

State and District Policy

Virtual Breakout

Group 1 - Lydia, Keith, Ruth Anne,

Opportunities/Challenges

- Make connections with pre-service world to empower educators entering the field with knowledge of the framework
- Uphill battle to even frame equity or use certain terms now in the curriculum conversation
- Local control leads to variations
- “Competing” with other subjects like literacy and with computer science and tech - need to better integrate and align
- Need to demonstrate what quality science teaching and learning looks like - best instructional practices

Goals

- Align pre-service/higher ed with Framework and quality training for teachers in implementation
- Highlight state actions/district stories and examples of framework-aligned teaching and learning
- Leverage momentum around broader interest in STEM, better integrate and align

Actors and Actions

- EPPs and state and district leads coordinate
- State and district leaders recognize importance of HQ science instruction, include in vision and planning
- Leaders message importance of science to workforce and equitable learning opportunities.
- District leaders/curriculum providers/PL leaders: Make it clear how meeting science standards also incorporates math, literacy, other STEM elements
- Grassroots: teacher engagement in quality science instruction

Group 2 - Kevin, Jeanne, Judi

Opportunities/Challenges

- Opp-District level policy constrained by societal norms around edu. We can give waivers and allow for flexibility at the state level, and districts don't always take advantage of this.
- Challenge- bringing teachers up to speed- implementation
- Challenge/opp- district curriculum adoption cycles siloed into subjects- if states could align subject standards and rollouts, this could help
- Opp- chance to transform science instruction- not just new standards; especially w/ pandemic, chance to be at crossroads
- Challenge/opp- teachers/districts are exhausted; ready to move forward with new energy, realizing that Ss have been missing out these last couple of years
- Challenge- aligning curriculum and assessment

Goals

- Reach the educators that haven't been reached yet
- Coherent systems united around a common vision
 - Continued support with curriculum and assessment systems
- Affirm that these standards aren't going away and the belief that these are strong standards- it's not a fad.
- Emphasize the resources that are out there- help connect districts and teachers to those resources- help districts with the adoption and implementation of these resources

Actors and Actions

- Emailing principals directly as a strategy
- Find out what districts feel they need
- Look to different systems beyond the ones we're in- regional networks of curriculum coordinators, STEM/CTE
- Seek out missing voices
- Finding the power players in the system "big voices" that have sway in districts, i.e. business, technology, industry people
- Coherent messaging from national consultants or science ed groups
- Network Improvement Communities

The REAL Group 3: Vanessa, Cindy, Nancy, and James

Opportunities/Challenges

Bright spot - brought more teachers into professional learning, "Wanting to learn" still a small percentage with the vast majority not attending.

PL not mandated for science.

Biggest challenge is the school accountability system. Build on advocacy for changes within the system.

Lack of knowledge about NGSS - not encouraged to be taught in elementary

Lack of high quality material.

Standards provide a greater opportunity for community within and among schools. Primary focus in elementary classrooms is literacy and math.

[NGSX](#) has been transformative. Lack ability to take beyond due to resources.

The school accountability system.

Lack of knowledge about NGSS - not encouraged to be taught in elementary

Lack of high quality material.

Goals

Identify the actors

Build on advocacy for changes within the system.

Build a coalition to advocate for change.

create systemic change

Recognition that current state of education is not equitable.

Science in elementary!

Advocate for state policy change - accountability

Actors and Actions

Who is really driving the bus and making decisions about what is being taught in elementary classrooms.

Need them to recognize the importance of science education are they really based on school accountability. How can we change that?

It is time for high-quality science as an indicator of School Quality and valued significantly

Nationwide challenge

Change accountability to a well-rounded education .

Ideas from each group

Opportunities/Challenges

- Pre-service teacher programs that aren't aligned with vision
- Is it a shared vision?
- Local control states
- Incoherence of systems
- Elementary access
- Inequities due to our systems
- Siloes of subject areas

Goals

- More coordination with pre-service teacher programs
- Elevate best practices
- Connect to hot topics w/ emphasis (STEM and CS, for example)
- Share current resources
- Leverage strong local voices and national actors
- Change school accountability systems - get broad coalition together to advocate for science as a school quality indicator

Actors and Actions

- Create standards for teacher preparation
- Messaging of good instructional techniques and criticality of foundation in science.
- Influence accountability systems
- More time for high quality science
- Public, educators, political groups - holistic education
- NGSx next steps
- People who can leverage funding - other influential groups
- Admin prioritizing

Summary Slide - 3 Big Ideas

Opportunities/Challenges

- Challenge: Local control, isolation, some people not being reached
- Challenge and opportunity: State accountability systems
- Science is not a priority/not valued (not in the accountability system and don't see value of holistic learning)

Goals

- Ensure every teacher has access to **networked** engagement and collaboration across districts - bringing in ALL voices. Inviting new teachers to the table and sustaining support of early adopters.
- Elevate the importance of science by revamping the **accountability** system to drive good instruction. Take focus off siloes of ELA and math.
- Develop support for science as a core content area and a rich context for learning other subjects (holistic); administrators and key education decision makers **value** science at all grade levels

Actors and Actions

- Rebuild a Science Matters network - utilize shared emails of local, state, and national orgs to tell strong stories of science successes; Education service centers, district science supervisors, state science supervisors
- Administrators, legislators, education leaders and advocates
- Bring “power players” onto the side of advocating for science; develop tools for advocacy and “convert” key community, regional and state influencers to advocate for science

Our Pitch!

The Opportunity/Challenge

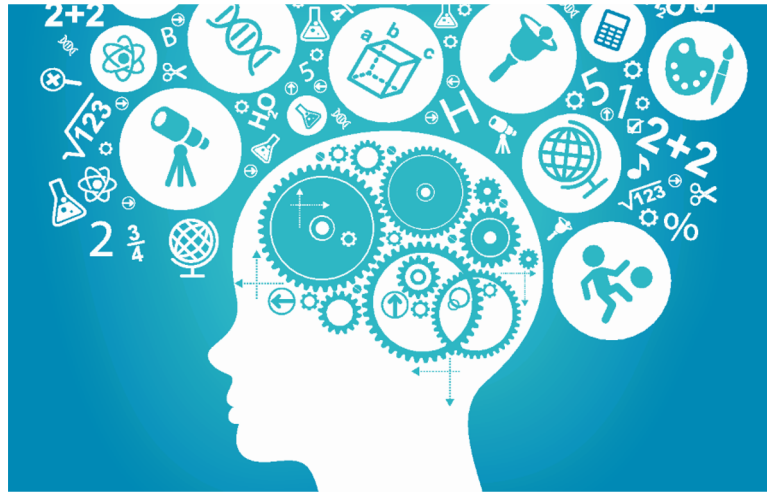
- The Accountability system can be a leverage point for creating more focus on and support for science
- K-5 science - where kids become a “science person” or not.

The Policy

- Networking?
- Accountability revamp?
 - Equity through an elementary focus - “Science every day!”
 - Integrated assessment
 - Value add of science to ELA and math (Nell Duke research for example)
 - [Knowledge-filled education](#)
 - Whole-child education
 - [Science at elementary](#) STT

Actors and Actions

- Federal policy related to accountability
- LEA policy - addition and/or integration of science



Room 1

Integration/accountability

Report cards

Career, college, and community readiness

*Science literacy is critical for career, college, and community readiness, and it supports learning in ELA and mathematics

Quality indicators:

Pitch to foundations - develop and test an alternative accountability system that truly supports the vision of college, career, and community readiness (which would emphasize the social studies and science spheres PK-12).

Group 4 - Nancy, Adrienne, Christy

Roadblock to teaching science/STEM more/earlier: Admins need to bring ELA and MA std test scores up —> teaching ELA and MA content

Developing science, SS, and arts is how to get to a holistic education

Equity lens : underserved schools, underserved populations..... school accountability is a lever, but would like to think of other options

Existing: attendance, graduation rates, New: Portfolio, Project/research briefs,

Who are the gatekeepers? Who is allowing this to happen? The reasons those gatekeepers are allowing this to happen is the accountability requirements in MA and ELA.

We need the accountability system of schools to better reflect what we say we value: Students having access to quality science experiences. How does our accountability system need to change to reflect that value?

Actors: Policy-makers (ESSA), State and fed level, but target state level

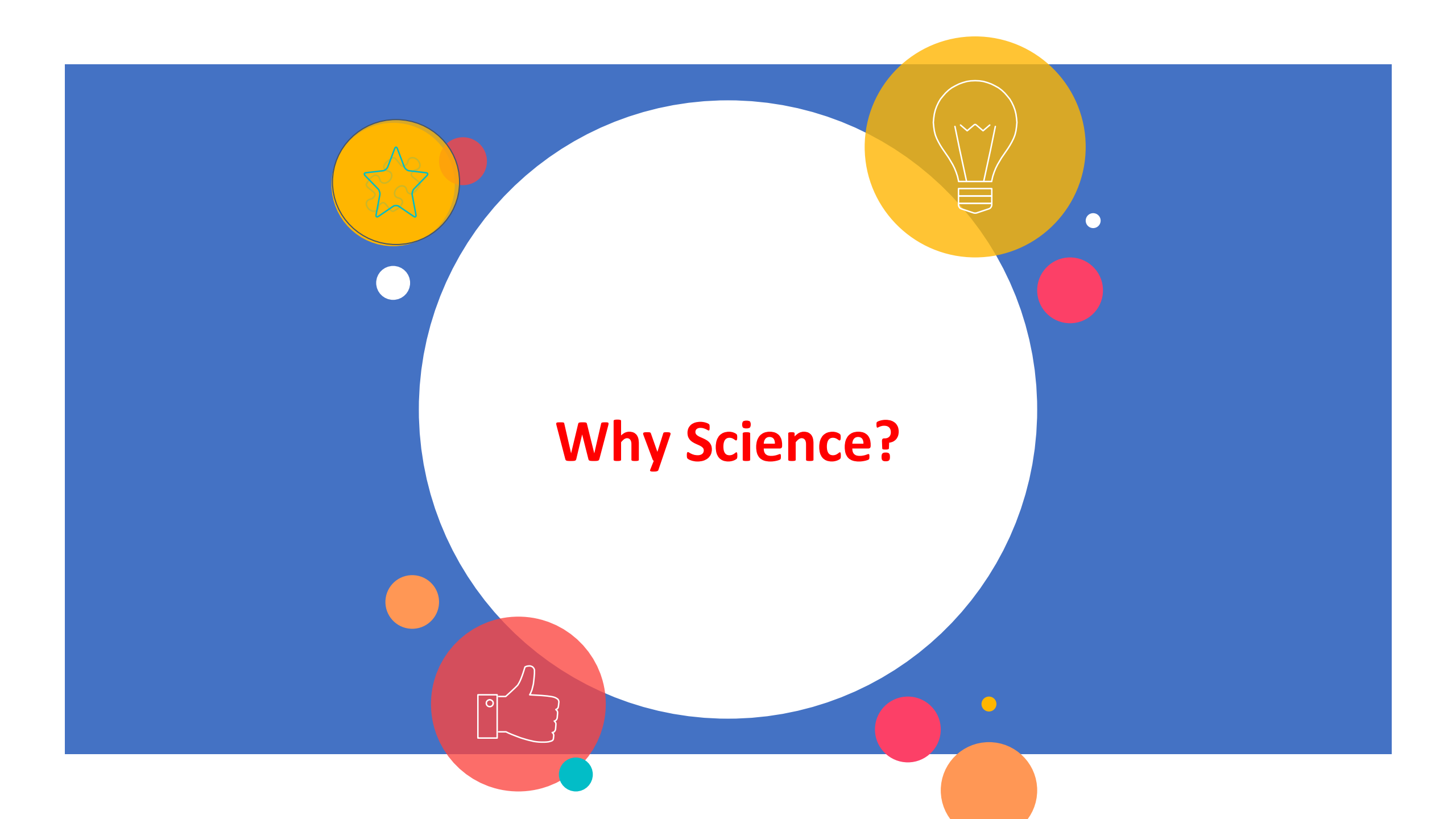
Link up all the conversations that are happening around this same issue....

The Background

- Losing kids to boredom...by the time they leave elementary school, they've already decided a lot about what value school has for them.
- Child mental health is more precarious than ever
- We must educate the whole child, provide them with relevance
- What are the workforce and societal implications for this decades later?
- We are at a crossroads...the pandemic has offered a moment to stop and reflect on what we're doing
- Future-oriented child- is what a child is learning reflective of the world they will face?
- Where has the focus on ELA and math gotten us so far?
- Where has the focus on standardized testing gotten us so far?
- Is what we're doing really working?

The Ask

- Teachers need time in the day to focus on K-5 science
- But they are constrained by current accountability systems that heavily focus on ELA and math- we can either work within these accountability systems, or rework them entirely- either way, science should be a key focus of instruction. Here's why.
 - Science gives context to ELA and math that strengthens student skills- we want to see integration when possible, to work smarter not harder. This will have benefits for secondary education as well, as students will be more prepared.
 - Focusing on science in elementary also plants the seeds for future workforce development- if students do not see themselves reflected in science, they will not think they are a good fit for those careers- and there are many to fill especially in the future! We need skilled, knowledgeable workers to fill these roles.
- In the meantime, school quality indicators could include science time and provide evidence to districts why this is critical.



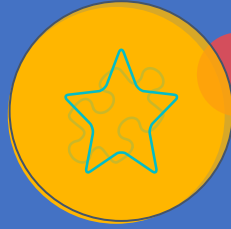
Why Science?

An Equitable Vision for Science Education

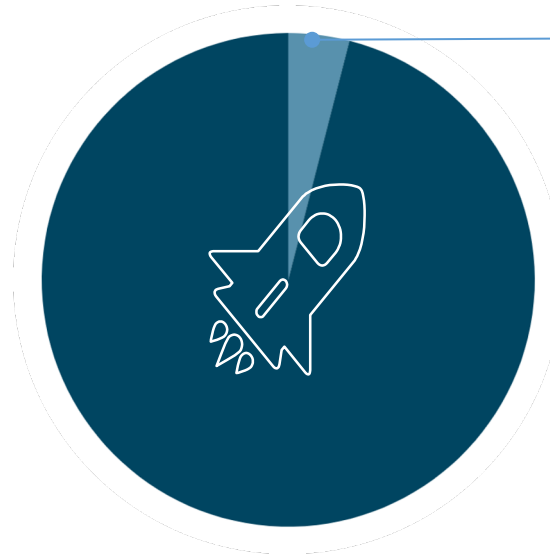
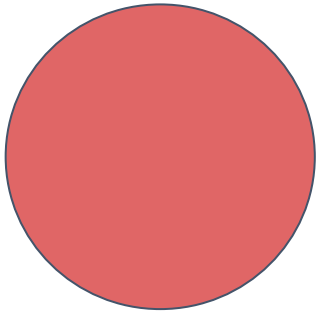
“Our vision is that **every student** experiences the joy, beauty and power of science, learns how science can be used to **solve local and global problems**, sees the pathways they can take into **science-related careers**, and feels **welcomed and valued in science classrooms.**”

National Academies of Sciences, Engineering, and Medicine. 2021. Call to Action for Science Education: Building Opportunity for the Future. Washington, DC: The National Academies Press. <https://doi.org/10.17226/26152>.

The Current State of the System

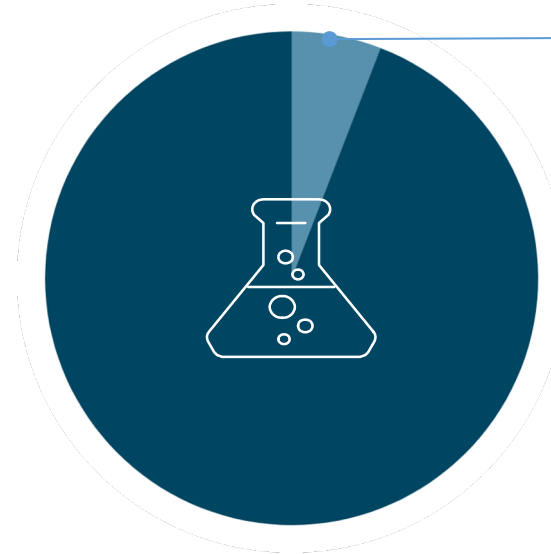


What if ELA or math instruction began in middle school?



4% of a 7 hour
school day

18 min/day
In K-3rd grades

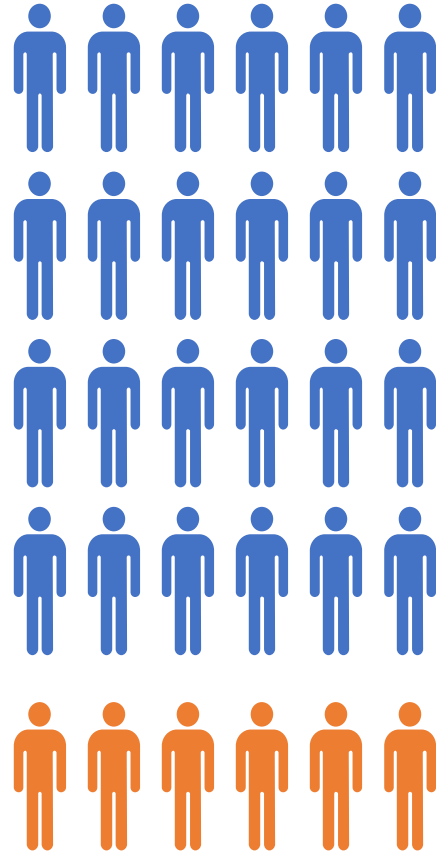
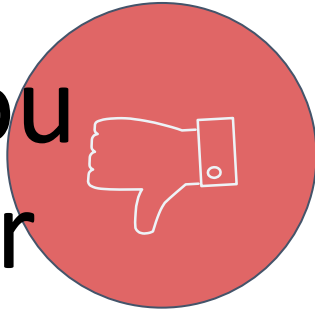


6% of a 7 hour
school day

27 min/day
In 4-6th grades



Would you
deny your
child access
to a high-
quality
science
education?



~20%
Proficient

Typical High School Class
(except they usually include girls too)





"I would like to cancel my science kit for March 1. Due to the time expectations for literacy and math in our classrooms there just is not time for us to truly utilize the science kits as they are intended."



20 minutes per day to science



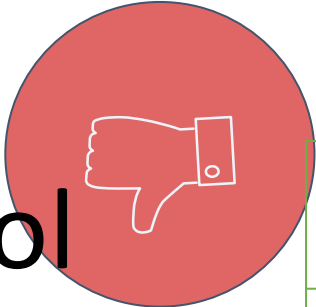
90 minutes per day to English/Language Arts



60 minutes per day to mathematics

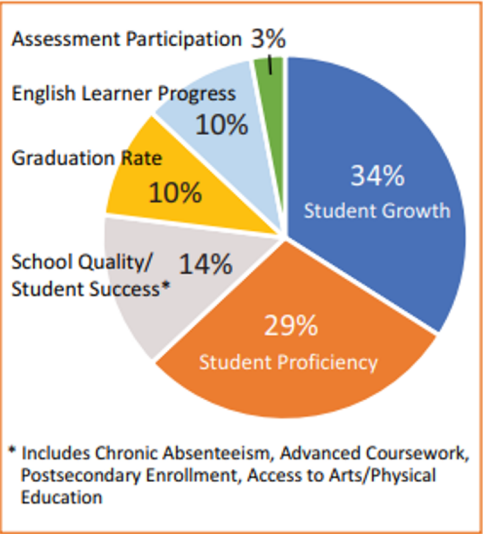


A New Way Forward

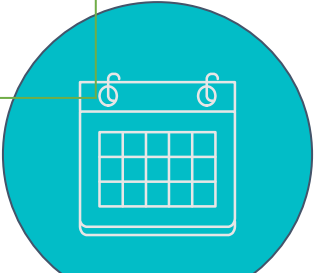


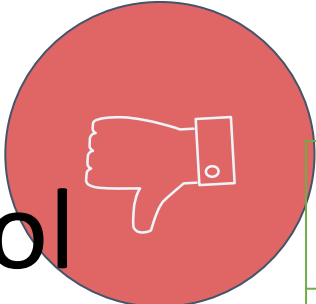
The School Accountability System: A Continuum

Component & Weight
Within Overall Index Value

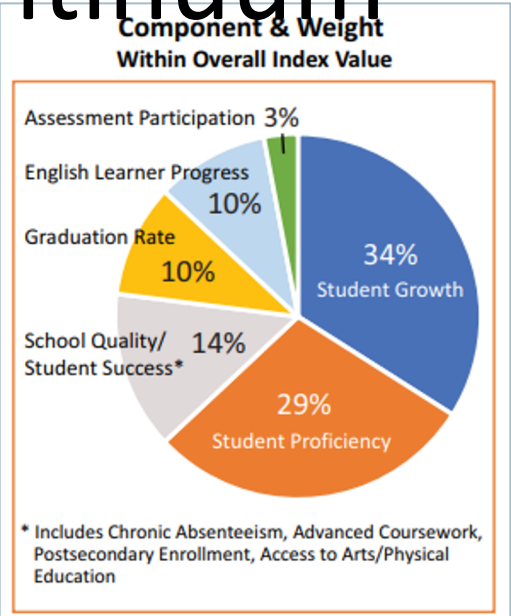


Status Quo Current System	Fix it! Science Addition	Blow it up! Well-Rounded
ESSA: Student growth and proficiency only include Math and ELA		
ESSA: Science is not included at all or undervalued.		
ESSA does allow states' flexibility		

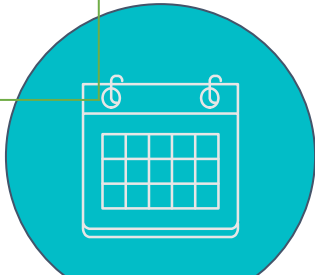




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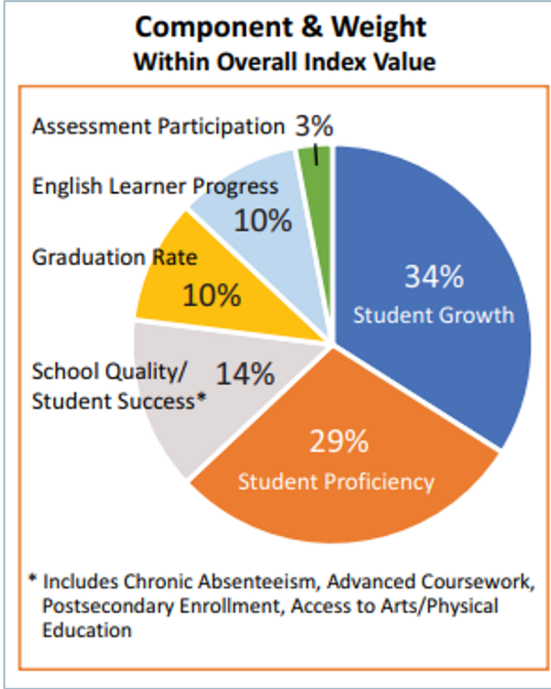


Status Quo Current System	Fix it! Science Addition	Blow it up! Well-Rounded
ESSA: Student growth and proficiency only include Math and ELA	Minimize growth and proficiency values to federal mandate levels (ELA and Math)	Minimize growth and proficiency values (Reading Comprehension (maybe) - as a reflection of overall education)
ESSA: Science is not included at all or undervalued.	Add time for high-quality science as a School Quality indicator and increase its value significantly. Minimum: ~30 min/day K-3, ~45 min/day 4-6 grades	School Quality indicators designed for a well-rounded education and support elevating good instruction . Move away from siloing subjects.
ESSA does allow states' flexibility	Use flexibility as a tool for individual states .	Build a broad coalition of informed partners for federal change.



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	Learning through doing science (Preparation)	Learning for science College & Career Readiness (Training, pathways, real world PBL)



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