

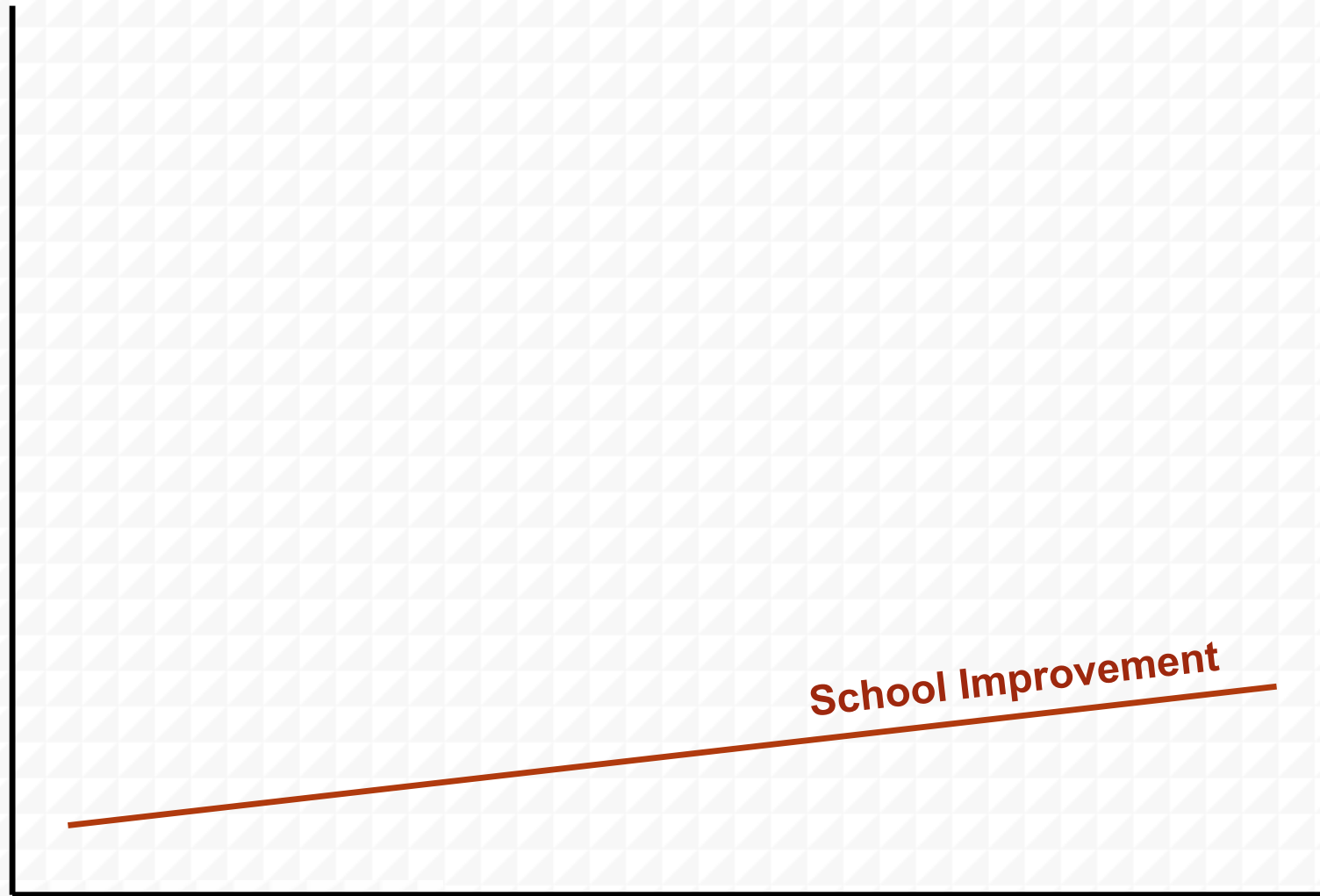


Characteristics of the Nation's Most Successful Schools

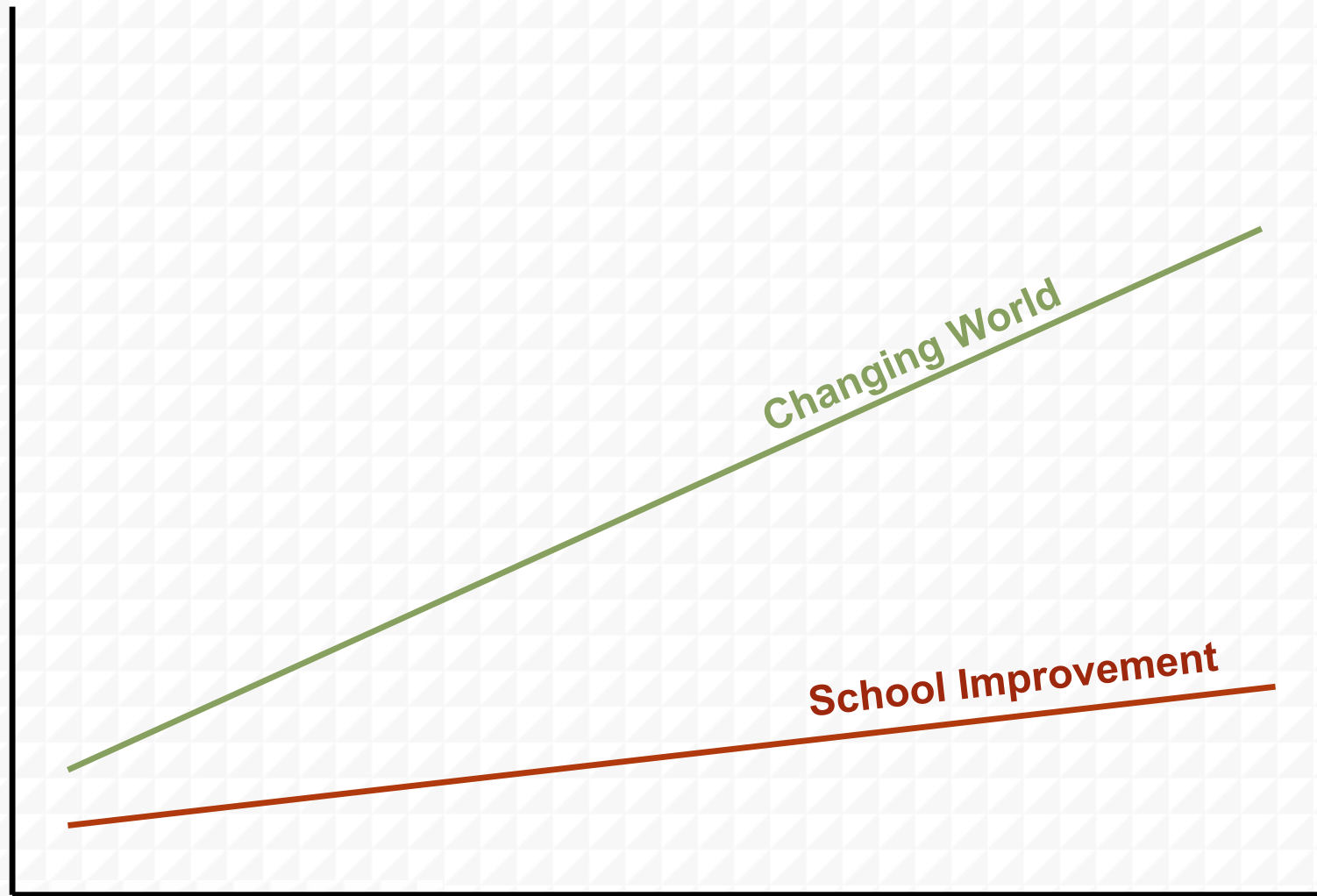
Willard R. Daggett, Founder and Chairman

June 21, 2012

Schools are Improving



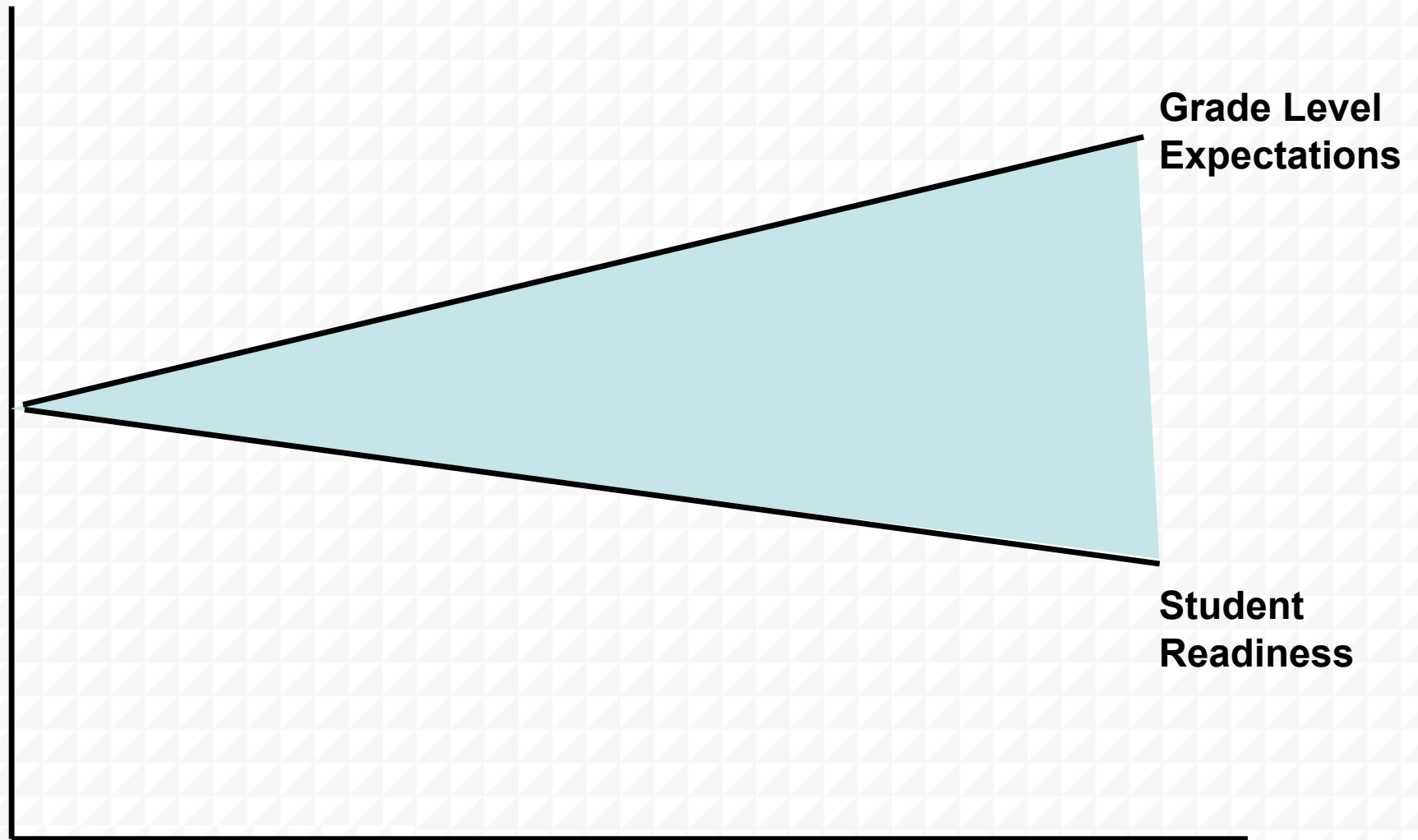
Schools are Improving – BUT



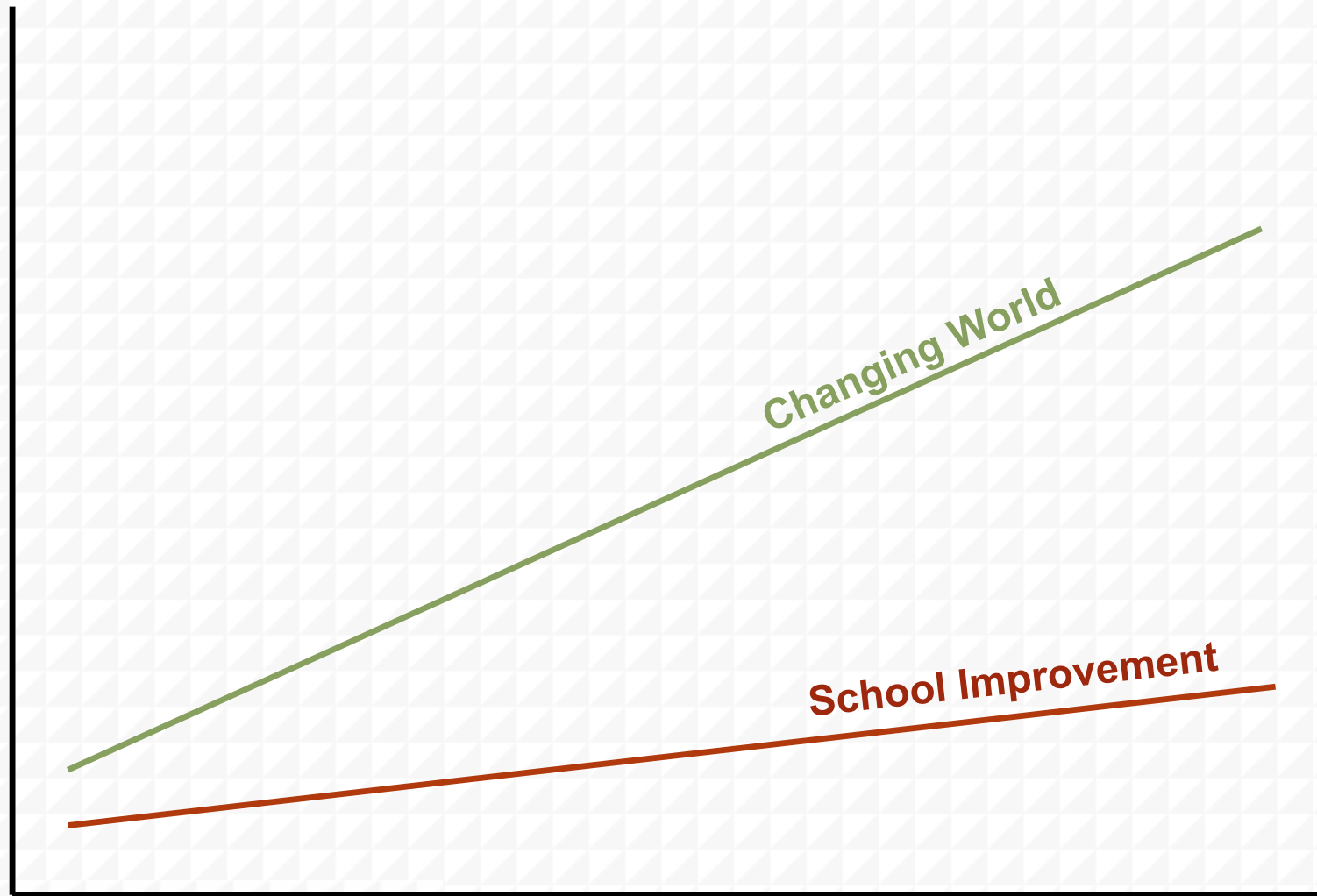
Three Central Challenges

- Common Core State Standards, Next Generation Assessments and Teacher Evaluation

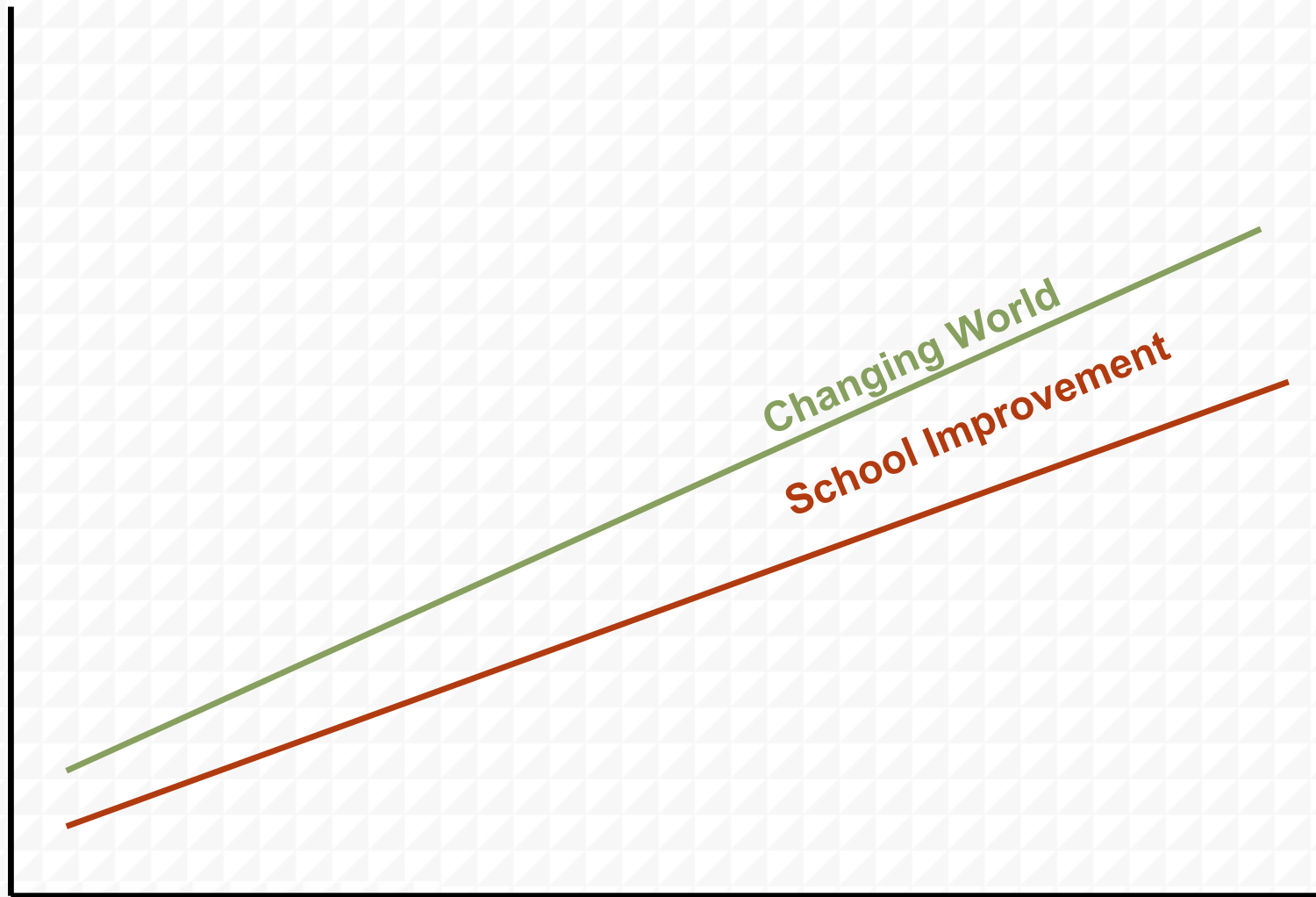
Growing Readiness Gap



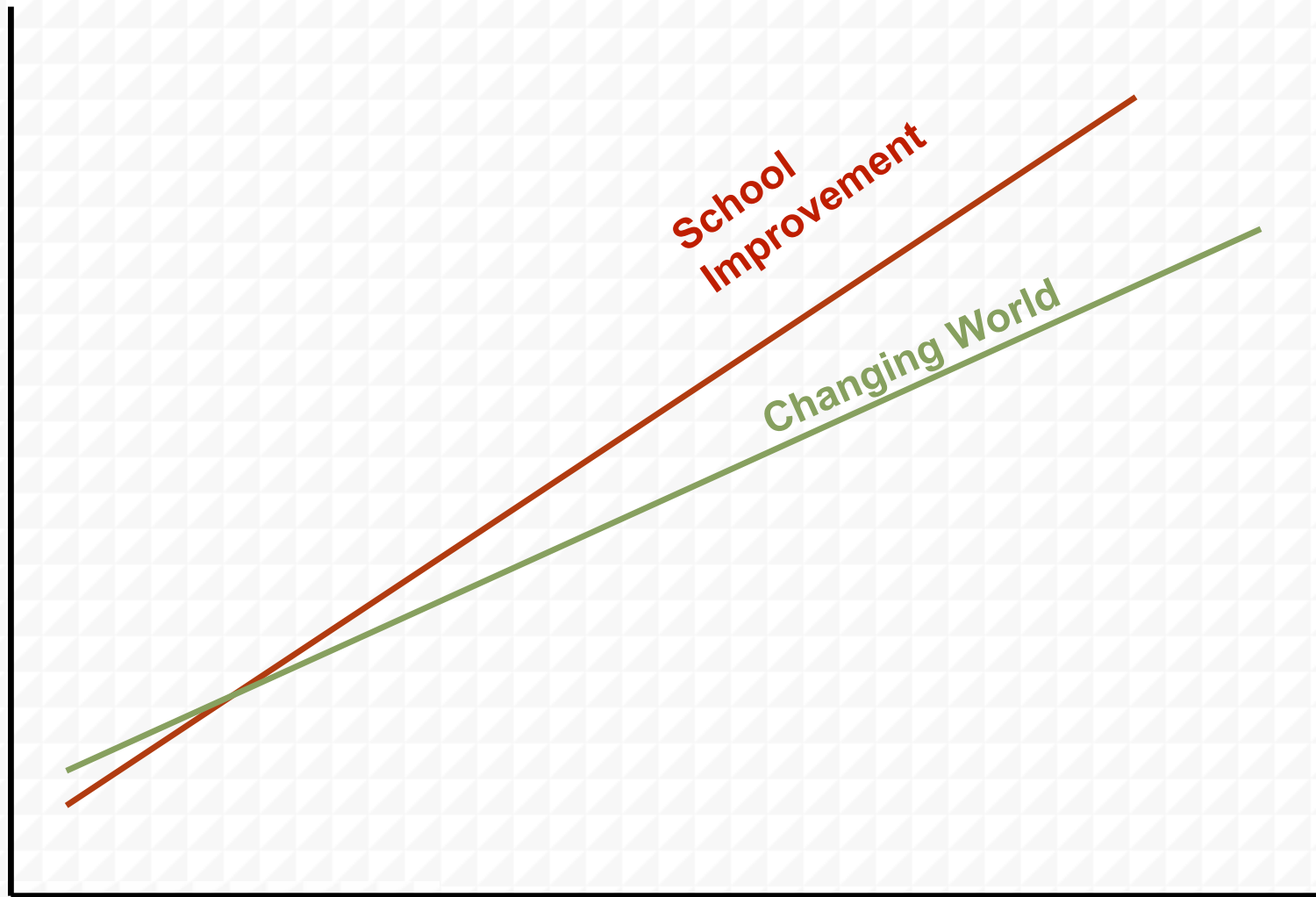
Schools are Improving – BUT



Schools are Improving – BUT Some More Than Others



Schools are Improving – BUT Some More Than Others





A Look to the Future

Three Central Challenges

- Common Core State Standards, Next Generation Assessments and Teacher Evaluation
- Financial Stress

Schools must find new and innovative ways to improve student performance with increasingly fewer resources.

Three Central Challenges

- Common Core State Standards, Next Generation Assessments and Teacher Evaluation
- Financial Stress
- Change

Three Central Challenges

- Common Core State Standards, Next Generation Assessments and Teacher Evaluation
- Financial Stress
- Change Needs to be Evolutionary Not Revolutionary

A Look to the Future

It will require:

- **Proactive Leadership**
- **Focused and Sustained Professional Development**

A Look to the Future

More with Less

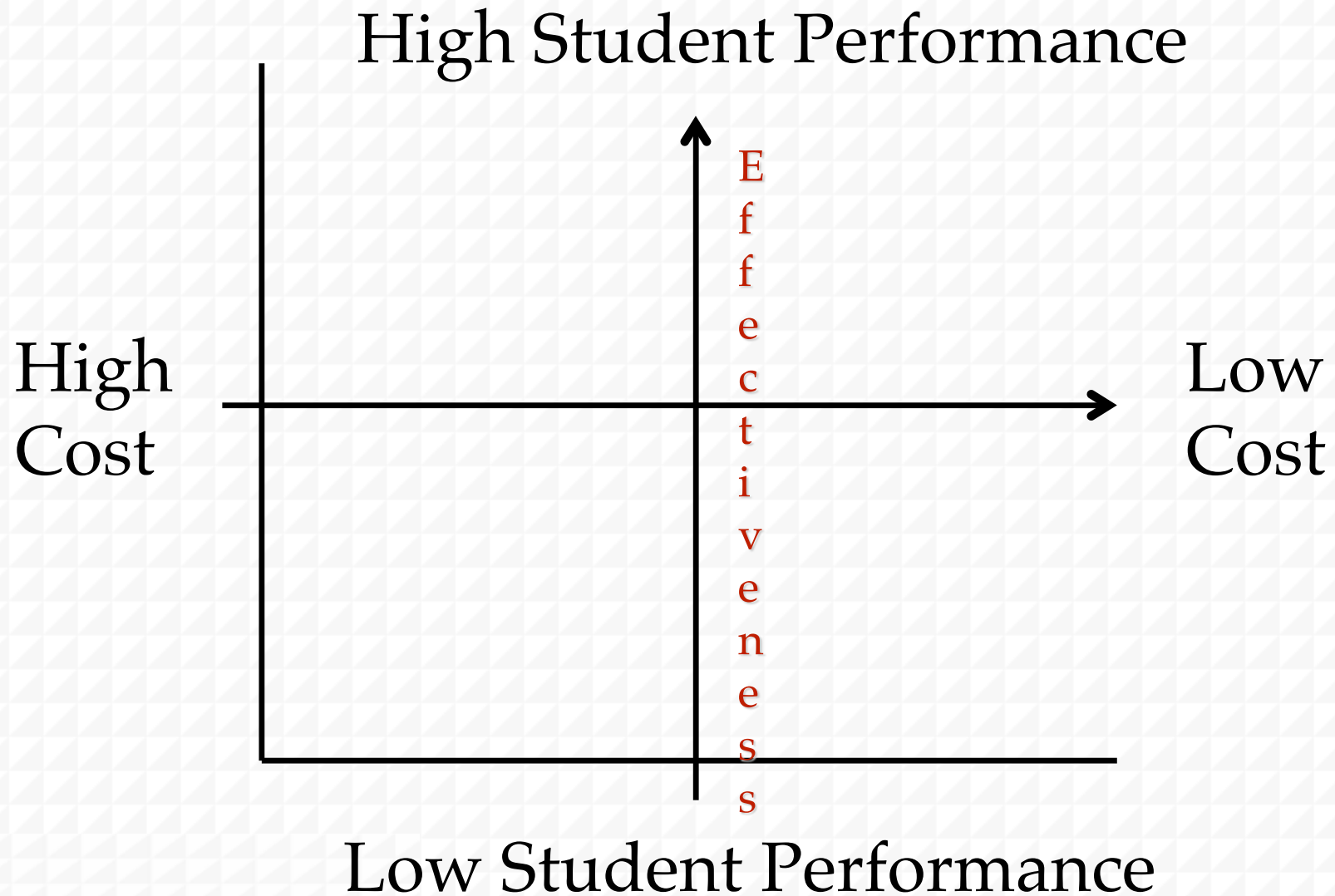
Effectiveness and Efficiency Framework



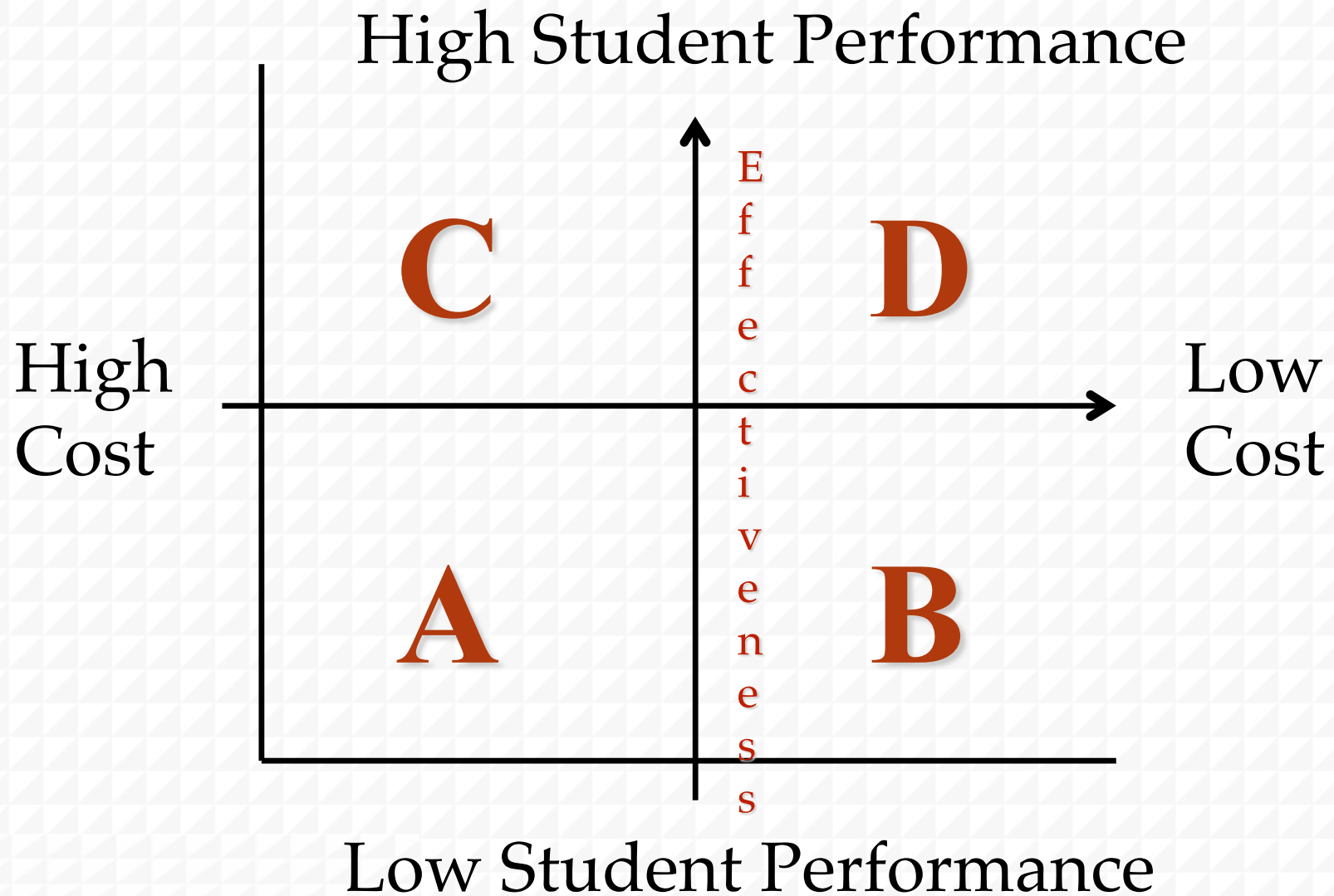
High
Cost

Low
Cost

Effectiveness and Efficiency Framework



Effectiveness and Efficiency Framework



A Look to the Future

CCSS / NGA

Application Model

1. Knowledge in one discipline
2. Application within discipline
3. Application across disciplines
4. Application to real-world predictable situations
5. Application to real-world unpredictable situations

Item Exemplars: Performance Task

Gas Bills, Heating Degree Days, and Energy Efficiency

Here is a typical story about an Ohio family concerned with saving money and energy by better insulating their house.

Kevin and Shana Johnson’s mother was surprised by some very high gas heating bills during the winter months of 2007. To improve the energy efficiency of her house, Ms. Johnson found a contractor who installed new insulation and sealed some of her windows. He charged her \$600 for this work and told her he was pretty sure that her gas bills would go down by “at least 10 percent each year.” Since she had spent nearly \$1,500 to keep her house warm the previous winter, she expected her investment would conserve enough energy to save at least \$150 each winter (10% of \$1,500) on her gas bills.

Ms. Johnson’s gas bill in January 2007 was \$240. When she got the bill for January 2008, she was stunned that the new bill was \$235. If the new insulation was going to save only \$5 each month, it was going to take a very long time to earn back the \$600 she had spent. So she called the insulation contractor to see if he had an explanation for what might have gone wrong. The contractor pointed out that the month of January had been very cold this year and that the rates had gone up from last year. He said her bill was probably at least 10% less than it would have been without the new insulation and window sealing.

Ms. Johnson compared her January bill from 2008 to her January bill from 2007. She found out that she had used 200 units of heat in January of 2007 and was charged \$1.20 per unit (total = \$240). In 2008, she had used 188 units of heat but was charged \$1.25 per unit (total = \$235) because gas prices were higher in 2008. She found out the average temperature in Ohio in January 2007 had been 32.9 degrees, and in January of 2008, the average temperature was more than 4 degrees colder, 28.7 degrees. Ms. Johnson realized she was doing well to have used less energy (188 units versus 200 units), especially in a month when it had been colder than the previous year.

Since she used gas for heating only, Ms. Johnson wanted a better estimate of the savings due to the additional insulation and window sealing. She asked Kevin and Shana to look into whether the “heating degree days” listed on the bill might provide some insight.

Argon Energy Co.	Customer	Bill Date
	Ms. Arlene Johnson 42 Bluebonnet Avenue Columbus, OH 43205	January 31, 2008 Account # 55-73342B Residential
Current Itemized Bill		
	December 30 reading actual	8300
	January 31 reading actual	8488
	Total units used January 2008	188
January 2008:	1108 heating degree days 0 cooling degree days	
	Price per unit @ \$1.25	\$235
Energy Use History		
	Total units used January 2007	200
January 2007:	1000 heating degree days 0 cooling degree days	
TOTAL CURRENT CHARGES		\$235

(continued)

Common Core State Standards

- Content
VS.
- Instruction

A Look to the Future

**Will Require
Proactive Leadership**

Reactive Leader

Focused on CCSS, NGAs, and Teacher Evaluation

Proactive Leader

Equally focused on Science, the Arts, CTE, Physical Education

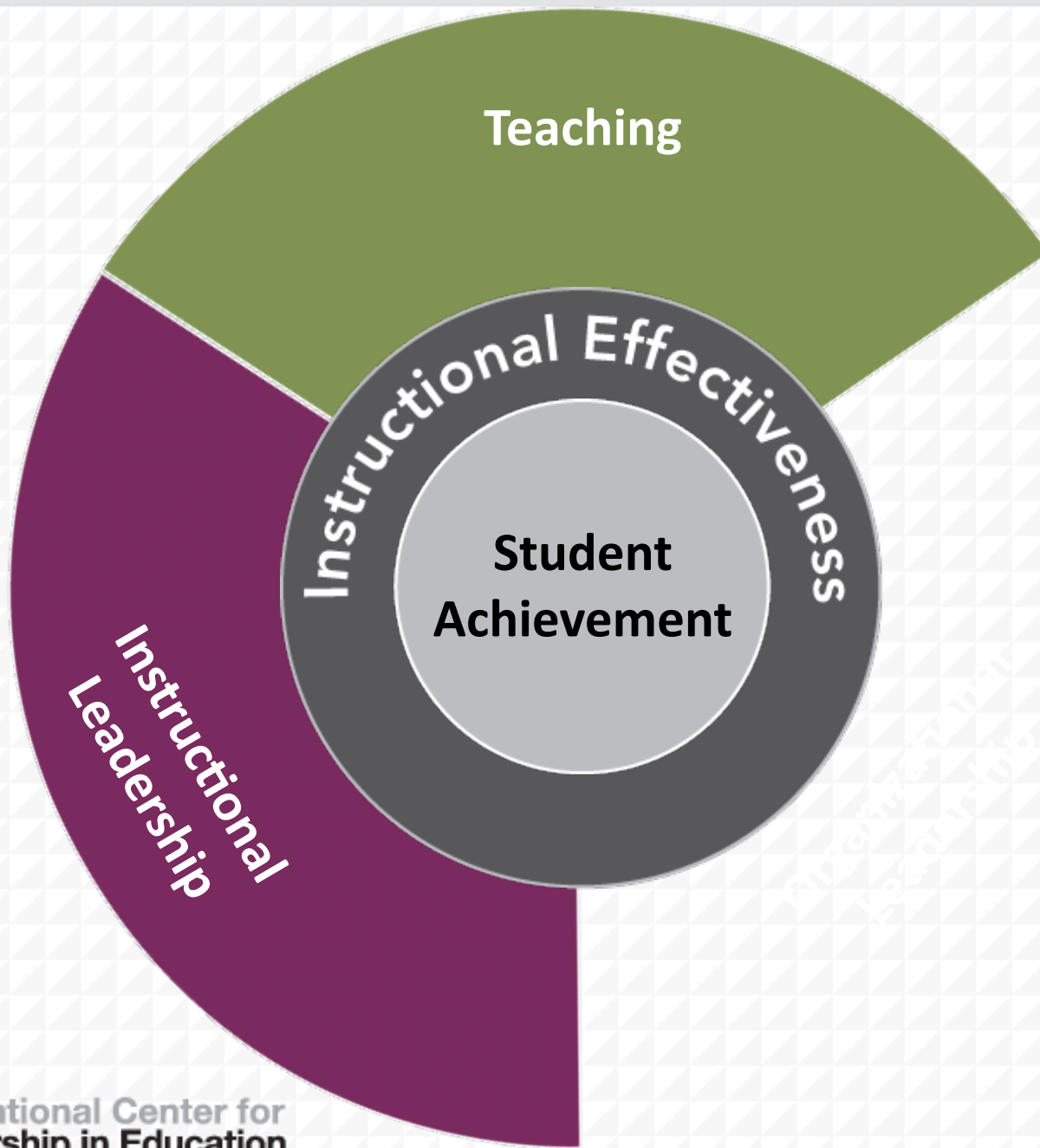
A Look to the Future

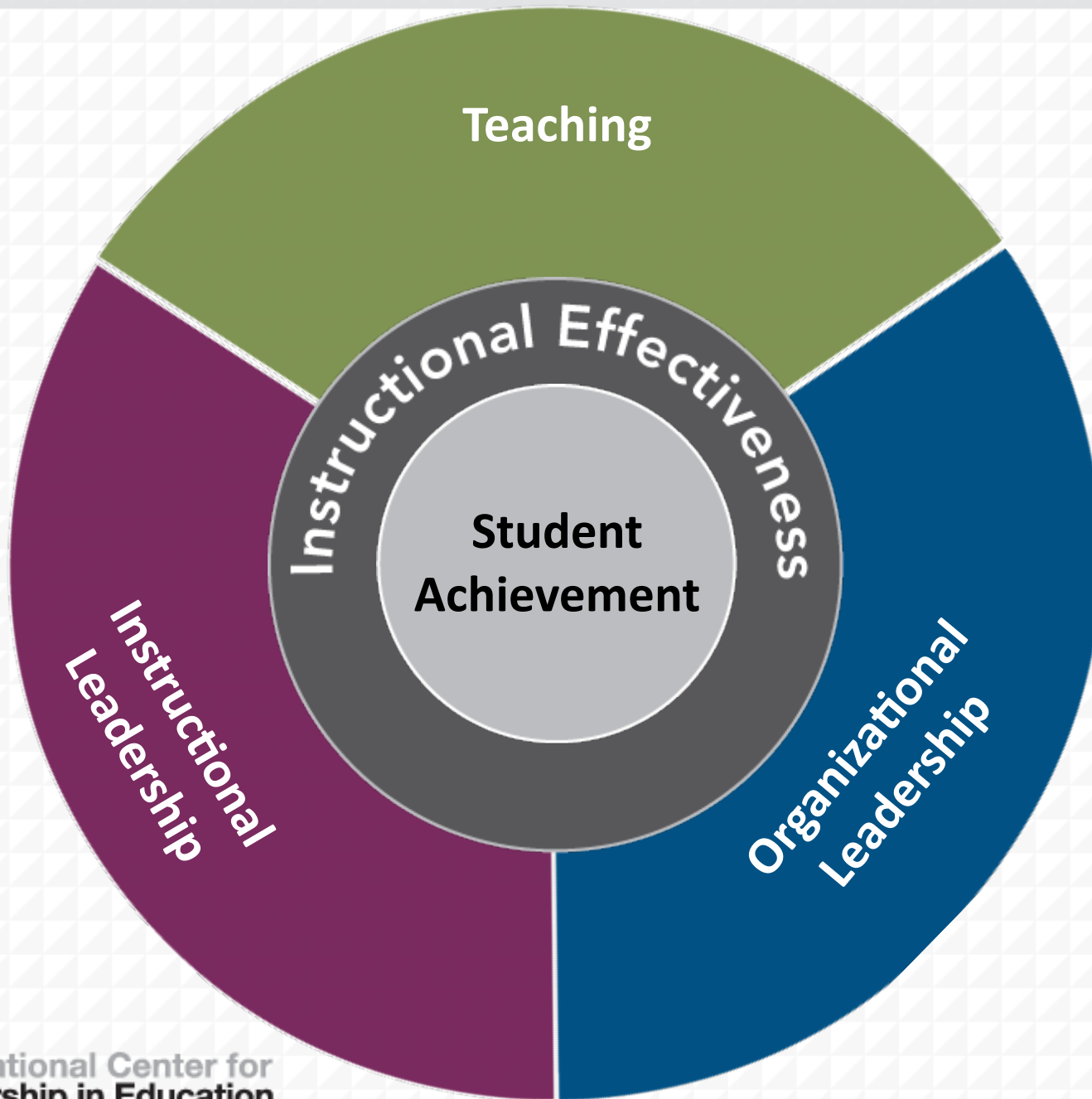
**Will Require a
Comprehensive Solution**

Student Achievement





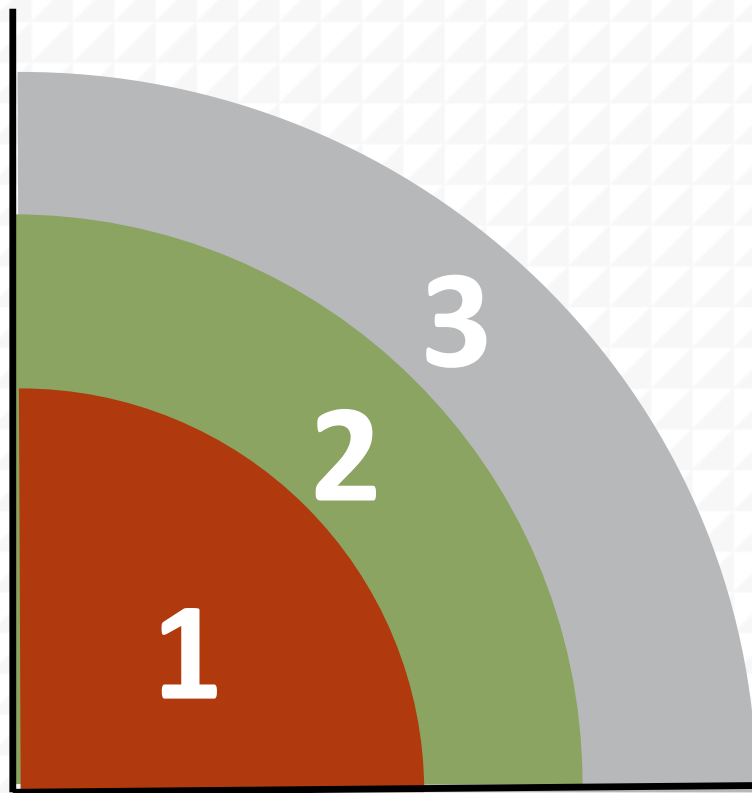




Three Central Challenges

- Common Core State Standards, Next Generation Assessments and Teacher Evaluation
- Financial Stress
- Change Needs to be Evolutionary Not revolutionary

Evolution of Change Model

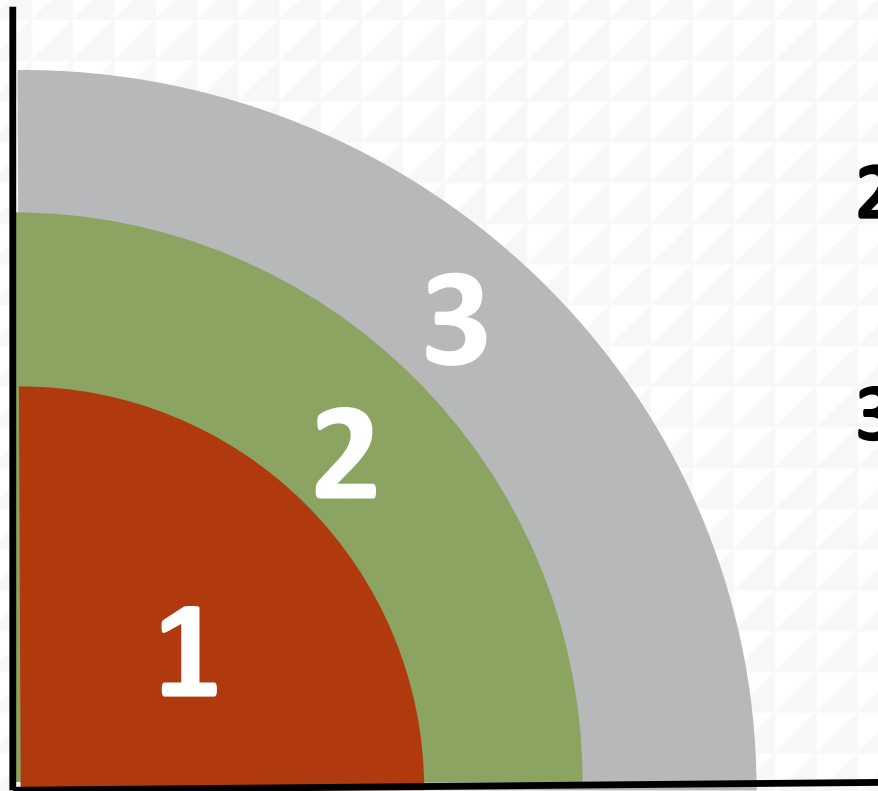


1 – Incremental Change
(Improving Core Practices)

2 – Innovative Change
(Fundamental Change of
Core Practice)

3 – Transformational Change
(Affect Entire System)

Transportation



1 – Saddle

2 – Horse and Wagon

3 – Car

A Look to the Future

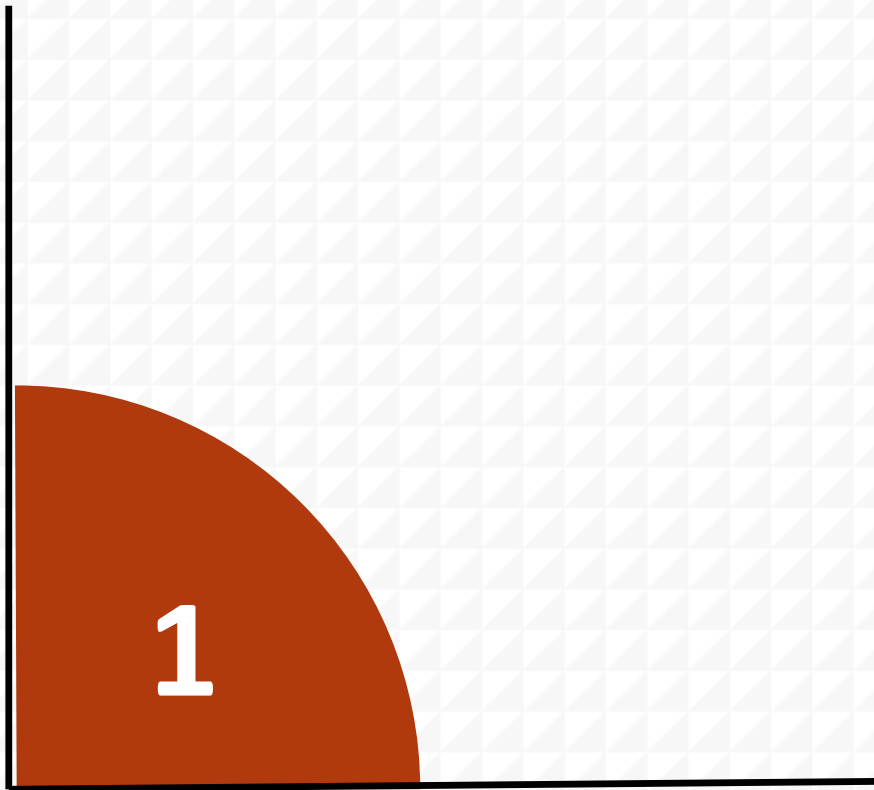
Information is Everywhere...

A Look to the Future

Smart Technology

Smart Technology

1 – Google Search



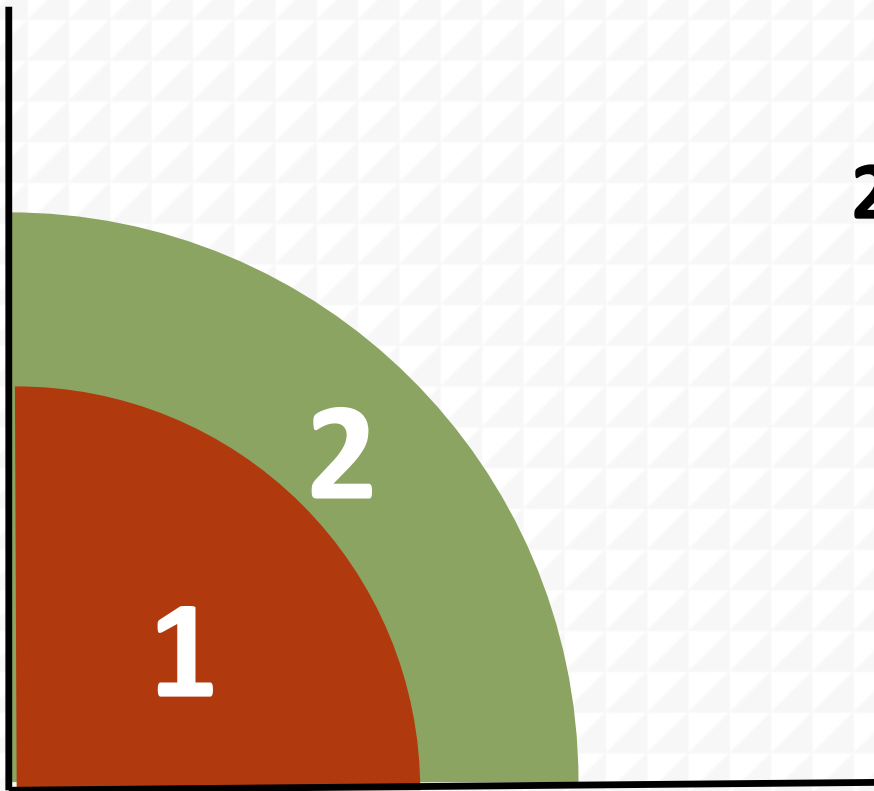
Semantic Web

- Analyze Documents
 - Keywords and headers (Google)
- Meaning / Concepts
 - Wolfram Alpha
 - Siri
- Complete Task

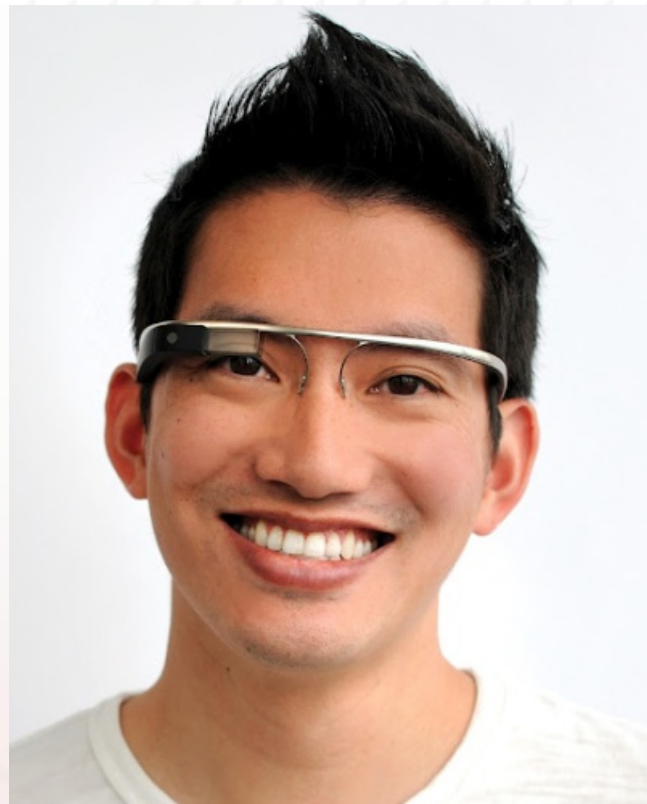
Smart Technology

1 – Google Search

2 – Google Glasses



Project Glass



**Download any movie, website, or piece
of information into your glasses or
contact lenses**

In the Near Future...

- Students will be able to scan the Internet via their contact lenses.
- How will you deal with this in your schools?

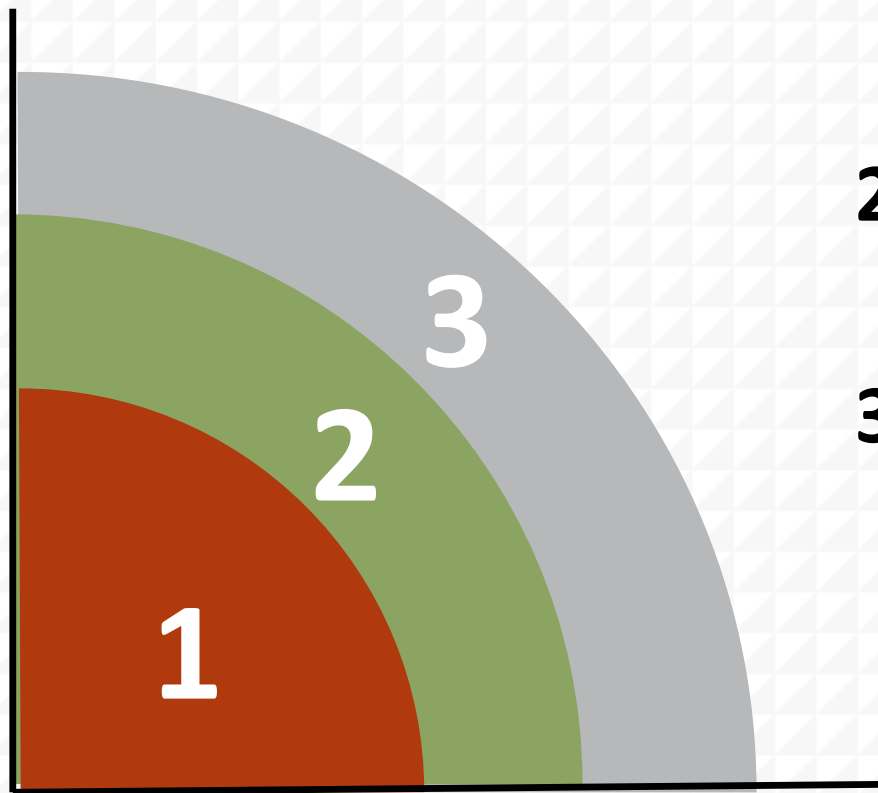
**Today's students live in a
hyper-connected world,
except in school**

OR

**are they also connected in school but
we just don't know it?**

Information is everywhere. In this changing world, sense-making and the ability to evaluate the credibility of information are paramount.

Smart Technology

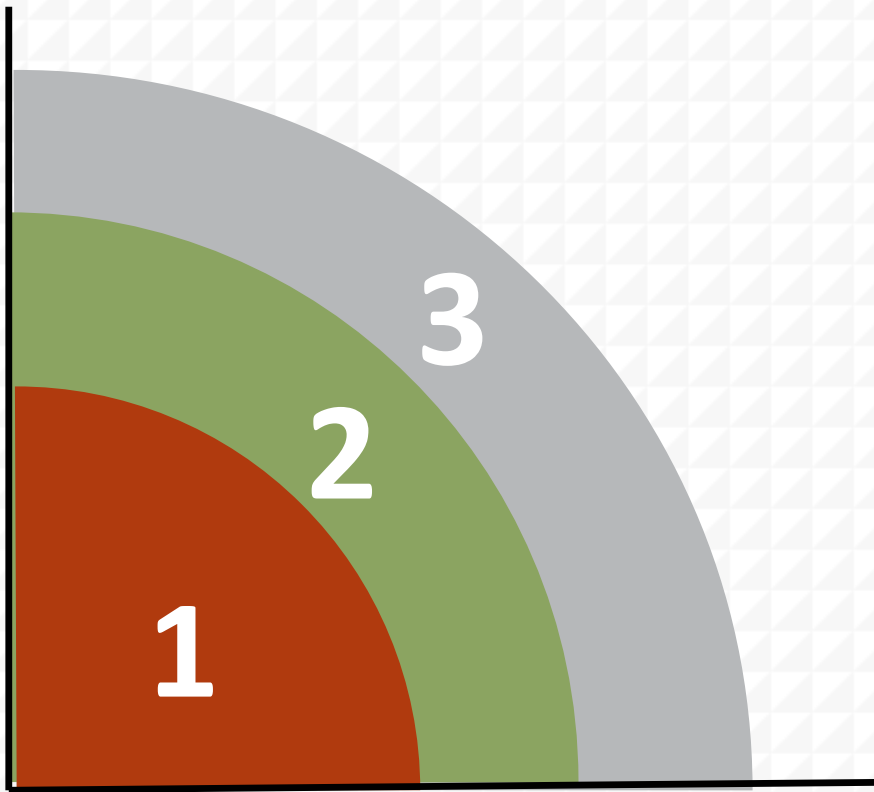


1 – Google Search

2 – Google Glasses

3 – Google Car

K-12 Education – High Impact Factors



K-12 Education – High Impact Factors

- Gaming
- Online Instruction
- Blended Learning

Gaming is increasingly being built based upon brain research.

Gaming is increasingly being built based upon brain research.

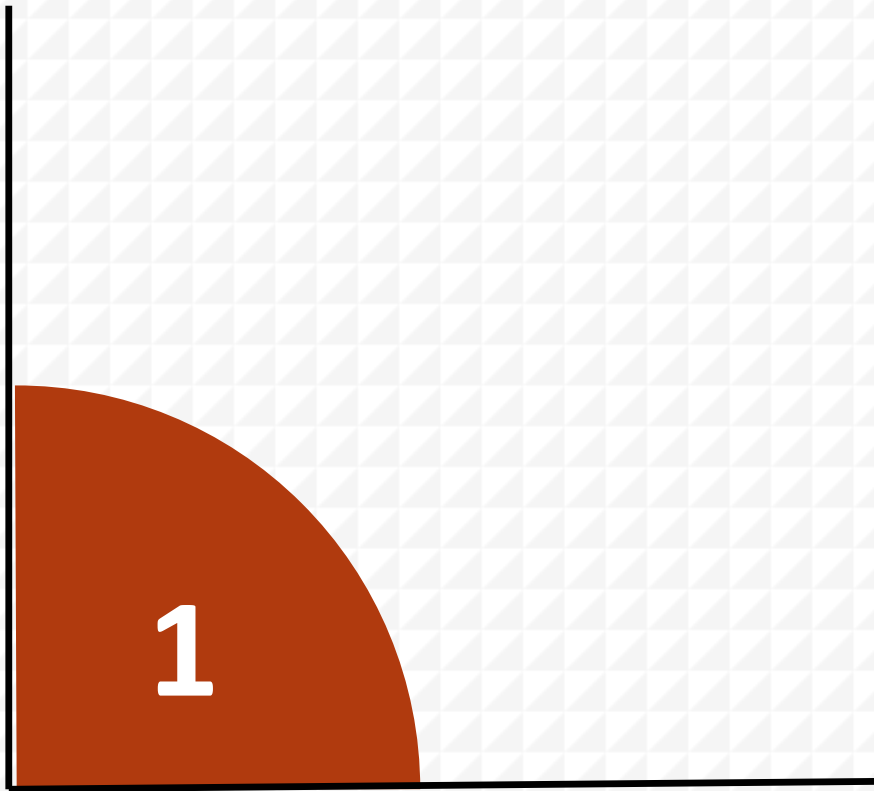
What is the implication to education?

Angry Birds

- Downloaded 1 billion times
- Average of 800 bird launches per download
- Collectively 800 billion birds launched
- Over 600 million minutes played per day
- 400,000 years of time played

Game Theory in Education

1 – Sushi Monster



Game-based Programs

- Continuous improvement
- Immediate feedback

Status of Gaming

- Addictive

How do you feel about students being addicted to learning?

Status of Gaming

- Addictive
- Today's education games are often a technologically enhanced version of drill and practice

Status of Gaming

- Addictive
- Today's education games are often a technologically enhanced version of drill and practice
- Moving to real-world applications

Status of Gaming

- Addictive
- Today's education games are often a technologically enhanced version of drill and practice
- Moving to real-world applications
- Enabling more personalized learning

650,000 Apps in the App Store

Technology Provides

- Personalization

Technology Provides

- Personalization
- Repetition
- Volume

Technology Provides

- Personalization
- Repetition
- Volume



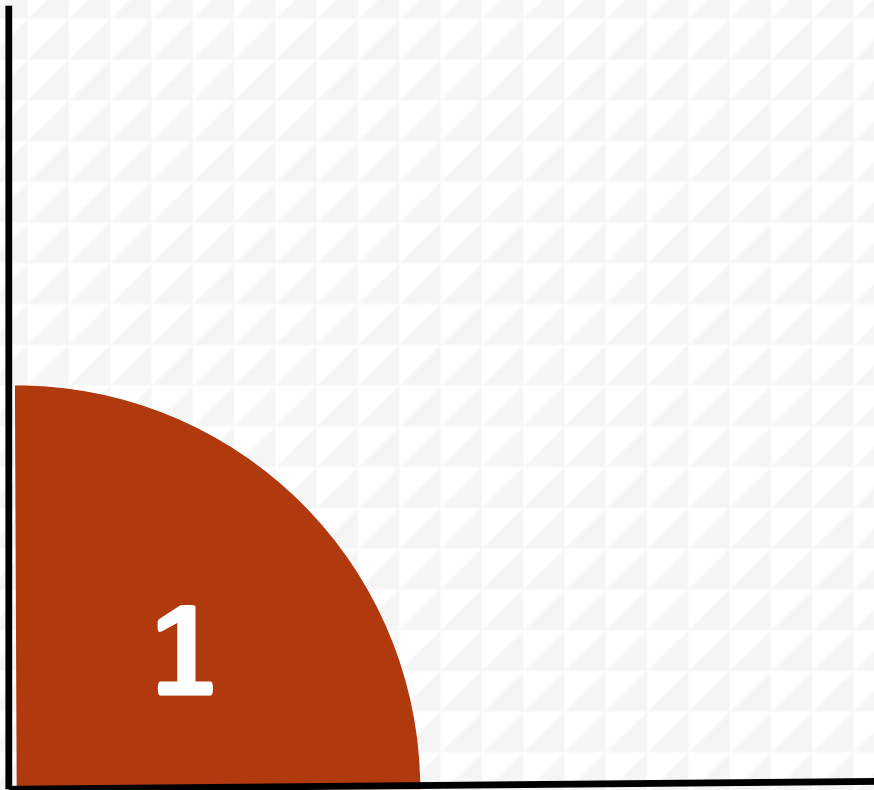
Critical to Move
from Working to
Stored Memory –
Needed for
Fluency

A Look to the Future

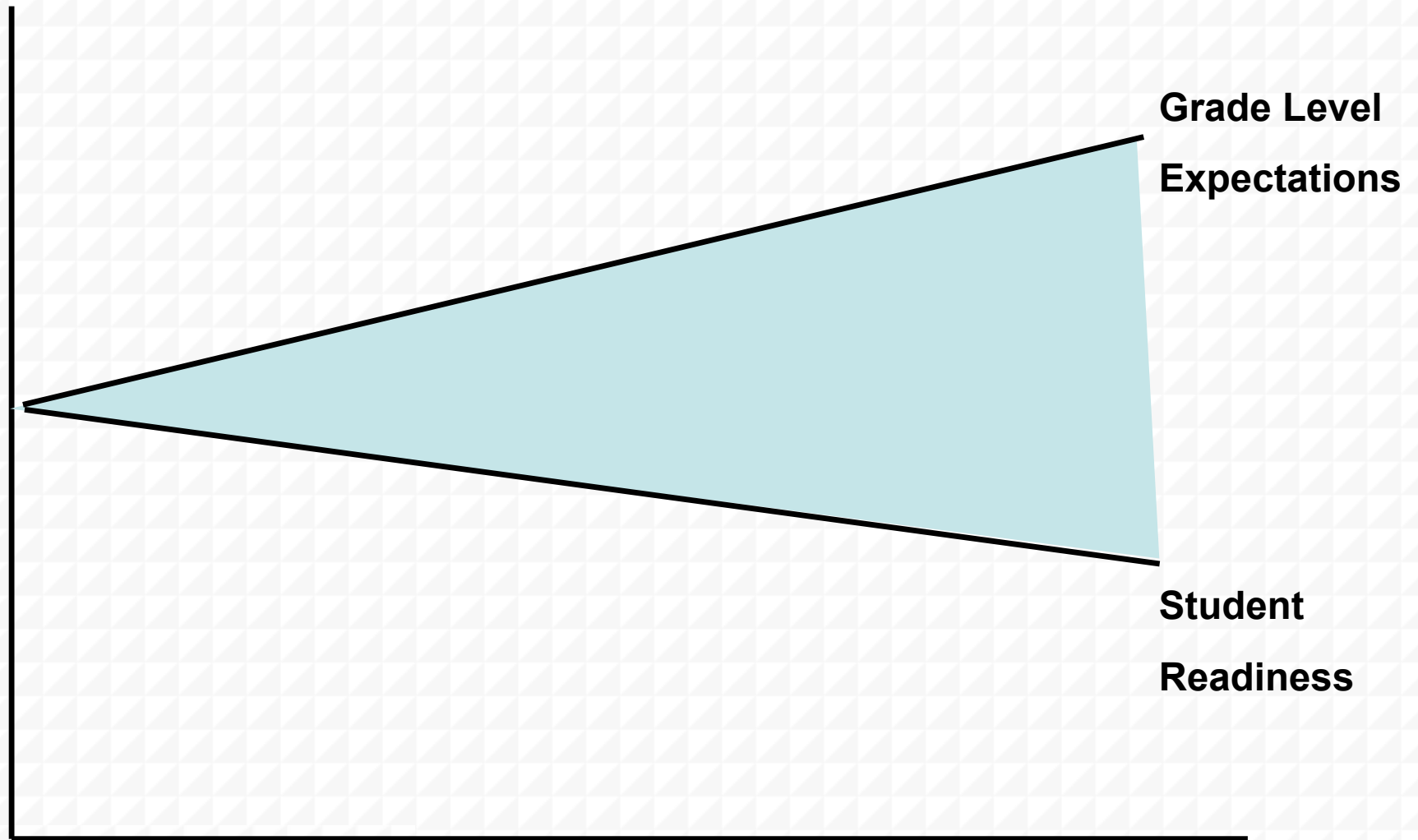
- **FASTT Math Next Generation**
 - **18 Games**

Game Theory in Education

1 – Sushi Monster (FASTT Math Next Generation)



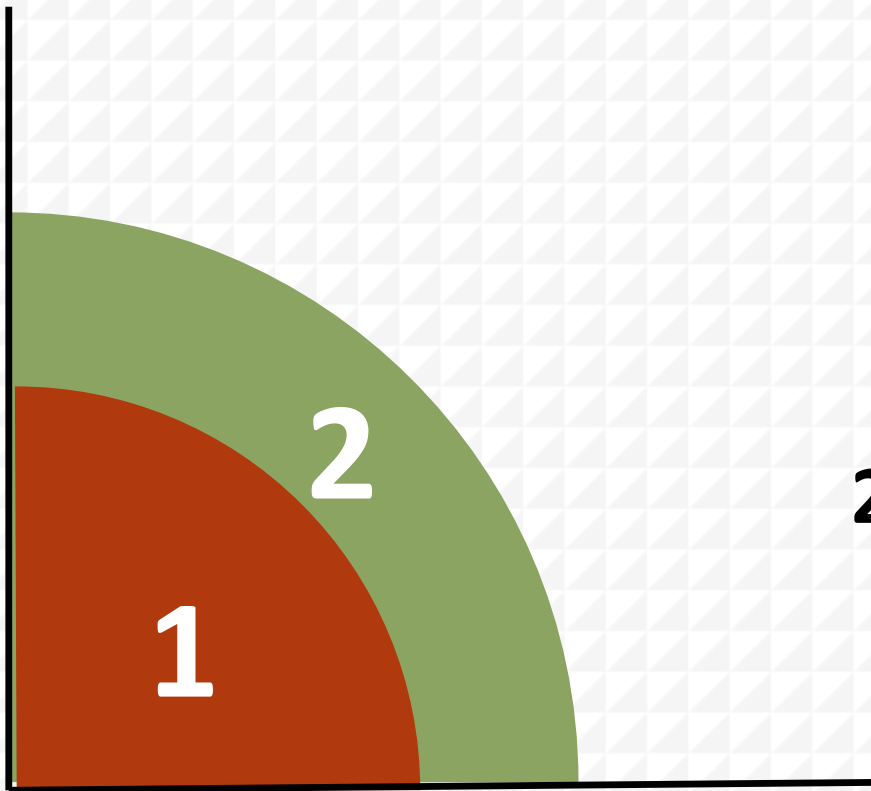
Growing Readiness Gap



Game Theory in Education

**1 – Sushi Monster
(FASTT Math Next
Generation)**

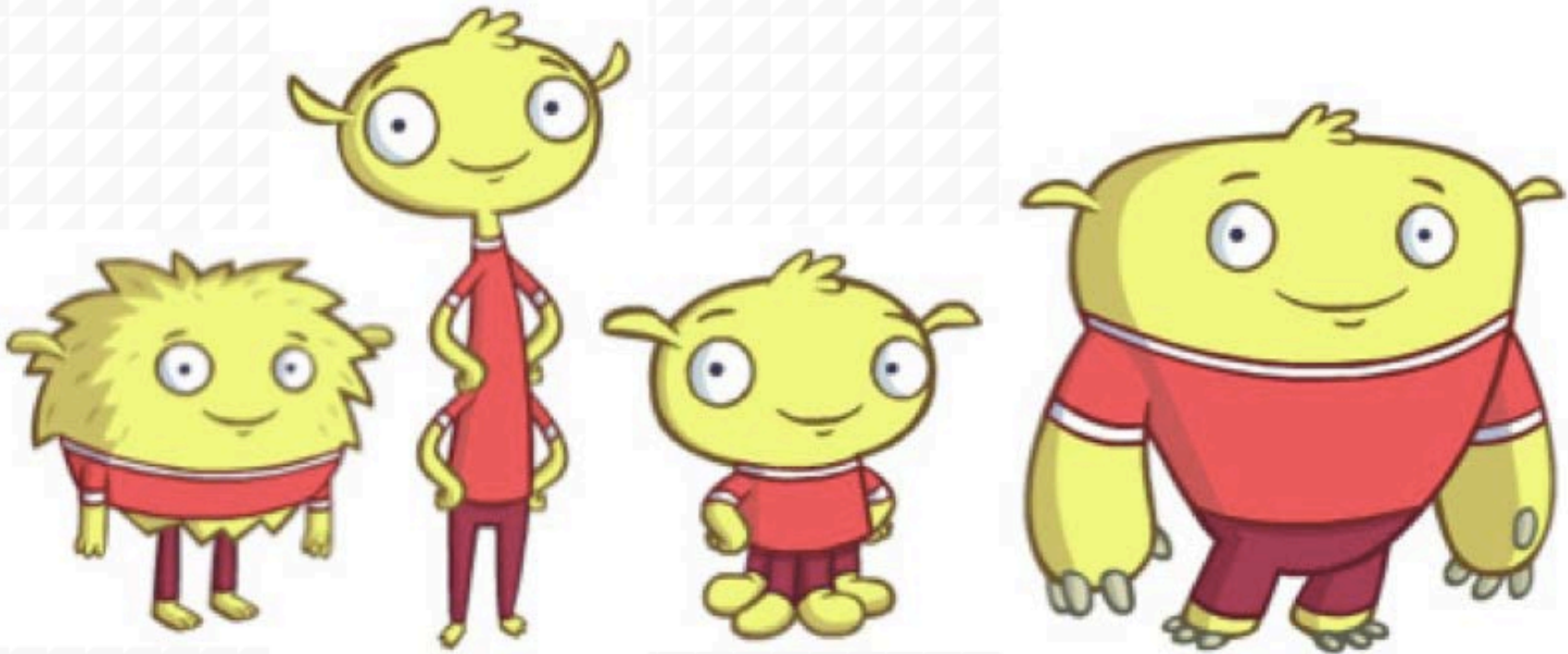
2 - iRead



A Look to the Future

iRead

Your Avatar...



Your Reading Buddy...



iRead

- Phonics

iRead

- Phonics
- Embedded Assessments

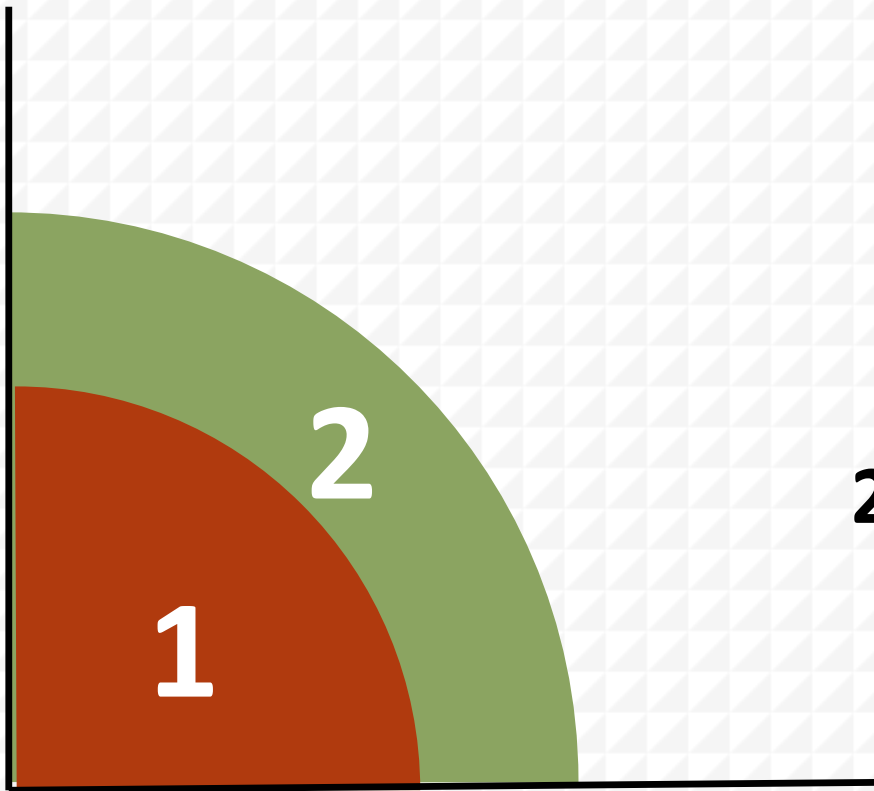
iRead

- Phonics
- Embedded Assessments
- Beastie Hall – A School for Monsters

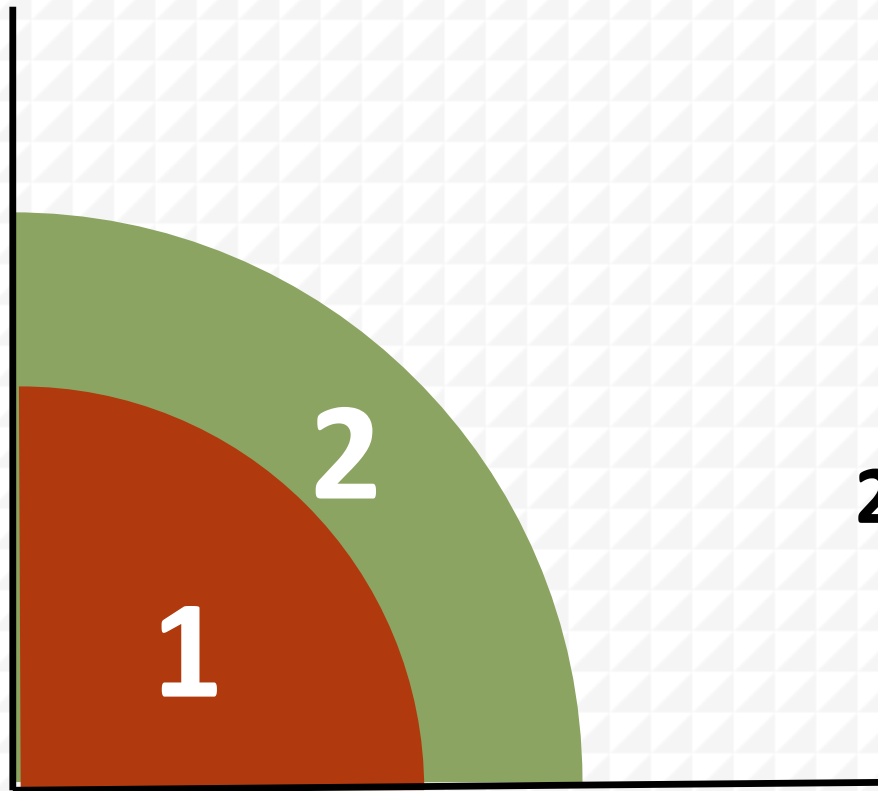
Game Theory in Education

**1 – Sushi Monster
(FASTT Math Next
Generation)**

2 – iRead



Game Theory in Education



**1 – Sushi Monster
(FASTT Math Next
Generation)**

**2 – iRead
- Math 180**

A Look to the Future

- **Math 180**
 - **Scope and Sequence tied to CCSS**
 - **Embedded Assessments like NGAs**

Blended Model

Teachers

- Relationship
- Build Conceptual Understanding

Guiding Principles

- Responsibility
- Contemplation
- Initiative
- Perseverance
- Optimism
- Courage
- Respect
- Compassion
- Adaptability
- Honesty
- Trustworthiness
- Loyalty

Online Instruction

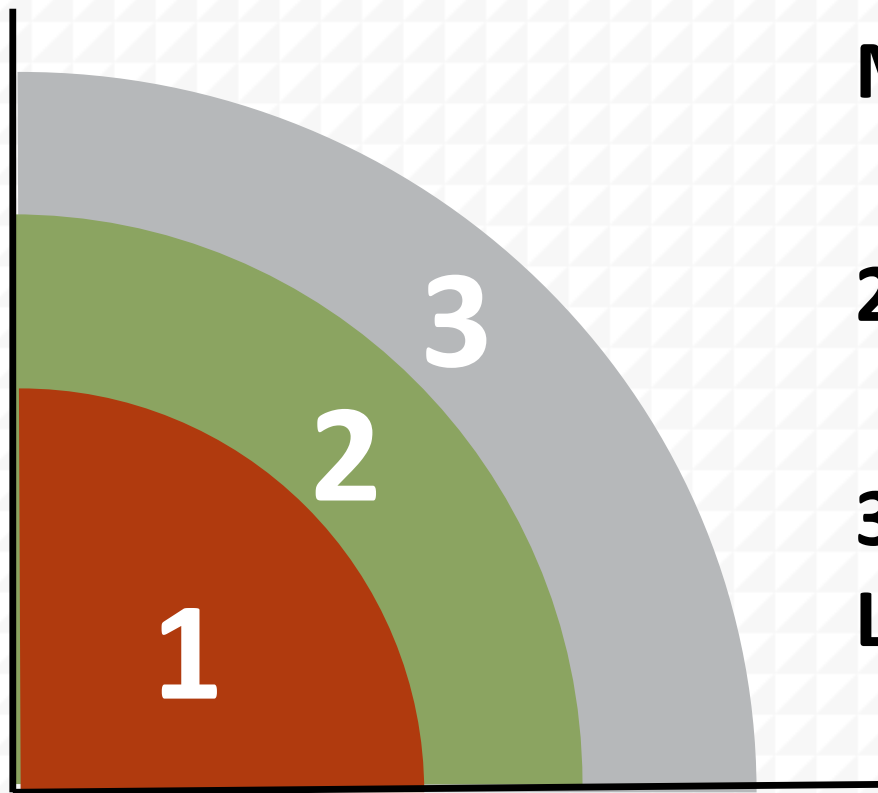
Online Learning Facts

- 30 states have full-time online schools
- 96% of LEAs have students enrolled in distance education courses at the HS level

US Average per Pupil Expenditures

- Fully online model - \$6,400
- Blended-learning model - \$8,900
- Traditional school model - \$10,000

Game Theory in Education



1 – Sushi Monster (FASTT MATH)

2 – Math 180

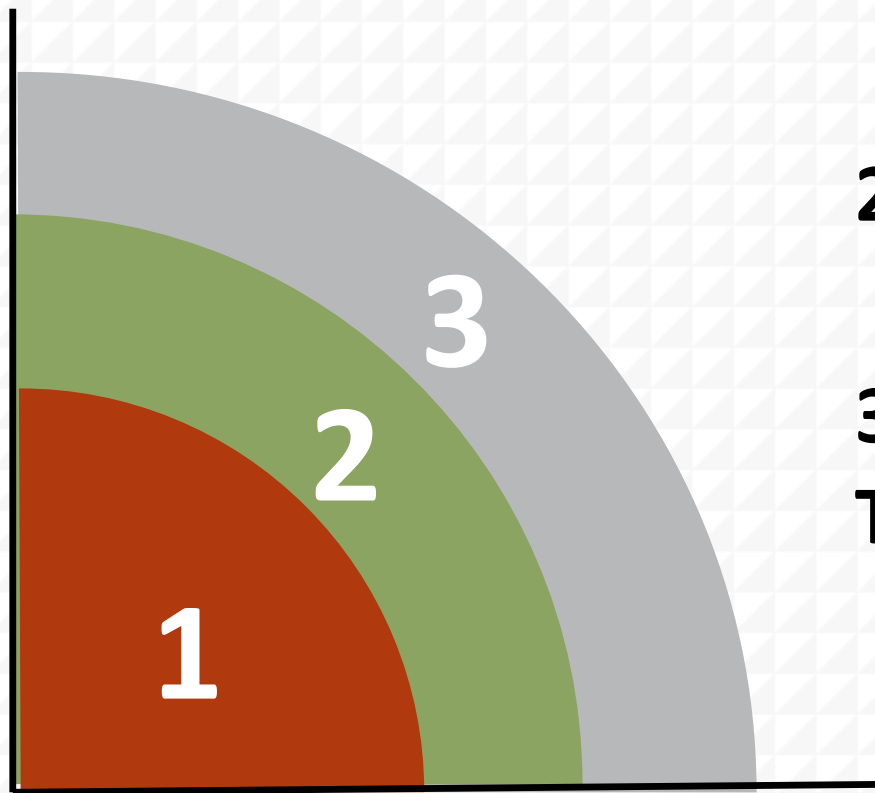
3 – Online Game-based Learning

Blended Model

A Look to the Future

It Can be Done...

Technology in Schools



1 – Computer Labs

2 – One-to-One Computing

**3 – Bring Your Own
Technology (BYOT)**

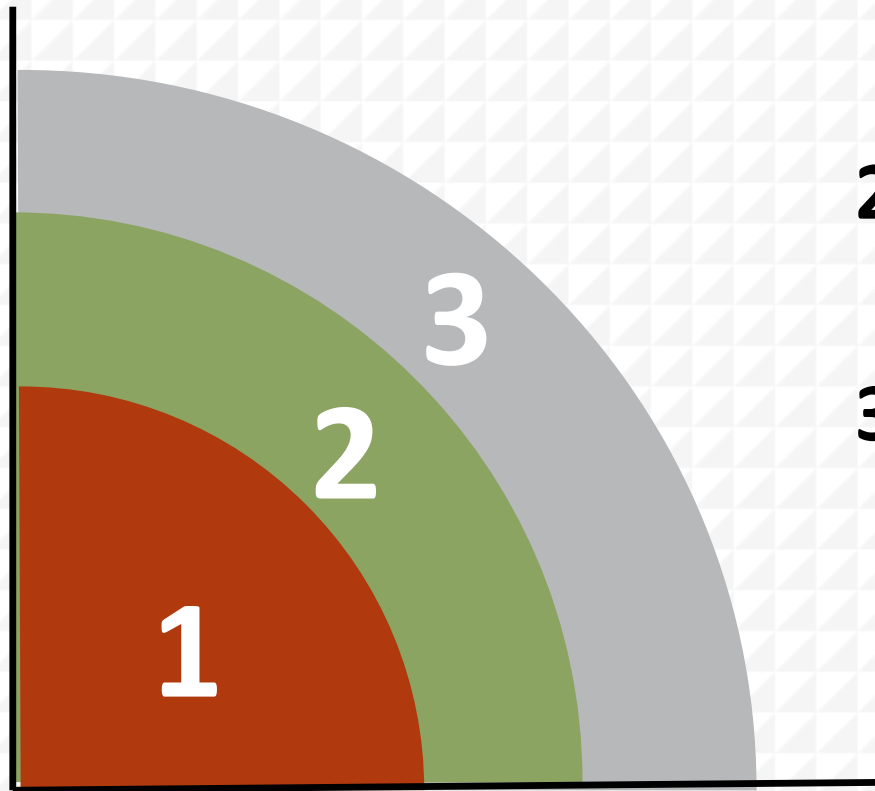
Pencil Budget

**Technology needs to do to education
what it has done to countless other
industries: Disrupt It**

Technology is a Tool NOT a Function

- Instruction
- Professional Development
- Leadership Development
- Data Systems

Instruction

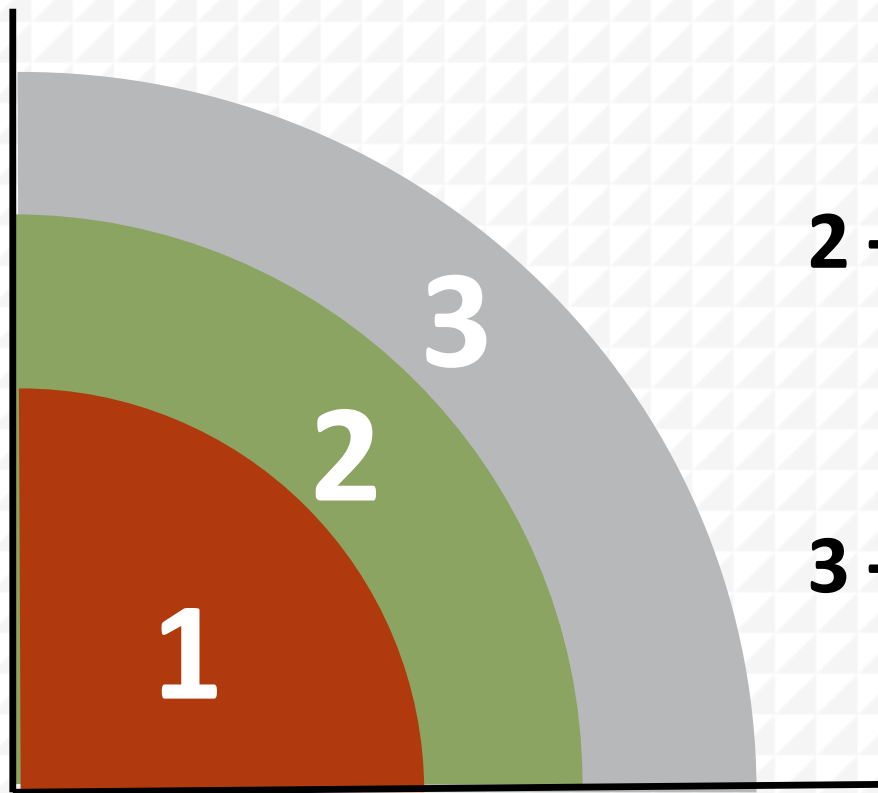


1 – Project-based Learning

2 – Flipped Classroom

3 – Online Gaming-based System

Grading of Papers



1 – Training all teachers to grade essays

2 – Computer grading of essays

3 – Computer-based grading and immediate instruction based on performance

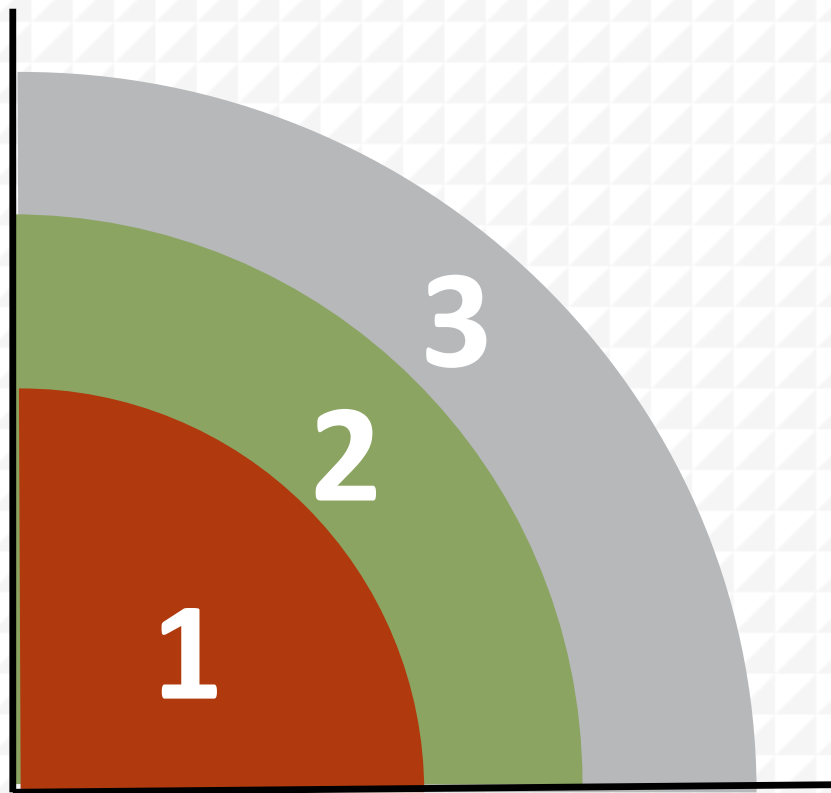
Learning

1 – Learning Together



1

Professional Development

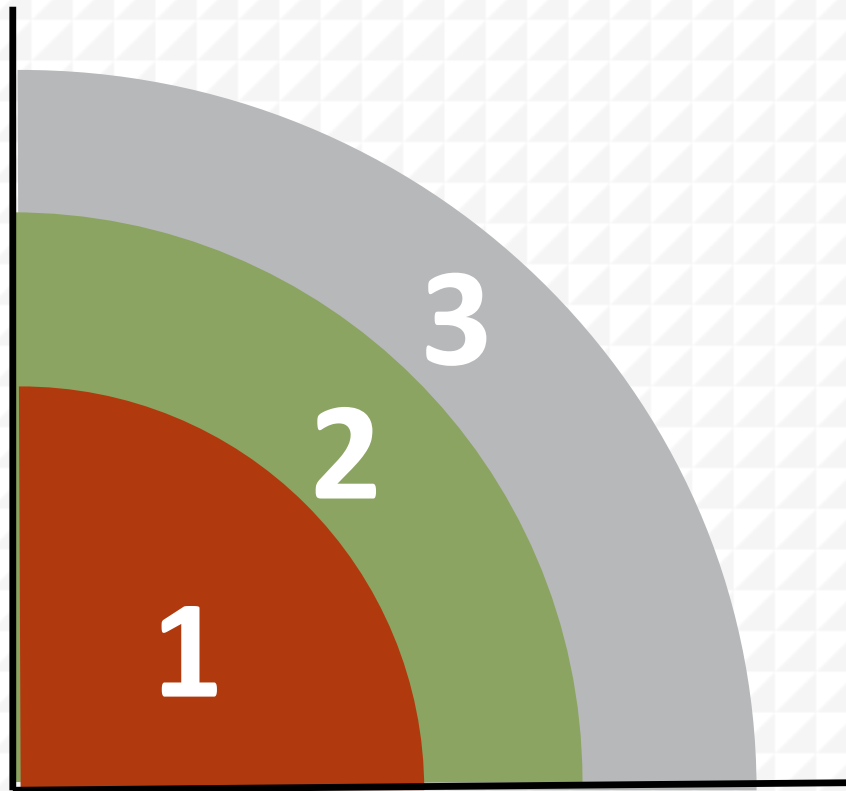


1 – Student run technology P.D. (survey/3 levels)

2 – Teachers are given technology IEP with students as their mentors

3 – Top 1/3rd students and teachers create alternative instructional delivery system

Assessments



**1 – Paper and Pencil
Formative Assessments**

2 – Gas Bill

- Application bases
- Multi disciplined
- Quad D

**3 – Tablets with instant
computer based scoring
and instruction**

Use of Data

1 – Status Report – gather and reflect on performance and value added data

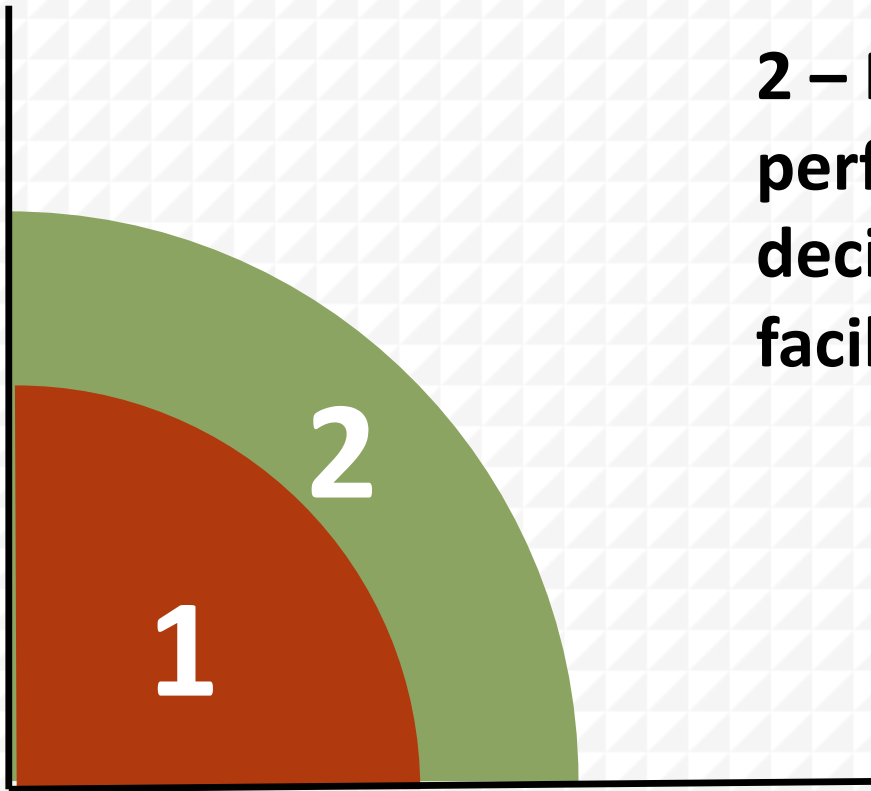


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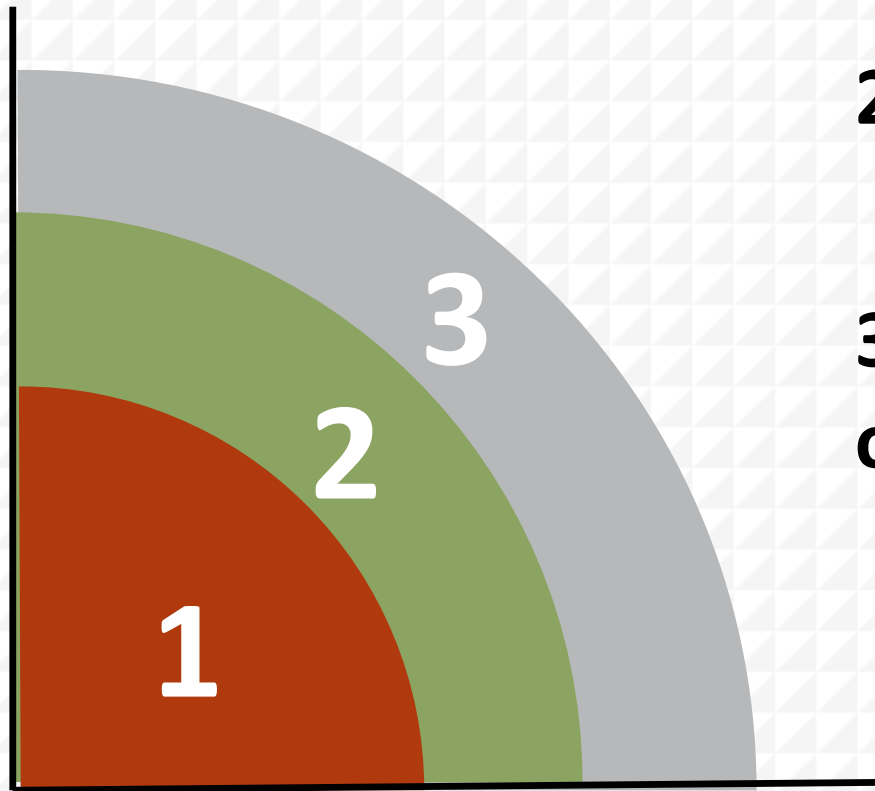
Use of Data

1 – Status Report

2 – Predictive Data – i.e. drop out, performance, etc. to assist in decision making of staffing, facilities, course offerings, etc.



Use of Data

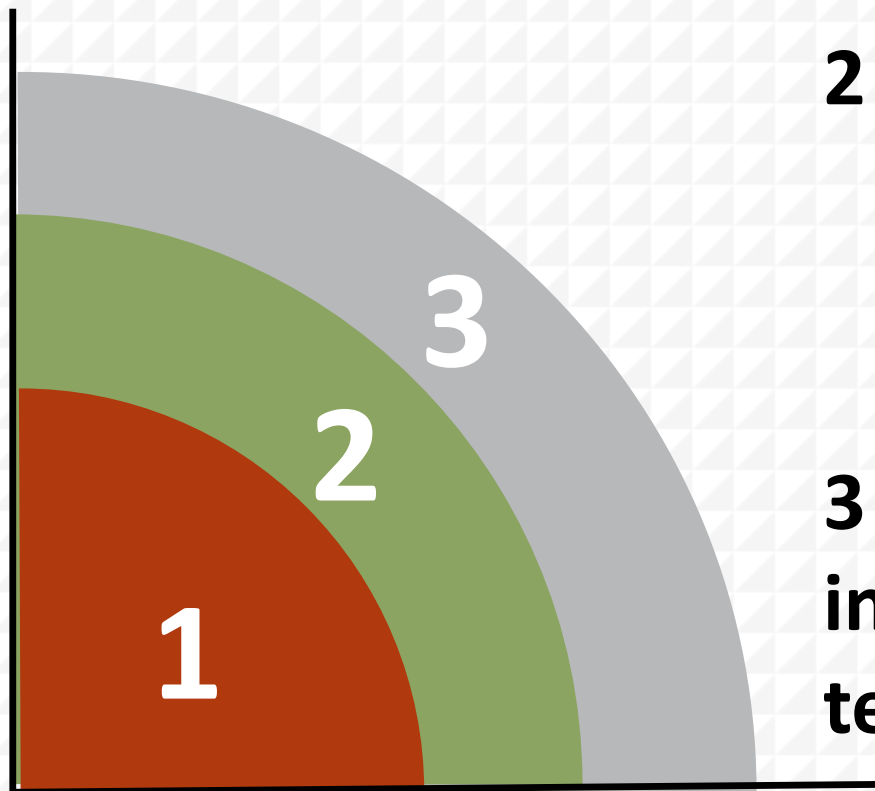


1 – Status Report

2 – Predictive Data

**3 – Reward teachers who
out-perform what
predictive data projects**

Personalized Instruction



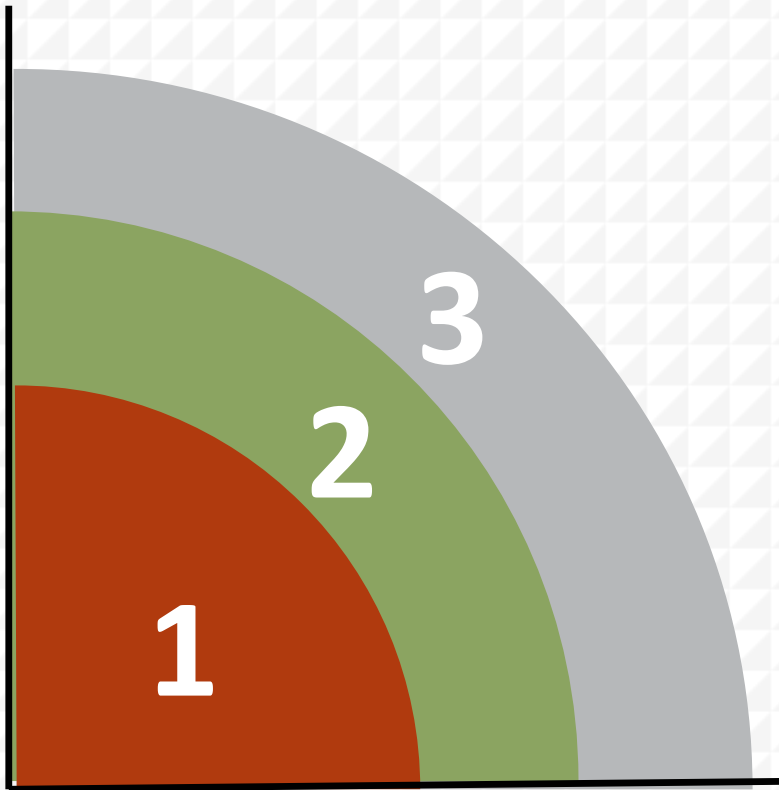
1 – IEP for ALL Students

2 – Match student's learning style with teacher's instructional style

3 – Blended comprehensive instructional plan including teacher, gaming and online

Integration

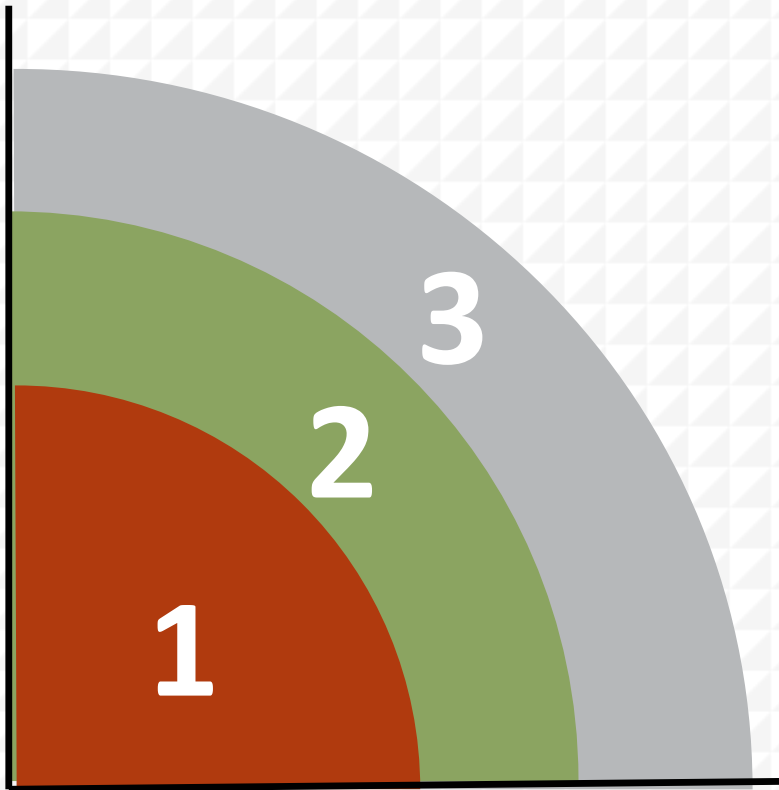
**1 – Integration of
Art/Music/CTE into
academics and visa-versa
- Interdisciplinary
Departments**



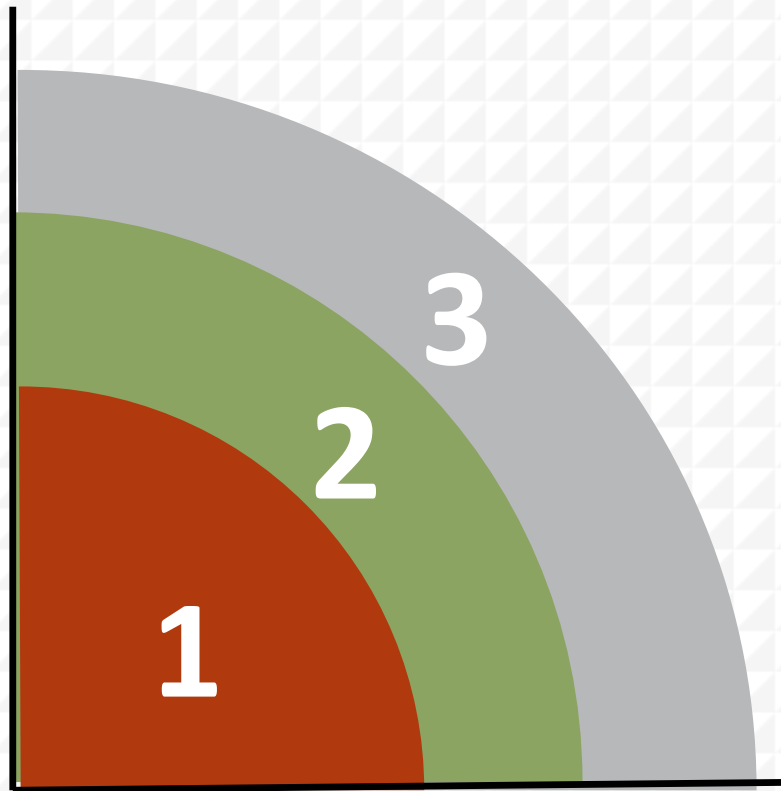
Integration

1 – Integration

2 – Career pathway for ALL students



Integration



1 – Integration

2 – Career pathway for ALL students

3 – Combining blended learning and multiple institutions

Take off the plate

CCSS NGA

1 – Curriculum Matrix



1

Road Map

- State Standards to State Tests

MCA II English Language Arts Benchmarks Tested

	High	Medium	Low
Grade 3	8	4	34
Grade 4	14	1	36
Grade 5	12	2	39
Grade 6	10	2	44
Grade 7	7	5	48
Grade 8	9	3	52
Grade 9-11	24	2	48

National Essential Skills Study (NESS)

NESS Study – Subgroup Rankings

ELA Skill: *Write clear and concise directions or procedures.*

Group	Rank
Overall	9
Business/Industry	2
Other Non-educators	10
English Language Arts Teachers	25
Other Educators	8

NESS Study – Subgroup Rankings

ELA Skill: *Give clear and concise oral directions.*

Group	Rank
Overall	7
Business/Industry	3
Other Non-educators	9
English Language Arts Teachers	28
Other Educators	7

NESS Study – Subgroup Rankings

Math Skill: *Apply the Pythagorean Theorem to right triangles.*

Group	Rank
Overall	20
Business/Industry	29
Other Non-educators	31
Mathematics Teachers	4
Other Educators	24

NESS Study – Subgroup Rankings

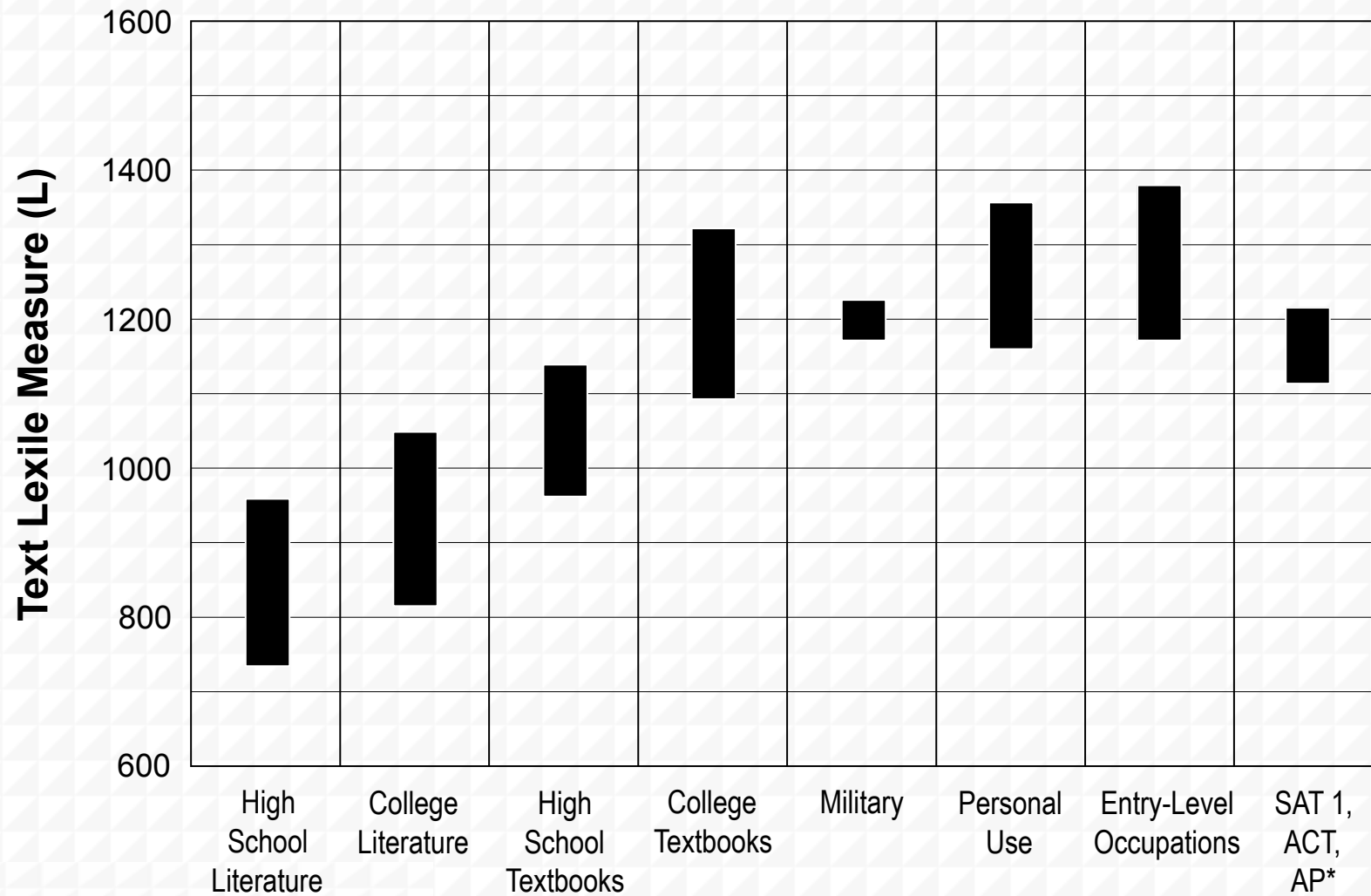
Math Skill: *Understand accuracy and precision of measurement, round off numbers according to the correct number of significant figures, and determine percent error.*

Group	Rank
Overall	12
Business/Industry	3
Other Non-educators	10
Mathematics Teachers	30
Other Educators	8

Proficiency

Reading Study Summary

Interquartile Ranges Shown (25% - 75%)



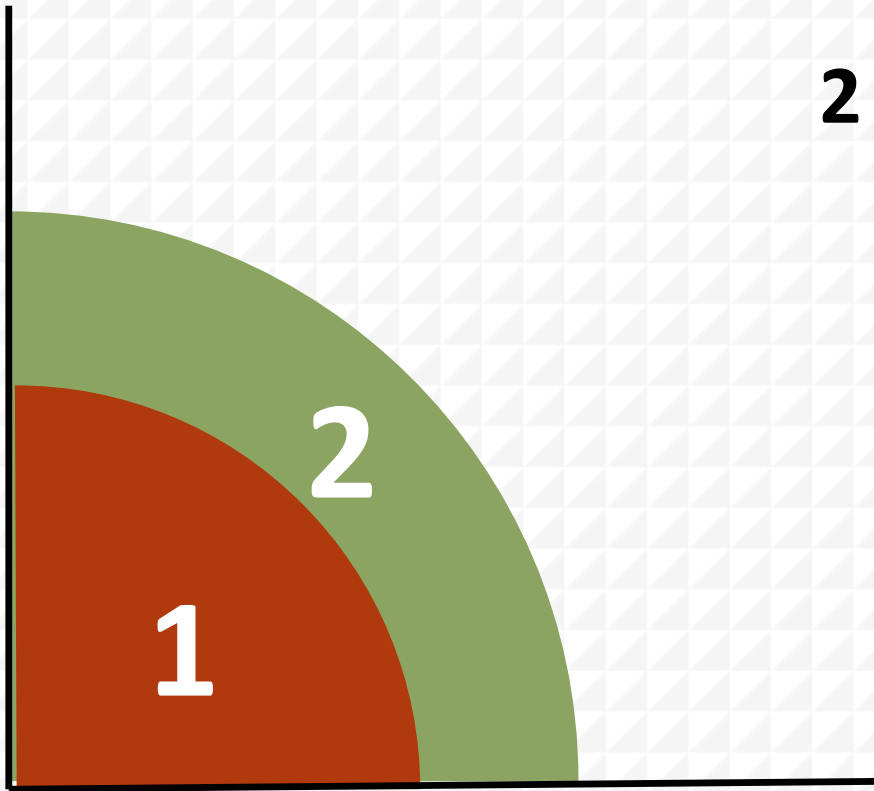
* Source of National Test Data: MetaMetrics

State Standards	State Tests	NESS & Lexile
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
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_____	_____	_____
_____	_____	_____

CCSS NGA

1 – Curriculum Matrix

2 – Next Network



Next Network

By Tennessee State Standard

By CCSS

By Sample NGA

Subject:

Grade:

Keyword(s):


* Please enter a grade, content area, and/or keyword(s) for search.

By Tennessee State Standard Results

expand all

collapse all

clear all

Tennessee State Standard	TCAP	Choose (up to 3)	Essential Skills Rank	Common Core State Standard	Sample NGA
<ul style="list-style-type: none"> ▶ Strand 1 – Mathematical Processes ▶ Strand 2 - Number and Operations ▶ Strand 3 – Algebra ▼ Strand 4 – Geometry and Measurement 					
SPI 0406.4.1 Classify lines and line segments as parallel, perpendicular, or intersecting.	M	<input type="checkbox"/>	M	Geometry - Draw and identify lines and angles, and classify shapes by properties of their lines and angles. 2. Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.	
SPI 0406.4.2 Graph and interpret points with whole number or letter coordinates on grids or in the first quadrant of the coordinate plane.	M			There is no Common Core State Standard equivalent at this grade level.	
SPI 0406.4.3 Construct geometric figures with vertices at points on a coordinate grid.	M			There is no Common Core State Standard equivalent at this grade level.	
SPI 0406.4.4 Identify acute, obtuse, and right angles in 2-dimensional shapes.	M	<input type="checkbox"/>	M	Geometry - Draw and identify lines and angles, and classify shapes by properties of their lines and angles. 2. Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.	


1

2

3


4

5



State Standards	State Tests	NESS & Lexile	Common Core Standards
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____





State Standards	State Tests	NESS & Lexile	Common Core Standards
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
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_____	_____	_____	_____
_____	_____	_____	_____



OH. Standards → CCSS

By Ohio State Standard | By CCSS | By Sample NGA | By Common Core Strand and GSL

Subject: Grade: Keyword(s):

* Please enter a grade, content area, and/or keyword(s) for search.

By Ohio State Standard Results

Ohio State Standard	DAT/OGT	Choose (up to 3)	Essential Skills Rank	Common Core State Standard	Sample NGA
STANDARD - Number, Number Sense and Operations					
Organizer: Number and Number Systems					
1. Decompose and recompose whole numbers using factors and exponents (e.g., $32 = 2 \times 2 \times 2 \times 2 \times 2 = 25$), and explain why "squared" means "second power" and "cubed" means "third power." (Benchmark G)	H	<input type="checkbox"/>	M	Expressions and Equations - Apply and extend previous understandings of arithmetic to algebraic expressions. 1. Write and evaluate numerical expressions involving whole-number exponents.	
2. Find and use the prime factorization of composite numbers. For example: a. Use the prime factorization to recognize the greatest common factor (GCF). b. Use the prime factorization to recognize the least common multiple (LCM). c. Apply the prime factorization to solve problems and explain solutions. (Benchmark G)	H	<input type="checkbox"/>	M	The Number System - Compute fluently with multi-digit numbers and find common factors and multiples. 4. Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. For example, express $36 + 8$ as $4(9 + 2)$.	

Road Map

- State Standards to State Tests
- State Standards to Research
- State Standards to CCSS
- CCSS to State Standards

Road Map

- State Standards to State Tests
- State Standards to Research
- State Standards to CCSS
- CCSS to State Standards
- State Tests to CCSS
- Sample NGAs

Item Exemplars: Performance Task

Gas Bills, Heating Degree Days, and Energy Efficiency

Here is a typical story about an Ohio family concerned with saving money and energy by better insulating their house.

Kevin and Shana Johnson's mother was surprised by some very high gas heating bills during the winter months of 2007. To improve the energy efficiency of her house, Ms. Johnson found a contractor who installed new insulation and sealed some of her windows. He charged her \$600 for this work and told her he was pretty sure that her gas bills would go down by "at least 10 percent each year." Since she had spent nearly \$1,500 to keep her house warm the previous winter, she expected her investment would conserve enough energy to save at least \$150 each winter (10% of \$1,500) on her gas bills.

Ms. Johnson's gas bill in January 2007 was \$240. When she got the bill for January 2008, she was stunned that the new bill was \$235. If the new insulation was going to save only \$5 each month, it was going to take a very long time to earn back the \$600 she had spent. So she called the insulation contractor to see if he had an explanation for what might have gone wrong. The contractor pointed out that the month of January had been very cold this year and that the rates had gone up from last year. He said her bill was probably at least 10% less than it would have been without the new insulation and window sealing.

Ms. Johnson compared her January bill from 2008 to her January bill from 2007. She found out that she had used 200 units of heat in January of 2007 and was charged \$1.20 per unit (total = \$240). In 2008, she had used 188 units of heat but was charged \$1.25 per unit (total = \$235) because gas prices were higher in 2008. She found out the average temperature in Ohio in January 2007 had been 32.9 degrees, and in January of 2008, the average temperature was more than 4 degrees colder, 28.7 degrees. Ms. Johnson realized she was doing well to have used less energy (188 units versus 200 units), especially in a month when it had been colder than the previous year.

Since she used gas for heating only, Ms. Johnson wanted a better estimate of the savings due to the additional insulation and window sealing. She asked Kevin and Shana to look into whether the "heating degree days" listed on the bill might provide some insight.

Argon Energy Co.	Customer	Bill Date
	Ms. Arlene Johnson	January 31, 2008
	42 Bluebonnet Avenue	Account #
	Columbus, OH 43205	55-73342B
		Residential
<hr/>		
Current Itemized Bill		
December 30 reading actual		8300
January 31 reading actual		8488
<hr/>		
Total units used January 2008		188
January 2008:	1108 heating degree days	
	0 cooling degree days	
<hr/>		
Price per unit @ \$1.25		\$235
<hr/>		
Energy Use History		
Total units used January 2007		200
January 2007:	1000 heating degree days	
	0 cooling degree days	
<hr/>		
TOTAL CURRENT CHARGES		\$235

(continued)

Road Map

- State Standards to State Tests
- State Standards to Research
- State Standards to CCSS
- CCSS to State Standards
- State Tests to CCSS
- Sample NGAs

State Test

NGA

- 25** This table shows the number of cans placed in a collection bin during a food drive.

Food Drive Results

Type of Food	Number of Cans
Vegetable	2,578
Fruit	1,359
Meat	1,240
Sauce	580

One can will be randomly selected from the bin. Which is closest to the probability that the can selected will contain fruit or sauce?

- A** 0.10
- B** 0.24
- C** 0.34
- D** 0.66

Create a large spinner for a game that has at least eight sectors. Each sector should be assigned a different 'prize'. Prizes should range in value from most appealing to least appealing.

Vary the sectors so that the probability to win a desired prize is much less than the probability to win a lesser desired prize. Calculate the theoretical probability of landing on each prize.

Conduct multiple trials with the spinner and determine the experimental probability of landing on each prize. Which prize has the greatest probability and which prize has the least probability?

Gold Seal Lessons

Search Gold Seal Lessons

Grade(s):	Subject(s):	Topic(s):	Search by:
K	ALL	ALL	<input type="radio"/> Common Core Strand
1	Art	– Science --	<input checked="" type="radio"/> Subject / Topic
2	Career & Tech	Agriculture	
3	English	Animal	
4	Math	Biology	
5	Music	Chemistry	
6	PE/Health	Computer	
7	Science	Earth	
8	Social Studies	Elements	
9	STEM	Environmental	

(CTRL-click to select multiple)

Keyword(s):

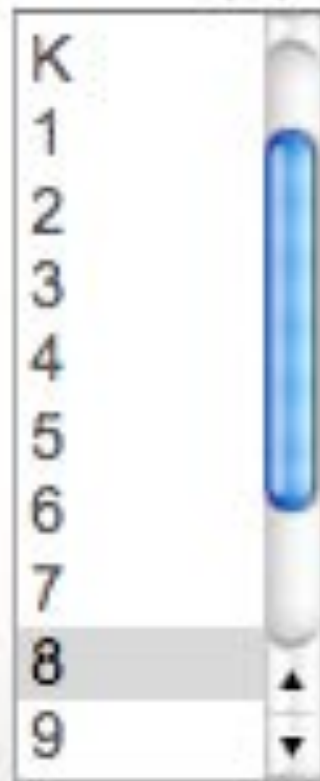
(example: global, market)

With Video

Gold Seal Lessons

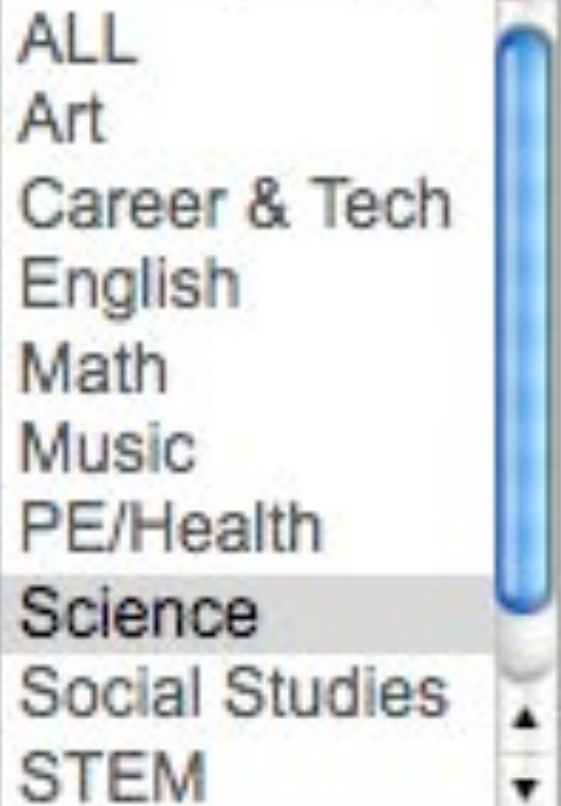
Grade(s):

K	
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Gold Seal Lessons

Subject(s):



A scrollable list of subjects. The list is contained within a rectangular box with a light gray border. The subjects listed are: ALL, Art, Career & Tech, English, Math, Music, PE/Health, Science, Social Studies, and STEM. The 'Science' option is highlighted with a gray background. To the right of the list is a vertical blue scrollbar with a white arrow pointing up and a white arrow pointing down at the bottom.

- ALL
- Art
- Career & Tech
- English
- Math
- Music
- PE/Health
- Science
- Social Studies
- STEM

Gold Seal Lessons

Search by:

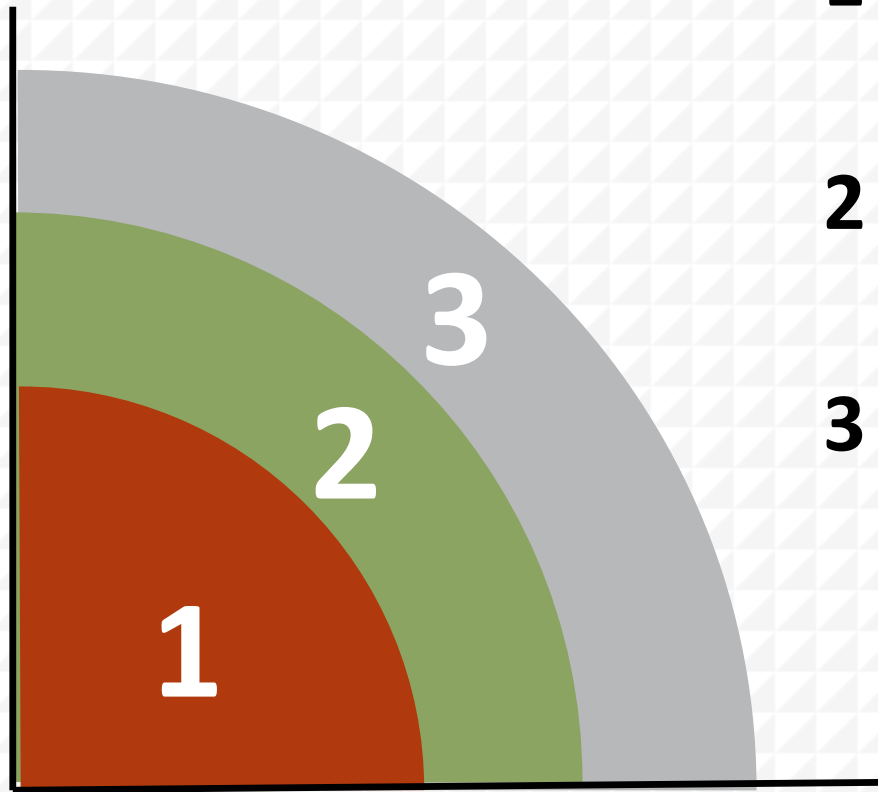
- Common Core Strand**
- Subject / Topic

Keyword(s): (example: global, market)

A Look to the Future

Focused and Sustained Professional Development

CCSS NGA

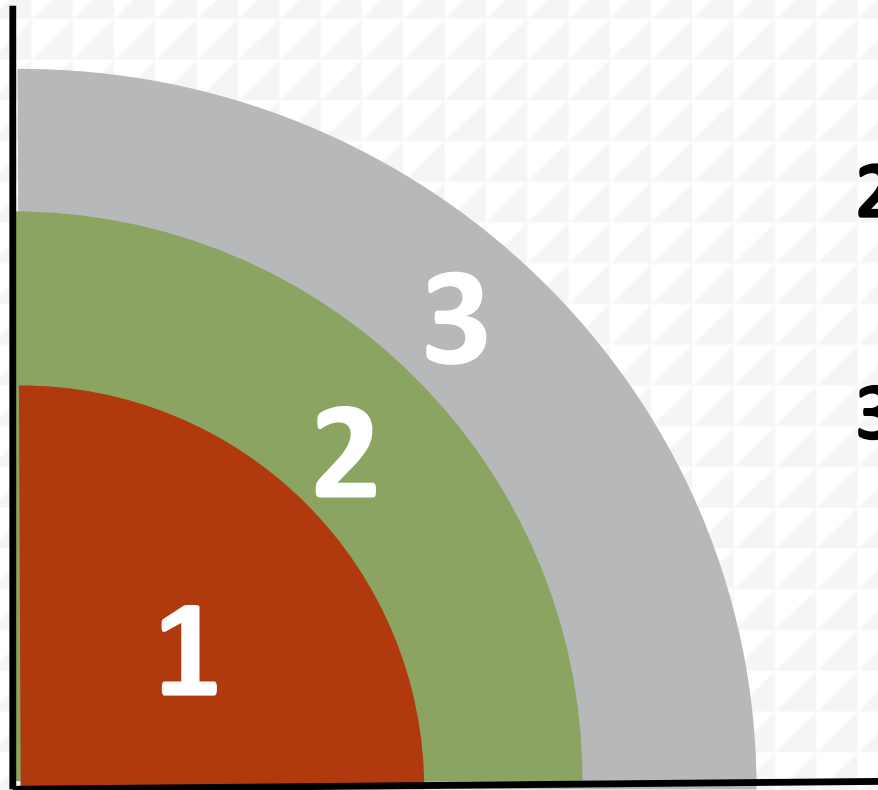


1 – Curriculum Matrix

2 – Next Network

3 – Online Game-based System

Our Mission



1 – Teaching

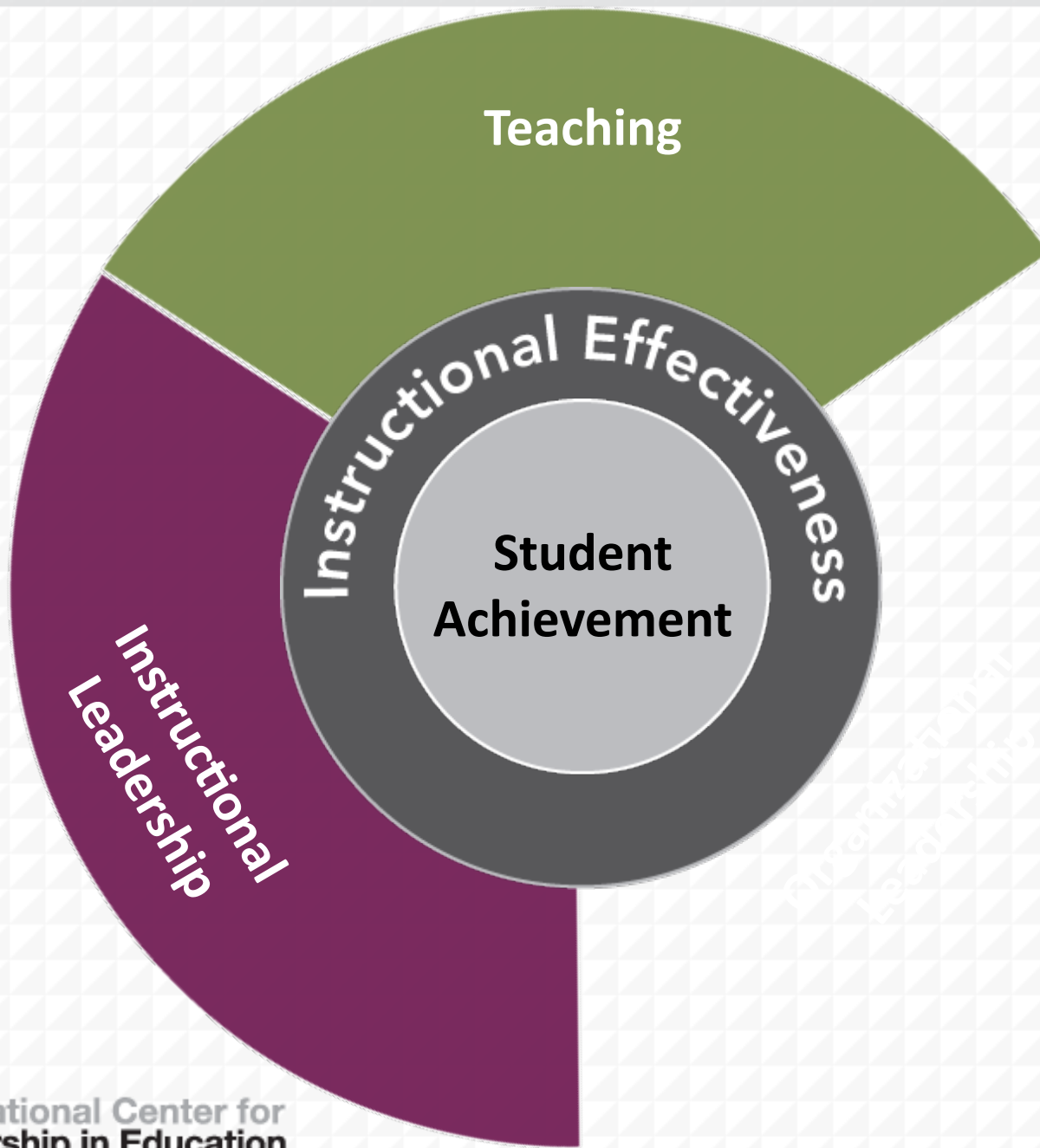
2 – Learning

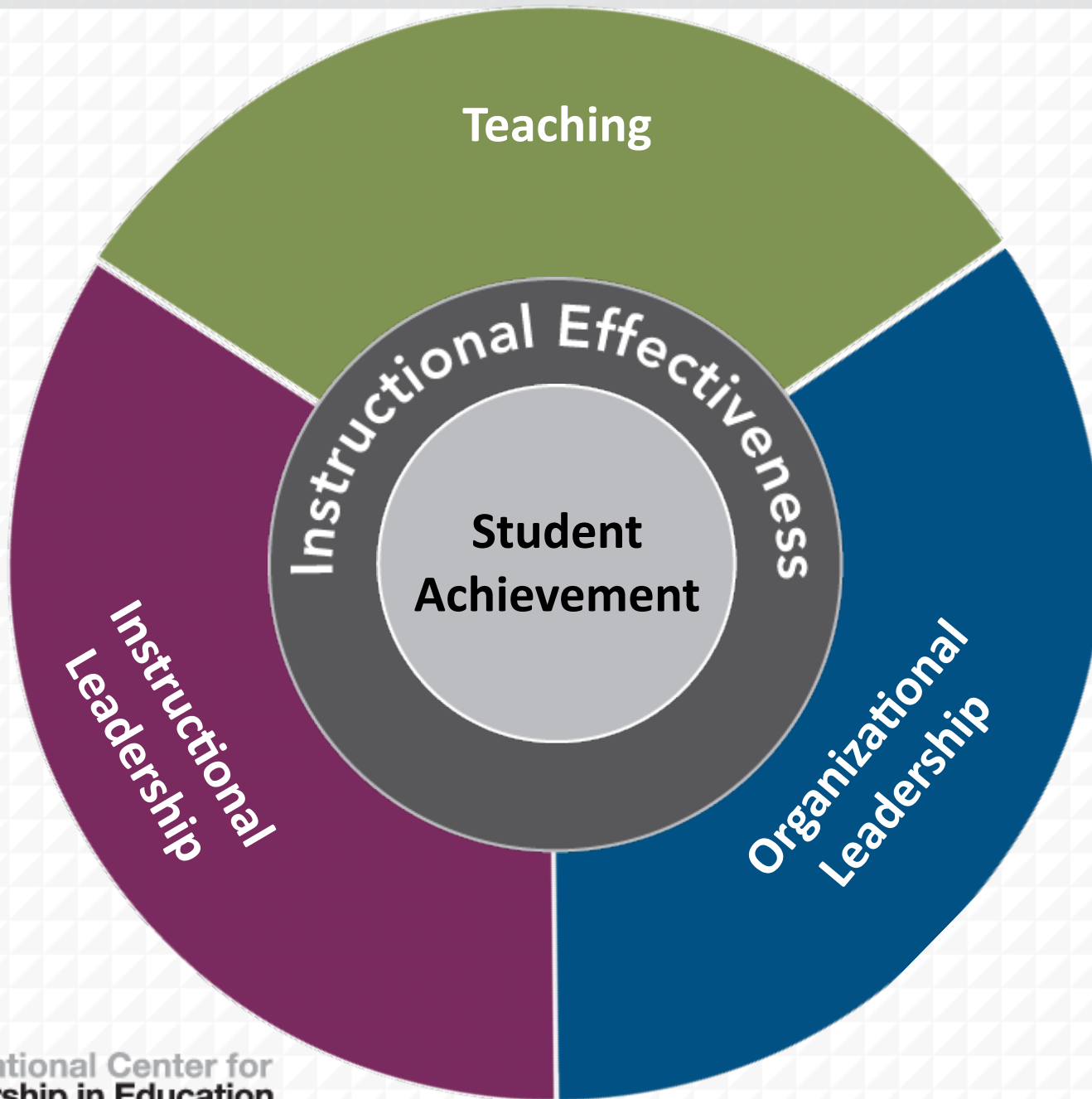
3 – Personalization of Learning

Student Achievement









A Look to the Future

The Role of the Teacher...



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Guiding Principles

- Responsibility
- Contemplation
- Initiative
- Perseverance
- Optimism
- Courage
- Respect
- Compassion
- Adaptability
- Honesty
- Trustworthiness
- Loyalty

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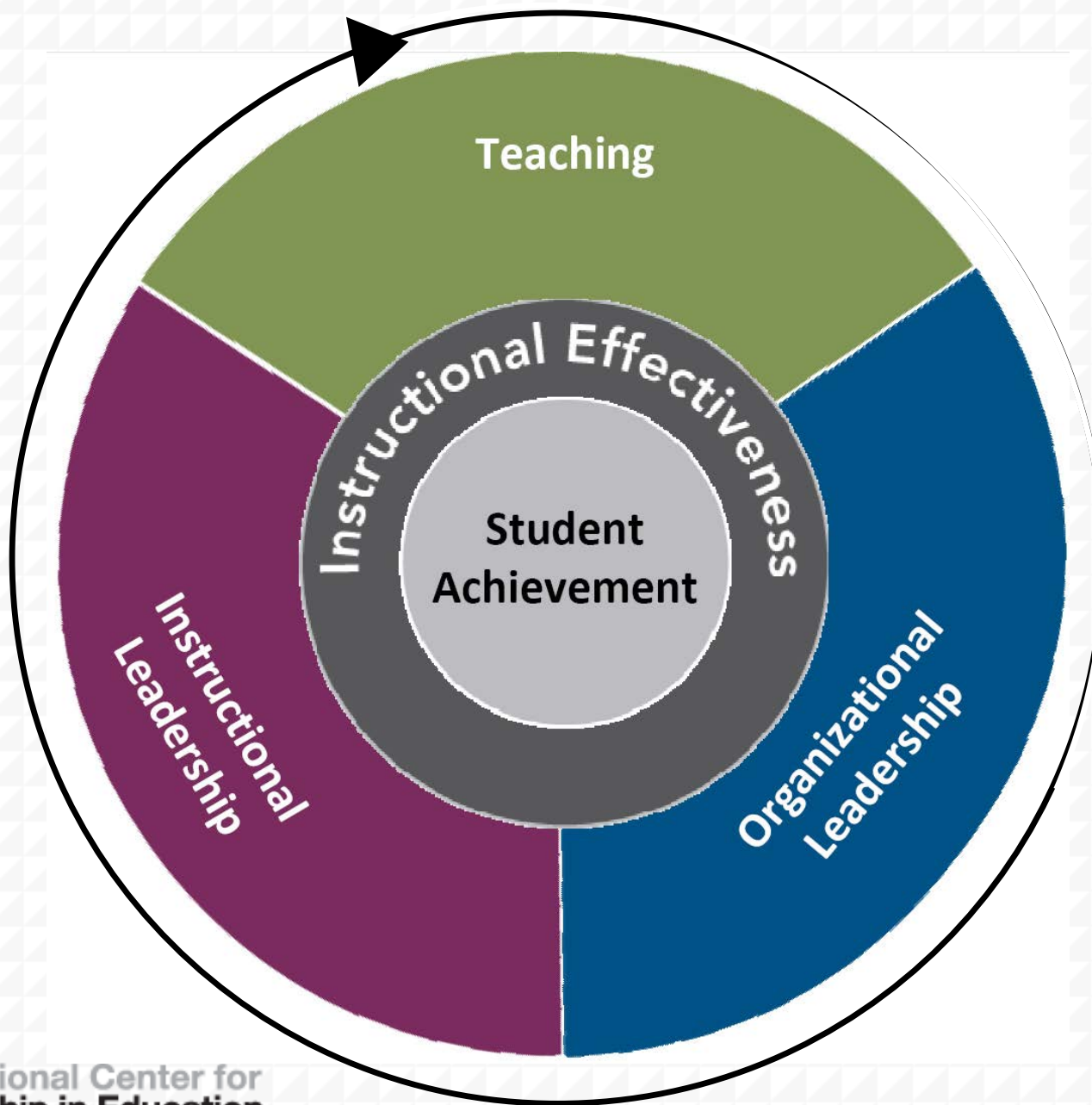
**Those things that are easy to
measure are least important.**

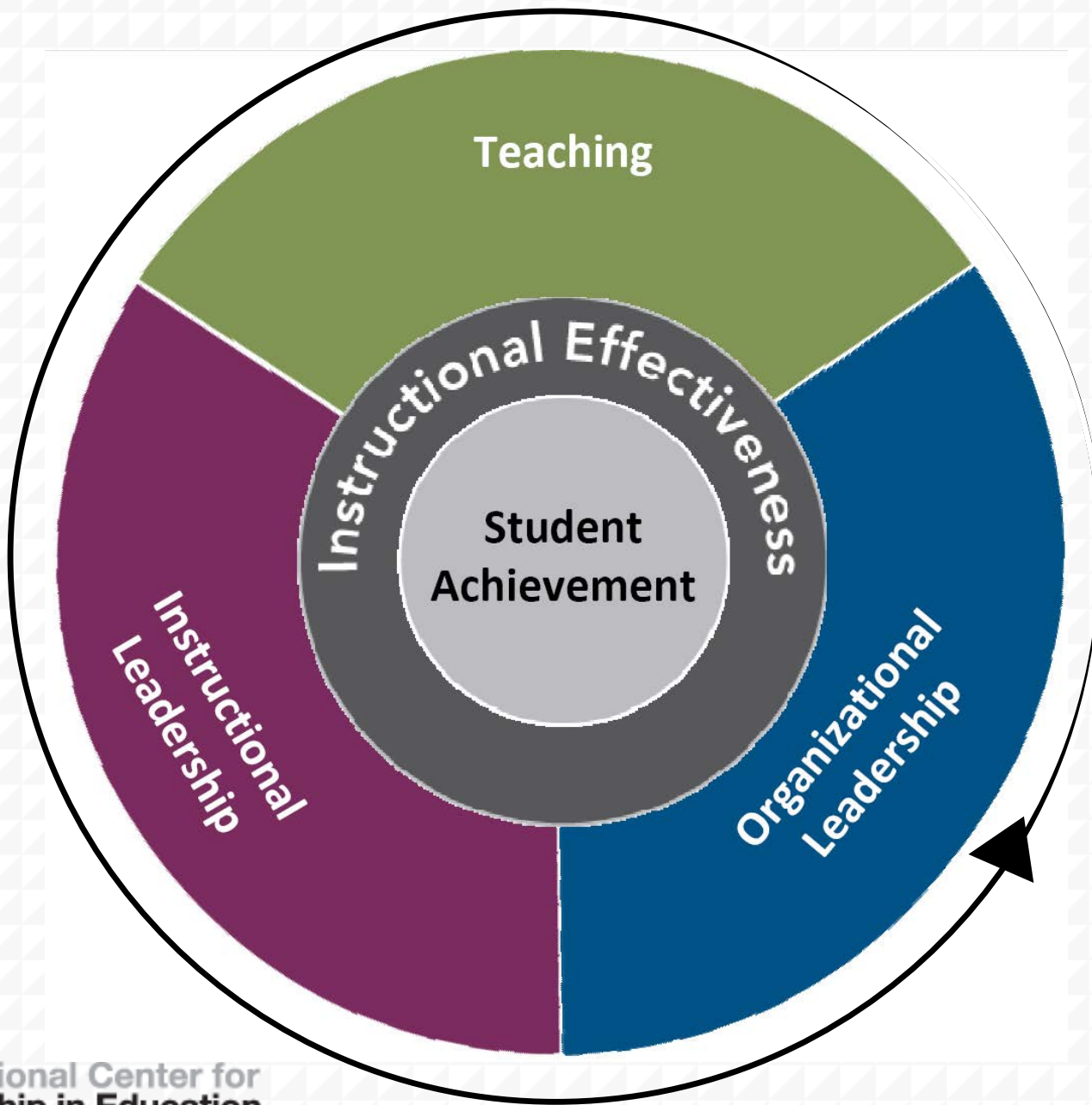
**Those things that are most
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measure.**

Doctor

Pilot

Student Achievement





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