Transitioning to New Mexico STEM-Ready! Science Standards

For School Board Members

Introductions

Luther Light – Ruidoso Public Schools
School Board President

New Mexico Science Teacher's Association

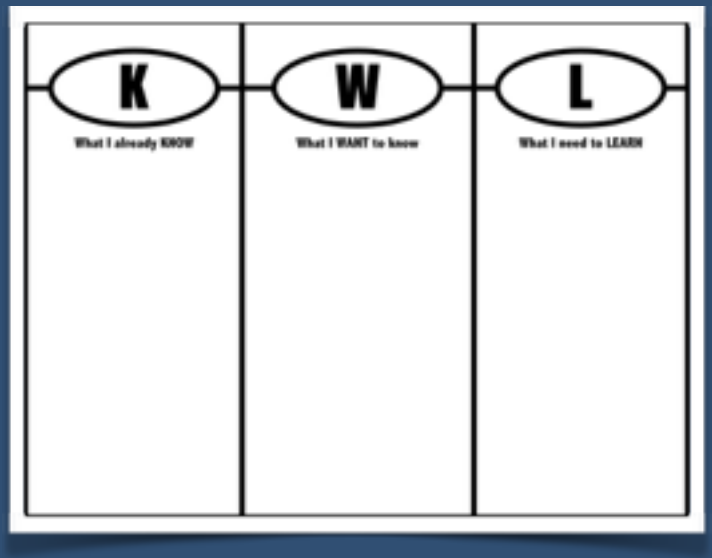
Dr. Debra N. Thrall } JumpStart project
Ellen Loehman } Co-Directors

Tori Gilpin – Gadsden ISD, Director of Research, Evaluation & Testing

NMSTA activities

- Maintain a website – www.nmsta.org
- Communicate with our members and other organizations
- Host an annual conference – JumpStart
- Facilitate professional development
- Advocate on behalf of science educators
- Recruit sponsors and donors

KWL



Know

What do you know about changes to the science standards in New Mexico?

Want to know

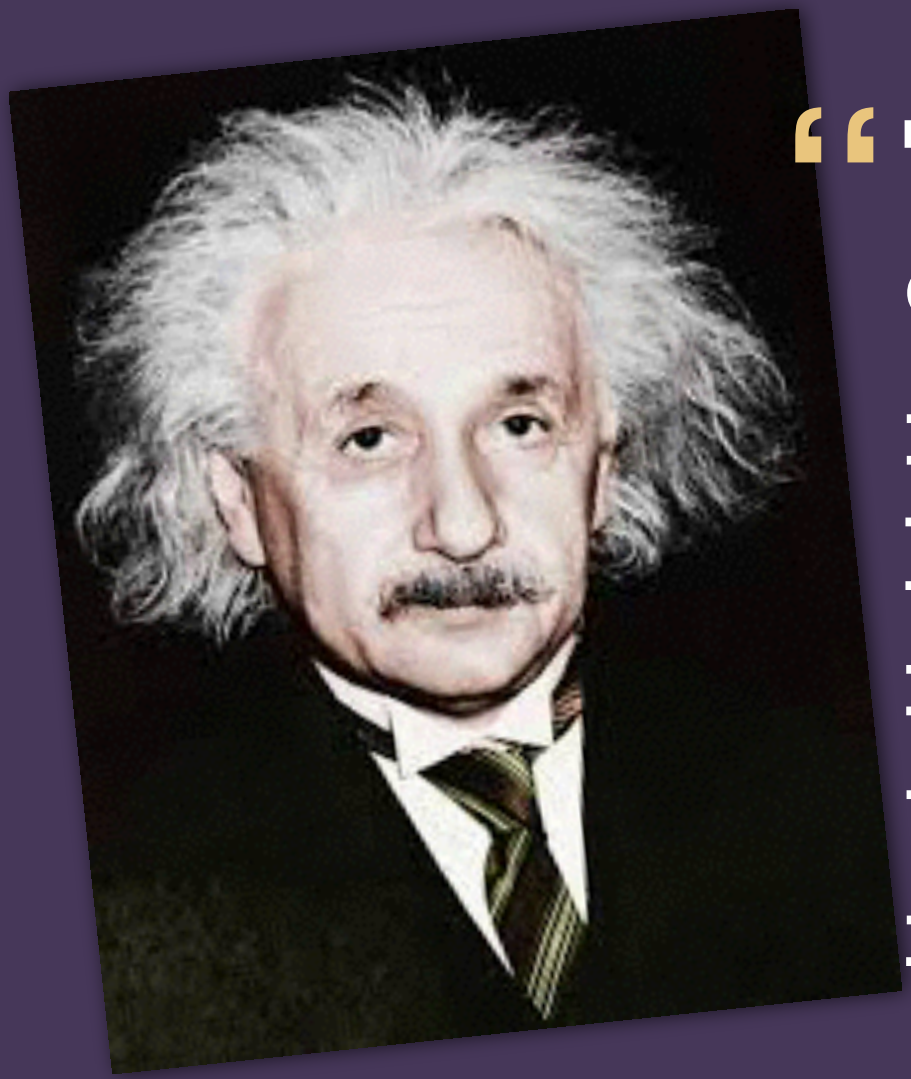
What do you want to know about these changes, as it affects your role on the school board?

Big Questions

1. Why new standards? Why now?
2. So what? How will this affect our schools?
3. What do I need to know? What do I need to do?

Why new science standards?

Why now?



“The value of an education …

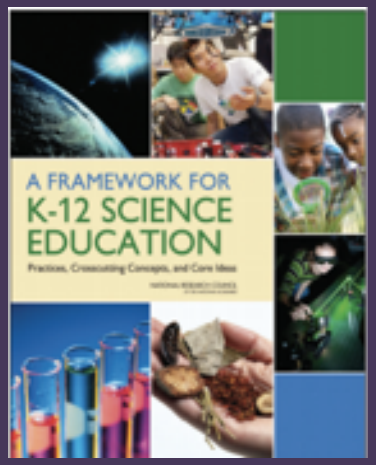
is not the learning of many facts but the training of the mind ….”

A short history

1990s

1990-2009

NGSS Phase I



2010-2011

NGSS Phase II

NEXT GENERATION SCIENCE STANDARDS
For States, By States

2011-2013

* 2003 - New Mexico Science Standards

A Framework for Science Education

By the end of the 12th grade, students should have gained sufficient knowledge of the practices, crosscutting concepts, and core ideas of science and engineering . . . .

. . . It is especially important to note that the above goals are for all students, not just those who pursue careers in science, engineering, or technology or those who continue on to higher education.

What's your fortune?

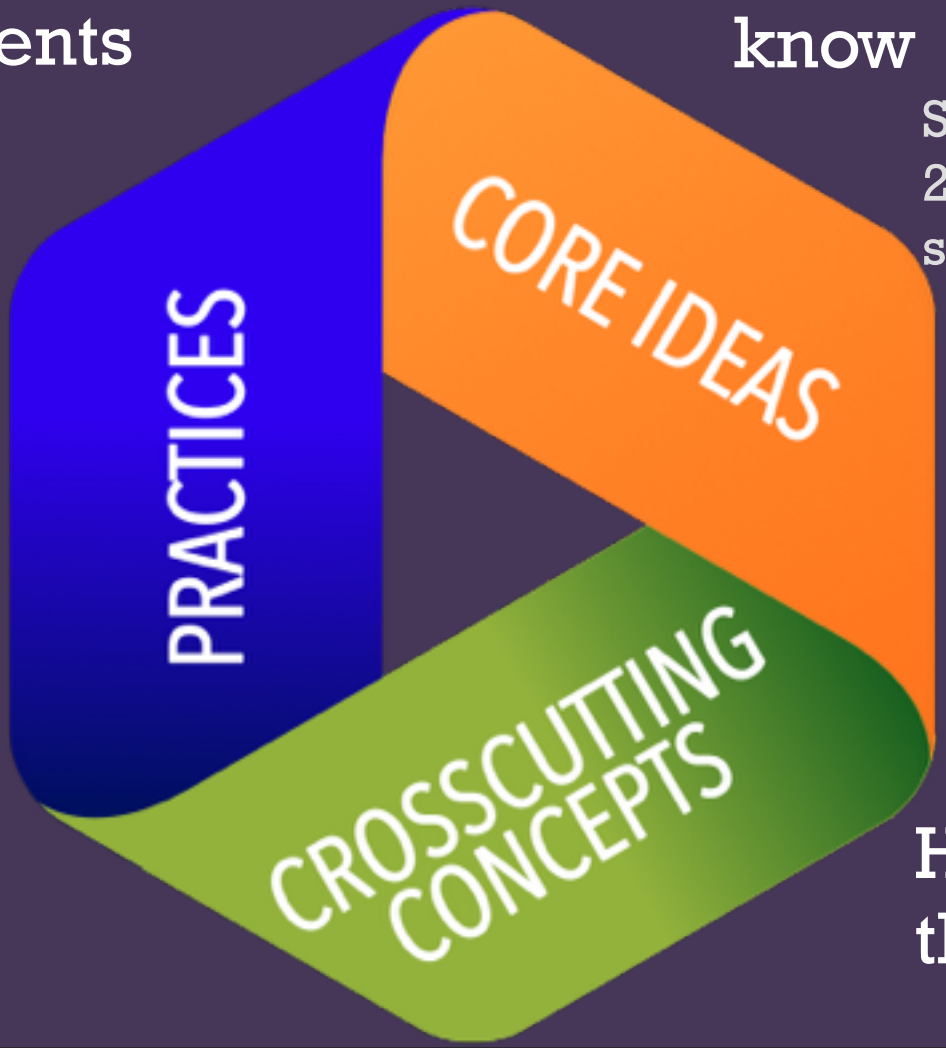
A significant logo

What students do

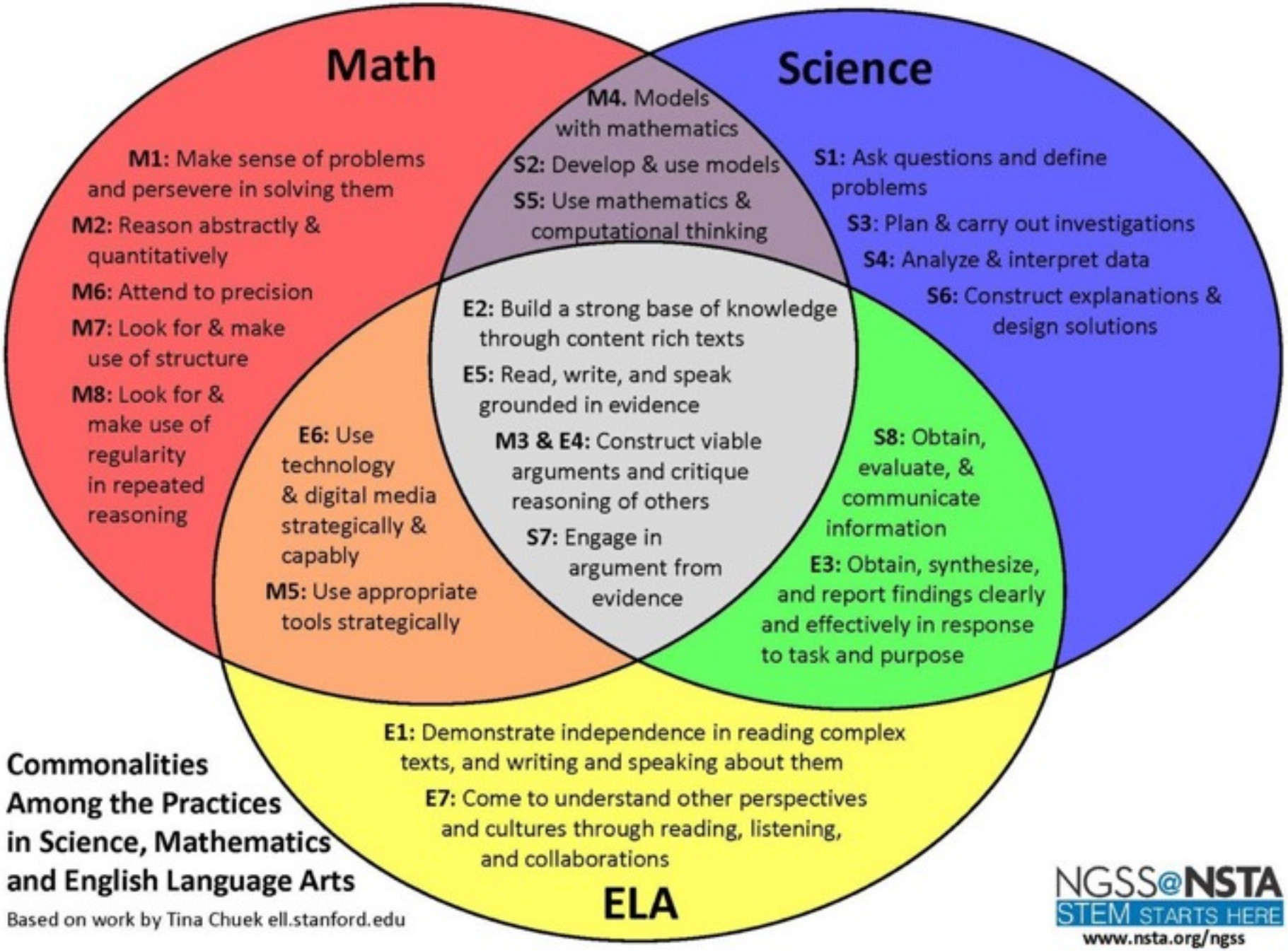
Strand 1 of the 2003 New Mexico standards

What students know

Strands 2 & 3 of the 2003 New Mexico standards



How students think



Commonalities Among the Practices in Science, Mathematics and English Language Arts

Based on work by Tina Chuek ell.stanford.edu

NGSS@NSTA
STEM STARTS HERE
www.nsta.org/ngss

Next Generation Science Standards
+
6 NM-specific standards

NM Specific Standards

1-SS-1 NM. Obtain information about how men and women of all ethnic and social backgrounds in New Mexico have worked together to advance science and technology.

5-SS-1 NM. Communicate information gathered from books, reliable media, or outside sources, that describes how a variety of scientists and engineers across New Mexico have improved existing technologies, developed new ones, or improved society through applications of science.

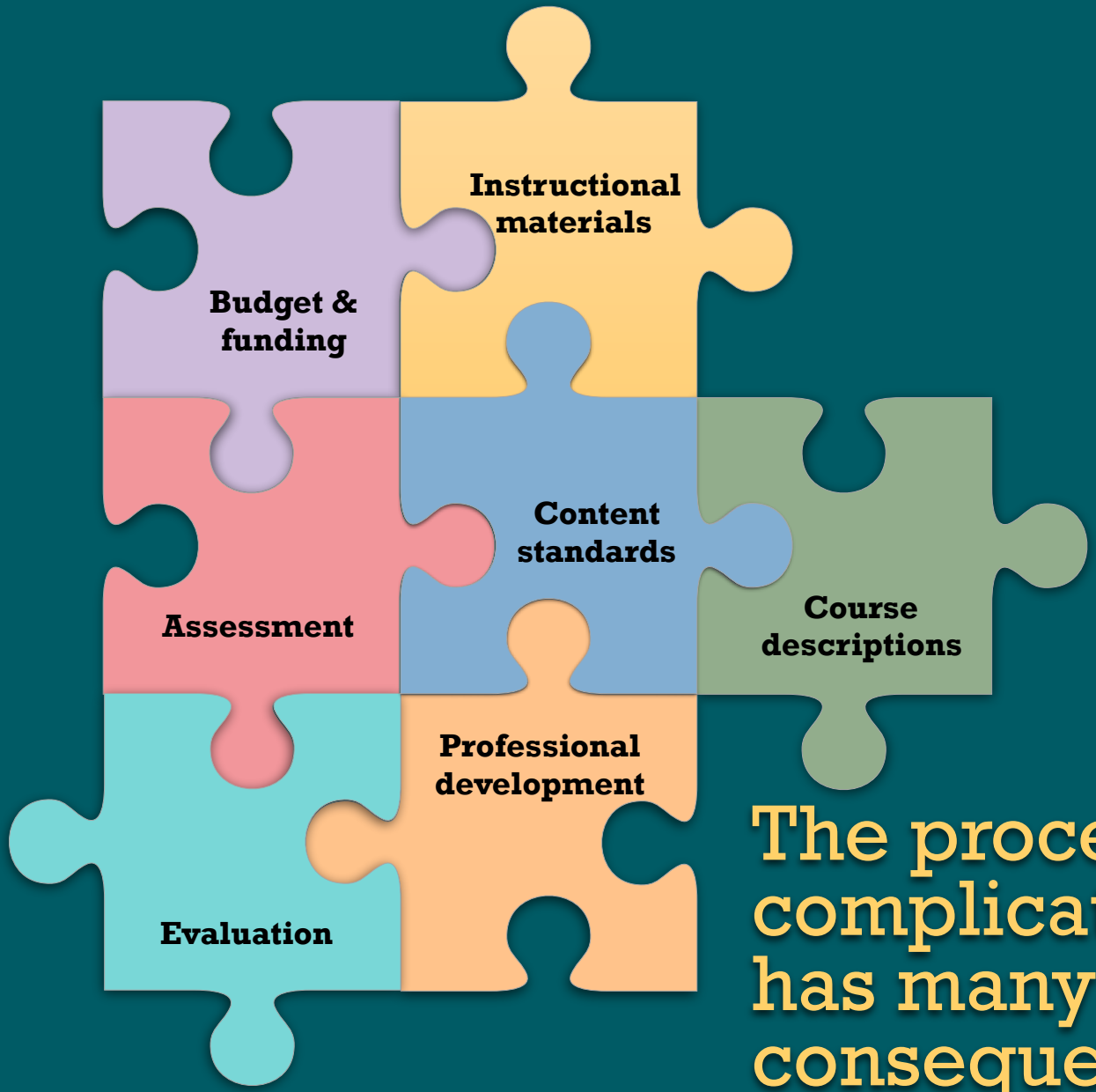
MS-ESS3-3 NM. Describe the advantages and disadvantages associated with technologies related to local industries and energy production.

HS-LS2-7 NM. Using a local issue in your solution design, describe and analyze the advantages and disadvantages of human activities that support the local population such as reclamation projects, building dams, and habitat restoration.

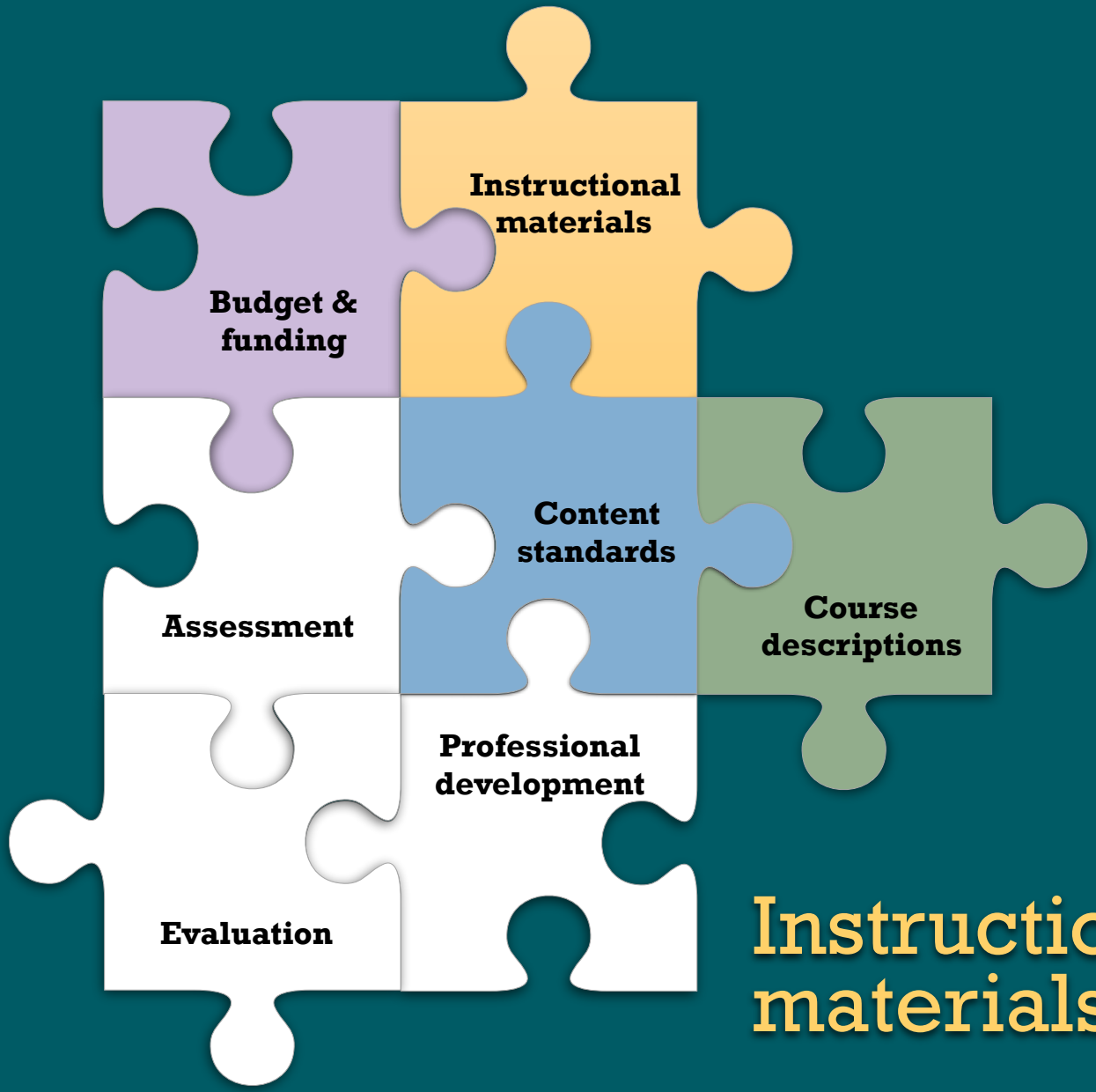
HS-SS-1 NM. Obtain and communicate information about the role of New Mexico in nuclear science and 21st century innovations including how the national laboratories have contributed to theoretical, experimental, and applied science; have illustrated the interdependence of science, engineering, and technology; and have used systems involving hardware, software, production, simulation, and information flow.

HS-SS-2 NM. Construct an argument using claims, scientific evidence, and reasoning that helps decision makers with a New Mexico challenge or opportunity as it relates to science.

So what?

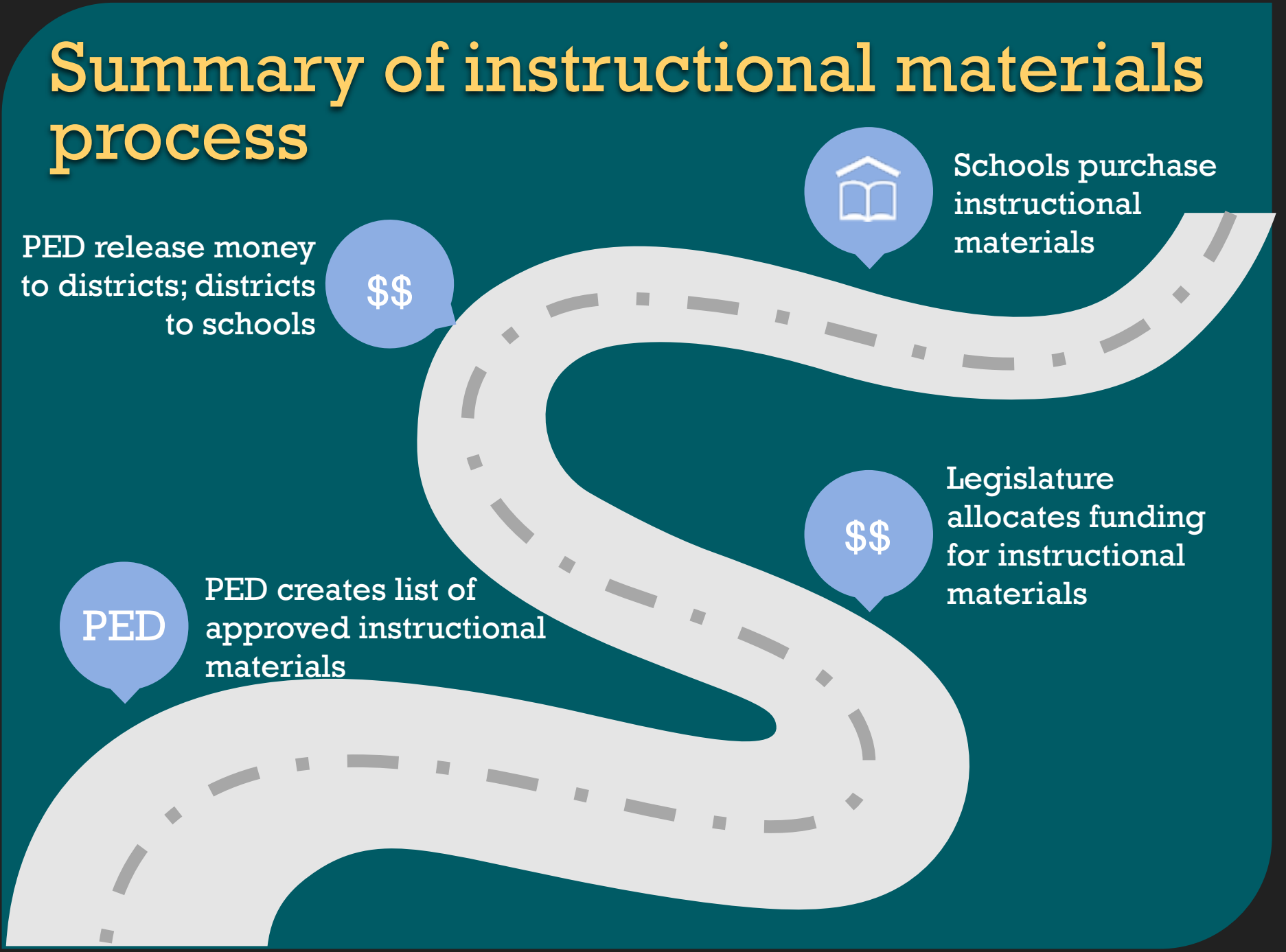


The process is complicated and has many consequences

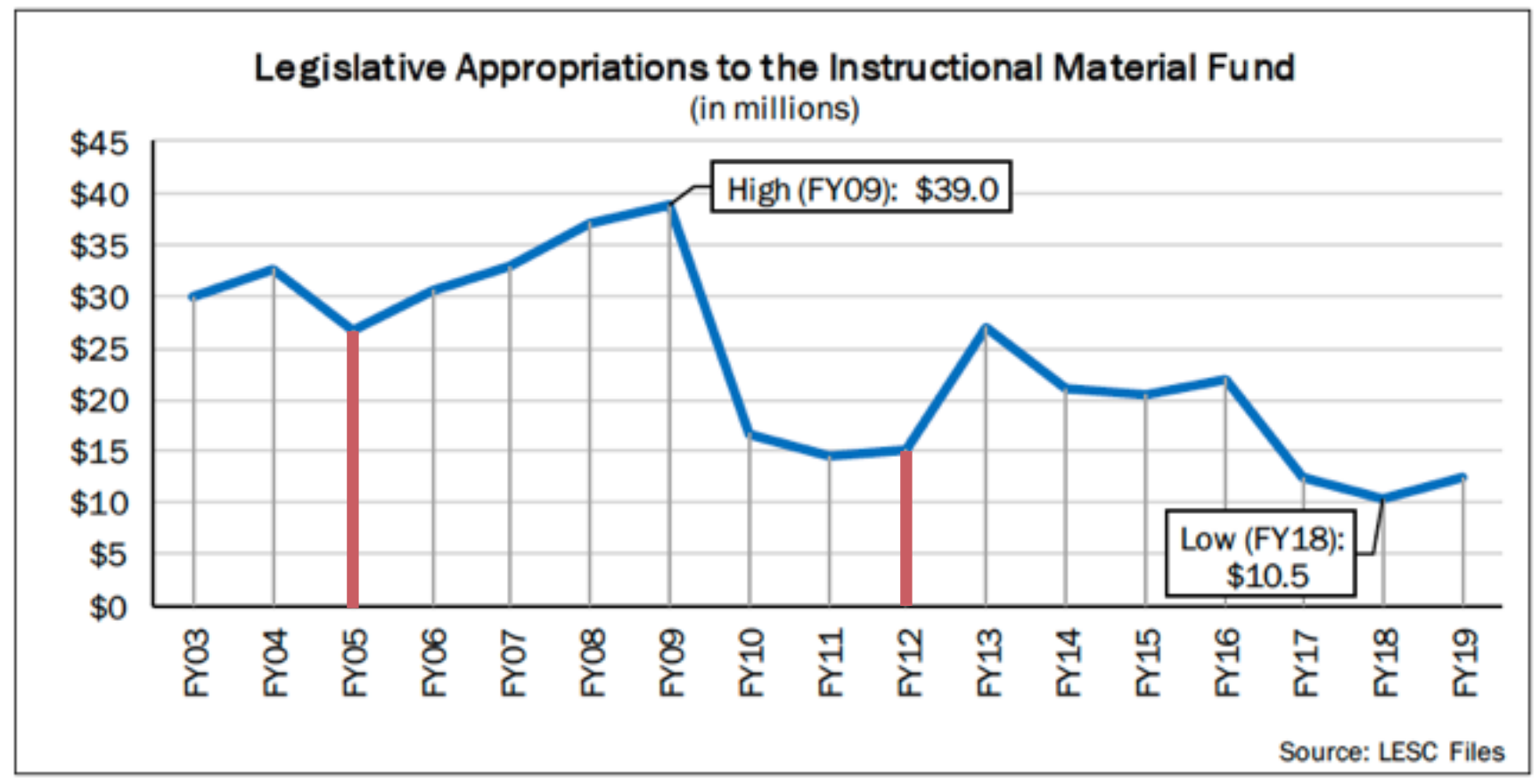


Instructional materials

Summary of instructional materials process



Instructional materials funding



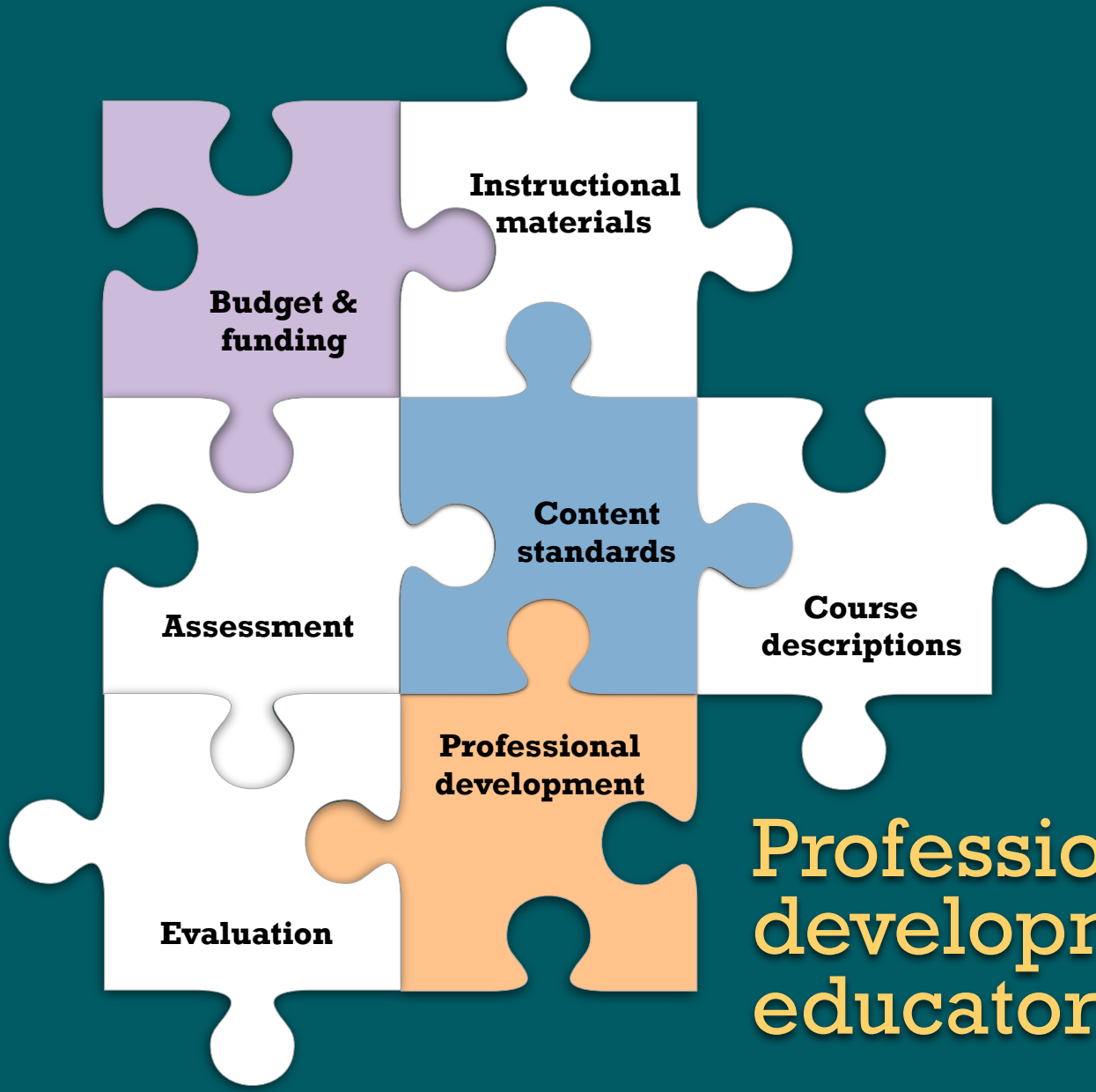
Inflation rate between 2005 and 2018 = 29.11%

Instructional materials estimate - our assumptions in LESC request

1. Science materials only
2. Includes only K-12 regular education, English-speaking students at the maximum teacher load
3. Approved materials appropriate for grade level (kit, online, textbook)
4. 2017-2018 enrollment data from PED
5. Costs from approved materials list

Estimated cost of instructional materials

Grade	Enrollment	Total cost	Cost/ student
K-5	151,250	$12.0 M	$79.66
6-8	76,047	$8.6 M	$113.50
9-12	81,301	$7.4 M	$90.63
Total	308,598	$28.0 M	$94.60



Professional development for educators

The professional development will need to involve "not only the educators at the front lines but also those who make and implement policies- professional development for state-level science supervisors, school boards, district-level-leaders, principals, and curriculum specialists. In that way, all components and players in the science education system can mesh coherently with the *framework's* vision for a more inclusive, focused, and authentic science education experience for all students."

Framework for K-12 Science Education

How should districts and schools focus professional development when starting to implement NGSS?

What Is The Issue?

The changes called for in the Framework for K-12 Science Education and NGSS require significant learning for teachers of K-12 science. Teacher learning will take time. It needs to be sequenced so that topics addressed can be put to immediate use and also fuel professional learning into the future. Long-term professional development (PD) plans should be informed by emerging developments in NGSS-aligned resources, tools, and instruct
are shared across states and networks.

WHY IT MATTERS TO YOU

- **Teachers** should prioritize learning based on what is actionable now, within their current curriculum, as members of their school science departments or grade-level teams.
- **District staff** and **PD providers** should coordinate their plans with existing material resources and adoption timelines, local expertise, and other district initiatives.
- **School leaders** should support the coordination of school and district initiatives and consider the purview of school vs. district leadership.

BY DAN GALLAGHER | DECEMBER 2014

STEMteachingtools.org/brief/9

Things To Consider

- Be selective about the scope of the PD in order to avoid overwhelming participants. Without intensive support, teachers can't effectively learn and put into practice new content, pedagogical content, and curriculum. Focus PD on specific, high-leverage teaching moves—don't try to "cover" all of the standards.
- Integrate Disciplinary Core Ideas (DCIs) with Practices and connect to Cross-Cutting Concepts (CCCs). Focusing early PD efforts on DCIs and/or CCCs in absence of the Practices will likely result in educators teaching new content in old ways—and fail to achieve the integrated vision of the NGSS and Framework. Emphasize learning DCIs through Practices. CCCs require systemic, repeated, and coherent attention throughout a curriculum across multiple grade levels, so they're difficult to put into practice in the short term.
- From this 3D perspective on learning, focus early PD efforts on a subset of the Science and Engineering Practices. This can support changes in instruction in the short term while laying important groundwork for future PD. Less is more.
- Consider the state of current instruction in your local context when prioritizing practices. Constructing Explanations, Designing Solutions, and Engaging in Argument from Evidence may be productive starting points because aspects of these practices may be recognizable in current instruction, but are not so familiar as to elicit the response, "This is nothing new." A focus on these practices naturally leads to consideration of the other practices.
- Coordinate with other policy initiatives. Many initiatives compete for attention and place demands on teachers (e.g., Common Core, Teacher Evaluation, Standards-Based Grading). NGSS PD will be more successful if it is integrated with other policy initiatives and resources and responds to challenges teachers already feel.

Attending To Equity

- Focusing instruction on Science and Engineering Practices is particularly demanding for English Learners, and teachers must intentionally build a classroom culture that values and builds on contributions from students of all backgrounds. PD for teachers should support inclusive classroom cultures for all learners.
- Integrating Science and Engineering Practices into instruction creates classroom experiences that parallel scientific ones. All students should have opportunities to engage in scientific practices and engineering design in order to deepen their understanding of STEM disciplines and to develop STEM-related identities.

REFLECTION QUESTIONS

- What resources (time, money, materials, and expertise) do you have to invest in PD?
- What challenges faced by teachers, including those not related to NGSS, will your PD address?
- How will learning in early stages of your PD serve as a resource for learning in later stages?
- How will you plan to assess early effectiveness of your PD and modify in response?

Recommended Actions You Can Take

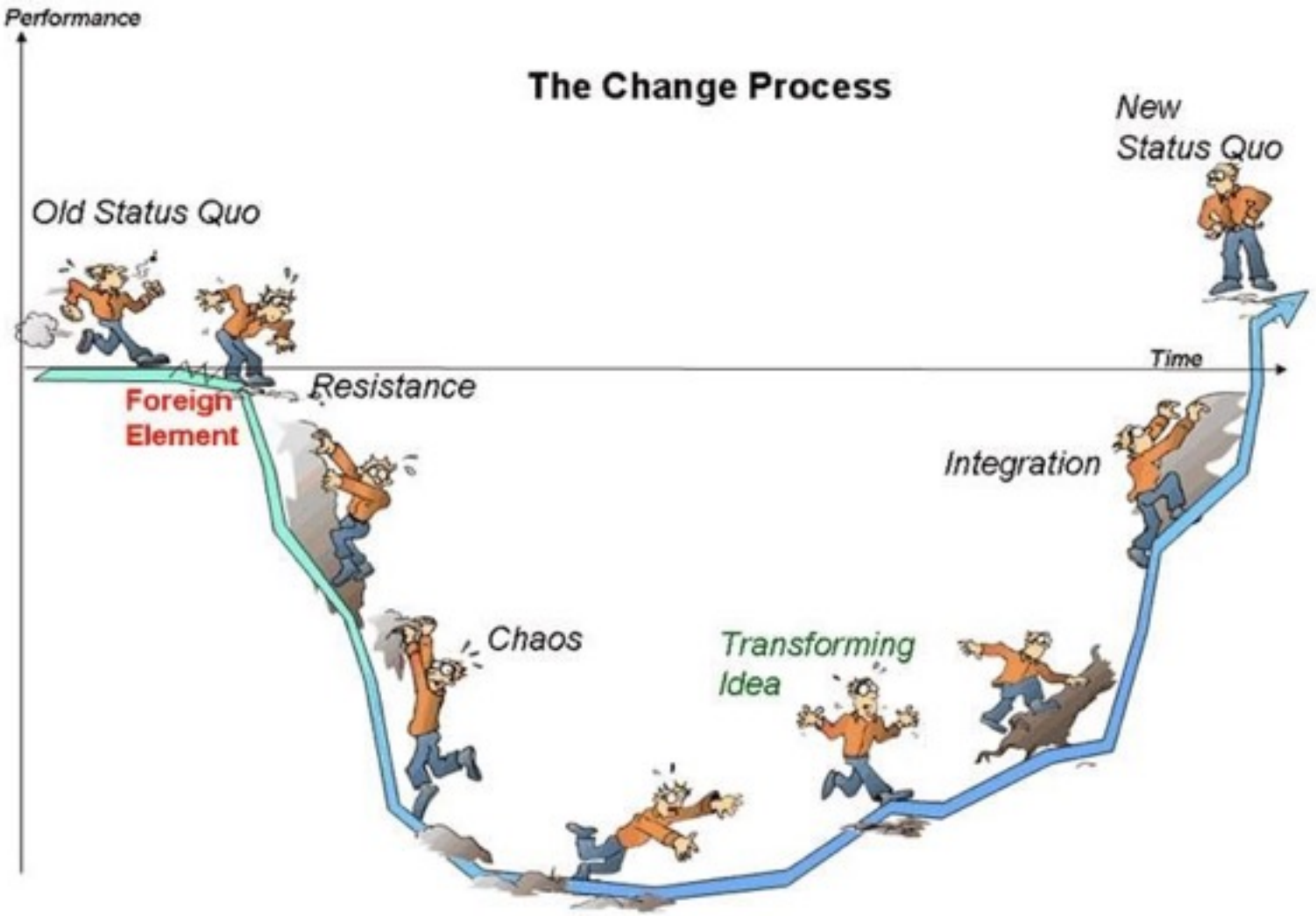
- Analyze the policy landscape in which your PD will occur and coordinate with local and district administration.
- A limited number of NGSS-aligned curricula are currently available. However, few districts are likely to pursue curriculum adoptions immediately. Consider curriculum adaptation with a focus on Practices for early PD efforts. Review current instructional materials and determine which ones can be adapted to emphasize the Practices.
- Form a strong team of practitioners and PD providers (and, if possible, scientists and educational researchers) to make adaptations, test them, and refine them.

ALSO SEE STEM TEACHING TOOLS:

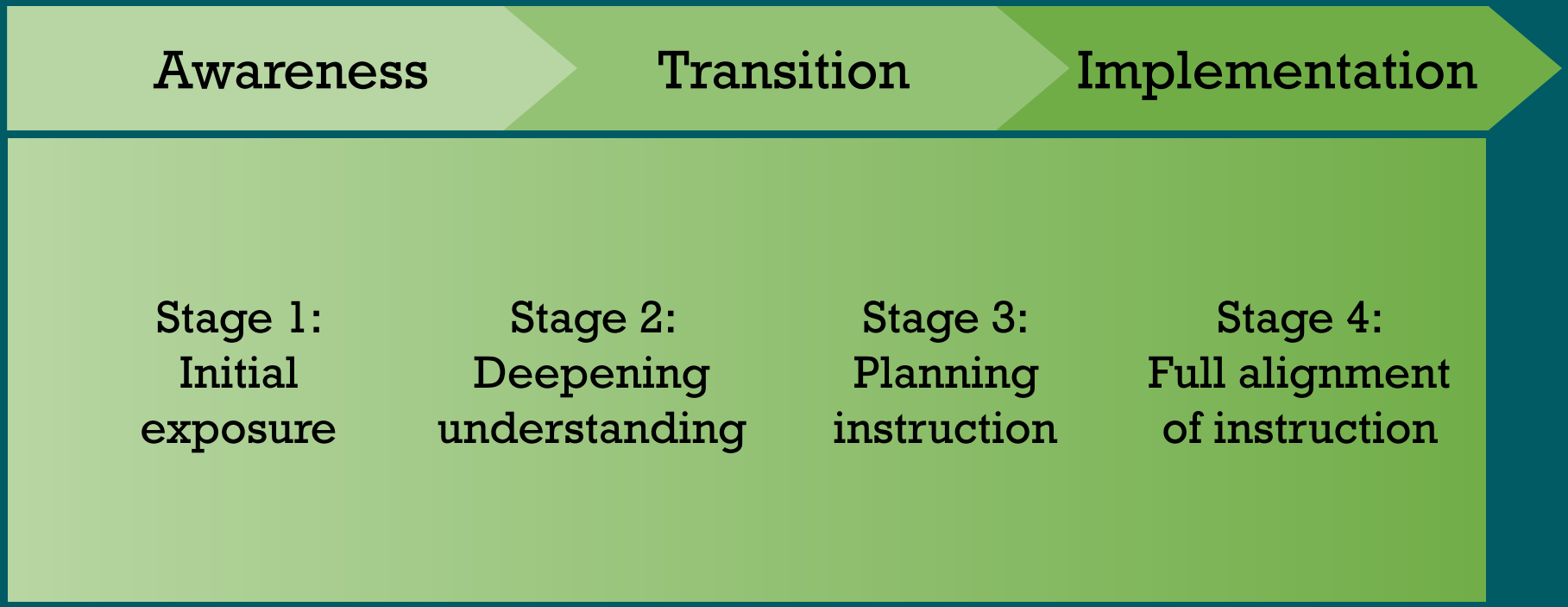
#4 Multiple Instructional Models
#5 Curriculum Adaptation
#16 Why NGSS?

STEMteachingtools.org/brief/9

Link – STEM teaching tools #9


Performance
The Change Process
New
Status Quo
Old Status Quo
Time
Foreign
Element
Resistance
Integration
Chaos
Transforming
Idea

Teacher learning and implementation



Achieve recommends 5-10 years for full implementation

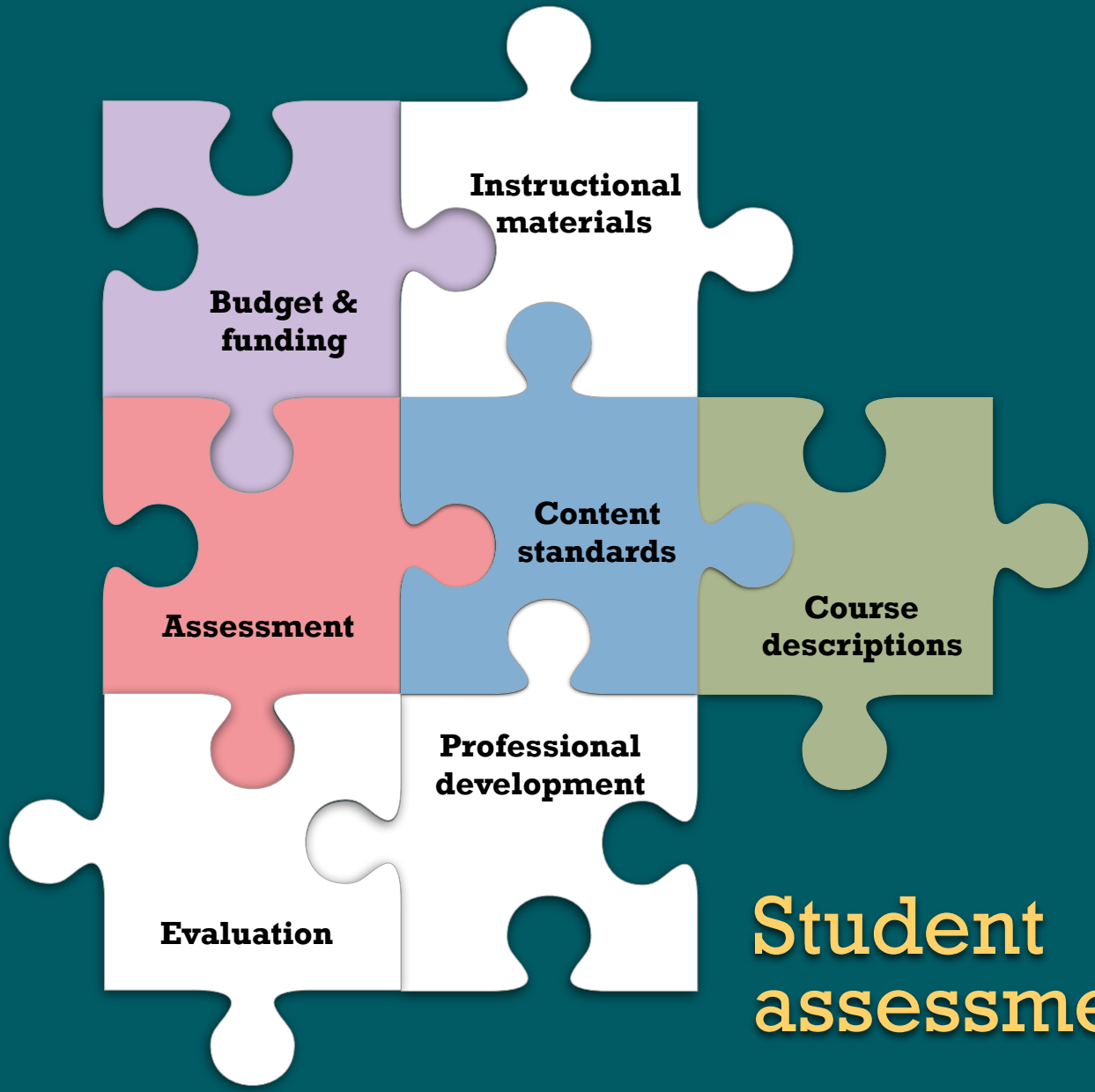
Professional development - NMSTA's proposal to LESC

Uncertainties

- Most cost-effective and supportive form of professional development
- Number of science teachers, including all elementary teachers
- How professional development is funded and allocated by PED to districts & schools

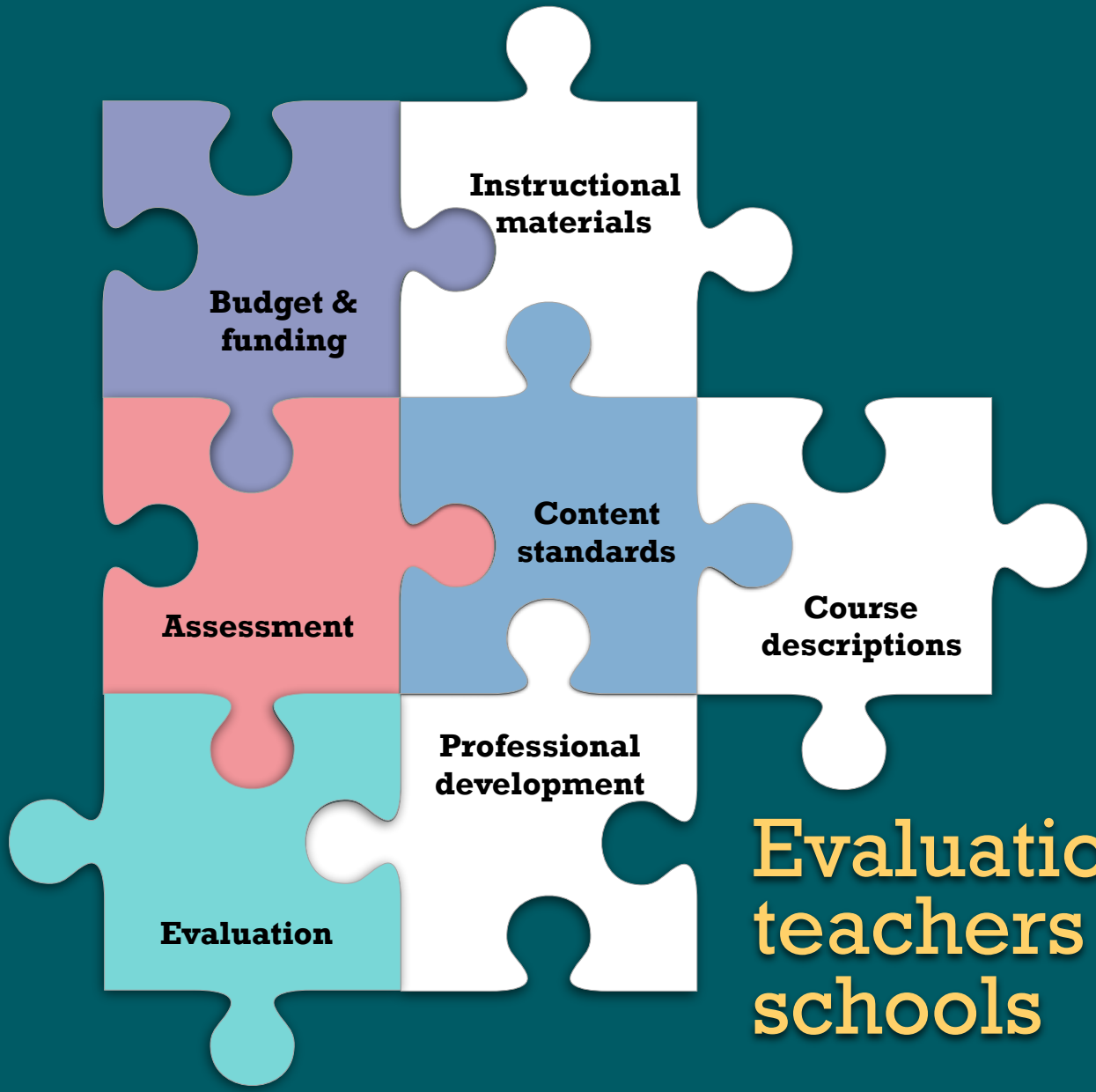
Estimated cost of teacher professional development

Leadership Institute	2-day training for teams from all districts and charter schools	$700,000
District Funding	For innovative local solutions implemented by districts	$4.3M
Total		$5M



Student assessment

	2017-2018	2018-2019	2019-2020
Standards	2003 standards	2018 standards	2018 standards
Instructional materials	2012 materials	2012 materials	2019 materials
SBA	4, 7, 11 grades	4, 7, 11 grades 5, 8, 11 grades field test	5, 8, 11 grades with aligned science test
EOCs	Aligned to 2003 standards	Hybrid	Aligned to 2018 standards



Evaluation - teachers & schools

School Grading

		EL/MS		HS		ESSA Indicator Classification (2018-19)
		2016-17 2017-18	2018-19+	2016-17 2017-18	2018-19+	
Student Proficiency	ELA, Math	25	33	20	25	→ AA indicator
	VAM	15		10		
Student STEM Readiness	Science		5		5	→ SQ/SS indicator
School Growth	VAM	10		10		
Student Growth	*Q4 (25%)*	20	5	10	5	AA indicator (HS) or AP indicator (ES/MS)
	Q2-3 (50%)		12		10	
	Q1 (25%)	20	25	10	15	
Opportunity to Learn	Absenteeism	5	10	5	10	SQ/SS indicator
	Survey	5		5		
College/Career Readiness	Participation			5	12	
	Success			10		
Graduation	4-Year Rate			8	6	GR indicator
	5-Year Rate			3	2	
	6-Year Rate			2	1	
	Growth 4-year Rate			4	4	→ SQ/SS indicator
English Learner Progress	Growth to Proficiency		10		5	→ ELP indicator
			100		100	
Bonus Points		5		5		
Participation <95%		Letter Grade Drop				

NM TEACH Observation Rubric

Domains	Strands	Elements	Level of Performance				
			Ineffective	Minimally Effective	Effective	Highly Effective	Exemplary
Domain 1:Planning and Preparation	Knowledge of Content and Pedagogy	1A: Demonstrating knowledge of content					
		1B: Designing Coherent Instruction					
		1C: Setting Instructional Outcomes					
		1D: Demonstrating knowledge of resources					
	Knowledge of Students	1E: Demonstrating knowledge of students					
		1F: Designing student assessment					
Domain 2: Creating an Environment for Learning	Creating an Environment of Respect & Rapport	2A: Creating an environment of respect and rapport					
		2B: Organizing Physical Space					
	Establishing a Culture of Learning	2C: Establishing a culture for learning					
	Managing Classroom Procedures	2D: Managing Classroom Procedures					
	Managing Student Behavior	2E: Managing Student Behavior					
Domain 3: Teaching for Learning	Communicates Clearly and Accurately	3A: Communicating with Students					
	Uses Questioning and Discussion Techniques	3B: Using questioning and discussion techniques					
	Engaging Student Learning	3C: Engaging students in learning					
		3D: Assessment in Instruction					
		3E: Demonstrating flexibility and responsiveness					
Domain 4: Professionalism	Provides Feedback to Parents	4A: Communicating with Families					
	Professional Collaboration	4B: Participating in a Professional Community					
	Professional Growth	4C: Reflecting on Teaching					
		4D: Demonstrating Professionalism					
		4E: Growing and Developing Professionally					
		4F: Maintaining Accurate Records					

What do I need to know?

What do I need to do?

Need to know, need to do

Need to know your district's

- ✓ Science standards implementation plan
- ✓ Instructional materials adoption plan
- ✓ Professional development plan

Need to do

- ✓ Budgeting - spring and beyond
- ✓ Advocacy - legislative session

District Budgeting Timelines for NM Stem Ready

Plan for the short term

What will need to happen in the district before spring budget season?

Plan for the mid term

What will be missed this year and how will it be made up next year?

Plan for the long term

How can the district make the NM STEM-Ready adoption sustainable? How can the district plan for growing technology needs? How will the district pay for needs on non-curriculum adoption years?

2018-2019 Spring budget

Before Spring have all necessary partners meet--teachers, administrators, finance, IT

By March, make sure all of your principals know what they need to know to come up with NM Stem Ready requirement in their site base budgets.

April and May, include a presentation on the requirements for NM Stem Ready and a discussion of such at one or more of the budget study sessions. Try to include Principals, IT, and appropriate teaching staff


Advocacy
The act of pleading or argui
in favor of something, such
a cause, policy, or interest
active support of an idea

LESC Advocacy

New Mexi
PO Box 30304 •

Anna Suggs, President

Jessica Sanders, President Elect

Deb Novak, Past President

Amy Lopeman, Secretary

Cecilia Hernandez & Tori Gilpin, Treasurers

22 Septemb

Mimi Stewa
Legislative
State Capito
325 Don Ga
Santa Fe, N

Dear Senat

Thank you
implement
We estima
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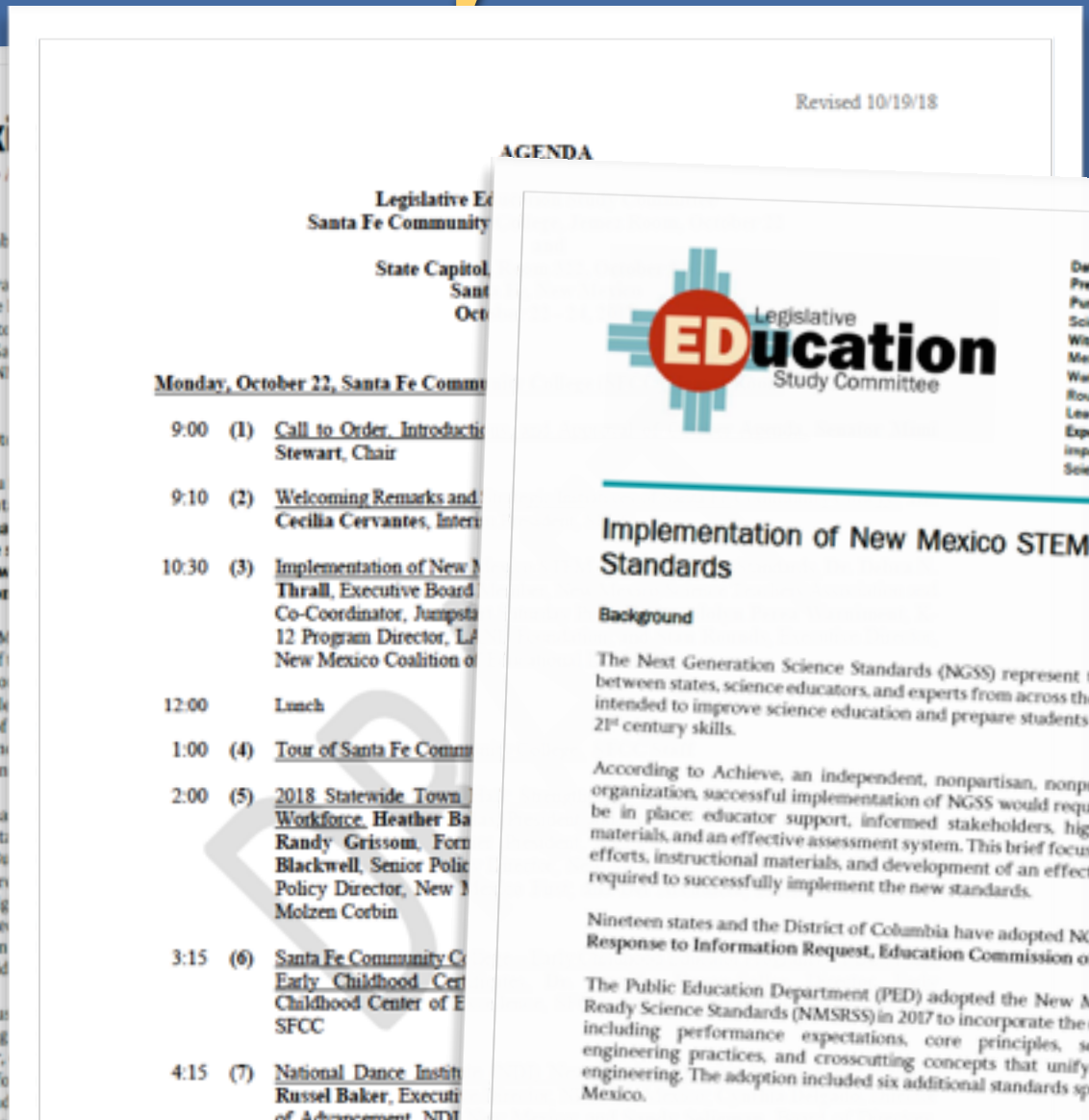


Revised 10/19/18

AGENDA

Legislative Ed
Santa Fe Community

State Capitol
Sant
Oct

Monday, October 22, Santa Fe Commu

9:00 (1) Call to Order, Introductio
Stewart, Chair

9:10 (2) Welcoming Remarks and
Cecilia Cervantes, Intern

10:30 (3) Implementation of New M
Thrall, Executive Board
Co-Coordinator, Jumpsta
12 Program Director, LA
New Mexico Coalition o

12:00 Lunch

1:00 (4) Tour of Santa Fe Commu

2:00 (5) 2018 Statewide Town
Workforce, Heather Ba
Randy Grissom, Form
Blackwell, Senior Polic
Policy Director, New M
Molzen Corbin

3:15 (6) Santa Fe Community C
Early Childhood Cert
Childhood Center of E
SFCC

4:15 (7) National Dance Institu
Russel Baker, Executi
of Advancement, NDI

Legislative EDucation Study Committee

Date: October 22, 2018
Prepared By: Ochoa
Purpose: Explore implementation of New Mexico S
Science Standards.
Witness: Dr. Debra N. Thrall, Executive Board Me
Mexico Science Teachers Association; Gwendol
Warminent, K-12 Program Director, LANL Foundation
Rounds, Executive Director, New Mexico Coalition of E
Leaders
Expected Outcome: Understand the fiscal and infr
impacts of full implementation of New Mexico ST
Science Standards.

Implementation of New Mexico STEM-Ready Science Standards

Background

The Next Generation Science Standards (NGSS) represent the collaborative effort between states, science educators, and experts from across the United States. NGSS is intended to improve science education and prepare students for college, career, and 21st century skills.

According to Achieve, an independent, nonpartisan, nonprofit education reform organization, successful implementation of NGSS would require four core factors to be in place: educator support, informed stakeholders, high-quality instructional materials, and an effective assessment system. This brief focuses on educator support efforts, instructional materials, and development of an effective assessment system required to successfully implement the new standards.

Nineteen states and the District of Columbia have adopted NGSS. See **Attachment 1, Response to Information Request, Education Commission of the States.**

The Public Education Department (PED) adopted the New Mexico STEM-Ready Science Standards (NMSRSS) in 2017 to incorporate the (NGSS) in full, including performance expectations, core principles, scientific and engineering practices, and crosscutting concepts that unify science and engineering. The adoption included six additional standards specific to New Mexico.

Arkansas, California, Delaware, Hawaii, Illi
Kansas, Kentucky, Maryland
Nevada, New Hampshire,
New Mexico, Oregon, Rh
Vermont, and Washing
adopted NGSS.

This is what we told teachers

You need time to make the transition without fear of being labeled as ineffective

You need sustained professional development

Your students need instructional materials and supplies - legislature appropriates, district allocates, principal decides

We told teachers to advocate to…

Legislators
- session runs January 15 - March 16

Parents & parent organizations

Your administration

School board

Important things to know

Change is coming. Embrace it.

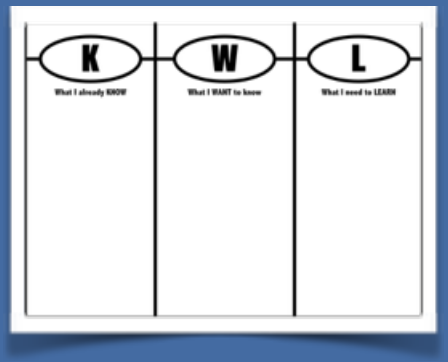
This change is not business as usual - there are major implications, especially for elementary teachers.

Changes affect many other things.

You need to make policy and budget decisions as a board.

You need to be an advocate for your students and educators.

KWL



Know – What do you know about changes to the science standards in New Mexico?

Want to know – What do you want to know about these changes, as it affects your role in the school board?

Learn – What do you need to learn and how are your going to learn it?

5 minutes to reflect and write.

Triad: share your ideas – 2 minutes each

WE OFFER 3 KINDS OF SERVICES

GOOD-CHEAP-FAST

BUT YOU CAN PICK ONLY TWO

GOOD & CHEAP WON'T BE FAST

FAST & GOOD WON'T BE CHEAP

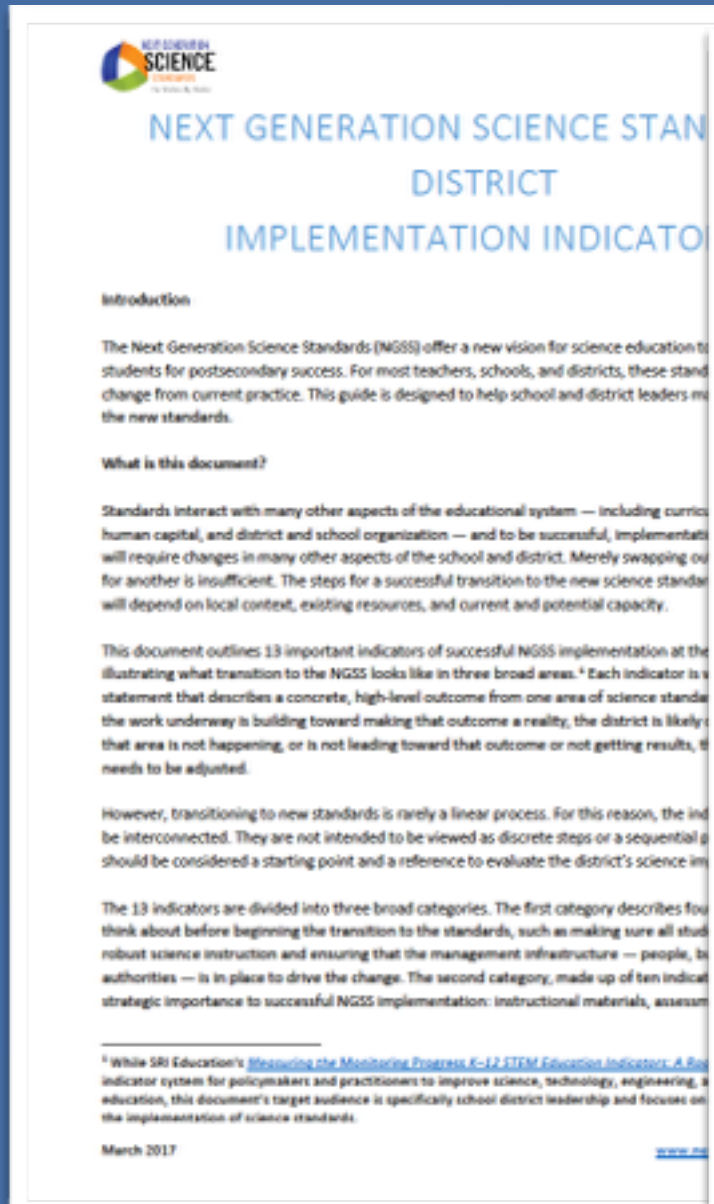
CHEAP & FAST WON'T BE GOOD

Thank you from NM Science Teachers!

contact us at ngss@nmsta.org

Additional slides follow…

This is a 5-minute video of what an NGSS class looks like.



NEXT GENERATION SCIENCE STAN

DISTRICT

IMPLEMENTATION INDICATO

Introduction

The Next Generation Science Standards (NGSS) offer a new vision for science education t
students for postsecondary success. For most teachers, schools, and districts, these stand
change from current practice. This guide is designed to help school and district leaders m
the new standards.

What is this document?

Standards interact with many other aspects of the educational system — including curric
human capital, and district and school organization — and to be successful, implementati
will require changes in many other aspects of the school and district. Merely swapping ou
for another is insufficient. The steps for a successful transition to the new science standa
will depend on local context, existing resources, and current and potential capacity.

This document outlines 13 important indicators of successful NGSS implementation at the
illustrating what transition to the NGSS looks like in three broad areas.[1] Each indicator is
statement that describes a concrete, high-level outcome from one area of science standa
the work underway is building toward making that outcome a reality, the district is likely
that area is not happening, or is not leading toward that outcome or not getting results, t
needs to be adjusted.

However, transitioning to new standards is rarely a linear process. For this reason, the ind
be interconnected. They are not intended to be viewed as discrete steps or a sequential
should be considered a starting point and a reference to evaluate the district's science im

The 13 indicators are divided into three broad categories. The first category describes fou
think about before beginning the transition to the standards, such as making sure all stud
robust science instruction and ensuring that the management infrastructure — people, b
authorities — is in place to drive the change. The second category, made up of ten indicat
strategic importance to successful NGSS implementation: instructional materials, assessm

[1] While SRI Education's Measuring the Monitoring Progress K–12 STEM Education Indicators: A Ro
indicator system for policymakers and practitioners to improve science, technology, engineering,
education, this document's target audience is specifically school district leadership and focuses on
the implementation of science standards.

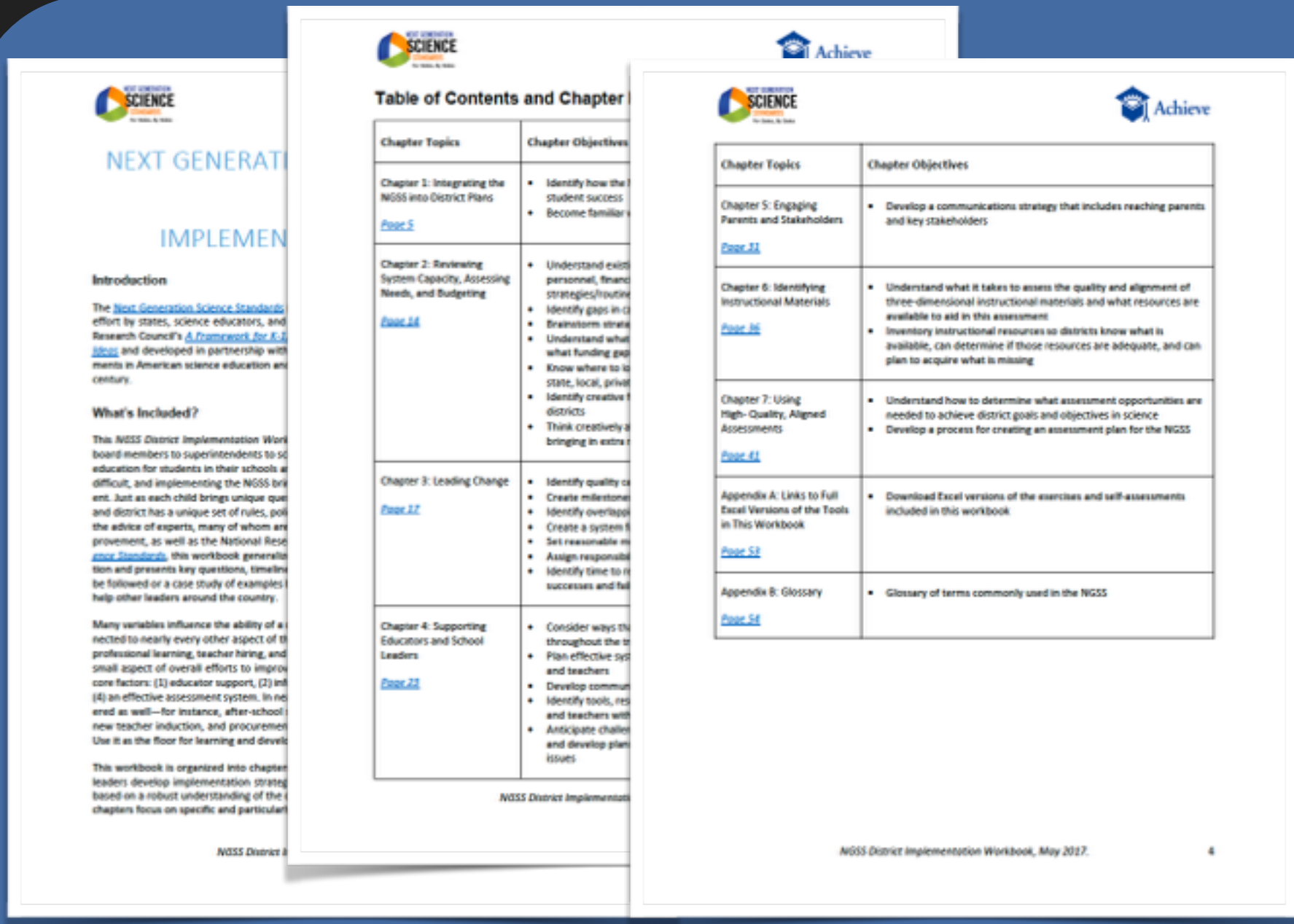
March 2017

NGSS District Implementation Indicators

Foundational Strategies	**Indicator #1: Equity and Access** All K–12 students have adequate opportunities to learn science.
	Indicator #2: Management The district carefully and intentionally manages implementation efforts.
Essential Strategies	**Indicator #3: Professional Learning for Teachers** High-quality professional learning opportunities for educators that lead to strong implementation of the NGSS in classrooms are readily available, and educators are consistently participating in these opportunities.
	Indicator #4: Professional Learning for School Leaders A high-quality professional learning system is created specifically for K–12 school leaders, and school leaders are consistently participating in these opportunities.
	Indicator #5: Instructional Materials Educators use high-quality instructional materials designed for NGSS learning and meet diverse student needs.
	Indicator #6: Assessments Assessments are designed and used to monitor student progress toward proficiency in the NGSS, and schools are held accountable for science performance.
	Indicator #7: School Structures The district develops course scopes and sequences for implementation of NGSS courses.
	Indicator #8: Internal Communication Educators in the district have a common understanding of NGSS implementation.
	Indicator #9: Community Communication The community understands the shared goal of improving science education and the transitions associated with implementation of new science standards.
	Indicator #10: Leadership Collaboration with Other Districts The district implementation leadership team collaborates with other districts to support NGSS implementation and shares solutions to common problems.
	Indicator #11: Educator Collaboration Within and Across Districts Educators collaborate with other educators within and across districts.
	Indicator #12: Partnerships with External Organizations The district partners with external organizations for implementation support.
Results	**Indicator #13: Student Outcomes** Student outcomes show evidence of three-dimensional science proficiency and engagement in science.

March 2017 www.nextgenscience.org 4

[Link to District Implementation Guide]



NEXT GENERATI

IMPLEMEN

Introduction

The Next Generation Science Standards
effort by states, science educators, and
Research Council's A Framework for K-1
ideas and developed in partnership with
ments in American science education and
century.

What's Included?

This NGSS District Implementation Work
board members to superintendents to sc
education for students in their schools a
difficult, and implementing the NGSS bri
ent. Just as each child brings unique que
and district has a unique set of rules, poli
the advice of experts, many of whom are
provement, as well as the National Rese
ence Standards, this workbook generaliz
tion and presents key questions, timeline
be followed or a case study of examples
help other leaders around the country.

Many variables influence the ability of a
nected to nearly every other aspect of th
professional learning, teacher hiring, and
small aspect of overall efforts to improv
core factors: (1) educator support, (2) inf
(4) an effective assessment system. In ne
ered as well—for instance, after-school
new teacher induction, and procuremen
Use it as the floor for learning and develo

This workbook is organized into chapter
leaders develop implementation strateg
based on a robust understanding of the
chapters focus on specific and particular

NGSS District I

Table of Contents and Chapter

Chapter Topics	Chapter Objectives
Chapter 1: Integrating the NGSS into District Plans Page 5	• Identify how the student success • Become familiar
Chapter 2: Reviewing System Capacity, Assessing Needs, and Budgeting Page 14	• Understand exist personnel, financ strategies/routine • Identify gaps in • Brainstorm strate • Understand what what funding gap • Know where to lo state, local, privat • Identify creative districts • Think creatively a bringing in extra
Chapter 3: Leading Change Page 17	• Identify quality c • Create milestone • Identify overlapp • Create a system • Set reasonable m • Assign responsibi • Identify time to r successes and fai
Chapter 4: Supporting Educators and School Leaders Page 23	• Consider ways th throughout the t • Plan effective sys and teachers • Develop commun • Identify tools, res and teachers with • Anticipate challe and develop plan issues

NGSS District Implementa

Chapter Topics	Chapter Objectives
Chapter 5: Engaging Parents and Stakeholders Page 31	• Develop a communications strategy that includes reaching parents and key stakeholders
Chapter 6: Identifying Instructional Materials Page 36	• Understand what it takes to assess the quality and alignment of three-dimensional instructional materials and what resources are available to aid in this assessment • Inventory instructional resources so districts know what is available, can determine if those resources are adequate, and can plan to acquire what is missing
Chapter 7: Using High-Quality, Aligned Assessments Page 41	• Understand how to determine what assessment opportunities are needed to achieve district goals and objectives in science • Develop a process for creating an assessment plan for the NGSS
Appendix A: Links to Full Excel Versions of the Tools in This Workbook Page 52	• Download Excel versions of the exercises and self-assessments included in this workbook
Appendix B: Glossary Page 54	• Glossary of terms commonly used in the NGSS

NGSS District Implementation Workbook, May 2017. 4

Link to District Implementation Workbook

Supporting file for LESC proposal

Link to LESC minutes for that meeting

Instructional materials elementary

Program: STEMscopes

Grade	Students	Student subscription	Classroom kit	Total
K	23,794	$34.50	$440	$1.3 M
1	24,250	$34.50	$1,010	$2.1 M
2	24,383	$34.50	$725	$1.7 M
3	25,964	$34.50	$740	$1.9 M
4	26,483	$34.50	$1,230	$2.5 M
5	26,376	$34.50	$1,220	$2.5 M
Total	151,250	($5.2 M)	($6.8 M)	$12.05 M

Instructional materials middle

Program: Pearson Elevate Science

Grade	Students	Student subscription	Classroom kit	Total
6	25,571	$96.97	$2,368.97	$2.9 M
7	25,466	$96.97	$2,368.97	$2.9 M
8	25,010	$96.97	$2,368.97	$2.8 M
Total	76,047			$8.56M

Instructional materials high

Class	students	Textbook	Cost, each	Total
Biology	23,185	Miller & Levine	$89.97	$2.1 M
Chemistry	15,910	Modern Chemistry	$103.05	$1.3 M
Physical science	10,073	None	$72.75	$0.7 M
Integrated science	9,302	None	$72.75	$0.7 M
Physics	5,765	HMH Physics	$79.90	$0.5 M
Earth & space	4,809	HMH Dimensions	$72.75	$0.3 M
AP & 4th year	9,690	Campbell Biology	$172.47	$1.7 M
Other	2,567		$50.00	$0.1 M
Total	81,301			$7.37 M

Professional development

Estimate: minimum number of educators

Cohort	Estimate	#
Secondary	81,301 + 76,047 students assume 150 students/teacher	1049
Elementary	151,250 students assume 20/teacher	7560
Administrators	877 schools assume 1 administrator each	877
Total		9486

Funding estimate #1

An outside group comes to do training

Cohort	#	Estimate	
Secondary	1049	NSTA 2 day course, $800 each	$839 K
Elementary	7560	NSTA 1 day course, $400 each	$3,024 K
Administrators	877	NSTA 1 day course, $400 each	$351 K
Total	9486		$4.2 M

* Includes ONLY training costs

Funding estimate #2

Train the trainer Leadership Institute

Item	#	Estimate	Total
Per diem	548	2 days @ $85	$93,160
Travel	548	$100	$54,800
Meeting space	548	$50	$27,400
Materials	548	$100	$54,800
Contract trainer			$50,000 - $100,000
Administrative costs			$50,000 - $100,000
Substitutes or stipends	548	2 days @ $480	$263,040
			$600,000 - $700,000