise, stress management, alcohol/drug use
• Play a chosen game skillfully and with good sportsmanship

Mathematics
• Investigate and find patterns in phenomena/data, and model them mathematically
• Apply sound mathematical reasoning to clarify and solve novel mathematical problems

Performing & Fine Arts
• Find meaning and interest in varied works and performances of art
• Create/perform works in one or more media to express ideas and/or to evoke mood and emotion

Reading
• Read and respond to text in various genres (literature, non-fiction, technical) for various purposes (entertainment, to be informed, to perform a task)
• Comprehend text by inferring and tracing the main idea, interpreting ("between the lines"), critically appraising, and making personal connections

Research
• Locate pertinent information from varied sources (print, on-line; primary, secondary)
• Critically evaluate sources and information (e.g., for accuracy, completeness, timeliness, lack of bias, properly referenced)
• Synthesize information for purpose (e.g., dec

Science
• Evaluate scientific claims and analyze current issues involving science or technology
• Conduct a sound investigation to answer an empirical question

World Language
• Communicate effectively in the target language in common "real world" situations
• Demonstrate sensitivity in behavior and speech to culture and context

Writing
• Write in various genres for various audiences in order to explain (expository), entertain (narrative/poem), argue (persuasive), guide (technical), and challenge (satirical)
• Carefully draft, write, edit, and polish one's own and others' writing to make it publishable

Transfer Goals

examples from schools and districts

Science Transfer Goals

Students will be able to independently use their learning to:

• Apply knowledge of science and engineering to engage in public discussions on relevant issues in a changing world.
• Conduct investigations, individually and collaboratively, to answer questions.
• Evaluate scientific claims for validity.
• Think systemically.

Source: North Slope Borough School District, Barrow, Alaska (July 2012)

Visual Arts Transfer Goals

Students will be able to independently use their learning to:

• Create engaging and purposeful artistic expressions in forms that vary in terms of media and style.
• Communicate ideas, experiences, and stories through art.
• Respond to the artistic expression of others through global understanding, critical stance, personal connection, and interpretation
• Respond to technical and conceptual challenges of his/her own
• Develop an independent artistic vision

Source: Sheridan School, Washington, DC (June 2011)

World Languages Transfer Goals

Students will be able to independently use their learning to:

• Communicate effectively in the target language(s) in realistic situations while displaying a sensitivity to culture and context.
• Emulate native speakers.
• Willingly taking risks with language, both within and outside of the classroom.

Source: The Dalton School, New York, NY (March 2012)

Rubric for Degree of Transfer

3	THE GAME. The task is presented *without cues* as to how to approach or solve it, and may look unfamiliar or new. Success depends upon a creative adaptation of one's knowledge, based on understanding the situation and the adjustments needed to achieve the goal - "far transfer." No simple "plugging in" will work, and the student who learned only by rote will likely not recognize how the task taps prior learning and requires adjustments. Not all students may succeed, therefore, and some may give up. • In a writing class, students are given a quote that offers an intriguing and unorthodox view of a recently-read text, and are simply asked: "Discuss" • In a math class, students must take their knowledge of volume & surface area to solve a problem like: "What shape permits the most volume of M & Ms to be packed in the least amount of space – cost-effectively and safely?"
2	GAME-LIKE. The task is complex but is presented with sufficient clues/cues meant to *suggest* the approach or content called for (or to simplify/narrow down the options considerably). Success depends upon realizing which recent learning applies, and using it in a straightforward way – "near transfer." Success depends on figuring out what kind of problem this is, and with modest adjustments using prior procedures and knowledge to solve it. • writing: same as above, but the directions summarize what a good essay should include, and what past topics and ideas apply. • math: the above problem is more simplified and scaffolded, by the absence of a specific context, and through cues provided about the relevant math and procedures
1	DRILL. The task looks familiar and is presented with *explicit reference* to previously studied material and/or approaches. Minimal or no transfer is required. Success requires only that the student recognize, recall and plug in the appropriate knowledge/skill, in response to a familiar (though perhaps slightly different) prompt. Any transfer involves dealing with only altered variables or details different from those in the teaching examples; and/or in remembering which rule applies from a few obvious recent candidates. • writing: the prompt is a just like past ones, and the directions tell the student what to consider, and provide a summary of the appropriate process and format. • mathematics: the student need only "plug in" the formulae for spheres, cubes, pyramids, cylinders, etc. to get the right answers, in a de-contextualized problem.

UNDERSTANDINGS

Definition

Identify the important, transferrable ideas and processes that students should come to understand. Understandings differ in scope and breadth. **Overarching** understandings point beyond the specifics of a unit to the larger, transferrable ideas that spiral throughout the curriculum. **Topical** understandings target the particular insights we want students to attain within a unit of study. Topical understandings are less likely to transfer to other topics. Effective understandings…

- Reflect important, transferrable ideas
- Are stated as full-sentence generalizations — Students will understand that…

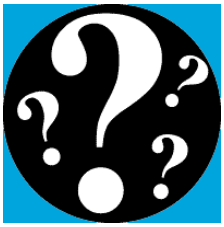
Desired understandings are identified in Stage 1 for the purpose of:

1. focusing curriculum around enduring, transferable learning to avoid educator and student fixation on narrow objectives;
2. encouraging active meaning making by students; and
3. are necessary for transfer of learning to new situations.

Examples

Overarching Understandings	Topical Understandings
Economics Price is a function of supply and demand. Science Gravity is not a physical thing but a term describing the constant rate of acceleration of all falling objects. Physical Education A muscle that contracts through its full range of motion will generate more force Mathematics Mathematics allows us to see patterns that might have remained unseen.	Unit on Money (elementary) The cost of a Beanie Baby depends on demand and availability at any given time. Unit on Gravitational Force Vertical height, not the angle and distance of descent, determines the eventual speed of a falling object. Unit on Golf A full stroke with follow-through will increase your distance on a drive. Unit on Statistics Statistical analysis and graphic displays often reveal patterns in seemingly random data or populations, enabling predictions.

ESSENTIAL QUESTIONS



Definition

Open-ended questions designed to promote sustained inquiry and meaning making. Essential questions differ in scope and breadth. We distinguish between overarching and topical questions. **Overarching** essential questions point beyond the particulars of a unit to the larger, transferable ideas and enduring understandings. They recur fruitfully across the grades, spiraling throughout the curriculum to provide conceptual through lines. Effective overarching essential questions:

- are broad and general in nature; and
- lead to overarching understandings

Topical essential questions are more specific. They guide the exploration of ideas and processes within particular topics within a unit of study.

Essential questions are identified in Stage 1 for the purpose of:

1. Provoking deep thought, lively discussion, sustained inquiry, and additional questions leading to new and/or deeper insight(s)
2. Asking students to consider alternatives, weigh evidence, support their ideas and rethink key ideas
3. Support connections within and across content and context

Examples

Overarching Essential Questions	Topical Essential Questions
• *In what ways does art reflect culture as well as shape it?* • *How do artists choose tools, techniques, and materials to express their ideas?* • *What makes a great story?* • *How do effective writers hook and hold their readers?*	**unit on masks** • *What do masks and their use reveal about the culture? What tools, techniques, and materials are used in creating masks from different cultures?* **unit on mysteries** • *What is unique about the mystery genre?* • *How do great mystery writers hook and hold their readers?*

Areas of Emphasis
in the
Common Core State Standards

The Common Core State Standards in Mathematics

"…the mathematics curriculum in the United States must become substantially more focused and coherent in order to improve mathematics achievement .... To deliver on the promise of common standards, the standards must address the problem of a curriculum that is a mile wide and an inch deep. That is, what and how students are taught should reflect not only the topics that fall within a certain academic discipline, but also the key ideas that determine how knowledge is organized and generated within that discipline. This implies that 'to be coherent,' a set of content standards must evolve from particulars… to deeper structures inherent in the discipline."

-- Common Core State Standards for Mathematics

The Common Core State Standards in English/Language Arts

"Students can, without significant scaffolding, comprehend and evaluate complex texts across a range of types and disciplines, and they can construct effective arguments and convey intricate or multifaceted information. Likewise, students are able independently to discern a speaker's key points, request clarification, and ask relevant questions. They build on others' ideas, articulate their own ideas, and confirm they have been understood. Without prompting, they demonstrate command of standard English and acquire and use a wide-ranging vocabulary. More broadly, they become self-directed learners, effectively seeking out and using resources to assist them, including teachers, peers, and print and digital reference materials."

-- Common Core State Standards for English Language Arts

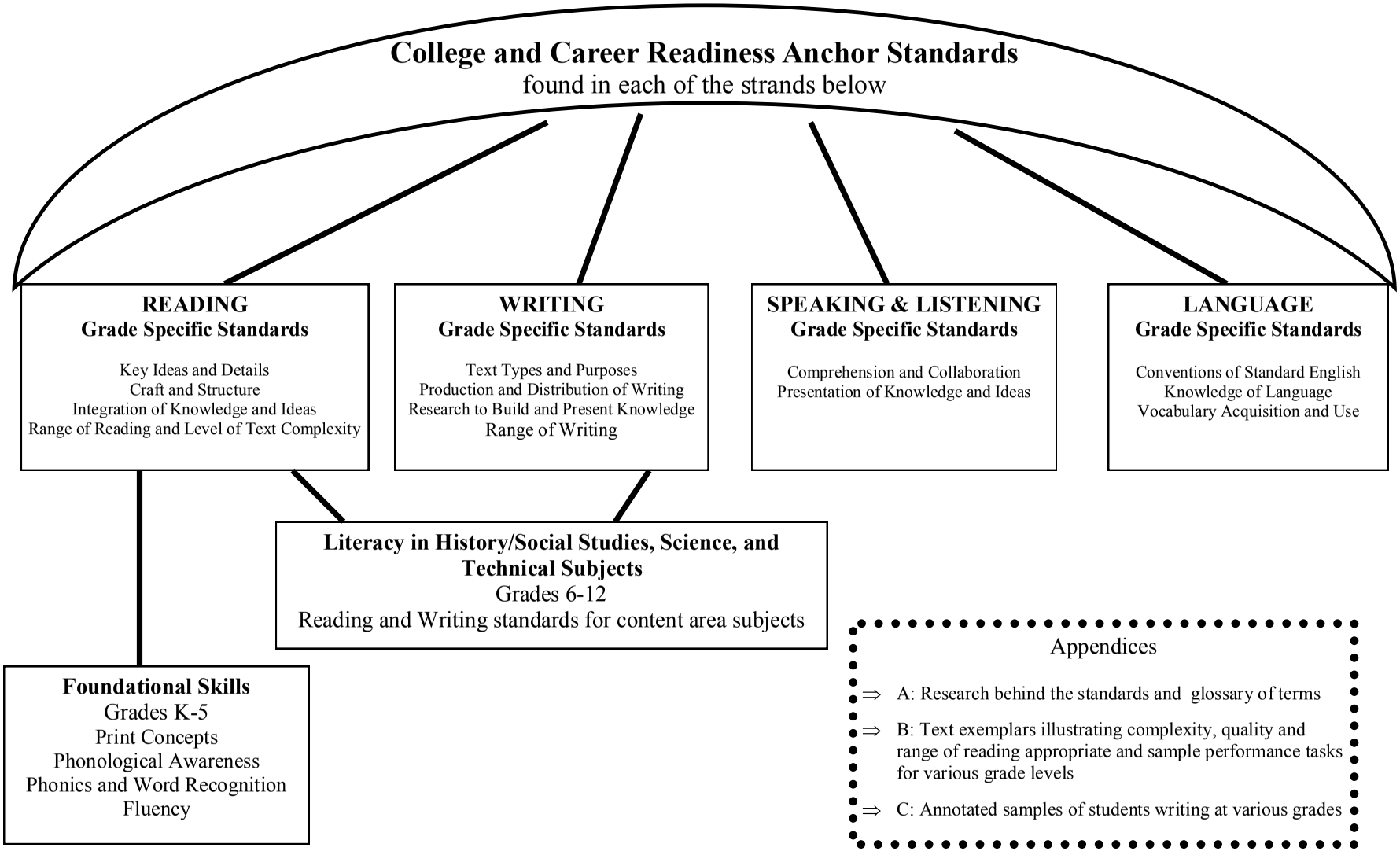
The (Draft) Common Core State Standards in Science

"The framework focuses on a limited number of core ideas in science and engineering both within and across the disciplines. The committee made this choice in order to avoid shallow coverage of a large number of topics and to allow more time for teachers and students to explore each idea in greater depth. Reduction of the sheer sum of details to be mastered is intended to give time for students to engage in scientific investigations and argumentation and to achieve depth of understanding of the core ideas presented. Delimiting what is to be learned about each core idea within each grade band also helps clarify what is most important to spend time on, and avoid the proliferation of detail to be learned with no conceptual grounding.

-- Common Core Science Standards (draft)

Common Core Standards

English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects



Key Points in the English Language Arts Standards

Reading

The standards establish a "staircase" of increasing complexity in what students must be able to read so that all students are ready for the demands of college- and career-level reading no later than the end of high school. The standards also require the progressive development of reading comprehension so that students advancing through the grades are able to gain more from whatever they read. Through reading a diverse array of classic and contemporary literature as well as challenging informational texts in a range of subjects, students are expected to build knowledge, gain insights, explore possibilities, and broaden their perspective. Because the standards are building blocks for successful classrooms, but recognize that teachers, school districts and states need to decide on appropriate curriculum, they intentionally do not offer a reading list. Instead, they offer numerous sample texts to help teachers prepare for the school year and allow parents and students to know what to expect at the beginning of the year.

Writing

The ability to write logical arguments based on substantive claims, sound reasoning, and relevant evidence is a cornerstone of the writing standards, with opinion writing – a basic form of argument – extending down into the earliest grades.

Research – both short, focused projects (such as those commonly required in the workplace) and longer term in depth research – is emphasized throughout the standards but most prominently in the writing strand since a written analysis and presentation of findings is so often critical.

Speaking and Listening

The standards require that students gain, evaluate, and present increasingly complex information, ideas, and evidence through listening and speaking as well as through media. An important focus of the speaking and listening standards is academic discussion in one-on-one, small-group, and whole-class settings. Formal presentations are one important way such talk occurs, but so is the more informal discussion that takes place as students collaborate to answer questions, build understanding, and solve problems.

Language

The standards expect that students will grow their vocabularies through a mix of conversations, direct instruction, and reading. The standards will help students determine word meanings, appreciate the nuances of words, and steadily expand their repertoire of words and phrases.

The standards recognize that students must be able to use formal English in their writing and speaking but that they must also be able to make informed, skillful choices among the many ways to express themselves through language.

Vocabulary and conventions are treated in their own strand not because skills in these areas should be handled in isolation but because their use extends across reading, writing, speaking, and listening.

Media and Technology

Just as media and technology are integrated in school and life in the twenty-first century, skills related to media use (both critical analysis and production of media) are integrated throughout the standards.

English Language Arts Standards
College and Career Readiness

Anchor Standards for Reading

Key Ideas and Details

1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text.

Craft and Structure

4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.
5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.
6. Assess how point of view or purpose shapes the content and style of a text.

Integration of Knowledge and Ideas

7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.
9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

Range of Reading and Level of Text Complexity

10. Read and comprehend complex literary and informational texts independently and proficiently.

English Language Arts Standards
College and Career Readiness

Anchor Standards for Writing

Text Types and Purposes

1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.

Production and Distribution of Writing

4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.

Research to Build and Present Knowledge

7. Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.
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.
9. Draw evidence from literary or informational texts to support analysis, reflection, and research.

Range of Writing

10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Pedagogical Shifts Demanded by the ELA Standards

			Notes & Ideas
1	**Balancing Informational & Literary Text**	Students read a true balance of informational and literary texts.	
2	**Knowledge in the Disciplines**	Students build knowledge about the world (domains/ content areas) through *text* rather than the teacher or activities.	
3	**Staircase of Complexity**	Students read the central, grade appropriate text around which instruction is centered. Teachers create more time and space and support in the curriculum for *close* reading.	
4	**Text-based Answers**	Students engage in rich and rigorous evidence-based conversations about text.	
5	**Writing from Sources**	Writing emphasizes use of evidence from sources to inform or make an argument.	
6	**Academic Vocabulary**	Students constantly build the transferable vocabulary they need to access grade level complex texts. This can be done effectively by spiraling like content in increasingly complex texts.	

Source: ENGAGE NY

Common Core Standards for Mathematics

Introduction – Articulates the philosophical and conceptual foundation for the Standards. Describes their organization and how they should be applied.

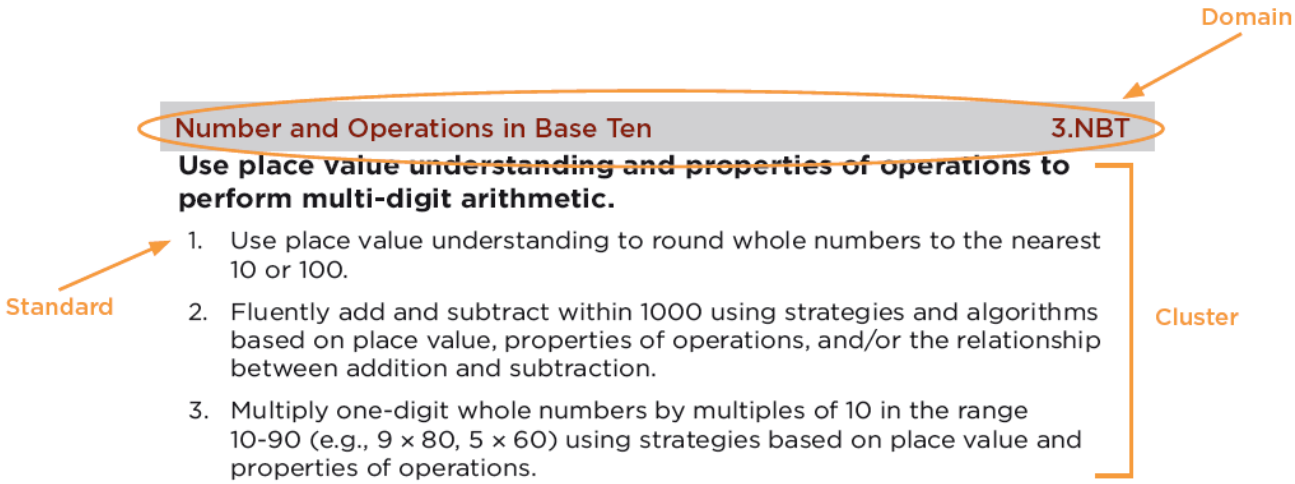
Standards for Mathematical Practice – These overarching standards apply across the content standards in each grade

- Standards for mathematical proficiency: reasoning, problem solving, modeling, decision making, and engagement
- Mathematical "habits of mind"

<u>Grade-Level Standards</u> – Define what students should know and be able to do at each grade level

K-8 grade-by-grade standards are organized by domain

- **Domains**: overarching ideas that connect topics across the grades
- **Clusters:** illustrate progression of increasing complexity from grade to grade



9-12 high school standards are organized around five conceptual categories

- Number and Quantity, Algebra, Functions, Geometry, and Statistics and Probability
- Content categories: overarching ideas that describe strands of content
- Domains/Clusters: groups of standards that describe coherent aspects of the content category

- Standards indicated as (+) are beyond the college and career readiness level but are necessary for advanced mathematics courses (calculus, discrete mathematics, and advanced statistics.)

Key Points in the Mathematics Standards

• The mathematics curriculum in the United States must become substantially more focused and coherent in order to improve mathematics achievement .... To deliver on the promise of common standards, the standards must address the problem of a curriculum that is 'a mile wide and an inch deep.' That is, what and how students are taught should reflect not only the topics that fall within a certain academic discipline, but also the **key ideas** that determine how knowledge is organized and generated within that discipline. This implies that 'to be coherent,' a set of content standards must evolve from particulars… to deeper structures inherent in the discipline.

• The standards stress not only procedural skill but also **conceptual understanding**, to make sure students are learning and absorbing the critical information they need to succeed at higher levels - rather than the current practices by which many students learn enough to get by on the next test, but forget it shortly thereafter, only to review again the following year.

• The K-5 standards provide students with a solid foundation in whole numbers, addition, subtraction, multiplication, division, fractions and decimals—which help young students build the foundation to successfully apply more demanding math concepts and procedures, and move into applications.

• Having built a strong foundation K-5, students can do *hands on* learning in geometry, algebra and probability and statistics. Students who have completed 7th grade and mastered the content and skills through the 7th grade will be well-prepared for algebra in grade 8.

• The high school standards call on students to practice applying mathematical ways of thinking to **real world issues and challenges**; they prepare students to think and reason mathematically. The high school standards set a rigorous definition of college and career readiness, by helping students develop a depth of understanding and ability to apply mathematics to novel situations, as college students and employees regularly do.

• The high school standards emphasize **mathematical modeling**, the use of mathematics and statistics to analyze empirical situations, understand them better, and improve decisions.

Mathematics Standards

Standards for Mathematical Practice

The Standards for Mathematical Practice describe ways in which developing student practitioners of the discipline of mathematics increasingly ought to engage with the subject matter as they grow in mathematical maturity and expertise throughout the elementary, middle and high school years.

1. Make sense of problems and persevere in solving them.

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.

The Standards for Mathematical Content are a balanced combination of procedure and understanding. Expectations that begin with the word "understand" are often especially good opportunities to connect the practices to the content. Students who lack understanding of a topic may rely on procedures too heavily. Without a flexible base from which to work, they may be less likely to consider analogous problems, represent problems coherently, justify conclusions, apply the mathematics to practical situations, use technology mindfully to work with the mathematics, explain the mathematics accurately to other students, step back for an overview, or deviate from a known procedure to find a shortcut. In short, a lack of understanding effectively prevents a student from engaging in the mathematical practices. In this respect, those content standards which set an expectation of understanding are potential "**points of intersection**" between the Standards for Mathematical Content and the Standards for Mathematical Practice. These points of intersection are intended to be weighted toward central and generative concepts in the school mathematics curriculum...

Pedagogical Shifts Demanded by the Mathematics Standards

			Notes & Ideas
1	**Focus**	Teachers significantly narrow and deepen the scope of how time and energy is spent in the math classroom. They do so in order to focus deeply on only the concepts that are prioritized in standards.	
2	**Coherence**	Educators carefully connect the learning within and across grades so that students can build new understanding onto foundations built in previous years.	
3	**Fluency**	Students are expected to have speed and accuracy with simple calculations; teachers structure class time and/or homework time for students to memorize, through repetition, core functions.	
4	**Deep Understanding**	Students deeply understand and can operate easily within a math concept before moving on. They learn more than the trick to get the answer right. They learn the math.	
5	**Application**	Students are expected to use math and choose the appropriate concept for application even when they are not prompted to do so.	
6	**Dual Intensity**	Students are practicing and understanding. There is more than a balance between these two things in the classroom – both are occurring with intensity.	

Source: ENGAGE NY

Key Conceptual Understandings and Processes in the Next Generation Science Standards

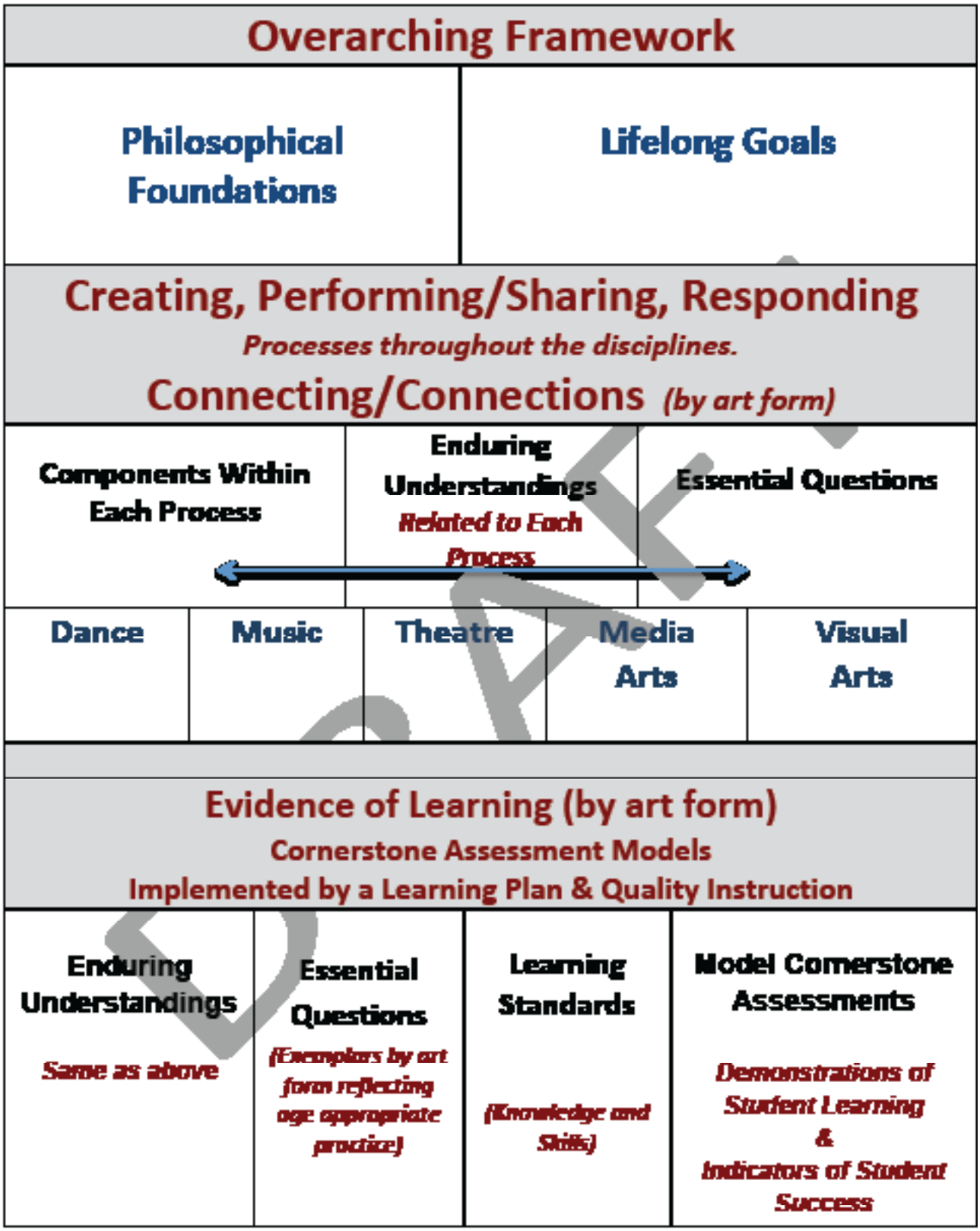
Crosscutting Scientific and Engineering Concepts

1. Patterns – Observed patterns of forms and events guide organization and classification, and they prompt questions about relationships and the factors that influence them.
2. Cause and Effect – Mechanism and explanation. Events have causes, sometimes simple, sometimes multifaceted. A major activity of science is investigating and explaining causal relationships and the mechanisms by which they are mediated. Such mechanisms can then be tested across given contexts and used to predict and explain events in new contexts.
3. Scale, Proportion, and Quantity – In considering phenomena, it is critical to recognize what is relevant at different measures of size, time, and energy and to recognize how changes in scale, proportion, or quantity affect a system's structure or performance.
4. Systems and System Models – Defining the system under study – specifying its boundaries and making explicit a model of that system – provides tools for understanding and testing ideas that are applicable throughout science and engineering.
5. Energy and Matter – Flows, cycles, and conservation. Tracking fluxes of energy and matter into, out of, and within systems helps one understand the systems' possibilities and limitations.
6. Structure and Function – The way in which an object or living thing is shaped and its substructure determine many of its properties and functions.
7. Stability and Change – For natural and built systems alike, conditions of stability and determinants of rates of change or evolution of the system are critical elements of study.

Practices for K-12 Science Classrooms

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, information and computer technology, & computational thinking
6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

Next Generation Arts Standards



The Partnership for 21st Century Skills

The Partnership for 21st Century Skills has developed a vision for 21st century student success in the new global economy. The Partnership created the Framework for 21st Century Learning, which describes the skills, knowledge and expertise students must master to succeed in work and life. Only when a school or district combines the framework with 21st century professional development, assessments and standards, can the American public be sure that high school graduates are prepared to thrive in today's global economy.

21st century skills represent the necessary student outcomes for the 21st century, i.e. students need to obtain Learning and Innovation Skills (creativity and innovation, critical thinking and problem solving, etc.), Information, Media and Technology Skills, Core Subjects and 21st Century Themes (global awareness, financial literacy, etc.) and Life and Career Skills (initiative and self-direction, among others).

Learning and Innovation Skills

Learning and innovation skills are what separate students who are prepared for increasingly complex life and work environments in the 21st century and those who are not. They include:

- Creativity and Innovation
- Critical Thinking and Problem Solving
- Communication and Collaboration

Information, Media and Technology Skills

People in the 21st century live in a technology and media-driven environment, marked by access to an abundance of information, rapid changes in technology tools and the ability to collaborate and make individual contributions on an unprecedented scale. To be effective in the 21st century, citizens and workers must be able to exhibit a range of functional and critical thinking skills, such as:

- Information Literacy
- Media Literacy
- ICT (Information, Communications and Technology) Literacy

Life and Career Skills

Today's life and work environments require far more than thinking skills and content knowledge. The ability to navigate the complex life and work environments in the globally competitive information age requires students to pay rigorous attention to developing adequate life and career skills, such as:

- Flexibility and Adaptability
- Initiative and Self-Direction
- Social and Cross-Cultural Skills
- Productivity and Accountability
- Leadership and Responsibility

Unpacking Standards - "Inside Out" Method

STANDARD

Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

Source: Common Core – College and Career Readiness Standards – Writing

Stated/implied "big ideas" in NOUNS:

- arguments
- claims
- topics or texts
- evidence
- reasoning

Stated/implied performances in VERBS:

- write
- support (claims)
- analyze (topics/texts)
- reasoning

ADJECTIVES and ADVERBS:

- valid
- relevant
- sufficient

Understandings

- The effectiveness of an argument is dependent upon the quality of the supporting evidence used (validity, appropriateness) and how it is conveyed.

Essential Questions

- *What makes an argument convincing?*
- *What is the best evidence I can use to support my argument?*
- *How do I best organize and present my argument?*

Transfer Goal(s)

produce clear and coherent writing to persuade a target audience

Performance Task(s)

Based on your reading of informational texts on a local or national issue, prepare a (report, letter to editor, essay) for a specific audience to convince them of your position. Your argument should follow a logical sequence with supporting evidence for your position (claim).

Criteria

- relevant evidence
- sufficient evidence
- valid reasoning

Unpacking Standards - "Inside Out" Method

STANDARD

Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.

Source: Common Core – College and Career Readiness Anchor Standards – Reading

Stated/implied "big ideas" in NOUNS:

- ideas
- themes
- text
- development
- details

Stated/implied performances in VERBS:

- determine
- analyze
- summarize

ADJECTIVES and ADVERBS:

- central
- key
- supporting

Understandings

- Authors do not always state the central idea or theme overtly; readers have to infer it "between the lines."
- Effective readers use specific strategies to help them infer the implied main ideas of a text.

Essential Questions

- How can I to determine the central idea or theme of what I read?
- How can I read "between the lines" to determine the author's meaning?
- What strategies do effective readers use to make meaning from a text?

Transfer Goal(s)

Determine central ideas or themes of a text and analyze their development. Summarize the key supporting details

Performance Task(s)

- Prepare a "study guide" for students by summarizing the central ideas or key themes of a text.
- Use the "Adding up the Facts" organizer to show how supporting details lead to an inference about main ideas.

Criteria

- appropriate inference
- effective summary
- supported by key details

Unpacking Standards - "Inside Out" Method

STANDARD Model with Mathematics

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace....routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

Source: Common Core State Standards – Mathematics

Stated/implied "big ideas" in NOUNS:

- mathematical model(s)
- "real life" problems
- disciplines and life

Stated/implied performances in VERBS:

- model
- apply
- solve
- interpret
- reflect on
- improve

ADJECTIVES and ADVERBS:

Understandings

- Mathematical models simplify and connect phenomena to assist in understanding and problem solving.
- Mathematical models must be viewed critically so that they do not mislead.
- Effective problem solvers always check for the reasonableness of solutions.

Essential Questions

- *How can I best model this phenomena in this situation?*
- *Do these results make sense?*
- *What are the limits of this mathematical model in this context?*
- *What do effective problem solvers do?*

Transfer Goal(s)

Apply the mathematics they know to develop mathematical models for solving real world problems

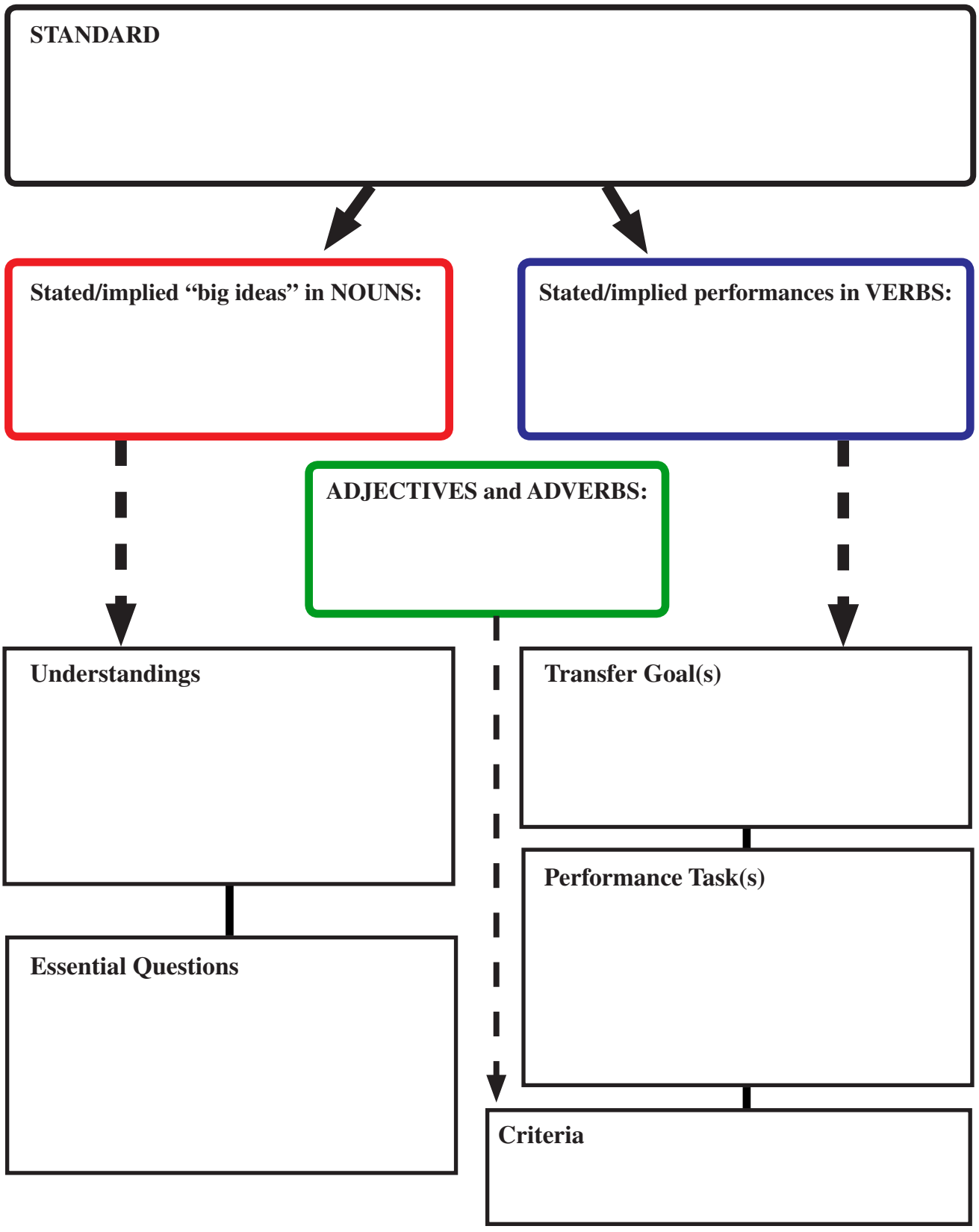
Performance Task(s)

- Create a mathematical model for a selected "real-world" situation (e.g., seasonal temperatures).
- Critically review and improve a mathematical model for its appropriateness to a given situation.

Criteria

- appropriate modeling
- accurate
- reasonableness of solution

Unpacking Standards - "Inside Out" Method



Unpacked Common Core E/LA Standards

Anchor Standards - Reading	Overarching Understandings	Essential Questions
Key Ideas and Details 1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text. 2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas. 3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text.	• Effective readers use appropriate strategies (as needed) to construct meaning from texts. • Identifying a text's genre, purpose, and organizational structure helps readers analyze and comprehend the text. • Readers support their conclusions (inferences and interpretations) by citing appropriate details within the text. • Great literature is intentionally crafted to explore enduring human themes transferrable across time and place. • Writers don't always say things directly or literally; sometimes they convey their ideas indirectly (e.g., metaphor, satire, irony). • Critical readers question the text, consider different perspectives, and look for author bias.	*• What do good readers do?* *• What's my strategy for reading this text? How do I know if it is working?* *• What is this text really about? (e.g. theme, main idea, moral)?* *• What is the author trying to tell me?* *• What does a "close" reading require?* *• How do you "read between the lines?"* *• What does this mean to me?* *• How does what I read (e.g. text structure, story elements) influence how I should read it?* *• How does my purpose influence how I should read?* *• How do people, events and ideas develop within the text?* *• How do I know what to believe in what I read?*
Craft and Structure 4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone. 5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.	• Effective readers use appropriate strategies (as needed) to construct meaning from texts. • Authors can express similar ideas within and across genres. • By comparing texts, readers often gain greater insight into those texts. • Readers can use context clues to determine meaning of words/ phrases/ concepts.	*• What do good readers do?* *• What's my strategy for reading this text? How do I know if it is working?* *• How does what I read (e.g. text structure, story elements) influence how I should read it?* *• What insights can we gain by comparing two (or more) texts?* *• How do I figure out the meaning of unknown words/ phrases/ concepts?*

Unpacked Common Core E/LA Standards

Anchor Standards - Reading	Overarching Understandings	Essential Questions
Craft and Structure *(continued)* 6. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole. 7. Assess how point of view or purpose shapes the content and style of a text.	• Texts have structures and follow a predictable sequence. • Identifying a text's genre, purpose, and organizational structure helps readers analyze and comprehend the text. • Determining an author's point of view helps the reader better interpret and explain the text.	• *How do authors develop ideas, characters, and events within the text?* • *How do authors use language and stylistic choices to convey their meaning?* • *What's the author's point of view? How does it influence author's message and reader's interpretation?*
Integration of Knowledge and Ideas 8. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words. 9. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence. 10. Analyze the meanings of literary texts by drawing on knowledge of literary concepts and genres. 11. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.	• Effective readers use appropriate strategies (as needed) to construct meaning from texts. • Effective readers use efficient strategies to efficiently locate, integrate, and evaluate content from diverse sources for various purposes. • Readers make meaning through a careful reading of the text(s) and personal connections to the topic. • The effectiveness of an argument depends on the clarity of the claims, the logic of the reasoning, and the supportive evidence. • Identifying a text's genre, purpose, and organizational structure helps readers analyze and comprehend the text. • By comparing texts, readers often gain greater insight into those texts.	• *What do good readers do?* • *What's my strategy for reading this text? How do I know if it is working?* • *How do I use text features (e.g. photographs, charts) to better comprehend the text?* • *How do I find the information I need? How do I know what to believe in what I find?* • *What makes an argument effective? How do I evaluate an argument?* • *What insights can we gain by comparing two (or more) texts?*

Unpacked Common Core E/LA Standards

Anchor Standards - Reading	Overarching Understandings	Essential Questions
Range of Reading and Level of Text Complexity 5. Read and comprehend complex literary and informational texts independently and proficiently.	• Effective readers use appropriate strategies (as needed) to construct meaning from texts. • Readers make meaning through a careful reading of the text(s) and personal connections to the topic. • Knowing the structure of the language helps facilitate meaning. • As one's knowledge base increases, the quality of thinking, meaning-making and communication can improve.	• *What do good readers do?* • *What's my strategy for reading this text? How do I know if it is working?* • *What is this text really about? (e.g. theme, main idea, moral)?* • *What is the author trying to tell me?* • *How do my experiences influence my reading and understanding of this text?* • *In ways do the interpretations of other readers influence my own understanding of the text?* • *How does understanding the structure of language help us read a text?*
Literature	• Great literature explores universal and timeless themes, dilemmas, and challenges of human existence. • Literature can offer insights into a particular culture/time period. • Everybody is entitled to an opinion about what a text means, but some opinions are more supportable by the text than others.	• *Why read literature?* • *What makes a story "great?"* • *To what extent is this text timeless/ universal?* • *What "truths" can we learn from fiction?* • *What does this literature reveal about a culture/time period?* • *What is this text really about? (e.g. theme, main idea, moral)* • *What does this mean to me?* • *How do I support my interpretation?*

Unpacked Common Core E/LA Standards

Anchor Standards - Writing	Overarching Understandings	Essential Questions
Text Types and Purposes • Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. • Write informative/ explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content. • Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.	• Writing is a process for clarifying as well as expressing one's thinking. • To be effective, an argument must be supported with sound evidence and valid reasoning. • Audience and purpose influence a writer's choice of organizational pattern, language, and literary techniques to elicit an intended response from the reader.	• *What makes clear and effective writing?* • *Why am I writing? What is my purpose?* • *Who is my audience? What will work best for my audience?* • *What makes an argument persuasive?* • *How do I support my argument?*
Production and Distribution of Writing • Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. • Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. • Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.	• Proficient writers make deliberate choices regarding content, language, and style to convey their message to a target audience. • Writing is strengthened through a recursive process involving planning, revising, editing, and rewriting or trying a new approach. • A writer's choice of language and style establish "voice" to help personalize the text. • Effective writers seek and use feedback to improve the quality of their writing. • Different publishing media (e.g. digital, print) influence content, structure, and style.	• *Why am I writing? What is my purpose?* • *Who is my audience? What will work best for my audience?* • *How do I develop and refine my idea(s)?* • *How do effective writers hook and hold their readers?* • *What makes writing flow?* • *How do I develop my writer's voice?* • *How can I get and use helpful feedback to improve my writing?* • *What revisions/edits do I need to make to improve my writing?* • *How do I engage my audience throughout my writing?* • *How do I know when my writing is ready to publish?* • *What's the best medium for my message?* • *How does where I publish influence how I write?*

Unpacked Common Core E/LA Standards

Anchor Standards - Writing	Overarching Understandings	Essential Questions
Research to Build and Present Knowledge • Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation. • Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism. • Draw evidence from literary or informational texts to support analysis, reflection, and research.	• There are multiple sources of information and those selected depend on the purpose and audience for writing. • Effective researchers evaluate the credibility and accuracy of information. • Clear and focused questions help researchers find desired information. • Effective research involves a recursive inquiry process that includes: o defining problem/task; o generating focus question(s); o searching for information; o critical evaluating and selecting information; o organizing and synthesizing information; o presenting findings and conclusions with proper support; o judging overall effectiveness. • There are clear rules and laws for acknowledging and documenting sources: to honor the preceding research, enhance the credibility of the research, and to foster the work of other researchers.	• *What am I looking for and how do I find it?* • *Can this source be trusted?* • *How do I know what to believe in what I read, hear and view?* • *How do I collect, organize and synthesize information?* • *Why and how should I document my sources?* • *How do I best present my findings?* • *How can I support my findings and conclusions?*
Foundational Skills	• Rules of grammar, spelling and mechanics are conventions of language that guide writers and readers. • Effective writers adhere to established rules of grammar, spelling, mechanics to ensure clarity of communication.	• *Why do we have/need rules of language?*

Essential Questions for the CCSS Mathematical Practice Standards

1. Make sense of problems and persevere in solving them.
What kind of a problem is this? What must be found? What is known? What is unknown? What counts as an adequate solution? Does my answer make sense? Does my approach make sense? What should I do if I'm stuck solving it? What similar problems does this remind me of? What simpler or special cases can help me?

2. Reason abstractly and quantitatively.
What's the abstract relationship between these specific quantities? What does this quantitative relationship mean? How can I decontextualize the numbers to find a mathematical relationship? Have I represented the relationships between the quantities appropriately? Which operations and equivalences will simplify and help me solve the problem? Does my abstract representation of these quantities make sense in context?

3. Construct viable arguments and critique the reasoning of others.
Has this been proven? What is assumed? On what assumptions does that inference depend? Where might this assumption logically lead? Is the conclusion logical? Is the conclusion plausible? Have I sufficiently supported my answer and shown my work? Which of these solutions is more plausible? Does this argument make sense? What might be counter-evidence and counter arguments to what I have concluded?

4. Model with mathematics.
What mathematics applies to this situation and this data? What simplifications or approximations, should I make in order to make a mathematical model of this phenomena/data/experience? How might the model be refined to be less simplistic and crude? Does this model make sense in this context? How might I test this model? What are the limits of this (or any) mathematical model? How might this model be improved?

5. Use appropriate tools strategically.
What tools should I use here to be most efficient and effective? What are the strengths and weaknesses of the tools at hand, and might there be better ones for the task? Where might I find more helpful resources when needed?

Essential Questions for the CCSS Mathematical Practice Standards

(continued)

6. Attend to precision.
What is the appropriate degree of precision for this particular data and solution? Have I made my data, reasoning, and conclusion sufficiently clear (for this audience and purpose)? What terms need to be clearly defined? Have I tested the accuracy of my answer? How sure am I? How much statistical confidence should we have in the answer?

7. Look for and make use of structure.
What's the underlying pattern here? What's the whole, if that's a part? What are the parts, if that's the whole? What type of problem is this? What equivalences or re-constitutions of the problem are likely to help me see a pattern or structure? What shift of perspective might make the solution path more evident?

8. Look for and express regularity in repeated reasoning.
What regularities suggest a constant relationship at work? What is a summary or shorthand way of expressing these recurring patterns? What patterns are evident? Am I sure that the general pattern recurs or is my sample too small? Is that a reasonable way to describe the perceived patterns?

From: McTighe, Jay and Wiggins. Grant *Essential Questions: Doorways to Student Understanding* (ASCD, in press)

Deriving Essential Understandings and Questions from VISUAL ARTS Standards

Standard 1. Understands that visual art communicates different ideas, experiences and stories to the viewer

- *What is the purpose of art?*
- *How do we understand what is communicated visually?*
- *What is important about art?*
- *How does art tell us about a place or time?*
- *Why do we need special vocabulary to discuss art?*

Standard 2. Understands that history, culture and the visual arts influence each other

- *Who is an artist?*
- *Why make art?*
- *How have artists in other times and places communicated?*
- *What is the connection between media and time period?*
- *Who is an artist responsible to? (themselves, the community, the world, etc.)*

Standard 3. Understands that the visual arts can be evaluated based on various criteria

- *What is art?*
- *What makes art "good"? What makes art "bad"?*
- *What is the difference between how a subject appears and how we think of it?*

Standard 4. Understands that artists vary media, techniques and processes according to their purpose

- *What effect does working in different styles of Art have?*
- *How is art like other pieces that authors and musicians create?*
- *Is there a particular way a media should or should not be used?*
- *What is the connection between media and time period?*
- *How does the media influence the message?*

Standard 5. Identifies, uses, and adjusts principles of design effectively and according to purpose.

- *How can we make a work of art appear to be unified? Why does it matter?*

Standard 6. Identifies, uses, and adjusts elements of art effectively and according to purpose.

- *What is the connection between color and emotion?*
- *How can we arrange the elements of art to express our ideas and knowledge?*

Matrix Method -- Mathematics Common Core Standards

Practice Standards MATH GR 3 **Content Standards**	*1 Make sense of problems and persevere in solving them.*	*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.*
Represent and solve problems involving multiplication and division.								
Understand properties of multiplication and the relationship between multiplication and division.								
Multiply and divide within 100.								
Solve problems involving the four operations, and identify and explain patterns in arithmetic.								
Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.								
Use place value understanding and properties of operations to perform multi-digit arithmetic.								
Develop understanding of fractions as numbers.								
Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.								
Represent and interpret data.								
Geometric measurement: understand concepts of area and relate area to multiplication and to addition.								
Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.								
Reason with shapes and their attributes.								

Matrix Method -- E/LA Common Core Standards

Capacities of the Literate Individual ***(p. 7 Common Core)*** **Reading Standards 1 - 6**	*They demonstrate independence.*	*They build strong content knowledge*	*They respond to the varying demands of audience, task, purpose and discipline*	*They comprehend as well as critique*	*They value evidence*	*They use technology and digital media strategically and capably.*	*They come to understand other perspectives and cultures.*
Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.							
Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.							
Analyze how and why individuals, events, and ideas develop and interact over the course of a text.							
Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.							
Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.							
Assess how point of view or purpose shapes the content and style of a text.							

Unpacking Standards – "Matrix" Method

Common Core State Standards
Mathematics

Content Standards

Grade 3:

❑	Represent and solve problems involving multiplication and division.
❑	Understand properties of multiplication and the relationship between multiplication and division.
❑	Multiply and divide within 100.
☑	Solve problems involving the four operations, and identify and explain patterns in arithmetic.
❑	Use place value understanding and properties of operations to perform multi-digit arithmetic.
❑	Develop understanding of fractions as numbers.
❑	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
☑	Represent and interpret data.
❑	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
❑	Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.
❑	Reason with shapes and their attributes.

Process Standards

Standards for Mathematical Practice:

- ❑ 1. Make sense of problems and persevere in solving them.
- ☑ 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.

TRANSFER GOAL(S) *Students will be able to independently use their learning to...*

Collect, organize, display data on real-world phenomena; analyze data to identify patterns; use patterns to make predicitons; communicate clearly using mathematical terminology.

PERFORMANCE TASK Ideas

Every seven weeks students work in groups of four to measure the height of each other using tape measures affixed to the classroom walls. By mid-May, the class has obtained six height measures. Then, students create a simple graph (height in inches plotted against the months of the school year) and plot the data. Using rulers, they connect the dots to see "rise over run" (a visual representation of their growth over time). The chart papers are posted throughout the room, and the students circulate in a gallery walk to view the changes in heights of the various groups.

Students then analyze the data to answer guiding questions: "In what months did we grow the most this year?" "Is there a difference between how boys and girls have grown in second grade?" "How does our class growth compare to that in the other second grades?" "What can we predict for next year's second graders about how they will grow based on our data?" Students are then work in their groups to develop a presentation for the current 2nd graders to predict how much they will grow in 3rd grade.

Unpacking Standards – "Matrix" Method

Common Core State Standards
Mathematics

Content Standards

Grade 6:

☑ Understand ratio concepts and use ratio reasoning to solve problems.

☑ Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

❑ Compute fluently with multi-digit numbers and find common factors and multiples.

❑ Apply and extend previous understandings of numbers to the system of rational numbers.

❑ Apply and extend previous understandings of arithmetic to algebraic expressions.

❑ Reason about and solve one-variable equations and inequalities.

❑ Represent and analyze quantitative relationships between dependent and independent variables.

☑ Solve real-world and mathematical problems involving area, surface area, and volume.

❑ Develop understanding of statistical variability.

❑ Summarize and describe distributions.

Process Standards

Standards for Mathematical Practice:

☑ 1. Make sense of problems and persevere in solving them.
❑ 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.

TRANSFER GOAL(S) *Students will be able to independently use their learning to...*

apply mathematical reasoning to solve problems involving ratio.

PERFORMANCE TASK Ideas

A former NBA legend, Hoops McGinty, has pledged money to the local science museum for an exhibit on our solar system. He pledges the money under one condition: that a regulation NBA basketball be used to represent some aspect of the scale display and that other NBA-related shapes and sizes be used (e.g., a basketball be used to represent a planet or mon). The building floor space is 300 by 800 feet. As designer, how do you propose that the main exhibit hall with a model of the solar system be built to scale? Prepare a diagram with accurate measurements drawn to scale. Show your work so that Hoops will approve and select your design.

Unpacking Standards – "Matrix" Method

A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas Science

High School Biology

Content Standards

Core Concepts of Science and Engineering

✔ 1. **Patterns.** Observed patterns of forms and events guide organization and classification, and they prompt questions about relationships and the factors that influence them.

✔ 2. **Cause and effect**. Mechanism and explanation. Events have causes, sometimes simple, sometimes multifaceted. A major activity of science is investigating and explaining causal relationships and the mechanisms by which they are mediated. Such mechanisms can then be tested across given contexts and used to predict and explain events in new contexts.

3. **Scale, proportion, and quantity.** In considering phenomena, it is critical to recognize what is relevant at different measures of size, time, and energy and to recognize how changes in scale, proportion, or quantity affect a system's structure or performance.

4. **Systems and system models.** Defining the system under study – specifying its boundaries and making explicit a model of that system – provides tools for understanding and testing ideas that are applicable throughout science and engineering.

5. **Energy and matter**. Flows, cycles, and conservation. Tracking fluxes of energy and matter into, out of, and within systems helps one understand the systems' possibilities and limitations.

6. **Structure and function.** The way in which an object or living thing is shaped and its substructure determine many of its properties and functions.

✔ 7. **Stability and change.** For natural and built systems alike, conditions of stability and determinants of rates of change or evolution of the system are critical elements of study.

Process Standards

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, information and computer technology, 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

TRANSFER GOAL(S) *Students will be able to independently use their learning to...*

Design and conduct a scientific investigation and communicate results for a self-generated hypothesis.

PERFORMANCE TASK Ideas

Task 1 – *How does exercise affect the pulse rate?*
Design and conduct an investigation that compares normal pulse rate to changes caused by two selected physical activities (e.g., jogging, swimming, push-ups, squats) for designated intervals. Prepare a report including:
• an explanation of homeostasis, oxygen/carbon dioxide feedback loop, effect of pulse rate
• an interpretation of the results
Answer these questions in your report – *How did the pulse rates during exercise compare to the normal (resting) pulse rate? How do CO2 and O2 levels effect the heart rate? How does the heart rate effect pulse rate? How does this affect homeostasis? Is the respiratory rate also affected? • How can your design be improved?*

Task 2 – Design and construct a scientific experiment to test which of four antacids would be the most effective for neutralizing acid. Prepare a (news article, podcast, Power Point slide show, Animoto animation) to communicate your findings to the general public.

*Source: pals.sri.com

Unpacking Standards – "Matrix" Method

The College Board
Advanced Placement Program

WORLD HISTORY

Content Standards

Theme 1: Interaction between humans and the environment
- o Demography and disease
- ✔ Migration
- ✔ Patterns of settlement
- o Technology

Theme 2: Development and interaction of cultures
- o Religions
- ✔ Belief systems, philosophies, and ideologies
- o Science and technology
- o The arts and architecture

Theme 3: State building, expansion and conflict
- o Political structures and forms of governance
- o Empires
- o Nations and nationalism
- o Revolts and revolutions
- o Regional, transregional, and global structures and organizations

Theme 4: Creation, expansion and interaction of
- o Agricultural and pastoral production
- o Trade and commerce
- o Labor systems
- o Industrialization
- o Capitalism and socialism

Theme 5: Development and transformation of social structures
- o Gender roles and relations
- o Family and kinship
- o Racial and ethnic constructions
- o Social and economic classes

Process Standards

Historical Thinking Skills:

✔ ★ **Crafting historical arguments from historical evidence**
- ★ Historical argumentation
- ✔ ★ Appropriate use of relevant historical evidence

★ **Chronological reasoning**
- ★ Historical causation
- ★ Patterns of continuity and change over time
- ❍ Periodization

★ **Comparison and contextualization**
- ★ Comparison
- ★ Contextualization

✔ ★ **Historical interpretation and synthesis**
- ★ Interpretation
- ★ Synthesis

TRANSFER GOAL(S) *Students will be able to independently use their learning to...*

Use primary and secondary sources to produce an informed explanation of *what* happened, *why* it happened, and *how* it impacted the future.

PERFORMANCE TASK Ideas

Consider this questions – *How did the coercive labor systems in the Americas impact the economic growth and cultural patterns of both Africa and the Americas?*
In 1998, UNESCO decreed that August 23rd is the "International Day for the Remembrance of the Slave Trade and its Abolition." The focus of this year's remembrance is how economy shapes public behavior. Prepare a keynote address that describes how coercive labor systems impacted Africa and the Americas both economically and culturally. Be sure to consider alternate points of view in your address as there are some areas of disagreement amongst historians.

Framing a Course Using Essential Questions

Biology **Key Topics** **Essential Questions**	The Cell	Heredity	Evolution	Taxonomy	Viruses, Protists, Fungi & Bacteria	Plants	Invertebrates & Vertebrates	Ecology and Interaction	Human Body Systems	Ethics of Biology
What are we made of? What is everything made of? What makes any living thing what it is? What is "alive"?	✔	✔							✔	
How are structure and function related in living things? Why does this creature do this and look like that?	✔					✔		✔	✔	
How are characteristics of living things passed on through generations? What is inherited and how does it happen? What is 'nature' and what is 'nurture'? What's determined and what's an accident? How and in what ways are accidents beneficial?		✔	✔							
What is that creature? How do we know? What's in a name?How should we classify the things around us?						✔			✔	
How do living things obtain and use energy? Coordinate the actions of cells and organs? Move nutrients? Breathe? Manage water, salts, and wastes?	✔									
How much interaction, stress, growth, and change (to individuals and species) is possible, even desirable, biologically?										
What is the evidence for evolution? How much of the controversy is science-based and how much is cultural?			✔							
How do diseases and medicines work? What can biology teach us about human health?	✔	✔								
What analogies have been most helpful in understanding life? How and when do the analogies permit and how and when do they inhibit further understanding?										
Is there a moral limit to how far we should go in tinkering with human bodies and life more generally?										

Framing a Course Using Essential Questions

French I / Key Topics / **Essential Questions**	1.1 Use oral and written language to provide information, exchange ideas, and explain concepts in formal and informal communications.	1.2 Comprehend the main ideas and significant details in oral and written presentation in the target language.	1.3 Use accurate pronunciation and culturally appropriate gestures to clarify meaning and intent in formal and informal situations.	1.4 Determine when the comprehension of language surpasses the ability to produce it, and use circumlocution to successfully communicate messages.	3.1 Analyze how linguistic elements are used to convey meaning in the home and target languages.	3.2 Analyze how grammatical structures of the target language correlate to the home language.
What are the similarities and differences between French and English? How can English help me learn French? How can it hold me back?						
What strategies can help me to retain as much as possible in long-term memory?						
How can I use context to understand words I do not know? What cues do I listen and watch for before I respond?						
What are key rules for making sense of the gender of nouns, pronunciation, syntax?						
What do I do when I am stuck? How can I keep the conversation going?						
How can body language help or hinder my ability to communicate or understand?						
How can I sound more like a native? What do I want to avoid as much as possible?						
What is it like to be a "foreigner"? What are its benefits, given the discomforts?						
How can I describe the people and culture without stereotyping them?						

Unpacking Standards – "Matrix" Method

Content Standards	Process Standards
	TRANSFER GOAL(S) *Students will be able to independently use their learning to...*
	PERFORMANCE TASK Ideas

Creating Curriculum Maps based on The Common Core Standards

MACRO LEVEL – Begin with (the long-term) End in Mind

1. Carefully review the Introduction to the Standards. Pay attention to their organization (e.g., College and Career Readiness Anchor Standards for E/LA; Domains, Clusters and Practices Standards for mathematics). Review the Appendices (e.g., Appendix A of the CCSS E/LA Standards contains a Skills Progression chart; Appendix B contains sample performance tasks; Appendix C provides student writing samples).

2. Specify a small number of Long-term Transfer Goals (e.g., CCSS Anchor Standards in E/LA).

3. Highlight or underline the nouns and verbs in the top level Standards. The nouns can help identify the "big ideas" that students should come to understand. The verbs are suggestive of needed assessments.

4. Identify a draft set of overarching Understandings and Essential Questions (based on identified verbs) that will spiral across the grades. These should reflect both *content* and *process* Standards. These overarching Us and EQs provide conceptual throughlines for the curriculum and support vertical alignment.

5. Draft an initial set of Cornerstone Tasks (2 – 4 per year) and Rubrics reflecting the long-term Transfer Goals and the identified verbs. A content–process matrix can be helpful in creating these tasks.

Proceed to draft course- and grade-level maps. Once completed:

6. Review the draft grade/course level maps in vertical teams to check for appropriate spiraling of concepts and skills and to insure that nothing important has "fallen through the cracks." Make adjustments to the maps as needed.

7. Review and refine the overarching Us and EQs if needed.

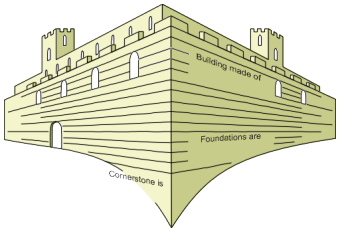
8. Review and revise the Cornerstones Tasks and rubrics as needed. Be on the lookut for natural opportunites to create Interdisciplinary tasks.

Assessment Audit Matrix

Assessment Format (Task Complexity & Context) **Cognitive Demand** (Depth & fluency of thinking)	**1. Selected-response Item:** requires a selected answer(s) from given alternatives; no process, product or context is involved. The only criterion is correctness.	**2. Brief Response:** requires a brief written or spoken answer to a simple question or prompt. The only criterion is correctness.	**3. Short Constructed Response:** requires a short response, product or performance to a de-contextualized question or prompt. One or two basic criteria are used to evaluate the response.	**4. Extended Constructed Response:** requires a multi-step process to develop a product or performance. Consideration of audience, purpose, and/or context may be needed. Various criteria are needed to evaluate the product(s) or performance(s).	**5. Realistic Performance:** requires production of a product and/or performance involving an authentic situation requiring consideration of audience(s), purpose(s), constraints, etc. that are realistically 'messy'. Multiple criteria are needed to evaluate the product(s) or performance(s).
A. **Recall:** requires accurate memory of familiar content/process/routine and attention to directions. *NOTE:* This level describes the thinking required for any task in which the student was told how to do the task, studied questions just like the ones on the test, and/or was otherwise led through the task prior to and/or during the assessment.					
B. **Inference:** requires basic interpretation, analysis, connections, or straightforward reasoning in response to a familiar-looking question, prompt or problem. The kind of thinking needed should be obvious to the learner, given prior instruction.					
C. **Application (near transfer):** requires application of prior learning to a somewhat new or unfamiliar situation or problem. Careful interpretation, analysis, connections, reasoning and/or evaluation are needed. Explanation, support and/or justification are also required.					
D. **Creative Problem Solving (far transfer):** requires insightful and in-depth thinking in response to a complex, open-ended and ill-structured problem/issue in which the solution path is not at all obvious. Sustained critical and innovative thinking, synthesis, support/justification, and habits of mind (e.g., persistence, self assessment) are needed.					

Assessment Format (Task Complexity & Context) **Cognitive Demand** (Depth & fluency of thinking)	**1. Selected-response Item:** requires a selected answer(s) from given alternatives. No process, product or context is involved.	**2. Brief Response:** requires a brief written or spoken answer to a straight-forward, decontextualized question or prompt.	**3. Short Constructed Response:** requires a short response, product or performance to a de-contextualized question or prompt. One or two basic criteria are used to evaluate the response.	**4. Extended Constructed Response:** requires a multi-step process to develop a product or performance. Consideration of audience, purpose, and/or context may be needed. Various criteria are needed to evaluate the product(s) or performance(s).	**5. Realistic Performance:** requires production of a product and/or performance involving an authentic situation requiring consideration of audience(s), purpose(s), constraints, etc. that are realistically 'messy'. Multiple criteria are needed to evaluate the product(s)/ performance(s).
A. Recall: requires accurate memory of familiar content/process/routine and attention to directions. *NOTE:* This level describes the thinking required for <u>any</u> task in which the student was told how to do the task, studied questions just like the ones on the test, and/or was otherwise led through the task prior to and/or during the assessment.	*• multiple-choice test item – recall or recognize the "correct" answer* *• matching items*	*• fill-in-the-blank with the correct answer*	*• deliver a short memorized dialog in world language*	*• play sheet music in a concert (rote performance)* *• follow a recipe to prepare a meal*	
B. Inference: requires basic interpretation, analysis, connections, or straightforward reasoning in response to a familiar-looking question, prompt or problem. The kind of thinking needed should be obvious to the learner, given prior instruction.	*• multiple-choice item requiring a basic inference to determine the correct answer*	*• fill in a graphic organizer (e.g., a Story Map)*	*• a 3-5 paragraph response to a writing prompt about a character's motive from obvious clues*	*• write a children's story to illustrate a literary theme* *• develop a position paper for the school board on a contested issue*	
C. Application (near transfer): requires careful and skilled interpretation, analysis, connections, and reasoning, in response to a somewhat novel-looking challenge; non-formulaic use of prior learning is demanded, requiring a need to test, confirm, and perhaps justify the approach, response, and results.			*• solve a novel, multi-step problem where no clues are given; explain your reasoning* *• conduct a step-by-step science lab and explain results*	*• evaluate historical sources which disagree; develop an explanatory position paper or presentation* *• conduct a non-scripted science investigation and explain the results*	*• a problem-based learning task involving research and a paper/ presentation to a real/ simulated audience* *• interpret a musical score with feeling to evoke emotion from an audience*
D. Creative Problem Solving (far transfer): requires insightful and in-depth thinking in response to a complex, open-ended and ill-structured problem/issue in which the solution path is not at all obvious. Sustained critical and innovative thinking, support/justification, and habits of mind			*• create an original political cartoon to satirize a current situation*	*• analyze and evaluate historical sources that disagree; develop an explanatory position paper or presentation*	*• address a real community or school-based problem/issue* *• compose an original screenplay*

Cornerstone Tasks



The pressures of high-stakes accountability testing have led many schools and districts to encourage their teachers to engage in "test prep" instruction, especially in the tested grades and subject areas. Additionally, there has been an increase in the use of "interim" or benchmark assessments that mimic the state tests. While these practices may have their place, they typically focus on decontextualized content knowledge and skills at the expense of more relevant and engaging learning. As a counter-balance to "test prep" teaching and "practice" testing, Grant Wiggins and I have argued for the inclusion of more robust and authentic tasks as part of a local curriculum and assessment system. We refer to these as "cornerstone" tasks.

The Cornerstones are curriculum-embedded tasks that are intended to engage students in applying their knowledge and skills in an authentic context. Like a cornerstone anchors a building, these tasks are meant to anchor the curriculum around the most important performances that we want learners to be able to do (on their own) with acquired content knowledge and skills. They honor the intent of the Standards, within and across subject areas, instead of emphasizing only the tested (a.k.a. "eligible") content. Moreover, they support effective instructional practices that engage learners in "meaning making" and transfer.

More specifically, Cornerstone tasks:

- are *curriculum embedded* (as opposed to externally imposed);
- *recur across the grades*, becoming increasingly sophisticated over time;
- establish *authentic contexts* for performance;
- call for *understanding* and *transfer* via genuine performance;
- may be used as rich learning activities *or* assessments;
- *integrate 21st century skills* (e.g., critical thinking, technology use, teamwork) with subject area content;
- evaluate performance with established *rubrics*;
- engage students in *meaningful learning* while encouraging the best teaching;
- provide content for student portfolios so that they graduate with a *resume of demonstrated accomplishments* rather than simply a transcript of courses taken.




Cornerstone Assessments in Writing (6-12)

GREECE CENTRAL SCHOOL DISTRICT, NY

GRADE	Expository	Persuasive	Literary Analysis	Creative/ Expressive
Grade 6	Research report	Position paper	Literary essay on setting or conflict	Original myth
Grade 7	Autobiography	Policy evaluation	Literary essay on character	Persona writing
Grade 8	Research report	Problem/ solution essay	Literary essay on symbolism	Narrative fiction
Grade 9	Cause/effect essay	Editorial	Analysis of multiple literary elements	Poetry
Grade 10	Research report	Social issue essay	Critical Lens essay	Historical Persona
Grade 11	Definition essay	Argumentative essay	Comparative genre essay	Parody/satire
Grade 12	Research paper	Position paper	Response to literary criticsm	Irony

Cornerstone Assessments – Examples of Recurring Tasks

Mathematical Modeling

Grade 2/3

Every seven weeks students work in groups of four to measure the height of each other using tape measures affixed to the classroom walls. By mid-May, the class has obtained six height measures. Then, students create a simple graph (height in inches plotted against the months of the school year) and plot the data. Using rulers, they connect the dots to see "rise over run" (a visual representation of their growth over time). The chart papers are posted throughout the room, and the students circulate in a gallery walk to view the changes in heights of the various groups.

Students then analyze the data to answer guiding questions: "In what months did we grow the most this year?" "Is there a difference between how boys and girls have grown in second grade?" "How does our class growth compare to that in the other second grades?" "What can we predict for next year's second graders about how they will grow based on our data?" Students are then work in their groups to develop a presentation for the current 1st/2nd graders to predict how much they will grow next school year.

Middle School

A former NBA legend, Hoops McGinty, has pledged money to the local science museum for an exhibit on our solar system. He pledges the money under one condition: that a regulation NBA basketball be used to represent some aspect of the scale display and that other NBA-related shapes and sizes be used (e.g., a basketball be used to represent a planet or moon). The building floor space is 300 by 800 feet.

Your job is to create a model of the solar system that is built to scale to fit within this space. Prepare a diagram with accurate measurements drawn to scale. Show your work so that Hoops will approve and fund your design.

High School

Create a mathematical model in order to:

- recommend the most cost effective cell phone contract while considering different variables (e.g., type of cell phone, length of contract, calling/data amounts).
- compare home mortgage options for varied purchase prices, down payments, interest rate plans, and length of term (including variable rates).
- predict future Olympic event winning times (e.g., men's and women's marathon).

Cornerstone Assessments – Examples of Recurring Tasks

Social Studies

Upper Elementary/Middle School

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:

- Describe your idea.
- Explain why & how it will improve the school.
- 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.

High School

After investigating a current political issue, prepare a position paper/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.

Other: _____

_____

_____

_____

_____

_____

Cornerstone Assessments – Examples of Recurring Tasks

Science

Upper Elementary

The Pooper Scooper Kitty Litter Company claims that their litter is 40% more absorbent than other brands.

You are a Consumer Advocates researcher who has been asked to evaluate their claim. Develop a plan for conducting the investigation. Your plan should be specific enough so that the lab investigators could follow it to evaluate the claim.

Middle School

Design and conduct an investigation to answer the question, How does exercise affect the pulse rate? Compare normal pulse rate to changes caused by two selected physical activities (e.g., jogging, push-ups, squats, swimming) for designated intervals.

Prepare a report to explain the results to other students in a news article, e-mail, graphic, or other appropriate media..

High School

Design an investigation to answer the question, How much does it cost to take a shower?

Identify the variables that must be considered and then develop a plan for conducting the investigation. Your plan should be specific enough so that other investigators could follow it and answer the question.

Cornerstone Assessments – Examples of Recurring Tasks

World Languages

Level I

You are taking a "trip" around the school (or town or mall) with your exchange student. Incorporate the following vocabulary: directions (left, right, near, far, next to, etc.), places (classrooms, cafeteria, gym, library, labs, churches, police and fire stations, schools, restaurants, stores) and transportation (bus, taxi, train, car, bike, stairs, escalators, elevators). Keep sentences simple and narrate – in the target language – your "trip" to five places using a variety of directions (and transportation).

Level II

You are to plan a trip to the capital of _____. You will be in that city for only two days. Keep a diary – in the target language – and tell which places you have visited and what you have seen. Be sure that these places are close enough to each other to be visited in a two-day period and are open on the days you will be there.

Level III

You have been selected by the members of the World Languages Club to plan their annual trip to two of the countries whose languages are studied in your school. You must plan an itinerary that will include at least five places of cultural and historic importance. You must include at lease one site/activity that might be of particular interest to teenagers (e.g. Euro-Disney, a bull fight or a soccer game). Use public transportation wherever possible. Create a brochure to advertise the trip and be prepared to give a presentation to those students who may be interested in traveling with you.

Level IV

You are traveling in the foreign country of your choice on business. Be prepared to role play with, a partner(s), making reservations with the airline and the hotel; narrate/role play: arriving and checking in at the airport in the U.S., going through customs upon landing, and getting to the hotel by taxi. Since you will have some limited time when you are not involved in your business dealings, you will want to make some brief cultural excursions and will need to get information from and make arrangements with the concierge in your hotel.

Source: World languages Department – Woodbury High School, Woodbury, NJ

Creating Cornerstone Assessments Tasks: Idea Starters in Mathematics

Types of Authentic Mathematical Applications	**Task Ideas**
Create a mathematical model/representation of complex physical phenomena (e.g, quantity, size, rate, change).	
Data Analysis: o Observe _____ o Collect _____ o Measure _____ o Record _____ o Display _____ o Analyze data _____	
Make & justify predictions or decisions based on pattern analysis (e.g., What will be the winning times for thew women's Marathon race in the next two Olympic games?)	
Design a physical structure in response to a need or problem (e.g., a 3-dimensional shipping container to maximize volume and safety).	
Evaluate mathematical/statistical claims (e.g., "Nine out of ten dentists recommend....").	
Other: _____ _____	

Creating Cornerstone Assessments Tasks: Idea Starters in Social Studies

	Task Ideas
Evaluate historical claims or interpretations based on: **o Primary source evidence** **o Secondary source evidence** **o Personal opinion**	
Critically analyze current events/ issues **o Summarize/ compare key points** **o Analyze causes and effects** **o Identify points of view and potential bias** **o Debate possible courses of action**	
Make predictions for current or future events or issues based on understanding of historical patterns.	
Make informed decisions using critical thinking and understanding of historical patterns.	
Act as a responsible citizen in a democracy (e.g., stay informed, study issues, participate in community events, vote).	
Other: _____ _____	

Creating Cornerstone Assessments Tasks: Idea Starters in English/Language Arts

	Task Ideas
Read and respond to text in various genres (literature, non-fiction, technical) through: o Global understanding (the "gist") o Interpretation (between the lines) o Critical Stance o Personal Connections	
Create **oral** or **written** pieces in various genre for various audiences in order to: o Explain (narrative) o Entertain (creative) o Persuade (persuasive) o Help perform a task (technical) o Challenge or change things (satirical)	
Listen to various sources (e.g., lecture, radio commercial) for various purposes, including for: o Learning o Enjoyment o Performing a task o Reaching a decision	
Create **multi-media** pieces in various genre for various audiences in order to: o Explain (narrative) o Entertain (creative) o Persuade (persuasive) o Help perform a task (technical) o Challenge or change things (satirical)	
Other: _____	

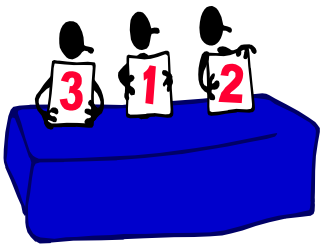
Creating Cornerstone Assessments Tasks: Idea Starters in Science

	Task Ideas
Design and conduct an experiment to answer a question or explain phenomena.	
Effectively use scientific tools to: **o Observe** **o Collect data** **o Measure** **o Record data** **o Classify** **o Draw conclusions**	
Evaluate scientific claims (e.g., XX brand of paper towels absorbs the most liquid of all the leading brands.)	
Critique experimental design or conclusions. (e.g., Chris thinks that Stain Remover B is more effective than A or C.)	
Analyze current issues involving science or technology. (e.g., Ethanol is the most cost-effective alternative fuel source.)	
Other: _____ _____	

Creating Cornerstone Assessments Tasks: Idea Starters in Health and P.E. and the Arts

	Task Ideas
Make healthful choices and decisions regarding diet, exercise, stress management, alcohol & drug use, etc.	
Engage in healthful activities and behaviors to promote wellness throughout one's life, and encourage others to do so.	
Create artistic expressions through various forms: **o Media (e.g., pastel, photography)** **o Genre (e.g., jazz music, modern dance)** **o Styles (e.g., impressionism, cubism)**	
Create artistic expressions for various audiences and purposes, including to: **o Entertain (e.g., tell a story)** **o Evoke Emotion** **o Commemorate** **o Persuade** **o Challenge (e.g., the status quo)**	
Respond to artistic expressions through: **o Global understanding** **o Interpretation** **o Critical Stance** **o Personal Connections**	

RUBRICS



Definition

Rubrics are criterion-based evaluation tools are used in conjunction with "open-ended" performance tasks and projects, which do not have a single, "correct" answer or solution process. *Effective rubrics:*

- clearly define criteria for judging student performance;
- promote more consistent evaluation of student performance;
- help clarify instructional goals and serve as teaching targets;
- provide specific feedback to learners and teachers;
- help students focus on the important dimensions of a product or performance;
- support criterion-based assessment

Two general types of rubrics – holistic and analytic – are widely used to judge student products and performances. A holistic rubric provides an overall impression of a student's work. Holistic rubrics yield a *single* score or rating for a product or performance. An analytic rubric divides a product or performance into distinct traits or dimensions and judges each separately. Since an analytic rubric rates each of the identified traits independently, a separate score is provided for each.

A third type of rubric -- longitudinal -- describes growth along a fixed, novice-expert continuum, in which each level represents a key benchmark on the road to exit-level performance. These longitudinal rubrics provide a basis for designing backward from mastery performance so that teachers and learners at all levels know where they stand along a developmental continuum against exit-level performance goals. Longitudinal rubrics are not tied to any particular performance or assessment task. Rather, they enable teachers, parents, and learners to chart progress toward desired accomplishments.

We propose that longitudinal rubrics should provide the "performance backbone" for every subject area in the curriculum. Indeed, such systems already exist. In Great Britain, longitudinal rubrics have been in place nationally since the mid-90's in all subject areas, even as developmental rubrics in literacy have been used for decades – in Australia and New Zealand.

Common Rubric for Mathematical Problem Solving

	Problem Solving	Reasoning and Proof	Communications	Representation
4 Expert	An efficient strategy is chosen and progress towards a solution is evaluated. Adjustments in strategy, if necessary, are made along the way, and / or alternative strategies are considered. Evidence of analyzing the situation in mathematical terms, and extending prior knowledge is present. A correct answer is achieved.	Deductive arguments are used to justify decisions and may result in formal proofs. Evidence is used to justify and support decisions made and conclusions reached. This may lead to generalizing and extending the solution to other cases.	A sense of audience and purpose is communicated. Communication of argument is supported by mathematical properties. Precise math language and symbolic notation are used to consolidate math thinking and to communicate ideas.	Abstract or symbolic mathematical representations are constructed to analyze relationships, extend thinking, and clarify or interpret phenomenon.
3 Practitioner	A correct strategy is chosen based on mathematical situation in the task. Planning or monitoring of strategy is evident. Evidence of solidifying prior knowledge and applying it to the problem. A correct answer is achieved.	Arguments are constructed with adequate mathematical basis. A systematic approach and/or justification of correct reasoning is present. This may lead to clarification of the task and noting patterns, structures and regularities.	A sense of audience or purpose is communicated. *and/or* Communication of an approach is evident through a methodical, organized, coherent sequenced and labeled response. Formal math language is used to share and clarify ideas.	Appropriate and accurate mathematical representations are constructed and refined to solve problems or portray solutions.
2 Apprentice	A partially correct strategy is chosen, or a correct strategy for only solving part of the task is chosen. Evidence of drawing on some previous knowledge is present, showing some relevant engagement in the task.	Arguments are made with some mathematical basis. Some correct reasoning or justification for reasoning is present with trial and error, or unsystematic trying of several cases.	Some awareness of audience or purpose is communicated, and may take place in the form of paraphrasing of the task. *or* Some communication of an approach is evident through verbal/written accounts and explanations, use of diagrams or objects, writing, and using mathematical symbols.	An attempt is made to construct mathematical representations to record and communicate problem solving, but they are incomplete or inappropriate.
1 Novice	No strategy is chosen, or a strategy is chosen that will not lead to a correct solution.	Arguments are made with no mathematical basis. No correct reasoning nor justification for reasoning is present.	No awareness of audience or purpose is communicated. *or* Little or no communication of an approach is evident *or* Everyday, familiar language is used to communicate ideas.	No attempt is made to construct mathematical representations.

Source: Exemplars.com

Common Analytic Rubric for Persuasive Writing

SKILL AREA	6 Responses at this level:	5 Responses at this level:	4 Responses at this level:	3 Responses at this level:	2 Responses at this level:	1 Responses at this lev
Meaning: the extent to which the writing exhibits sound understanding, analysis, and explanation, of the writing task and text(s)	• convey an accurate and in-depth understanding of the topic, audience, and purpose for the writing task • offer insightful and thorough analysis and explanation in support of the argument or position	• convey an accurate and complete understanding of the topic, audience, and purpose for the writing task • offer clear and explicit analysis and explanation in support of the argument or position	• convey an accurate although somewhat basic understanding of the topic, audience, and purpose for the writing task • offer partial analysis and explanation in support of the argument or position	• convey a partly accurate understanding of the topic, audience, and purpose of the writing task • offer limited analysis or superficial explanation that only partially support the argument or position	• convey a confused or largely inaccurate understanding of the topic, audience, and purpose for the writing task • offer unclear analysis or unwarranted explanations that fail to support the argument or position	• provide no evidenc of understanding the writing task or topic • make incoherent explanations that do not support the argument or position
Development: the extent to which ideas are elaborated using specific and relevant details and/or evidence to support the thesis	• support the position clearly and fully with arguments that effectively integrate and elaborate on specific ideas and textual evidence from a variety of sources • effectively anticipate and convincingly refute opposing view points	• support the position clearly and consistently with arguments that incorporate and explain ideas and specific textual evidence from a variety of sources • anticipate and somewhat convincingly refute opposing viewpoints	• support the position with arguments that use ideas and relevant textual evidence from a variety of sources • anticipate and attempt to refute opposing viewpoints at a basic level	• support the position partially, using some ideas and textual evidence but without much elaboration or from limited sources • partially anticipate and with a limited or confused attempt to refute opposing viewpoints but	• attempt to support the position, but textual ideas and evidence is vague, repetitive, or unjustified • allude to opposing viewpoints but make no attempt to refute them	• completely lack development and do not include textual evidence • make no attempt to anticipate or refute opposing viewpoints
Organization: the extent to which the writing establishes a clear thesis and maintains direction, focus, and coherence	• skillfully establish and maintain consistent focus on a clear and compelling thesis • exhibit logical and coherent structure with claims, evidence and interpretations that convincingly support the thesis • make skillful use of transition words and phrases	• effectively establish and maintain consistent focus on a clear thesis • exhibit a logical sequence of claims, evidence, and interpretations to support the thesis • make effective use of transition words and phrases	• establish and maintain focus on a clear thesis • exhibit a logical sequence of claims, evidence, and interpretations but ideas within paragraphs may be inconsistently organized • make some attempt to use basic transition words and phrases	• establish but fail to consistently maintain focus on a basic thesis • exhibit a basic structure but lack the coherence of consistent claims, evidence, and interpretations • make an inconsistent attempt to use some basic transition words or phrases	• establish a confused or irrelevant thesis and fail to maintain focus • exhibit an attempt to organize ideas into a beginning, middle, and end, but lack coherence • make little attempt to use transition words and phrases	• fail to include a thesis or maintain focus • complete lack of organization and coherence • make no attempt to use transition words phrases
Language: the extent to which the writing reveals an awareness of audience and purpose through word choice and sentence variety	• are stylistically sophisticated, using language that is precise and engaging, with a notable sense of voice and awareness of audience and purpose • effectively incorporate a range of varied sentence patterns to reveal syntactic fluency	• use language that is fluent and original, with evident awareness of audience and purpose • incorporate varied sentence patterns that reveal an awareness of different syntactic structures	• use appropriate language, with some awareness of audience and purpose • make some attempt to include different sentence patterns but with awkward or uneven success	• rely on basic vocabulary, with little awareness of audience or purpose • reveal a limited awareness of how to vary sentence patterns and rely on a limited range syntactic structures	• use language that is imprecise or unsuitable for the audience or purpose • reveal a confused understanding of how to write in complete sentences and little or no ability to vary sentence patterns	• use language that i incoherent or inappropriate • include a preponderance of sentence fragments and run-ons that significantly hinder comprehension
Conventions: the extent to which the writing exhibits conventional spelling, punctuation, paragraphing, capitalization, and	• demonstrate control of the conventions with essentially no errors, even with sophisticated language	• demonstrate control of the conventions, exhibiting occasional errors only when using sophisticated language (e.g., punctuation of complex sentences)	• demonstrate partial control, exhibiting occasional errors that do not hinder comprehension (e.g., incorrect use of homonyms)	• demonstrate emerging control, exhibiting frequent errors that somewhat hinder comprehension (e.g., agreement of pronouns and antecedents; spelling of basic words)	• demonstrate lack of control, exhibiting frequent errors that make comprehension difficult (e.g., subject verb agreement; use of slang)	• illegible or unrecognizable as literate English

Common Analytic Speaking Rubric for Wōrld Languages

	Comprehensibility	Fluency	Pronunciation	Vocabulary	Language Control
4	Responses readily comprehensible, requiring no interpretation on the part of the listener.	Speech continuous with few pauses or stumbling.	Accurate pronunciation enhances communication.	Rich use of vocabulary enhances communication.	Accurate control of basic language structures.
3	Responses comprehensible, requiring minimal interpretation on the part of the listener.	Some hesitation but manages to continue and complete thoughts.	Infrequent mispronunciations do not interfere with communication.	Adequate and accurate use of vocabulary for this level enhances communication.	Generally accurate control of basic language structures.
2	Responses mostly comprehensible, requiring interpretation on the part of the listener.	Speech choppy and/or slow with frequent pauses; few or no incomplete thoughts.	Mispronunciations sometimes interfere with communication.	Inadequate and/or inaccurate use of vocabulary sometimes interferes w/ communication.	Emerging use of basic language structures.
1	Responses barely comprehensible.	Speech halting and uneven with long pauses or incomplete thoughts.	Frequent mispronunciations greatly interfere with communication.	Inadequate and/or inaccurate use of vocabulary greatly interferes with communication.	Inadequate and/or inaccurate use of basic language structures.

Source: Fairfax County, VA Public Schools http://www.fcps.edu/DIS/OHSICS/forlang/PALS/rubrics/

Grand Island Public Schools

K–12 Social Studies Program MISSION

The goal of social studies education is to prepare students to be responsible and productive citizens in a democratic society arid a globally interdependent world. Through an integrated study of social studies disciplines, students will acquire necessary knowledge, skills, and attitudes as they become lifelong learners.

Social Studies provides content that students will use to understand political, social, and economic issues and apply their knowledge and skills to make effective personal and public decisions. A standards based social studies curriculum builds knowledge of specific discipline content, thinking skills, commitment to democratic values, and citizen participation, all essential to maintaining a democratic way of life.

GIPS K–12 Social Studies Program BELIEFS

• All students learn through a variety of relevant experiences.
Therefore, we will provide interactions that activate and build on prior knowledge and promote higher level thinking skills.

• Research shows active learning is essential.
Therefore, we will provide students with a variety of active, student centered, multi-sensory learning opportunities.

• Instruction should be relevant, meaningful, and based on student needs.
Therefore, we will provide opportunities for students to make connections to their own lives using a variety of instructional strategies.

• The world is constantly changing.
Therefore, we will provide the opportunities for students to understand that the present connects to the past and affects the future.

• We live in a culturally diverse society.
Therefore, we will develop student understanding of diverse cultures that honors equality and human dignity.

• Assessment should be ongoing, diagnostic, and aligned with instruction.
Therefore, we will provide multiple authentic assessment tools.

• The use of community resources is essential for effective instruction.
Therefore, we will use the rich history and ethnic diversity of our community to enhance learning.

• Active and informed citizen participation is essential to democracy.
Therefore, we will provide instruction and curriculum designed to develop students who will be informed, active problem solvers, and willing participants in the democratic process.

Department-Level Mission Statements
Sheridan School – Washington, DC

Science

Sheridan's science program is committed to instilling a life-long love of the natural world and to preparing students to think as scientists and use scientific reasoning throughout their lives. Students construct their understandings by actively engaging in scientific inquiry by asking questions, making and recording careful observations, forming hypotheses and safely conduction experiments to test those hypotheses. Our science program builds upon children's inherent curiosity about the world around them and helps them understand concepts about how the world works. It includes a balance of the three disciplines of science: earth, physical, and life. Teachers encourage students to make connections between science and other disciplines.

English/Language Arts

A mastery and control of language, in all its forms, is central in our world where the success of our lives is directly influenced by our ability to use and interpret language effectively. The acquisition and expression of language is essential to developing a deeper understanding of the world.

Students of language arts will gain confidence using written and spoken language for communication, for learning and reflection, for social and personal fulfillment, and to acquire information from a variety of sources. Students will increase their understanding of the English language and use written and spoken language in a variety of contexts and for a variety of purposes and audiences. Through a wide-ranging study of text, students will build their understanding of multiple perspectives, and in this exploration of the diversity of human experiences, they will arrive at shared understandings of our common humanity. The language arts curriculum will enrich students' lives, for it will develop knowledge, appreciation and facility in using the English language in ways that will serve them in all aspects of their lives.

Visual Art

Sheridan School believes that all our students are artists. Our program supports students as they develop an individual artistic vision that is informed by their own experiences, ideas, and understandings, as well as being grounded in the fundamental elements and principles of Art.

Each step of the process, from conception to creation, is valued and encouraged. In collaboration with the teachers and their classmates, students seek to comprehend and communicate visual ideas in their own unique manner through a process of observation, discussion, exploration, revision, and reflection.

Students consider the role of Art and of the artist in a variety of cultures, from ancient to contemporary, as part of their investigation into artistic techniques and media. The Art classroom is rich with opportunities for exploration, innovation, and reflection, encouraging a respect for the materials, tools, and ideas the community shares. This learning environment facilitates students' inquisitive and open journey through the world of Art.

Troubleshooting: Anticipating Misunderstandings

Sample Cover Page for Curriculum Unit Design

Virginia Beach Public Schools, Virginia

Virginia K-8 Strand: Interrelationships in Earth/Space Systems
Unit Title: Investigating Changes in the Ocean Ecosystem

Our Learning Link between the K-8 Strand and the Unit: Regardless of the location, whether land or water, interrelationships exist among plants and animals, all living things are dependent on each other and the nonliving environment. From previous grade levels, K-4, students should understand that plants and animals in ecological systems live in a web of interdependence in which each species contributes to the functioning of the overall system. Organisms live in a habitat to which they are structurally and behaviorally adapted and certain conditions within the ecosystem determine which organisms and communities succeed there. The ocean environment is one example of a natural resource that can be directly impacted by the actions of the human race. Changes to the nonliving and living parts of the ecosystem can impact the health of the ocean ecosystem.

State Objective 5.1 – Investigate and understand scientific reasoning, experimentation, and logic
Our Understanding:
o Scientific inquiry is a thoughtful and coordinated attempt to search out, describe, explain and predict natural phenomenon.
That Will Be Assessed Using:
o Fowler Science Skills Assessment (see first Unit of the curriculum)
o Experimental design sheets (see page14 in unit materials)

State Objective 5.6 – Investigate and understand characteristics of the ocean environment
Our Understanding:
o The ocean environment is a complex system in which numerous parts interact.
That Will Be Assessed Using:
o Creation of a food web from the ocean environment (see page 105 in unit materials)
o Use of a dichotomous key to identify marine organisms (see page 100 in unit materials)
Our Understanding:
o Humans can change the ocean environment through their everyday actions.
That Will Be Assessed Using:
o Chilean Sea Bass Mathematical Investigation
o Endangered Species in the Ocean Environment Research

Teaching with Possible Misunderstandings in mind:
• Students might think organisms are dependent on people to supply them with food and shelter.
To clear up misunderstandings: Organisms (animals) are either wild or tame. Wild animals that are not in aquariums, must find food on their own as well as shelter.
• Students have been found to believe that populations of organisms exist in larger numbers in order to fulfill a demand for food by another population.
To clear up misunderstandings: The numbers of organisms (plants and animals) exist in the wild in a limited number. Numbers of plants and animals can be changed by over fishing, killing, or changes in the environment due to pollution or habitat destruction.

Teachers' Job Expectations

Teachers at A.S.D. are expected to:

CURRICULUM	UNIT DESIGN	ASSESSMENT
• know that the school offers a guaranteed "standards-based" curriculum. • know that their job is to deliver established curriculum. • know that the curriculum is regularly updated through a curriculum review process.	• know and apply the *Understanding by Design* format for developing units of understanding. • know that effective unit design is anchored around enduring understandings and essential questions.	• use both formative and summative assessment data to guide instruction. • apply "best practices" of assessment and grading. • know that grading and reporing at ASD reflects "authentic" academic learning.
INSTRUCTION	**STUDENT LEARNING**	**PROFESSIONAL LEARNING**
• apply "best instructional practices" to their subject(s) and level(s). • know what learning "looks like" and strive for it. • know the "why" and "how" of differentiating instruction to address their learners.	• know that learning includes knowledge acquisition, meaning making and transfer. • know that learning takes place not only in the academic realm but in other domains.	• seek professional development opportunities to improve their effectiveness. • know and support the ASD professional development initiatives.

Teachers at A.S.D. should be skillful in:

CURRICULUM MAPPING	COLLABORATION	ANALYZING DATA
• using Atlas Rubicon to map curriculum units. • using A.R. analysis tools to check for alignment between the standards, benchmarks and assessments.	• using the ASD Norms of Collaboration when working with colleagues. • using the ASD agreed-upon protocols when Planning and Looking at Student Work in teams.	• using data to recognize student learning needs. • using data to guide instruction. • using data to differentiate instruction.
INSTRUCTION	**COMMUNICATION**	**TECHNOLOGY**
• using a variety of instructional strategies that are engaging and matched to student needs. • designing and using contextualized (authentic) assessments.	• providing clear expectations and explanations to students. • communicating regularly with parents. • communicating effectively with colleagues.	• using technology as an instructional and communication tool. • using Power School (e.g., for grading). • following the NVS expectations.

Mapping Cornerstone Tasks

21st Century Skills: a. Critical/Creative Thinking b. Problem Solving c. Technology Use d. Communication e. Collaboration

K				
1				
2				
3				
4				
5				
6				
7				
8				
High School Courses				

Key Standards/ Program Goals:

1. _____

_____

2. _____

_____

3. _____

_____

4. _____

_____

5. _____

_____

6. _____

_____

7. _____

_____

8. _____

_____

Rating Materials Based on the Understanding-Based Selection Criteria*

Scale: 1- 5

#1 –Do the materials focus on recurring big ideas and/or essential questions?
Look for the extent to which the materials identify a limited number of big ideas – concepts, themes, issues – and include provocative essential questions around which knowledge is examined.

#2 – Do the materials require learners to be thoughtful, reflective and use high-level skills?
Look for continual instruction and assessment opportunities for students to be thoughtful and reflective through the six facets — explain, interpret, apply, give perspectives, empathize and explore their own self-knowledge. Also look for ample opportunities to learn and to use high level skills, such as research, scientific inquiry, strategic reading, writing, problem solving and decision making.

#3 – Do the materials include valid and varied assessments - both traditional and performance based?
Look for a variety and balance between traditional and understanding-based performance assessments and between summative and formative assessments. Look for the validity of the assessments – the connections between the assessments and the goals of the materials.

#4 –Do the materials contain effective and engaging activities?
Look for activities that help students master understanding, inquire into essential questions, explain and explore their understanding, promote interaction between teachers and students, motivate student learning, and help students make meaning.

#5: Do the materials reflect a "developmentally appropriate" approach to student learning?
Look for materials that support rigorous academic learning of big ideas and essential questions, but are not so far above or below the current abilities of the learner that they stifle learning.

#6 – Are the materials geared to the diverse abilities, interests and needs of students?
Look for the ways that the materials support the needs of students in a diverse classroom environment, including special education students. Also look for ways that the materials and strategies incorporate the multiple student intelligences and learning styles.

#7 – Is the curriculum program based on text alone, or does it include many different types of materials, including technology-based learning?
Look for whether the text is the sole source of information or whether there are multiple sources that allow for thoughtful understanding based learning and inquiry. Look at the role of technology in promoting understanding based teaching and learning.

#8 – Do the materials encourage interdisciplinary connections?
Look for ways that the materials encourage interdisciplinary connections, such as by integrating big ideas and essential questions or skills and processes across disciplines.

#9 – Are the materials and instructional plans well organized and easy to use (teacher friendly)?
Look at whether the understanding based program is well-organized, how big ideas and essential questions are clearly organized and made explicit throughout the materials, how well developed and organized is each unit and lesson, how assessments and materials are integrated throughout the program, how accessible suggested outside materials are, and how easy it is to adapt the program to a teacher's own style.

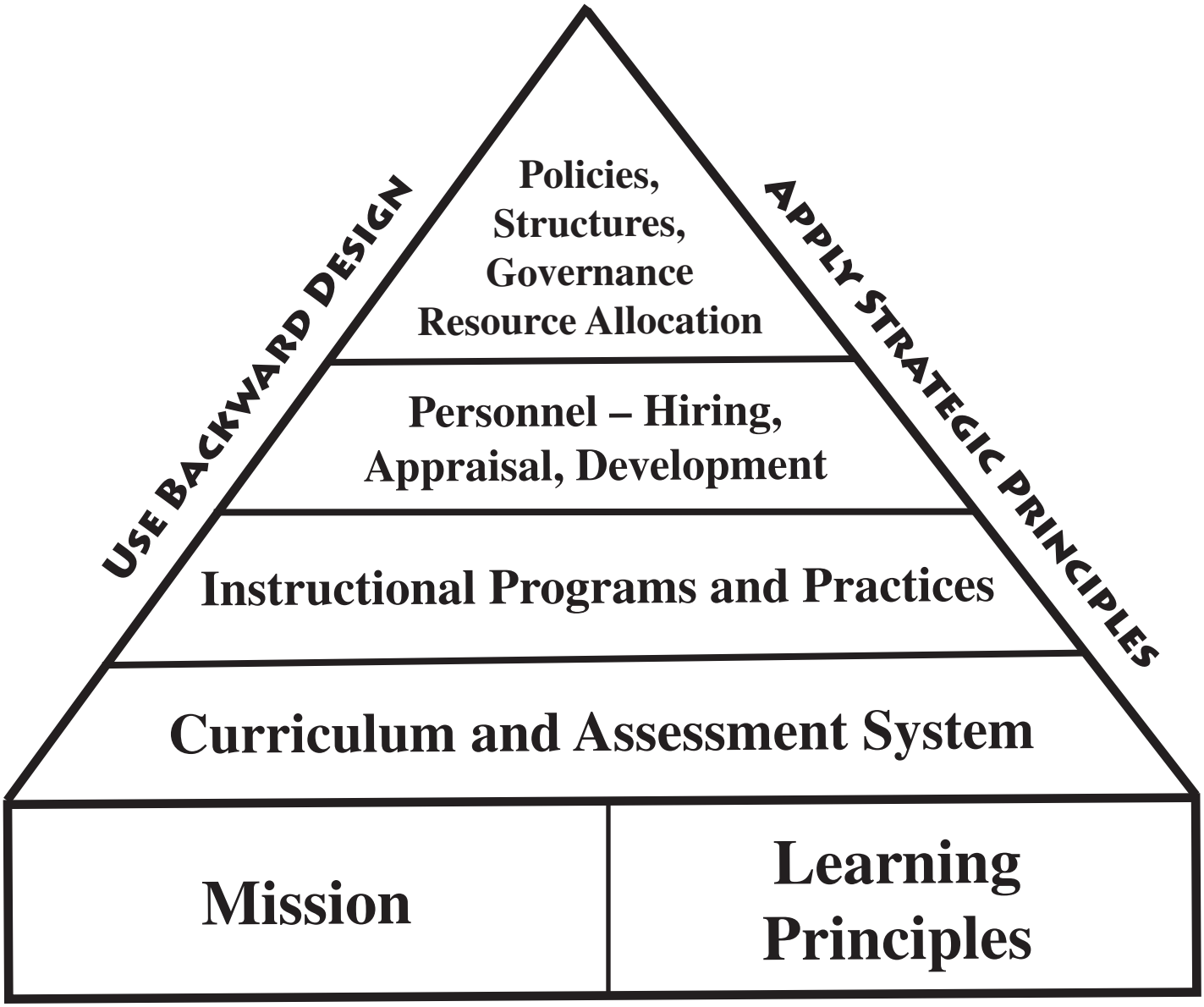
#10 – Are outside experiences, including family involvement, part of the learning experience?
Look for authentic learning experiences to be an on-going part of the curriculum materials. Also look for many opportunities for parents to work with their children in order to supplement understanding based learning experiences. Supplemental materials, such as study guides, should also help students organize their learning and thinking.

**Developed by Elliott Seif and Frank Champine*

A Curriculum Development Checklist

Curriculum Component	Scheduled for Completion	Drafted	Reviewed	Piloted	Revised based on Feedback	Validated and Approved
1. Mission, Philosophy, and Learning Principles						
2. K-12 Overarching Understandings, Essential Questions, Content Standards						
3. Curriculum Mapping Program & Course						
4. Cornerstone Assessments and Collections of Evidence						
5. Longitudinal and Analytic Rubrics						
6. Anchors of Student Work						
7. Teaching/Learning Strategies & Resources						
8. Diagnostic and Formative Assessments						
9. Differentiation Suggestions						
10. Troubleshooting Guide						

Schooling by Design – Key Elements



Identifying School-wide Principles of Learning

Goal

An agreed-upon set of Principles of Learning for the school

Intent

Since the Learning Principles reflect research and best practice, they serve to guide curriculum planning, instruction and assessment. They provide a common language for conversations about teaching and learning, and function as criteria for a variety of school actions, (e.g., textbook selection, classroom observations).

Process

In order to build understanding and ownership, school staff should be actively involved in the process of identifying the shared Principles of Learning. One such process is outlined below:

Step 1 – Discuss the goal and intent of agreeing on a common set of Principles of Learning for the school.

Step 2 – Engage staff in the "Best Learning" exercise. Collect and compile a draft set of responses. (Note: Parents and students could also be involved in this exercise.)

Step 3 – Circulate the draft list of responses to the "Best Learning" exercise to staff groups (e.g., grade level teams, Departments, Division levels, etc.) for their review and recommendations. Questions for consideration by the groups:

- *Does the list reflect all the important Principles of Learning?*
- *Are the principles clearly stated and understandable?*
- *What does each principle imply for our work? Would some established practices need to be changed to better align with a stated principle?*

Note: Additional examples of developed Learning Principles can also be reviewed at this time.

Step 4 – Each group submits suggested edits, additions, deletions, etc. to a designated team, which reviews the recommendations of the various groups and complies a synthesized and edited list.

Step 5 – The edited list of Learning Principles is circulated for a second review. (If major edits are proposed, the process continues until a generally-agreed upon set of Learning Principles is produced.)

Step 6 – The final list of Learning Principles is presented for staff review and sign off. By signing, staff members commit to accepting and agreeing to acting on the agreed-upon Principles of Learning.

Note: The Learning Principles should not be "set in stone." They can (and should) be periodically revisited and refined to reflect emerging research and staff insights from their application.

"Voting" on Learning Principles

*Example – Boulder Valley, CO School Distric*t

Principle #1: Learning is purposeful and contextual. 609 votes

Principle #2: Experts organize or chunk their knowledge around transferable core concepts ("big ideas") that guide their thinking about the domain and help them integrate new knowledge. 205 votes

Principle #3: Different types of thinking, such as classification and categorization, inferential reasoning, analysis, synthesis, and metacognition, mediate and enhance learning. 311 votes

Principle #4: Learners reveal and demonstrate their understanding when they can apply, transfer, and adapt their learning to new and novel situations. 644 votes

Principle #5: New learning is built on prior knowledge. Learners use their experience and background knowledge to actively construct meaning about themselves and the world around them. 589 votes

Principle #6: Learning is social. 375 votes

Principle #7: Attitudes and values mediate learning by filtering experiences and perceptions. 87 votes

Principle #8: Learning is nonlinear; it develops and deepens over time. 245 votes

Principle #9: Feedback enhances learning and performance. 485 votes

Principle #10: Effectively accommodating a learner's preferred learning style, prior knowledge, and interests enhances learning. 644 votes

Singapore American School

Learning Principles

The vision of Singapore American School is to inspire a passion for learning, encourage emotional and intellectual vitality, and empower students with the confidence and courage to contribute to the global community and to achieve their dreams. To achieve this vision, it is incumbent for all members of the SAS community to be active and engaged learners. SAS defines learning as a developmental, life-long process that transforms the learner by expanding and deepening knowledge, skills and understanding in support of personal success in life, work, and contributions to others.

1. Learning:

• Becomes meaningful when it is constructed by the learner.
• Is essential when it focuses on what is most important for students to know, understand, and be able to do.
• Happens in academic, social, emotional, and physical contexts, through various learning modalities and profiles, within and outside of school.
• Involves an understanding of the big ideas and concepts that connect facts, skills, and experienes.
• Is revealed when it is applied, transferred, and adapted to new situations and problems by the learner.

Therefore we will observe:

• Learning that is connected to learner interest, passion, and choice.
• Learning that is directly connected to Enduring Understandings and Essential Questions.
• Learning from within and outside of school that contribute to deeper understanding and reflection of targeted Enduring Understandings and Essential Questions.
• Learning that demonstrates understanding beyond the current context.
• Learning that is assessed through application and transfer of knowledge, understandings, and skills.

2. Powerful learning happens when the learner is motivated to learn. Learning needs to:

• Be personally meaningful, challenging, and appropriate.
• Include relevant, authentic, and worthy tasks for which the learner understands the purpose and is able to make connections.
• Involve continual development of perseverance and efficacy when facing challenges.
• Provide appropriate time, support and opportunity for a specified level of mastery.

Therefore we will observe:

• Learning opportunities that are differentiated by interest, readiness, and learning profile.
• Learning that is authentic, hands-on, and connected to real life experiences.
• Learning that is of high interest to the learner, increasingly self-directed, and focused on the learner's own aspirations for mastery.
• Learning that shows a willingness on the part of the learner to grapple with appropriately complex and difficult challenges.
• Learning opportunities that support a specified level of mastery.

Singapore American School

Learning Principles

(continued)

3. Learning is optimized when:

• Learners are given clear, transparent priorities of what is essential learning, including explicit standards and exemplars of excellence.
• Meaningful and appropriate connections across disciplines support interdisciplinary thinking and learning.
• There is a developmentally appropriate balance of teacher-directed and learner-directed approaches.
• Learners are creatively challenged to think and express themselves in ways that help them discover their passions and develop their own unique "voice".
• A safe environment exists in which learners can think, rethink, practice and make mistakes.
• Learners are actively engaged in their own goal setting and reflection to manage the quality of their learning.
• On-going, specific, and timely feedback is provided to learners, along with opportunities to use it.
• Learners engage in purposeful social interactions to deepen understanding.

Therefore we will observe:

• Learning where learners can self-assess accurately and plan appropriately.
• Learning where learners are actively engaged in instructional methodologies (e.g. student-directed, teacher-directed) that are most appropriate for the intended learning.
• Learning where learners are actively engaged in flexible groupings (e.g., independent, small group, whole class) that are most appropriate for the intended learning.
• Learning that provides meaningful and appropriate opportunities for interdisciplinary study and investigation.
• Learning where creative expression and the passion of learners are valued and supported.
• Learning environments where there is willingness to question, debate, respectfully disagree, share thoughts and ideas, and self-critique.
• Learning where learners see mistakes as opportunities for growth.
• Learning where learners are responsible for their own goal-setting and monitoring of progress, as developmentally appropriate.
• Learning where learners self-adjust based on feedback from a variety of sources (e.g., anecdotal notebooks, quality comments on paperwork, and conferring).
• Learning where learners can communicate and demonstrate their progress.

Learning Principles adapted from the following sources: *Charter for Learning*, Jakarta International School; *Definition of Learning*, International School of Bangkok; *Looking for Learning*, Martin Skelton; *How People Learn*, Bransford, Brown, & Cocking; *Making Learning Whole*, Perkins; Powerful Learning, Brandt; *Principles of Learning*, University of Pittsburgh; *Schooling by Design*, McTighe & Wiggins; *A Whole New Mind and Drive*, Daniel Pink.
The SAS Learning Principles were developed in collaboration with administrators and a group of cross-divisional teachers, and adopted by Administration on March 11, 2011.

Professional and Collaboration Time (PACT)

Charge:

We will use PACT to collaborate within various "Learning Communities" to grow professionally, and to collaborate together to enhance our planning, teaching and assessment with **a focus on student learning**. *PACT is not intended for departmental or team "housekeeping" or for individual teacher planning.*

Goals:

To improve curriculum quality and alignment
To analyze "results" and student work
To enhance instructional and assessement practices
To increase professional conversations between ASD faculty members
To better implement school improvement initiatives through collaboration

Schedule:

- Tuesday 1:10 – 3:10 (1:10 – 2:10 = horizontal teams, 2:10 – 3:10 = vertical teams if needed)

Suggestions of collaborative tasks:

– looking at student work
– analyzing data to improve student learning (e.g., NWEA scores, AP results, etc)
– evaluating and refining the quality of assessment tasks & rubrics
– planning among teachers who teach common courses
– coordinating among grade level teams (e.g., vertical alignment of curriculum)
– developing common assessments/rubrics (including moderation of assessments)
– planning for integration of units
– reviewing UbD Units and Atlas Rubicon Curriculum Maps
– discussing professional readings
– planning for implementation of new school/team programs
– participating in professional development

Questions To Ask When Examining Student Work

Use the following questions to guide the examination of student work.

Describe

- *What knowledge and skills are assessed?*
- *What kinds of thinking are required (e.g., recall, interpretation, evaluation)?*
- *Are these the results I (we) expected? Why or why not?*
- *In what areas did the student(s) perform best?*
- *What weaknesses are evident?* • *What misconceptions are revealed?*
- *Are there any surprises?* • *What anomalies exist?*
- *Is there evidence of improvement or decline? If so, what caused the changes?*

Evaluate

- *By what criteria am I (are we) evaluating student work?*
- *Are these the most important criteria?*
- *How good is "good enough" (i.e., the performance standard)?*

Interpret

- *What does this work reveal about student learning and performance?*
- *What patterns are evident?*
- *What questions does this work raise?*
- *Is this work consistent with other achievement data?*
- *Are there different possible explanations for these results?*

Identify Improvement Actions

- *What teacher action(s) are needed to improve learning and performance?*
- *What student action(s) are needed to improve learning and performance?*
- *What systemic action(s) at the school/district level are needed to improve learning and performance (e.g., changes in curriculum, schedule, grouping)?*
- *Other: _____?*

GRADE 9

ANNOTED EXEMPLAR
Persuasive

School is meant to be a place of learning, an opportunity to acquire knowledge and insight, and it was at Greece Olympia High School that I learned this lesson. It was one of those rainy day mornings when little could be heard above the squeak of wet rubber soles against the tile floor of the freshman hallway. I was heading into homeroom early; I thought I'd be the first to arrive. However, just as I was about to enter the room, I saw that a girl with vibrant brown hair, jeans, and a pink sweater had already gone into the room. Seemingly because her shoes had no texture, with a bottom as smooth as the complexion of her youth, she slipped, hung in the air for a moment, then crashed to the ground. I took a step backward to laugh out in the hall. When I peered back in the room, I expected that after such a fall she would be unable to move. However, she had already leapt to her feet. That's when I noticed her fervent glances. Left and right. Left then right. Her head quickly turned. Satisfied in her anonymity, she slowly, and I believe painfully, walked to her seat.

The writer engages the reader by establishing a context and using an appropriate tone

The writer's use of imagery helps to create a context for the reader.

The writer utilizes vivid and precise language.

The writer varies sentence patterns for effect.

At that moment, I became consciously aware that people, including myself, seem to concern themselves more with the opinions and wants of others than with what they themselves think or desire. This girl had been so worried about what someone else might think that she didn't even stop to catch her breath. It's no wonder that a phrase like, "What will the neighbors think?" sounds cliché. For years people have been interested in owning a better house, buying a faster car and having a more attractive mate. Yet, are these things going to bring self-fulfillment? Is somehow having these items going to impress people, and, if so, why do we care what these people think? We are raised to do just that. From a young age, we are taught to please mostly our parents, then our teachers, coaches, and friends. From the moment we are born, others expect us to behave, think, and value in a certain way, and being the impressionable youths that we

The writer chooses and employs specific rhetorical devices to support assertions and strengthen persuasiveness of the argument (anecdote) based on the topic, audience and purpose.

The writer uses effective interpretation that offers insights.

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.

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?

- _____
- _____
- _____
- _____

What *specific* improvement actions will we take?

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

Options for "Making Time"

Staff need time to analyze assessment results (external and internal), examine student work, make improvement plans and conduct action research into persistent achievement problems. Consider the following ways of making time for these important "results-oriented" actions. Each has been implemented successfully by schools in North America.

1. Half the faculty covers for the whole faculty once per month on pre-assigned days; classes double up and/or teachers of "specials" plan large-group activities

2. Teachers spend one hour per month on "results-oriented" actions, taken as needed from current faculty/department/team meetings and in-service days

3. Schools introduce late start/early release one day per month

4. Each grade-level/department team is allocated two hours per week, with coverage provided by other teams, administrators, student teachers, or substitutes

5. Five days of summer work become part of the contract*

6. Two hours of non-contact, staff time are added to each Monday, then traded for three days added to vacation

7. One permanent sub per grade level is hired for the needed period of time

8. The school year is reorganized—half-day twice per month should be scheduled with no students; add 5 minutes to other instructional days for the minutes lost

9. Teachers meet for an extended lunch and resource period or assembly schedule.

10. Providers of special group learning (Project Adventure, etc.) give assemblies to release teachers for three half-days per year.

11. Roving subs, hired for a day, release grade level/deptartment teams

** Though it is imperative to free up time over the course of a year to permit "results-oriented" work and action research to occur, there is singular value in bringing together design teams in the summer for intensive training and curriculum development work.*

Stage 1 – Desired Results

Goal(s):

What needs do learning results/data reveal? What improvements are needed? What is our vision? What do we seek to accomplish as a result of this initiative?

Understanding(s):

What understandings and attitudes do teachers, administrators, parents, policy makers, etc. need for these goals to be met?

Essential Question(s)::

What essential questions about teaching, learning, results and change should guide our improvement actions?

Knowledge & Skills:

What knowledge and skill will teachers, administrators, policy makers, parents, and students need for this vision to become a reality?

Stage 2 – Assessment Evidence

Direct Evidence:

What will count as evidence of reform success?

What are the key observable indicators of short and long-term progress?

Indirect Evidence:

What other data (e.g., achievement gaps; staff understandings, attitudes, and practices; organizational capacity, etc.) should be collected?

Stage 3 – Action Plan

What short- and long-term actions will we take to achieve our goals (in curriculum, assessment, instruction, professional development, policy, resource allocation, job appraisal, etc.)?

What strategies will help us achieve the desired results?

Who will be responsible? What resources will be need-

Backward Design Plan for a District Implementation Plan

Stage 1 – Desired Results

Goal(s):

- Ensure a more thorough understanding of what UbD is and how it can improve our daily work.
- Supervisors will be able to observe indicators of successful implementation and provide feedback to faculty on the application of UbD principles throughout the school year.
- Faculty will be able to effectively design, implement and review quality UbD units that are aligned to standards.

Understanding(s):

- Effective curriculum/units/daily lessons design evolves "backward" from clear goals and is aligned across all three stages.
- UbD is a way of thinking more carefully about curriculum/units/daily lessons design; it is neither a prescriptive program nor just a template for design.
- UbD design process is non-linear and ongoing.
- Teaching and assessing for understanding enhances learning of content standards.

Essential Question(s)::

- *Why are the best curricula/units/lessons designed "backwards"?*
- *What is good design? How does UbD support curriculum/unit/lesson design?*
- *Why teach for understanding?*
- *How will we know that students really understand?*
- *How will we know that as a district we are moving from an awareness stage to an application stage in the change process?*

Knowledge: *Staff will know...*

- the 3 stages of "backward design"
- characteristics of "big ideas" and "essential questions"
- the six facets of understanding and GRASPS
- the WHERETO elements of instructional planning
- design standards of UbD

Skills: *Staff will be able to..*

- develop understandings, essential questions and assessment evidence.
- design units using the "backward design" template that meet UbD Design Standards.
- review other designs against the Design Standards.

Stage 2 – Assessment Evidence

Direct Evidence:

- Develop draft designs using UbD template and tools.
- All staff participate in a school-based unit peer review process for feedback and making necessary revisions.
- Pilot the UbD units, reflect on results, and plan for changes.
- Participate in regional peer review processes for final approval prior to District curriculum adoption.
- Principals integrate UbD standards into supervision and evaluation process, and observe implementation of UbD principles applied in daily lessons.

Indirect Evidence:

- Pre- and post-workshop surveys.
- Observations of participants' understandings, questions, misconceptions, and frustrations.
- Quality of responses on exercises and worksheets.
- Participants' self-assessments and reflections on their understandings and design.
- Written and oral feedback on workshops and UbD implementation
- "Needs" statements for future professional development.

Stage 3 – Action Plan

- Work as school-based teams to establish clear goals aligned to state standards.
- Regional curriculum committees will review and revise the regional curriculum guides to create common goals and core rubrics for assessment on a continuous basis as part of District's Curriculum Development plan.
- Utilize portions of faculty meetings to facilitate deeper understanding of unit design and share works in progress.
- Provide guided design work time and workshops as needed.
- Build in opportunities for eams to work on units (e.g., through release time, summer work, after-school work).
- Provide opportunities for interested faculty to advance their learning through regional and/or school-based study groups, and local, regional, state, and national conferences.
- Provide ongoing peer review training opportunities in order to build expertise first regionally and then locally
- Publish approved units and excellent UbD models on ubdechange.org and school-based intranets.
- Administrators will monitor implementation, providing faculty with ongoing input using observable indicators.

Backward Design Plan for a Workshop on *Understanding by Design*

Stage 1 – Desired Results

Understanding(s): U

- Effective curriculum design evolves "backward" from clear goals and is aligned across all 3 stages.
- UbD is a way of thinking more carefully about curriculum design; it is not a prescriptive program.
- Using design standards improves quality.
- The UbD design *process* is non-linear and iterative.
- Teaching and assessing for understanding enhances learning of content standards.

Essential Question(s):: Q

- Why are the best curriculum designs "backwards"?
- What is good design? How does UbD support effective curriculum design?
- How does "continuous improvement" apply to curriculum design?
- Why teach for understanding?
- How will we know that students *really* understand?
- What is the difference between under standing and knowing?

Staff will know... K

- the 3 stages of "backward design"
- characteristics of "big ideas" & "essential questions"
- the 6 facets of understanding and GRASPS
- the WHERETO elements of instructional planning
- design standards for UbD

Staff will be able to... S

- develop understandings, essential questions, and assessment evidence
- draft a unit in the Template
- review designs against the Design Standards

Stage 2 – Assessment Evidence

Performance Task(s): T

- Develop a draft design using the UbD template and tools. (Design meets most of the UbD design standards.)
- Participate in a peer review process using design standards and provide feedback to designers.

Other Evidence: OE

- pre- and post-workshop surveys
- observations of participants' understandings/ questions/ misconceptions/frustrations
- quality of responses on exercises and worksheets
- participant self-assessments and reflections on their understandings and design
- written and oral feedback to presenter

Stage 3 – Learning Plan

Learning Activities: *(selected)* L

- overview of session, performance goal, meet in role-alike groups
- exercise on Good Design
- study and discuss "before" and "after" design examples
- guided design work on each stage
- watch and discuss relevant video clips
- "gallery walk" to review participants' designs
- lecture/discussion on key design elements and issues
- peer review against design standards

Understanding by Design – Implementation Options

	Option 1	Option 2	Option 3	Option 4	Option 5
Stage 1 – Desired Results	We **want** teachers to use UBD "backward design" in their planning (but it is not required).	Teachers are **expected** to use "backward design" to plan and teach UbD units. Administrators will monitor UbD implementation.	We **want** district curriculum committees to employ the UbD framework (but it is not required).	We will construct a school/district Curriculum Framework based on UbD and **expect** all teachers to plan and teach UbD units based on it. Administrators will monitor UbD implementation.	We will construct a school/district Curriculum Framework based on UbD and develop detailed UbD units that all teachers are **expected** to teach. UbD will guide systemic school/district reforms.
Stage 2 – Evidence *(observable indicators)*	• *Teachers "unpack" content standards to identify "big ideas"& Essential Questions.* • *EQs are posted in classrooms.* • *Performance tasks based on the six facets assess understanding.* • *Instructional plans reflect the elements of W.H.E.R.E.T.O.* • *"Activity" and "coverage" oriented teaching declines.* • *Students are more engaged.* • *Student learning & work quality improves.*	Teachers' planning and classroom practices reveal indicators from the 1st column. + • *Reviews of UbD unit plans based on UbD Design Standards* • *Teacher appraisal based on UbD criteria* • *Administrative "walk throughs" focus on observable indicators (e.g., listed in 1st column)*	District curriculum documents show: • *The curriculum is mapped and includes overarching EUs, EQs and Core Assessment Tasks.* • *The curriculum "spirals" around big ideas and EQs.* • *Curriculum is regularly reviewed and meets UbD Design Standards.* • *Resource materials (e.g., textbooks, software) are selected to support the UbD curriculum.*	District curriculum documents reveal indicators listed in column #3. Teachers' planning and classroom practices reveal indicators from the 1st column.	**Systemic Elements:** • *School/district planning routinely uses "backward design."* • *Teachers regularly meet to review student work and make improvement plans.* • *Staff development reflects data-driven needs.* • *District grading practices and reporting processes reflect UbD.* • *Teacher & administrator job descriptions include UbD elements.* • *Curriculum regularly reviewed (Column # 3)* • *Teacher/administrative appraisal process includes UbD indicators (e.g., Columns 1 & 2).*

Essential Questions to Promote Staff Inquiry and Reflection

(examples)

MISSION and BELIEFS

- *To what extent does our (team, school, district, community) share a common Mission?*
- *To what extent do our policies, priorities, and actions honor our Mission?*
- *What educational beliefs about teaching and learning do we hold?*
- *What assumptions about learning guide our instructional and assessment practices?*
- *To what extent do our policies, priorities, and actions reflect these beliefs?*

STANDARDS

- *How would people know that we are a "standards-based" school/district?*
- *What are observable indicators at the classroom? ... school? ...district?*
- *To what extent are we "walking the talk" and using standards to guide our work (e.g., curriculum, assessment, instruction, professional development, staff appraisal)?*

CURRICULUM

- *Why should curriculum be planned "backward"?*
- *To what extent is our curriculum coherent and aligned?*
- *Does our curriculum highlight enduring knowledge and authentic performance?*
- *What content should we "cover" and what needs to be "uncovered?"*
- *To what extent do textbooks function as the syllabus (rather than a resource)?*

ASSESSMENT

- *How are we doing? What evidence is needed to answer this question?*
- *How will we know that students really understand the "big" ideas?*
- *Are we assessing everything we value (or only those things that are most easily tested and graded)?*
- *Is anything important "falling through the cracks" because we are not assessing it?*
- *How might our assessments promote learning, not simply measure it?*

INSTRUCTION

- *To what extent is our instruction engaging* and *effective?*
- *To what extent does our instruction reflect research and best practices?*
- *To what extent are we engaging students in "doing" the subject?*
- *Are we effectively teaching ALL students?*

Observable Indicators of Success

What if the reform vision was actualized? What would we routinely expect to see in classrooms, schools, and throughout the district? Use the spaces below to identify specific observable indicators of reform success.

Classroom:

School:

District:

Understanding by Design Elements: Assessing Your School

*Use the continuum to analyze the **classroom practices in your** school according to the following UbD reform elements.*

Desired Results	Needed Changes
1. Learning activities clearly address established content standards.	1. Learning activities do not typically address established content standards.
2. The textbook is one resource among many used in teaching to the standards.	2. Textbooks serve as the primary teaching resource. (The textbook functions as the syllabus.)
3. Instruction and assessment are focused on exploring "big ideas" and essential questions.	3. Instruction consists primarily of content coverage, doing activities, and/or preparation for high-stakes, standardized tests.
4. Student understanding of the "big ideas" in content standards is assessed through complex performance tasks using the six facets.	4. Assessment consists primarily of quizzes and tests of factual knowledge and discrete skills.
5. Teacher evaluations of student products/ performances are based upon known criteria, performance standards, and models.	5. The students do not know (i.e., cannot explain) how their work will be evaluated. They are typically not shown models of exemplary work.
6. The students regularly self assess their work based on the established criteria.	6. Students do not regularly self assess their work according to established criteria.
7. Teachers regularly pose open-ended questions with no obvious right answer. They are designed to direct and deepen inquiry and understanding.	7. Most teacher questions are convergent, leading questions, pointing toward the knowledge students are expected to learn.
8. Students are given regular opportunities to rethink and revise their work based on feedback from on-going (formative) assessments.	8. Formative assessments are not routinely used. Students are rarely given opportunities to rethink and revise their work based on specific feedback.

Understanding by Design Elements: Assessing Your District

*Use the continuum to analyze where your **district** falls according to the following UbD reform elements.*

Desired Results	Needed Changes
1. There are explicit design standards for district *and* teacher-developed curriculum designs.	1. There are no published design criteria for district *and* teacher-developed curriculum.
2. A peer review / critical friend process is regularly applied for quality control of curricular designs.	2. There is no formal quality control process for critical review of district *and* teacher-developed curriculum.
3. Teachers develop units and assessments using on-line electronic design templates (e.g., using the **ubdexchange.org** site.)	3. Teachers typically do not develop and share units and assessments.
4. Teachers regularly work in teams to design, revise, and share curricular units.	4. Teachers generally work in isolation, often unknowingly "reinventing the wheel".
5. The district's curriculum is "mapped" to show "big ideas", essential questions, and cornerstone assessment tasks.	5. The district's curriculum is not "mapped" *or* curriculum mapping only shows topics taught at various times during the year.
6. Non-contact time is regularly devoted to "results" (e.g., reviewing student work, analyzing assessment results, making school improvement plans, lesson study).	6. Non-contact time is typically devoted to meetings or left to teacher discretion. In- service days usually feature outside speakers (or occasional team planning). Staff are rarely involved in systematically reviewing results and planning improvements.
7. Performance appraisal of teachers is aligned with assessment of students: it is primarily results-focused, grounded in standards.	7. Performance appraisal is based primarily on teacher behaviors observed during scheduled visitations.
8. Grading and reporting are standards referenced.	8. Teachers' grading practices vary. Reports consist primarily of a single grade per subject.

Using Backward Design for Action Planning

Stage 1 – Desired Results	Stage 2 – Assessment
Identify observable indicators of success for _____	*Identify needed changes.*
❍ _____	❑ _____
❍ _____	❑ _____
❍ _____	❑ _____
❍ _____	❑ _____
❍ _____	❑ _____
❍ _____	❑ _____
❍ _____	❑ _____
❍ _____	❑ _____

Assessing Staff: Ready? Willing? Able?

Directions: Place estimates of percentage of staff who fall into the 9 categories below. Then, consider the different actions/strategies that may be needed for each group.

	Do they get it?	***Are they willing?***	***Are they able?***
Yes			
Not Yet			
Not Likely			

What patterns are evident?  *What are the implications?*

Possible Actions:

Assessing Conditions for UBD Reform: Force Field Analysis

(examples)

	Curriculum	*Assessment*	*Instruction*	*Professional Development*	*Resources*	*Policy*	*Other:*
⊕ **Assist**	curriculum mapping has been completed in all content areas adoption of new "problem-based" mathematics series emphasizing conceptual understanding	some teachers have experience using performance tasks and rubrics the use of portfolios in elementary language arts and secondary visual arts	widespread use of the writing process w/ peer editing and revision the use of the five E's as an instructional framework for science teaching	several teachers involved in a pilot "action research" project through RESA voluntary study group being formed at one elementary school	several sources of available grants to support reform activities (e.g., Goals 2000) installation of Internet-ready computers in every school	State requires districts to develop "multiple measures" to assess content standards at the local level	
⊖ **Resist**	no "quality control" process in place for local curriculum no experience with peer review	Board of Ed. and community fixate on state test scores (Other evidence isn't valued.) "scantron-type" testing is predominant in our high school	many cases of "activity-based" teaching at the elementary level a "coverage" orientation at the secondary level	history of "one shot" events on inservice days a "this too shall pass" attitude on the part of some staff members	no budget allocation for summer design work teacher appraisal process is not "results" focused	No incentives for individuals and teams to experiment, share ideas, and critique work collaboratively No demands that designs be public	

Assessing Conditions for UBD Reform: Force Field Analysis

Use the following matrix to assess those forces that support planned reforms and those that resist.

	Curriculum	*Assessment*	*Instruction*	*Professional Development*	*Resources*	*Policy*	*Other:*
⊕ Assist							
⊖ Resist							

Characteristics of the Best Learning Designs...

(based on surveys of K-16 faculty throughout the nation)

Expectations ***the best learning designs...***

- provide clear learning goals and performance expectations.
- cast learning goals in terms of genuine/meaningful performance.
- frame the work around genuine questions & meaningful challenges.
- show models/exemplars of expected performance.

Instruction ***in the best learning designs...***

- the teacher serves as a facilitator/coach to support the learner.
- targeted instruction and relevant resources are provided to "equip" students for expected performance.
- the textbook serves as one resource among many (i.e., text is resource, not syllabus).
- the teacher "uncovers" important ideas/processes by exploring essential questions and genuine applications of knowledge and skills.

Learning Activities ***in the best learning designs...***

- individual differences (e.g., learning styles, skill levels, interests) are accommodated through a variety of activities/methods.
- there is variety in work, methods and students have some choice (e.g., opportunities for both group and individual work).
- learning is active/experiential to help students "construct meaning".
- cycles of *model-try-feedback-refine* anchor the learning

Assessment ***in the best learning designs...***

- there is no mystery as to performance goals or standards.
- diagnostic assessments check for prior knowledge, skill level, and misconceptions.
- students demonstrate their understanding through "real world" applications (i.e., genuine use of knowledge and skills, tangible product, target audience).
- assessment methods are matched to achievement targets.
- on-going, timely, and descriptive feedback is provided.
- learners have opportunities for trial and error, reflection and revision.
- self-assessment is expected.

Sequence & Coherence ***the best learning designs...***

- start with a "hook", immerse the learner in a genuine problem/issue/challenge.
- move back and forth from whole to part, with increasing complexity.
- scaffold learning in "do-able" increments.
- teach as needed; don't over-teach all of the "basics" first.
- revisit ideas – have learners rethink and revise earlier ideas/work.
- are flexible (e.g., respond to student needs; revise plan to achieve goals).

Analyzing Current Practices Against Best Learning Designs

3 = consistently 2 = sometimes 1 = rarely/never

	3	2	1
Expectations *To what extent does my/our designs...*			
• provide clear learning goals and performance expectations (i.e., no mystery for learners)?	❑	❑	❑
• cast learning goals in terms of genuine/meaningful performance?	❑	❑	❑
• frame the work around genuine questions & meaningful challenges?	❑	❑	❑
• show models/exemplars of expected performance?	❑	❑	❑
Instruction *To what extent does my/our teaching...*			
• provide targeted instruction and relevant resources to "equip" students for expected performance?	❑	❑	❑
• use the textbook as one resource among many (i.e., the textbook is a resource, *not* the syllabus)?	❑	❑	❑
• help "uncover" important ideas/processes by exploring essential questions?	❑	❑	❑
Learning Activities *To what extent does my/our learning activities...*			
• address individual differences (e.g., learning styles, skill levels, interests) through a variety of activities/ methods (vs. "one size fits all")?	❑	❑	❑
• provide variety in work, methods and students have some choice (e.g., opportunities for both group and individual work)?	❑	❑	❑
• include inquiry/experiential opportunities to help students "make meaning" for themselves?	❑	❑	❑
• incorporate cycles of *model-try-feedback-refine* learning experiences?	❑	❑	❑
Assessment *To what extent does my/our assessments...*	❑	❑	❑
• provide appropriate measures of *all* of the learning goals?	❑	❑	❑
• ask students to demonstrate their understanding through "real world" applications?	❑	❑	❑
• provide on-going, timely, and descriptive feedback to learners?	❑	❑	❑
• include opportunities for trial and error, reflection and revision?	❑	❑	❑
• allow self-assessment by the learners?	❑	❑	❑
Sequence & Coherence *To what extent does my/our designs...*			
• include pre-assessments to check for prior knowledge, skill level, and misconceptions?	❑	❑	❑
• begin with a "hook" (e.g., immerse the learner in a genuine problem/issue/challenge)?	❑	❑	❑
• move back and forth from whole to part, with increasing complexity?	❑	❑	❑
• scaffold learning in "do-able" increments?	❑	❑	❑
• revisit important ideas/questions and allow learners to rethink and revise earlier ideas/work?	❑	❑	❑
• remain flexible (e.g., to respond to student needs; allow revisions to achieve goals)?	❑	❑	❑

Determining Incentives – Brainstorming Sheet

	Examples	*Your Ideas*
Time	*Subsitutes are provided one day a month to allow teams to meet to review student work.*	
Money	*A $300 incentive grant is awarded to teams for accepted Action Research proposals.*	
Other Resources	*Teachers who complete a UbD unit that meets design standards are provided with a membership to the ubdex-change.org web site.*	
Professional Opportunities	*Members of the District Professional Development Committee are sponsored to attend a National or State Conference.*	
"Credits"	*Members of the voluntary "book study" group receive two Professional Growth CEUs.*	
Other: _____	*The work of the Summer Curriculum Design Cadre is highlighted in the District's Monthly Newsletter.*	

"Yes, but..." – Responding to Predictable Concerns

Advocates for *Understanding by Design* often encounter predictable concerns ("yes, buts...") from colleagues. The following exercise is designed to help you prepare thoughtful responses to likely objections.

Part 1 - Select one of the following concerns (or add one of your own) and generate ideas for responding to that concern. Record your ideas in the box below.

Part 2 - Meet with others who have selected the same concern and share responses.

I (we) would like to teach and assess for understanding, but...

1. We are expected to teach to state/district standards and benchmarks.
2. This approach takes too much time. I (we) have too much content to cover.
3. We are being held accountable for student performance on superficial state tests.
4. I am a "skills" teacher, and students need to master the 'basics' first.

I (we) would like to design curriculum using the UbD framework, but...

5. This approach is too demanding. We couldn't possibly do this for everything we teach.
6. It's not my job to develop curriculum. Besides, we already have a textbook.
7. I don't know how to do this kind of design work.
8. We already do this.
9. This approach takes away a teacher's freedom/creativity.
10. Other: _____

Your response: _____

"Yes, but..." – Planning Sheet

Advocates for educational reforms often encounter predictable concerns ("yes, buts...") from colleagues. The following exercise is designed to help you prepare thoughtful responses to likely objections.

Part 1 - Select one of the following concerns (or add one of your own) and generate ideas for responding to that concern. Record your ideas in the box below.
Part 2 - Meet with others who have selected the same concern and share responses.

Yes, but.... _____

Your response: _____

Ten Ways to Kill UbD – *by design*

1. Mandate that every teacher must use UbD for ALL of their planning (without sufficient training, on-going support, or some structured planning time).

2. Introduce UbD as this year's focus (T.Y.N.T. – "this year's new thing). Such an approach suggests that UbD can be understood and fully implemented in a year (it can't). In cases where a school or district does a "new thing" each year, staff are unlikely to invest too heavily since "this too shall pass."

3. Attempt to implement multiple initiatives simultaneously (e.g., Differentiated Instruction, Curriculum Mapping, Marzano's Strategies that Work, Assessment for Learning, UbD). While such initiatives have merit and naturally connect with one other, each requires time and support to implement well. Biting off too much at one time can overwhelm staff and lead to ineffective implementation of anything.

4. Jumping right into UbD training under the assumption that staff understand the need for UbD and welcome it as a solution to problems that they "own."

5. Provide a one-day introductory presentation on UbD and assume that teachers now have the understanding and skill to implement it effectively.

6. Send a few persons to attend a UbD conference and expect them to come back and train all the district teachers, especially before they have a chance to "truly" pilot it in their own classrooms. An introductory workshop on UbD is a good starting place but it will not develop training-level expertise.

7. Provide UbD training for teachers, but not for administrators.

8. Begin initial training and implementation of UbD without a long-term professional development plan or strategic means of collecting appropriate data to evaluate how effectively teachers are using UbD.

9. Begin initial training and implementation without built-in support structures or time allotted for unit revisions/reflection or examining student work.

10. Offer initial training without clear expectations or incentives for teachers to use UbD for their curriculum planning.

Backward Design for Action Planning
Stage 1 – Desired Results

Goal for the Reform Initiative or Needed Improvement

Understandings:	*Essential Questions:*

Knowledge and Skills:

Backward Design for Action Planning
Stage 2 – Needed Evidence

Direct Evidence:	*Plan to collect and analyze it:*

Indirect Evidence:	*Plan to collect and analyze it:*

Using Backward Design for Action Planning

Stage 3 – Action Plan					
Key Actions	**Person(s) Responsible**	**Groups/ #s Involved**	**Date(s) – Time Frame**	**Budget – Amount/Source(s)**	**Evaluation Plan**

Using Backward Design for Action Planning *(continued)*

Stage 3 – Action Plan					
Key Actions	**Person(s) Responsible**	**Groups/ #s Involved**	**Date(s) – Time Frame**	**Budget – Amount/Source(s)**	**Evaluation Plan**
Year 2					
Years- 3 – 5					

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THE LEARNING Principal®

FOR A DYNAMIC COMMUNITY OF SCHOOL LEADERS ENSURING SUCCESS FOR ALL STUDENTS

Making the most of PROFESSIONAL LEARNING COMMUNITIES

BY JAY MCTIGHE

A growing number of educators are involved in professional learning communities in their schools. Once professional learning communities are established educators must ask these questions: What is the role of professional learning communities in a school? How do we ensure that a professional learning community achieves its desired results? What should teachers do when they meet in learning teams? In other words, how do we make the most of professional learning communities?

This article describes three recommended roles for members of a professional learning community: critical friend, analyst of student work, and continuous learner.

ROLE #1: **CRITICAL FRIEND**

A cross-grade level team meets monthly to exchange unit plans for critical friend feedback. Allison and Tom, 4th-grade teachers, give copies of their upcoming interdisciplinary unit on the rain forest to 5th-grade teachers Everett and Elizabeth in exchange for their E/LA poetry unit. Following reading and paired discussions of the two units, each grade-level team shares feedback and suggestions.

Elizabeth and Everett suggest several essential questions for the rain forest unit that can be productively revisited in 5th grade. The four teachers brainstorm ideas for a performance task that assesses several of the unit's interdisciplinary learning targets. Allison and Tom commend the engaging learning activities of the poetry unit, but point out that the proposed

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assessment evidence does not align completely with the unit goals. Elizabeth and Everett discuss ways to sharpen the assessments. Tom suggests a web site where students can read student poems and publish their own poems. Everett and Elizabeth are thrilled to learn about this excellent new resource for their unit.

Time spent in collaborative planning and peer review can reduce teacher isolation while enhancing effectiveness.

Most teachers plan lessons and units of study based on an established curriculum framework. However, teacher-developed plans are typically created in isolation and (with the exception of untenured beginners) are rarely reviewed by administrators or colleagues. Moreover, teachers can sometimes get too close to their work and have difficulty seeing weaknesses. As an antidote to this, involve *all* teachers as "critical friends" to colleagues to review unit plans, lessons and assessments, and provide helpful feedback.

The culture in many schools does not invite collegial feedback. Indeed, teachers are more likely to reflect a "go it alone" ethos where "academic freedom" translates into "let me close my door and do my thing." Even in collaborative school cultures, educators tend to avoid criticizing each other's professional practices. Yet, we know feedback is necessary for improvement. Honest, specific, and descriptive feedback from peers can be invaluable to beginners and support even effective teachers in moving from good to great. Consequently, I recommend that structured opportunities for peer reviews of each other's plans be included as an explicit expectation of professional learning communities.

Any peer review process should be guided by an agreed-upon protocol and set of review criteria so that the feedback is "standards based" and de-personalized.

Since any critical friend process may run counter to prevailing school norms, leaders are advised to begin slowly to help staff become comfortable with peer review. For example, model the process with a lesson or unit plan developed elsewhere. Discuss the roles of reviewers and designers. (Use a fishbowl process to model these roles.) Ask for volunteers who will submit their own units or assessment tasks for peer review, and invite them to share the benefits of peer feedback. Involve more staff in peer review as teachers become more familiar and comfortable with the process. Grade-level, subject-area teams or more heterogeneous groups (three to seven teachers each) can conduct peer reviews. When beginning, do peer reviews once a semester. Once the benefits are realized, staff may seek more frequent peer feedback.

Time spent in collaborative planning and peer review can reduce teacher isolation while enhancing effectiveness. When PLC team members engage in peer feedback sessions, they are walking the talk of standards-based education by applying standards to their own work — a hallmark of true professionalism.

ROLE #2: ANALYST OF STUDENT WORK

Three times a year, the secondary English teachers meet in grade-level groups to evaluate student work from district writing assessments. Student papers from various classes are mixed and divided among pairs of teachers. Using a common rubric, the pairs score the papers and discuss their judgments (for inter-rater reliability). As part of the process, the entire grade-level team identifies "anchor" papers that illustrate the various performance levels of the rubric. The selected anchors are then annotated with comments in the margin, describing the paper's strengths and weaknesses. The scoring session concludes with the team identifying areas of needed instructional emphasis and sharing successful strategies and resources for addressing weaknesses.

Increasingly, educators are being encouraged to use "data" as a basis for instructional decision making and school improvement planning. How does a school or district become data-driven? In some cases, school and district administrators dissect annual test score reports and summarize the results for teachers. Although this is surely better than nothing, such an approach to data analysis will have less impact if it bypasses teachers. As an alternative, I recommend that teachers be *actively involved* in analyzing achievement data and formulating improvement plans so they will learn more about

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NSDC TOOL / **Questions to ask when examining student work**

DESCRIBE

- What knowledge and skills are assessed?
- What kinds of thinking are required (e.g. recall, interpretation, evaluation)?
- Are these the results I (we) expected? Why or why not?
- In what areas did the student(s) perform best?
- What weaknesses are evident?
- What misconceptions are revealed?
- Are there any surprises?
- What anomalies exist?
- Is there evidence of improvement or decline? If so, what caused the changes?

EVALUATE

- By what criteria am I (are we) evaluating student work?
- Are these the most important criteria?
- How good is "good enough" (e.g. the performance standard)?

INTERPRET

- What does this work reveal about student learning and performance?
- What patterns are evident?
- What questions does this work raise?
- Is this work consistent with other achievement data?
- Are there different possible explanations for these results?

IDENTIFY IMPROVEMENT ACTIONS

- What teacher action(s) would improve learning and performance?
- What student action(s) would improve learning and performance?
- What systemic action(s) at the school/district level would improve learning and performance (e.g. changes in curriculum, schedule, grouping)?

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and "own" student performance data.

While results from an external test certainly provide data on student achievement, an annual "snapshot" is not sufficiently detailed or timely enough to inform and guide continuous improvement actions at the classroom and school levels. A more robust approach to school improvement calls for staff to engage in an ongoing analysis of student performance data from *multiple sources*. What is needed, metaphorically speaking, is a "photo album" of evidence, including results from traditional tests along with a collection of student work generated from local assessment tasks. Mike Schmoker (2003) underscores this point:

"Using the goals that they have established, teachers can meet regularly to improve their lessons and assess their progress using another important source: formative assessment data. Gathered every few weeks or at each grading period, formative data enable the team to gauge levels of success and to adjust their instructional efforts accordingly. Formative, collectively administered assessments allow teams to capture and celebrate short-term results, which are essential to success in any sphere" (p. 22).

When teachers meet in role-alike professional learning teams (e.g. by grade level and subject areas) to evaluate the results from assessments, they begin to identify general *patterns* of strengths as well as areas needing improvement. Wiggins and McTighe (2007) offer questions to guide their evaluation and analysis of student work and their planned adjustments to improve the results (see box above).

By regularly using such questions to examine student work, teachers properly focus on the broader learning goals (including understanding, transfer, habits of mind), while avoiding a fixation on standardized test scores only. The regular use of such a professional learning process provides the fuel for continuous improvement while establishing a professionally enriching, results-oriented culture. This approach is familiar to coaches of team sports and sponsors of extracurricular activities such as drama and band. As an example, football coaches often meet at someone's home or apartment to review game film from Saturday's game and *then* plan next

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The regular use of such a professional learning process provides the fuel for continuous improvement while establishing a professionally enriching, results-oriented culture.

Making the most of professional learning communities

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week's practices based on their collective analysis of the team's weaknesses. Why not adopt these proven performance-enhancing methods from the arts and athletics in a more deliberate way for general schooling?

ROLE #3: CONTINUOUS LEARNER

A middle school principal asked teachers to come up with a list of the most promising-sounding "best practices" appropriate for their school. The eventual list was whittled down to six (e.g. differentiated instruction, authentic assessment, etc.). He then asked teachers to divide themselves into small groups(three to five teachers each) to research and develop one of the six identified topics over the next two years. Eventually, they would report back to the entire staff on their learning about the "best practice" and its effects on student learning. Many teachers reported that this single action dramatically changed the school culture and led to demonstrable improvements in student attitude and achievement.

School or district mission statements often include a reference to developing the capabilities and dispositions for lifelong learning. I contend that this mission applies to staff as well as to students. Indeed, continuous learning is a hallmark of professionalism in any field and especially relevant to a profession devoted to learning. Thus, an explicit and expected part of a teacher's job should involve continuous learning — about subject matter, about teaching effectiveness, and about ways of enhancing learning. Additionally, teachers should learn how to evaluate the results of their teaching (described in Role #2) and how to use feedback to become more effective (described in Role #1).

There are numerous ways in which educators can keep abreast of current research on teaching and learning, such as taking university classes, participating in professional organizations, and attending regional or national conferences. Unfortunately, most practicing teachers do not regularly engage in these professional learning options. What is needed is *on-the-job* learning for *all* teachers. In other words, continuous learning about relevant research and best practices should be "job-embedded" as a regular and expected part of a teacher's responsibilities. Professional learning communities are ideally suited to support this role.

Here's a straightforward tactic for instigating this idea. A school principal selects five articles describing research-based instructional practices. He asks each teacher to read one of the articles and prepare to discuss it at a forthcoming staff meeting. At that meeting, teachers use a "jigsaw" process to discuss the articles and thus have the opportunity to explore new ideas and discuss their practical implications as part of a regularly scheduled staff meeting.

Initially, school and district administrators might assume primary responsibility for locating and distributing articles and research summaries. Then, school administrators and teacher leaders (e.g. department chairpersons and middle school/grade-level team leaders) would lead discussions as part of scheduled meetings. Eventually, though, individuals and teams would be encouraged to initiate and manage such job-embedded learning experiences.

In addition to professional reading, all teachers should take part in staff development to expand their knowledge and skills. Along with traditional professional development activities, teachers would have an array of possibilities for enhancing their learning, including professional reading, peer-to-peer coaching and mentoring arrangements, and personalized growth plans. One particularly robust form of professional learning experience is action research.

Action research involves ongoing, collaborative inquiry into matters of teaching and learning. Action research empowers faculties to identify problems and shape solutions. It operates under the assumption that local educators, not outside experts, know best about where and how to improve their schools. It fosters a culture of collaborative problem solving and a team-oriented approach to school improvement. It puts a capital "P" in professionalism because it offers the potential to add to the knowledge base of our field.

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▶ **To read more about professional learning communities, see the Summer 2008 issue of** *JSD.*

This article was originally published in expanded form in *Changing Perspectives* (February 2008), pp. 10-13.

NSDC TOOL / Examples of possible action research projects

SHADOW A STUDENT FOR A DAY.

Pick a student at random and follow that student for a day. As you "walk in their shoes" consider questions such as, Is their schoolwork engaging? Boring? Do the learners see purpose in what they are learning? Are they exploring big ideas? What are your impressions of their school experiences? Take notes and report on your experiences at the next faculty meeting.

A PLACE CALLED SCHOOL – REPRISE.

Repeat the classic John Goodlad survey as to which courses students see as most engaging (and why), as most worthwhile (and why); as most and least challenging, etc. Share your findings with the rest of the faculty.

QUESTIONING STRATEGIES.

Monitor your use of classroom questioning. What percentage of my questions require factual recall? Application? Synthesis or evaluation? What are the results of asking different types of questions? What happens when I use various follow-up strategies; e.g., Wait time? Probes? Play devil's advocate? Visit other teachers' classrooms and take note of their questioning strategies. Then, share your findings.

SURVEY GRADUATES.

Contact recent high school graduates. Ask them to describe the extent to which their K-12 schooling prepared them for future study and the world of work. In what ways were they well prepared? In what ways might their schools have prepared them better? Present and discuss survey results with teachers and administrators.

DO STUDENTS UNDERSTAND THE GOALS AND PRIORITIES?

What will students say if you ask them "Why are you doing what you are doing?" "How does yesterday's lesson relate to today's?" "What do you predict we will be doing tomorrow?" "What is your long-term goal for this unit?" "How will your learning be judged?" Compare your findings with other teachers and discuss the implications of the finding.

REVERSE NORMAL SEQUENCE.

Using two classes (one as a control), alter the normal sequence for a unit. In one class, immerse students in examining essential questions around provocative issues or problems, and only teach the "basics" on an as needed basis. In the control class, "cover" the basics using a textbook. How do the two classes compare in terms of student engagement and interest in the topic? Use the same assessment for both groups. What are the results?

GRADING AND REPORTING INQUIRY.

Survey students and parents regarding the current grading and reporting system. To what extent do they think grades and reports are understandable? Consistent among teachers? Fair? Accurately communicate student performance, progress and work habits? Compile and report on your findings and discuss the implications for current practice.

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Unlike the sometimes esoteric research studies conducted in universities by degree-pursuing students or by faculty members needing publications, action research projects are initiated and conducted by PLC teams of practicing educators, and focus on relevant learning issues. See the box above for a few examples of generic action research possibilities for introducing the process.

CONCLUSION

The ideas presented offer specific ways to harness the power of professional learning communities to enhance the quality of teacher planning, examine achievement results, collaboratively plan for school improvement, and continuously learn about teaching and learning. Acting on these ideas offers a means of helping staff become more efficient and effective at achieving desired learning results.■

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From Common Core Standards to Curriculum: Five Big Ideas

by

Jay McTighe and Grant Wiggins

In this article, we explore five big ideas about the Common Core State Standards and their translation into a curriculum. As with most big ideas, these Standards are in some ways obvious but may also be counter-intuitive and prone to misunderstanding. We highlight potential misconceptions in working with the Standards, and offer recommendations for designing a coherent curriculum and assessment system for realizing their promise.

Big Idea # 1 – The Common Core Standards have new emphases and require a careful reading.

In our travels around the country since the Common Core Standards were released, we sometimes hear comments such as, "Oh, here we go again;" "Same old wine in a new bottle;" or "We already do all of this." Such reactions are not surprising given the fact that we *have* been here before. A focus on Standards is not new. However, it a misconception to assume that these Standards merely require minor tweaks to our curriculum and instructional practices. In fact, the authors of the Mathematics Standards anticipated this reaction and caution against it: "These Standards are not intended to be new names for old ways of doing business." (p 5) Merely trying to retrofit the Standards to typical teaching and testing practices will undermine the effort.

A related misconception in working with the Common Core is evident when teachers turn immediately to the grade level Standards listed for their grade or course to plan their teaching. Such an action is reasonable; after all, isn't that what they are supposed to teach? While understandable, we advise against zeroing in on the grade-level Standards *before* a careful examination of the goals and structure of the overall documents.

To invoke a construction analogy: Think of the grade level standards as building materials. As a construction supervisor, we wouldn't simply drop off materials and tools at a worksite and have the workers "go at it." Instead, we would begin with a blueprint – an overall vision of the desired building to guide its construction. Without an overall end in mind, teachers can create wonderful individual rooms that won't necessarily fit together within and across floors or achieve the intended results.

The Common Core Standards have been developed with long-term outcomes in mind (e.g., College and Career Anchor Standards in English Language Arts), and their components are intended to work together (e.g., Content *and* Practice Standards in mathematics). This point is highlighted in a recently released publication, *Publishers' Criteria for the Common Core State Standards for Mathematics* (July 2012):

> " 'The Standards' refers to all elements of the design – the wording of domain headings, cluster headings, and individual statements; the text of the grade level introductions and high school category descriptions; the placement of the standards for mathematical practice at each grade level. The pieces are designed to fit together, and the standards document fits them together, presenting a coherent whole where the connections within grades and the flows of ideas across grades..."

It is imperative that educators understand the intent and structure of the Standards in order to work with them most effectively. Accordingly, we recommend that schools set the expectation and schedule the time for staff to read and discuss the Standards, beginning with the "front matter," *not* the grade-level Standards. We also recommend that staff reading and discussion be guided by an essential question: *What are the new distinctions in these Standards and what do they mean for our practice?* Since the Standards are complex texts and demand a "close" reading, we recommend that staff carefully examine the table of contents and the organizational structure; the headers (e.g., Design Considerations; What is Not Covered, etc.), the components (e.g., Anchor Standards and Foundational Skills for ELA; Standards for Mathematical Practice), and the Appendices (ELA).

Following a thorough reading of these introductory sections, discuss the changing instructional emphases called for by the Standards and their implications. For example, the ELA Standards demand a greater balance between reading informational and literary texts, and stress the use of text-based evidence to support argumentation in writing and speaking. The Mathematics Standards accentuate the focus on a smaller set of conceptually larger ideas that spiral across the grades (as opposed to simply "covering" numerous skills) with an emphasis on meaningful application using the Practices.

We cannot overemphasize the value of taking the time to collaboratively examine the Standards in this way. Failure to understand the Standards and adjust practices accordingly will likely result in "same old, same old" teaching with only superficial connections to the grade level Standards. In that case, their promise to enhance student performance will not be realized.

Big Idea # 2 – Standards are not curriculum.

A Standard is an outcome, not a claim about how to achieve an outcome (i.e. a curriculum). Thus, the Introduction to the Common Core State Standards (CCSS) for Mathematics states that, "These Standards do not dictate curriculum or teaching methods" (p 5). A similar reminder is found in the ELA Standards: "The Standards define what all students are expected to know and be able to do, not how teachers should teach. For instance, the use of play with young children is not specified by the Standards, but it is welcome as a valuable activity in its own right and as a way to help students meet the expectations in this document… The Standards must therefore be complemented by a well-developed, content-rich curriculum consistent with the expectations laid out in this document." (p 6)

Indeed, these statements highlight the intent of *any* set of Standards; i.e., they focus on outcomes, not curriculum or instruction. The implication is clear – educators must translate the Standards into an engaging and effective curriculum. So, what is the proper relationship between the Standards and curriculum? Consider another analogy with home building and renovation: The standards are like the building code. Architects and builders must attend to them but they are *not* the purpose of the design. The house to be built or renovated is designed to meet the needs of the client in a functional and pleasing manner – while also meeting the building code along the way.

Similarly, while curriculum and instruction must address established Standards, we always want to keep the long-term educational ends in mind – the development of important capabilities in the learner as a result of engaging and effective work. In other words, a curriculum works with the Standards to frame optimal learning experiences. To shift analogies, the Standards are more like the ingredients in a recipe than the final meal; they are more like the rules of the game rather than a strategy for succeeding at the game.

So then, what *is* a curriculum? In research for our initial book, *Understanding by Design*® (Wiggins and McTighe, 1998), we uncovered 83 different definitions or connotations for the word, curriculum, in the educational literature! Such a variety of meanings confer an unhelpful ambiguity on the challenge of moving from Standards to curriculum. Worse, most definitions focus on inputs, not outputs – what will be "covered" rather than a plan for what

learners should be able to accomplish with learned content. This is a core misunderstanding in our field. Marching through a list of topics or skills cannot be a "guaranteed and viable" way to ever yield the sophisticated outcomes that the Standards envision.

The ELA Standards underscore this idea clearly by framing everything around "anchor standards," all of which highlight complex abilities and performances that students should master for college and workplace readiness. The Mathematics Standards' emphasis on the need to weave the Content and Practice Standards together in a curriculum makes the same point.

Big Idea # 3 – Standards need to be "unpacked."

As suggested above, the first step in translating the Common Core Standards into engaging and outcome-focused curriculum involves a careful reading of the documents in order to insure clarity about the end results and an understanding of how the pieces fit together. This idea is not new. Over the years, we have suggested various ways of unpacking standards in conjunction with our work with the *Understanding by Design* framework®. (See, for example, Wiggins and McTighe 2011, 2012).

When working with the Common Core, we recommend that educators "unpack" them into four broad categories – 1) Long term Transfer Goals, 2) Overarching Understandings, 3) Overarching Essential Questions, and 4) a set of recurring Cornerstone Tasks.

The first category, Transfer Goals, identifies the effective *uses* of content understanding, knowledge, and skill that we seek in the long run; i.e., what we want students to be able *to do* when they confront new challenges – both in and outside of school. They reflect the ultimate goals, the reason we teach specific knowledge and skills. Unlike earlier generations of standards where transfer goals were implicit at best, the Common Core Standards have made them more overt. Indeed, the College and Career Anchor Standards in ELA specify long-term transfer goals, while the Mathematics Standards strongly suggest a goal such as, *Students will be able to use the mathematics they know to solve "messy," never-seen-before problems using effective mathematical reasoning.*

The second and third unpacking categories – overarching Understandings and Essential Questions – are like two sides of a coin. The Understandings state what skilled performers will need in order to effectively transfer their learning to new situations, while explorations of the Essential Questions engage learners in making meaning and deepening their

understandings. Here are examples for Mathematics and English Language Arts, respectively:

	Overarching Understandings	**Overarching Essential Questions**
Mathematical Modeling	• Mathematicians create models to interpret and predict the behavior of real world phenomena. • Mathematical models have limits and sometimes they distort or misrepresent.	• *How can we best model this (real world phenomena)?* • *What are the limits of this model?* • *How reliable are its predictions?*
Determining Central Ideas in Text	• Writers don't always say things directly or literally; sometimes they convey their ideas indirectly (e.g., metaphor, satire, irony).	• *What is this text really about? (e.g. theme, main idea, moral)* • *How do you "read between the lines?"*

The term *overarching* conveys the idea that these understandings and questions are not limited to a single grade or topic. On the contrary, it is expected that they be addressed across the grades with application to varied topics, problems, texts and contexts.

The fourth category, Cornerstone Tasks, are curriculum-embedded tasks that are intended to engage students in applying their knowledge and skills in an authentic and relevant context. Like a cornerstone anchors a building, these tasks are meant to anchor the curriculum around the most important performances that we want learners to be able to do (on their own) with acquired content knowledge and skills. Since these tasks are set in realistic contexts, they offer the natural vehicle for integrating the so-called 21st century skills (e.g., creativity, technology use, teamwork) with subject area content knowledge and skills. They honor the intent of the Standards, within and across subject areas, instead of emphasizing only the content measured more narrowly on external accountability tests. These rich tasks can be used as meaningful learning experiences as well as for formative and summative purposes.

Cornerstone tasks are designed to recur across the grades, progressing from simpler to more sophisticated; from those that are heavily scaffolded toward ones requiring autonomous performance. Accordingly, they enable both educators *and* learners to track performance and document the fact that students are getting progressively better at *using* content knowledge and skills in worthy performances. Like the game in athletics or the play in theater, teachers teach toward these tasks without apology.

The four categories that we recommend are initially unpacked at the "macro," or program, level to establish the equivalent of a curriculum blueprint. More specific course and grade level curriculum maps are then derived from backward from them, just as rooms in a building are constructed using the architect's blueprint as a guide. Practically speaking, this macro level work is best undertaken at the state, regional or district levels by teams of content experts and experienced teachers. Currently two states, Massachusetts and Pennsylvania, have assembled teams of content experts to unpack their Common Core state standards in this very manner, and the Next Generation Arts Standards, presently in development, are using this same construct to frame the Standards from the start!

While we strongly advocate this type of unpacking and have witnessed its benefits, we have also seen the process become way too narrow and granular when applied at the "micro" level. Thus, we concur with the important cautionary note offered by the Kansas Department of Education about a misapplication of Standards unpacking:

> "'Unpacking' often results in a checklist of discrete skills and a fostering of skill-and-drill instruction that can fragment and isolate student learning in such a way that conceptual understanding, higher order thinking, cohesion, and synergy are made more difficult. Too often, the process of 'unpacking" is engaged in an attempt to isolate the specific foundational or prerequisite skills necessary to be successful with the ideas conveyed by the overall standard and is a common precursor to test preparation and reductive teaching. Although this process may be important work in some instances and can certainly be enlightening, it also poses substantial problems if those completing the work never take the time to examine the synergy that can be created when those foundational or prerequisite skills are reassembled into a cohesive whole. Metaphorically speaking, 'unpacking' often leads educators to concentrate on the trees at the expense of the forest."

Big Idea # 4 – A coherent curriculum is mapped backwards from desired performances.

The key to avoiding an overly discrete and fragmented curriculum is to design backward from complex performances that require content. A return to the linguistic roots of "curriculum" reveals the wisdom in this outcome-focused view. The Latin meaning of the term is a "course to be run." This original connotation helpfully suggests that we should think of a curriculum as the pathway toward a destination. As mentioned above, our conception is that curriculum should be framed and developed in terms of worthy *outputs*; i.e., desired performances by the learner, not simply as a listing of content *inputs*.

This is not a new idea. Ralph Tyler made this very point more than 60 years ago (Tyler, 1949). He proposed a curriculum development method involving a matrix of content and process components that would guide teachers in meshing these two elements into effective performance-based learning. As Tyler points out, the "purpose of a statement of objectives is to indicate the kinds of changes in the student to be brought about… Hence it is clear that a statement of objectives in terms of content headings… is not a satisfactory basis for guiding the further development of the curriculum." Indeed, the Mathematics Standards recommend just such an approach:

> "The Standards for Mathematical Practice describe ways in which developing student practitioners of the discipline of mathematics increasingly ought to engage with the subject matter as they grow in mathematical maturity and expertise throughout the elementary, middle and high school years. Designers of curricula, assessments, and professional development should all attend to the need to connect the mathematical practices to mathematical content in mathematics instruction." (p 8)

Thus, the first question for curriculum writers is not: *What will we teach and when should we teach it?* Rather the initial question for curriculum development must be goal focused: *Having learned key content, what will students be able to do with it?*

Our long-standing contention applies unequivocally to the Common Core Standards as well as to other Standards: The ultimate aim of a curriculum is independent transfer; i.e., for students to be able to employ their learning, autonomously and thoughtfully, to varied complex situations, inside and outside of school. Lacking the capacity to independently apply their learning, a student will be neither college nor workplace ready.

The ELA Standards make this point plainly in their characterization of the capacities of the literate individual:

> "They demonstrate independence. Students can, without significant scaffolding, comprehend and evaluate complex texts across a range of types and disciplines, and they can construct effective arguments and convey intricate or multifaceted information… Students adapt their communication in relation to audience, task, purpose, and discipline. Likewise, students are able independently to discern a speaker's key points, request clarification, and ask relevant questions... Without prompting, they demonstrate command of standard English and acquire and use a wide-ranging vocabulary. More broadly, they become self-directed learners, effectively seeking out and using resources to assist them, including teachers, peers, and print and digital reference materials." (p. 7)

These points underscore a potential misunderstanding resulting from a *superficial* reading of the Standards documents (especially in Mathematics). One could simply parcel out lists of discrete grade-level standards and topics along a calendar while completely ignoring the long-term goal of transfer. A curriculum envisioned and enacted as a set of maps of content and skill coverage will simply not, by itself, develop a student's increasingly autonomous capacity to *use* learned content effectively to address complex tasks and problems. Such traditional scope-and-sequencing of curriculum reinforces a "coverage" mentality and reveals a misconception; i.e., that teaching bits of content in a logical and specified order will somehow add up to the desired achievements called for in the Standards.

A related misconception is evident when teachers assume that the Standards prescribe the instructional sequence and pacing. Not so! To assume that the layout of the documents imply an instructional chronology is as flawed as thinking that since a dictionary is helpfully organized from A to Z, that vocabulary should therefore be taught in alphabetical order. While the grade-level Standards are certainly not arbitrary and reflect natural long-term "learning progressions," a rigid sequence within each grade level was never intended. The authors of the Common Core Mathematics Standards explicitly call attention to this misconception and warn against it:

> "For example, just because topic A appears before topic B in the standards for a given grade, it does not necessarily mean that topic A must be taught before topic B. A teacher might prefer to teach topic B before topic A, or might choose to highlight connections by teaching topic A and topic B at the same time. Or, a teacher might prefer to teach a topic of his or her own choosing that leads, as a byproduct, to students reaching the standards for topics A and B." (p. 5)

The implications of these points are critical not only for curriculum mapping but for the very nature of instructional practice. Consider this advice from a non-academic source – the United States Soccer Coaches Federation. In *Best Practices for Coaching Soccer in The U.S.,* the Federation recommends a change in the soccer "curriculum" of practice:

> "When conducting training sessions, there needs to be a greater reliance on game oriented training that is player centered and enables players to explore and arrive at solutions while they play. This is in contrast to the 'coach centered' training that has been the mainstay of coaching methodology over the years. 'Game centered training' implies that the primary training environment is the game as opposed to training players in 'drill' type environments. This is not to say that there is not a time for a more 'direct' approach to coaching. At times, players need more guidance and direction as they are developing. However, if the goal is to develop creative players who have the abilities to solve problems, and interpret game situations by themselves, a 'guided discovery' approach needs to be employed." (pp 62-64)

We propose that this recommendation applies equally to teachers of academics as to coaches of soccer. In other words, if we want students to be able to apply their learning via autonomous performance, we need to design our curriculum backward from that goal. Metaphorically speaking, then, educators need to ask, what is the "game" we expect students to be able to play with skill and flexibility? In other words, we need clarity and consensus about the *point* of content learning – *independent* transfer. Then, we can build the curriculum pathway backward with those worthy performances in mind.

To design a school curriculum backward from the goal of autonomous transfer requires a deliberate and transparent plan for helping the student rely less and less on teacher hand-holding and scaffolds. After all, transfer is about *independent* performance in context. You can only be said to have fully understood and applied your learning if you can do it without someone telling you what to do. In the real world, no teacher is there to direct and remind you about which lesson to plug in here or what strategy fits there; transfer is about intelligently and effectively drawing from your repertoire, independently, to handle new situations on your own. Accordingly, we should see an increase, by design, in problem- and project-based learning, small-group inquiries, Socratic Seminars, and independent studies as learners progress through the curriculum across the grades.

Our point here is straightforward: if a curriculum simply marches through lists of content knowledge and skills without attending to the concomitant goal of cultivating independent performance, high-schoolers will remain as dependent on teacher directions and step-by-step guidance as 4th graders currently are. The resulting graduates will be unprepared for the demands of college and the workplace.

Big Idea #5 – The Standards come to life through the assessments.
A prevalent misconception about standards in general is that they simply specify learning goals to be achieved. A more complete and accurate conception, in line with the colloquial meaning of the term, recognizes that standards also refer to the desired *qualities* of student work and the degree of *rigor* that must be assessed and achieved.

Think about what we mean when we talk about "high standards" in athletics, music or business: we refer to the quality of outcomes, not the inputs. We ask if work is up to standard, not whether we "covered" such standards as teachers. In this sense, the standards are at their core a set of criteria for building and testing local *assessment*. They tell where we must look and what we must look for to determine if student work is up to standard. Such information is crucial to guide local assessments and insure that these are validly anchored against national standards.

Ironically (and unfortunately), this important point is not made in the main body of the ELA Common Core Standards but in Appendices B and C. These Appendices are arguably the most important sections of the ELA Standards because there the authors describe the degree of text difficulty that students must be able to handle, the features that need to be evident in student writing, and the kinds of performance tasks that will provide the needed evidence. Accompanying samples of scored work illustrate the qualities of performance that must be attained to meet the Standards.

This performance-based conception of Standards lies at the heart of what is needed to translate the Common Core into a robust curriculum and assessment system. The curriculum and related instruction must be *designed backward* from an analysis of standards-based assessments; i.e., worthy performance tasks anchored by rigorous rubrics and annotated work samples. We predict that the alternative – a curriculum mapped in a typical scope and sequence based on grade-level content specifications – will encourage a curriculum of disconnected "coverage" and make it more likely that people will simply retrofit the new language to the old way of doing business.

Thus, our proposal reflects the essence of backward design: Conceptualize and construct the curriculum back from sophisticated "cornerstone" tasks, reflecting the performances that the

Common Core Standards demand of graduates. Indeed, the whole point of Anchor Standards in ELA and the Practices in Mathematics is to establish the genres of performance (e.g., argumentation in writing and speaking, and solving problems set in real-world contexts) that must *recur* across the grades in order to develop the capacities needed for success in higher education and the workplace.

Our recommendation to construct curriculum around assessments may lead to a related misunderstanding; i.e., that we need to assess *each* grade-level Standard in isolation, one by one. We think that this view is due in part to the layout of grade-level Standards and to the look and feel of traditional standardized tests, in which very discrete objectives are the subject of most test items. This confuses means and ends; it conflates the "drill" with the "game." The authors of the Common Core E/LA Standards wisely anticipated this misconception and they caution against it: "While the Standards delineate specific expectations in reading, writing, speaking, listening, and language, each standard need not be a separate focus for instruction and assessment. Often, several standards can be addressed by a single rich task." (p 5)

In sum, moving from Standards to curriculum requires careful reading and thoughtful interpretation to avoid the predictable misunderstandings noted above, while building the curriculum backward from worthy tasks offers the pathway to the performances envisioned by the Common Core.

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