



NGSS PM Board  
Presentation  
04.11.2024





# District Goals

## LCAP GOAL 1

### Academic Achievement

The district will provide a high quality curricular program for students that will raise student proficiency on the California Common Core State Standards as measured by overall academic achievement on state assessments, CA Dashboard results, interim assessment data and ELPAC/Reclassification data.



## LCAP GOAL 4

### Special Education

The district will provide high quality curricular programs for students with IEPs that will raise student engagement in school and proficiency on the California Common Core State Standards as measured by overall academic achievement on state assessments, and engagement rates.

## LCAP GOAL 2

### Professional Development

Identified classified staff, certificated and administrative staff will participate in professional development to create capacity and expertise in curriculum program implementation based on the development of scope and sequence as measured by walkthrough observations and other evidence (artifacts and student work).

## LCAP GOAL 3

### Student, Parent & Community Engagement

Improve parent school engagement through an increase in participation in site and district parent groups such as SSC, PTSA, DELAC, ELAC, AAPAC as well as in other parent meetings as measured by attendance sign in sheets.

# District Priorities

A) Improve Curriculum, Instruction & Assessment

B) Bolster Professional Learning and Collaboration

C) Strengthen Leadership Capacity

SSFUSD

# STRENGTHENING OUR SYSTEMS

*the*  
**GAS TANK**  
**BENCHMARKS**  
checking student progress toward goals.

HOW CAN WE LEVERAGE DATA?

*the*  
**STEERING WHEEL**  
**INSTRUCTION**  
guiding our learning objectives  
ENGAGES US + TAKES US FORWARD

*the*  
**GPS**  
**NAVIGATION**  
our goals  
LCAP, DEPT., SITE, TEAM, TCHR.

**FFME -**  
A PROCESS TO DETERMINE WHAT TOOL, PRACTICE, OR SERVICE WILL HELP US SOLVE OUR IDENTIFIED NEED

WHAT IS OUR ACTION PLAN?

HOW DO WE REFLECT + RELENTLESSLY FOLLOW UP?

*the*  
**SEATS**  
**CURRICULUM**  
defines the skills to be taught  
STANDARDS, RIGOR, RELEVANCE



*the*  
**ENGINE**  
**PERFORMANCE MANAGEMENT MEETINGS**  
showcasing data + progress of  
ILTs, PLCs, DEPT. MEETINGS

Learn  
Navigate  
Impact  
Thrive

*the*  
**WHEELS**  
**SYSTEMS OF ASSESSMENT**  
sets the pace

WHAT QUESTIONS HELP US DETERMINE ROOT CAUSES OF PERFORMANCE?

# EQUITY

*the*  
**MIRRORS**  
**PROFESSIONAL LEARNING SYSTEM**  
reflecting + growing in our professional practices



# Welcome and Introductions

- ✘ Jason Brockmeyer, Director of Innovation, Community Outreach and Special Projects
- ✘ Jennifer Rosse, Curriculum and Instruction Specialist: Elementary Science (TOSA), Elementary School
- ✘ Veronica Vasquez, Teacher on Special Assignment, Middle School Science
- ✘ Dr. Liz Beans, Teacher on Special Assignment, Biotechnology and High School Science
- ✘ Ragnar von Schiber, Director, Corporate and Employee Giving



# Outcomes

- ✘ Revisit SSFUSD's NGSS Vision and Discuss the Importance of Science Education
- ✘ Review NGSS Student Learning Results
- ✘ Share Current K-12 NGSS Adoption and Implementation Status
- ✘ Provide an Update on Futurelab Initiatives



# SSFUSD NGSS Vision and Goals



# SSFUSD Updated NGSS Vision

**South San Francisco Unified School District (SSFUSD) prioritizes high-quality science learning and fosters a district culture and expectation that all students can and will be successful in science.** Teachers engage students in rigorous and relevant three-dimensional science learning experiences anchored in the Next Generation Science Standards (NGSS) that build a sense of belonging through cultivating curiosity, persistence, and critical thinking. We aim to nurture scientifically literate graduates poised to contribute positively to an ever-changing world. **SSFUSD strives to be recognized as a premier destination for science education.**



# Equity and Access

*The vision of the CA NGSS is “**all standards, all students**” science and engineering education should be designed and taught in such a manner that every student, regardless of background or learning characteristics, has access to and benefits from deep and engaging science and engineering learning opportunities ... and an **essential part of implementation is ensuring that all K-12 students are receiving adequate science instruction...** Therefore, **allocating adequate instructional time specifically for science** and highlighting its importance to schools and the greater community is vitally important for districts.*

*(CA Dept. Ed, 2018)*



# NGSS Shifts

The NGSS represent a fundamental shift in science education and require a different approach to teaching science than has been done in the past.

## How will science education change with the NGSS?

### Science education will involve less:

1. Learning of ideas disconnected from questions about phenomena
2. Teachers providing information to the whole class
3. Teachers posing questions with only one right answer
4. Student reading textbooks and answering questions at the end of each chapter
5. Worksheets
6. Oversimplification of activities for students who are perceived to be “less able” to do science and engineering

### Science education will involve more:

1. Systems thinking and modeling to explain phenomena and to give a context for the ideas to be learned
2. Students conducting investigations, solving problems, and engaging in discussions with teacher guidance
3. Students discussing open-ended questions that focus on the strength of the evidence used to generate claims
4. Students reading multiple sources and developing summaries of information
5. Student writing of journals, reports, posters, and media presentations that offer explanations and arguments
6. Provision of supports so that *all* students can engage in sophisticated science and engineering practices



# Science Learning Data



# Elementary CAST Year over Year Comparison

Elementary School	Met or Exceeded 21/22	Met or Exceeded 22/23
Buri Buri	28%	47%
Junipero Serra	23%	36%
Los Cerritos	25%	11%
Ponderosa	41%	35%

Elementary School	Met or Exceeded 21/22	Met or Exceeded 22/23
Martin	22%	30%
Monte Verde	63%	67%
Skyline	52%	45%
Spruce	18%	19%
Sunshine	23%	17%

KEY	
0% to 49%	
50% to 79%	
80% - 100%	



# Middle and H.S. CAST Year over Year Comparison

Middle School			High School		
School	Met or Exceeded 21/22	Met or Exceeded 22/23	School	Met or Exceeded 21/22	Met or Exceeded 22/23
Alta Loma	26%	21% ↓	Baden	4%	5% ↑
Parkway Heights	12%	11% ↓	El Camino	38%	35% ↓
Westborough	45%	49% ↑	S. San Francisco	25%	29% ↑

KEY	
0% to 49%	
50% to 79%	
80% - 100%	



# SSFUSD CAST Multi-Year Results

CAST Results Multi - Year Results				
	18/19	20/21	21/22	22/23
5th	31%	29%	33%	38%
8th	29%	23%	28%	26%
H.S.	23%*	39%	31%	31%



# 2022/2023 CAST Results by Subgroup

## 2022/2023 CAST Results

Grade	Overall	Hispanic or Latino	White	Asian	Filipino	Socio Econ Dis.	English Only	English Learners	Student w/ Disabilities	Parent H.S. Grad	Parent College Grad
5th	38%	18%	67%	63%	48%	18%	46%	2%	18%	15%	56%
8th	26%	11%	38%	63%	37%	13%	36%	0%	9%	9%	41%
H.S.	31%	21%	23%	54%	41%	21%	39%	2%	4%	25%	41%

### KEY

0% to 15%

16% to 30%

31% - 49%

50% to 79%

80% - 100%



# CAST 2022/2023 Surrounding District Comparison

	5th	8th	H.S.
Cabrillo Unified	28%	24%	21%
Jefferson Elem.	26%	20%	N/A
Jefferson Union	N/A	N/A	34%
Redwood City	35%	33%	N/A
San Mateo Foster City	46%	44%	N/A
San Mateo Union	N/A	N/A	51%
Sequoia Union	N/A	N/A	52%
SSFUSD	38%	26%	31%

KEY
0% to 15%
16% to 30%
31% - 49%
50% to 79%
80% - 100%



# SSFUSD Strategic Plan

## FOCUS ON EXCEPTIONAL SCIENCE & MATH INSTRUCTION AT ALL GRADE LEVELS

SCHOOL YEAR 2024-25

*To do that, we'll weave together several initiatives with a focus on science and math:*

- Roll out new science and math curricula, and train leaders and staff on what exceptional instruction looks like using these curricula
- Build a bank of high-quality instructional strategies
- Continue our Collaborative Inquiry Cycles at schools, so we can reflect on what is working instructionally, and where/how we can adjust
- Strengthen instructional leadership & coaching at our schools

**Exceptional Science Instruction**  
Roll out new science and math curricula and train leaders and staff on what exceptional instruction looks like using these curricula.



# Science on CA Dashboard

Starting in 2025, student performance on the CAST will be on the California dashboard.





# NGSS K-12 Curricula Adoption and Implementation Update



# Elementary Implementation

## Twig Science Implementation Goals: Year 2

- ❑ All students engage in 1-3 Modules of Twig Science
- ❑ Initiate implementation of the recommended [elementary science minutes](#)

## Implementation Successes

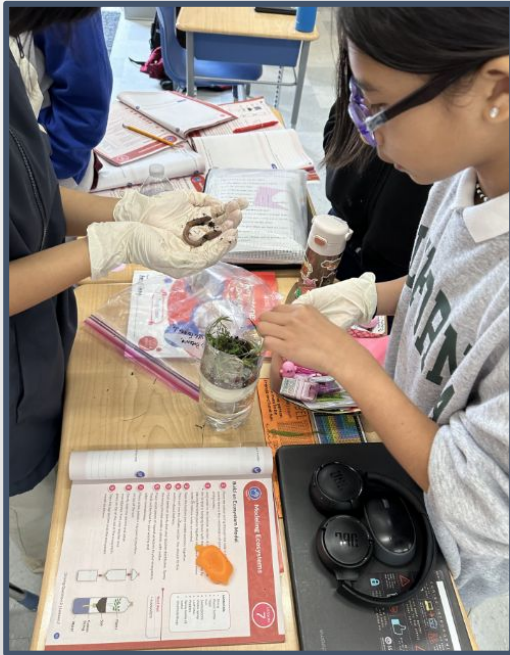
- ❑ Increased teacher collaboration and planning time for Science through Legarza PE time implementation.
- ❑ Increased Science learning in terms of minutes and depth.
- ❑ Provided comprehensive Professional Development for all elementary teachers
  - ❑ Twig Launch, Module 1, NGSS in the Elementary Classroom and Twig Module 2 PD
  - ❑ Intentional and meaningful support through collaborative planning, lesson modeling, and material assistance.
- ❑ Integrated Designated English Language Development (DELD) into Science at Spruce Elementary.



Teachers engaging in a design challenge at the Professional Development Day



# Elementary Implementation



5th Grade at Junipero Serra,  
Yellowstone Uncovered



4th Grade at Spruce, Egg Racers



4th Grade Class at Buri Buri,  
Earthquake Engineers



3rd Grade at Spruce,  
Welcome to the Biodome



1st Grade at Sunshine Gardens,  
Animal Reporters



# Elementary Implementation

## Implementation Challenges

Supporting shifts in NGSS

- Time** to sustain implementation (PD, Collaboration and Instructional time)
- Focus on instructional shifts
  - Academic discourse
  - Collaborative, equitable and inclusive instructional strategies
- Capacity and competing priorities

## Next Steps/Year 3 Goal

- Ensure all students engage in 2-4 Modules of Twig Science (2 in Kinder)
- Continue to increase the minutes of Science instruction for all students
- Sustain collaboration with ELD Specialists to strategically support all learners
- Continue to partner with teachers to support them with Science implementation
- Develop a plan to support teachers through PD for NGSS instructional strategies



# Futurelab Elementary

## Genentech Futurelab Partnership at Elementary

- ❑ Gene Academy
- ❑ Goal: Science is Fun!
- ❑ Title 1 Schools
- ❑ STEM Day Cupcake Celebration





# Middle School Implementation

## Year 1 Implementation



**Goal** - To provide training and support to help all middle school science teachers navigate the Green Ninja curriculum and support ALL students in receiving NGSS-aligned grade level science instruction

## Successes

- ❑ Implementation of the Green Ninja curriculum in all middle school science classes, including SDC and EL Science courses
- ❑ Access to opportunities for students to leverage their science learning and problem-solve like scientists and engineers through Unit Challenges focused on addressing real-world environmental issues
- ❑ K-12 classroom visits starting in middle school to better understand the needs of students and teachers to support exceptional instruction in science throughout our district



# Middle School Implementation

## Challenges



- ❑ Access to collaboration time for middle school science - especially with most teachers teaching multiple grade levels

## Year 2 Goals

- ❑ Collaboration time by grade level to identify unit goals aligned with NGSS Performance Expectations and metrics to measure student growth towards meeting these goals
- ❑ Continued 1-1 teacher support to identify goals and needs for supporting exceptional instruction
- ❑ Development of streamlined process for materials ordering
- ❑ Alignment of the Helix Cup



# Futurelab Middle School

## Helix Cup Outcomes

- ❑ Cultivates a culture where all students succeed in science.
- ❑ Anchors learning in 3D NGSS-aligned science that relates to students' everyday lives.
- ❑ Encourages curiosity, persistence, and innovative thinking.
- ❑ Enhances collaborative learning and communication skills via group work.

## Alignment to Green Ninja Curriculum

- ❑ Identify opportunities to build on Green Ninja lessons in alignment with 3D NGSS instructional practices
- ❑ Focus on enhancing student learning through alignment with the curriculum
- ❑ Continued data collection and reflection to assess effectiveness in meeting these outcomes

2023 Helix Cup  
Winners & Finalists  
Parkway Heights MS





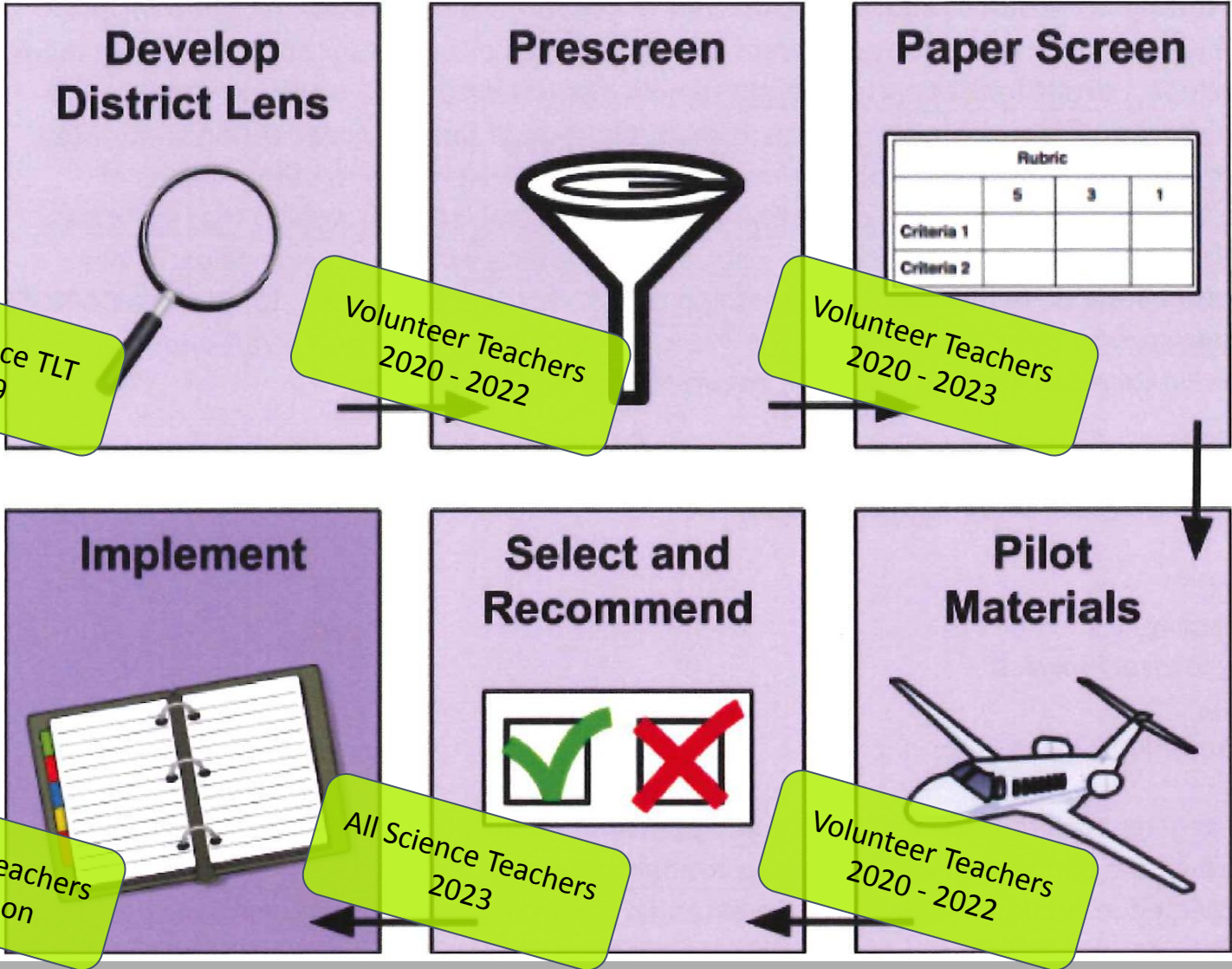
# High School Curriculum Adoption Framing

**Goal** - Adopt high quality NGSS-aligned science curriculum, as a foundation to support access to effective and inclusive science learning.

- Curriculum adoption recommendation process
- Recommendation to adopt OpenSciEd
- Implementation plan

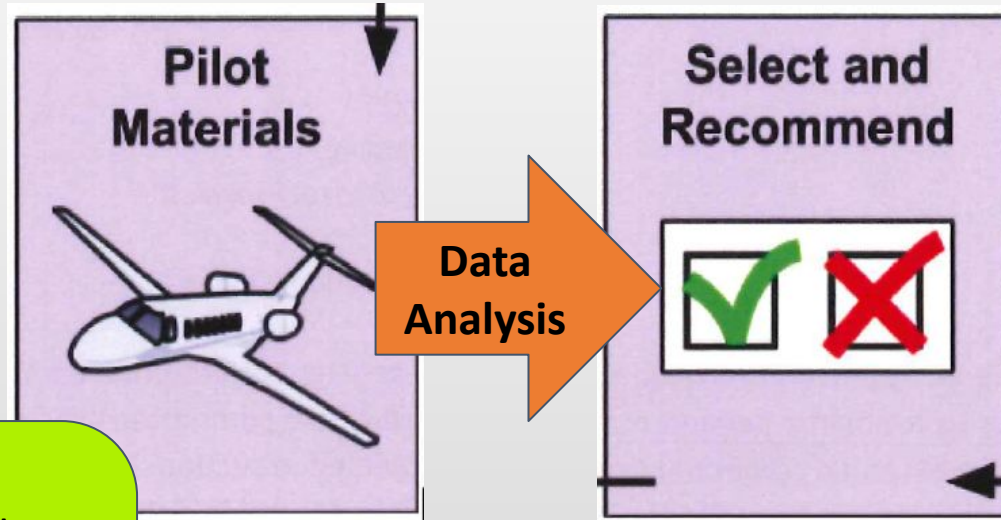


# High School Curriculum Adoption Process





# High School Curriculum Adoption



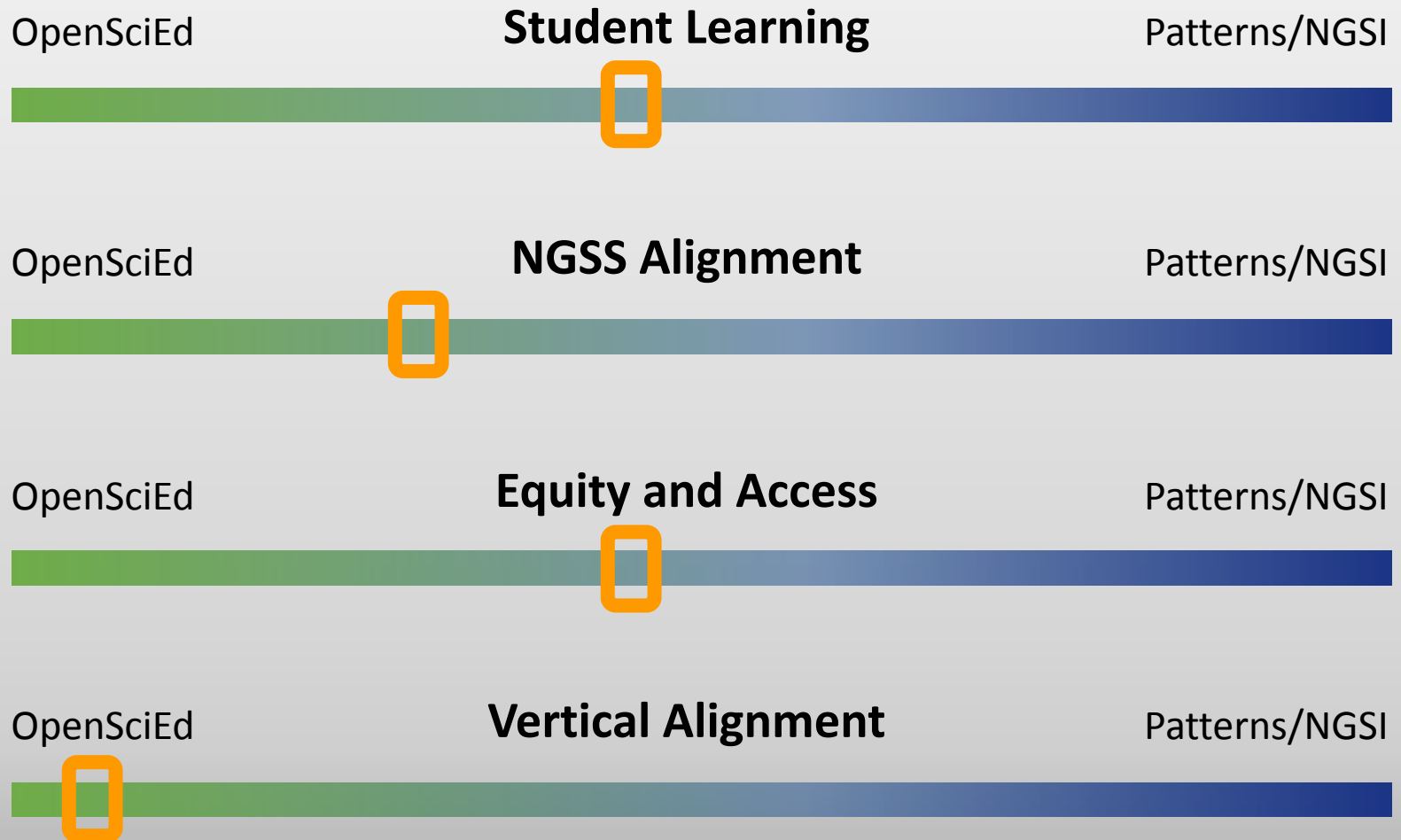
## Data Collected

- Pre- and post-assessments
- Student surveys
- Teacher surveys
- Classroom observations

1. TLT and EDS selected priorities for adoption
2. All teachers analyzed priorities-aligned data
3. Course teams voted on which curriculum is best for their course
4. TLT made a recommendation taking all data into consideration
5. EDS accepted the recommendation



# High School Curriculum Adoption





# High School Curriculum Adoption Recommendation

- ❑ **HS TLT recommends to adopt OpenSciEd for Biology, Chemistry, and Physics**
- ❑ **To make this work, we will need:**
  - ❑ Curriculum specific training for all teachers
  - ❑ Ongoing professional learning around NGSS curriculum and classroom implementation, including, but not limited to:
    - ❑ Training on designing NGSS-aligned assessment
    - ❑ Support for how to facilitate classroom discussion
    - ❑ Support for how to help students work with models and modeling
  - ❑ Sustained, supported collaboration, including release days



# High School Curriculum Adoption

## Successes

- ❑ OpenSciEd adoption supported by a variety of data sources
- ❑ 100% consensus for adoption of OpenSciEd among Biology and Physics teachers present on Nov. 1, 2023, and the High School Science Teacher Leadership Team

## Challenges

- ❑ Time for teachers to collaborate and engage in professional learning

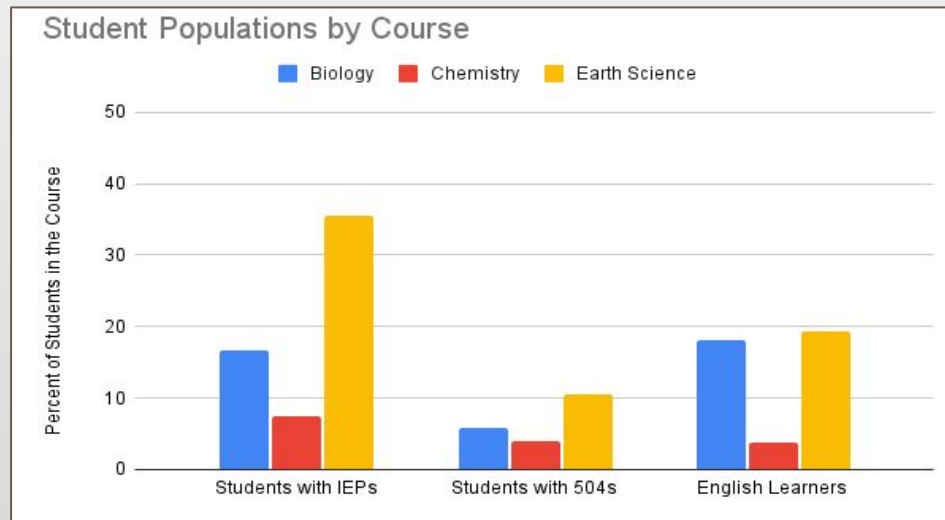
## Next Steps

- ❑ Work with the TLT to develop an implementation and support plan, including selecting providers of professional learning, lab materials kits, and print or online materials
- ❑ Change course prerequisites to match the new curriculum



# High School Science Pathway Update

Currently, all ninth graders take Biology. Tenth graders either take Chemistry or Earth Science, depending on their performance in Biology.

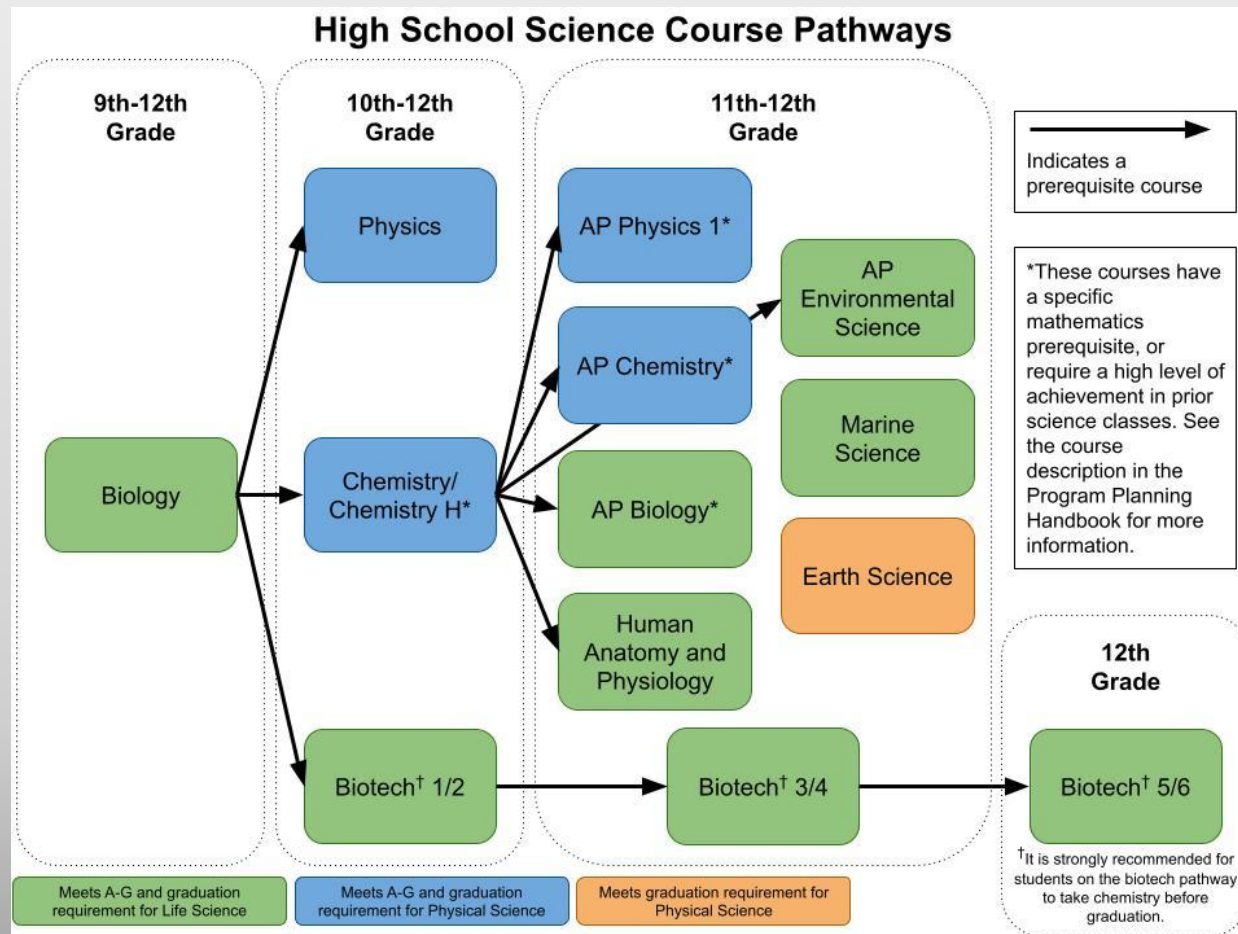


- ❑ Chemistry meets A-G lab science requirements, Earth Science does not
- ❑ OpenSciEd Chemistry and Physics are designed to support heterogeneous student populations, and include Earth and Space Science standards



# High School Course Pathway

Students have the option to choose between Chemistry or Physics in 10th grade. Starting in 11th grade, D-level Earth Science is included among many available options.





# Futurelab Science Garage - Biotechnology

- ❑ Biotech 5% (Year 3)
  - ❑ Highest enrollment in 6 years - Including highest access for students from ECHS
  - ❑ Students from ECHS take the free SSF shuttle to take Biotech 5% at SSFHS
  
- ❑ Biotech 3/4 (Year 2)
  - ❑ Highest enrollment in 7 years





# Futurelab Update



# Futurelab Overview

Results to Date Include

**More than \$37 million** investment, **80,000+** volunteer hours reaching **8K** students a year.



**EXCITE**

**GENE ACADEMY**  
Elementary School

Homework help  
Science activities



**ENGAGE**

**HELIX CUP**  
Middle School

Team challenges  
Science skills



**EQUIP**

**SCIENCE GARAGE**  
High School

Four year biotech pathway  
Science teaching space



**EMPOWER**

**SCHOLARSHIPS**  
College

Grants for post-secondary  
STEM education

Futurelab focuses on supporting rigorous and relevant hands-on learning at for every student at every grade level in SSFUSD



# Open Invitation

## ☐ **Gene Academy Science Days**

☐ May 9th

## ☐ **Science Garage Poster Session**

☐ May 2nd

## ☐ **Helix Cup Finals**

☐ May 9th

## ☐ **Gene Academy Graduation**

☐ May 15

