# Special Darien Board of Education

## Curriculum Committee Meeting

## Thursday, March 16, 2023

## 8:30 a.m.

## Darien Public Schools' Administrative Offices

## 35 Leroy Avenue

## Board of Education Meeting Room

## AGENDA

1. Science 6-12
2. Music K-12
3. Public Comment*
4. Adjournment

*** * The Board of Education meeting will be available to the public in person and via Zoom. Wearing of masks is optional and seating is limited by room capacity. Doors open at 8:15 a.m. for the 8:30 a.m. meeting.**

**Those members of the community wishing to participate in public comment may join the meeting via Zoom:**

**https://darienps.zoom.us/j/91820648585**

**Those members of the community wishing to view only, should do so through the Darien Youtube link:** https://www.youtube.com/channel/UCUnnvyKBFbFrTWQRuoB6OZA

**In order to reduce audio interference, members of the community are requested not to simultaneously view by Youtube while participating on Zoom.**

# Darien Public Schools

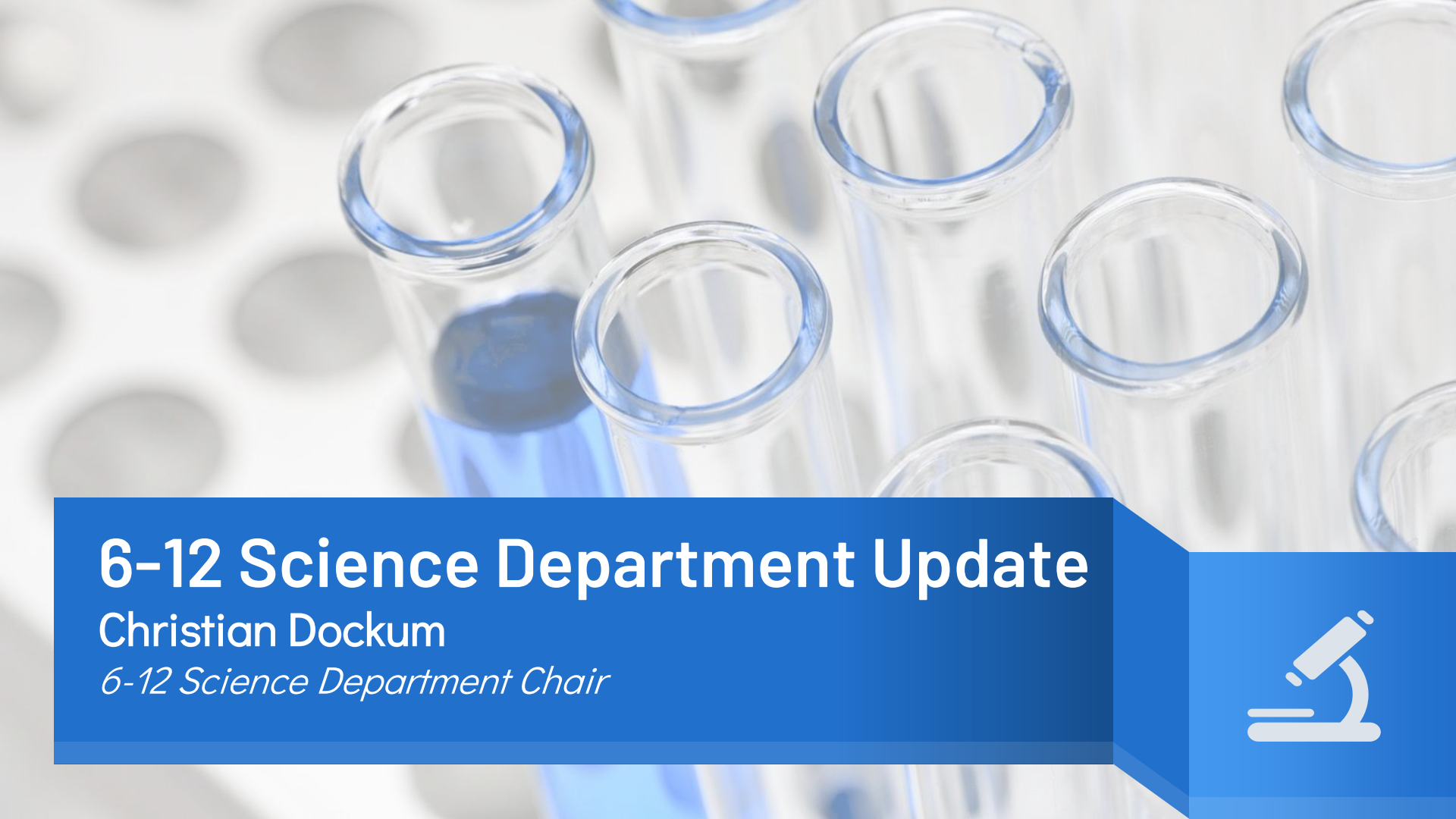
## Memorandum

To: Darien Board of Education Curriculum Committee
CC: Alan Addley, Ed.D., Superintendent of Schools
From: Christopher Tranberg, Ph.D., Assistant Superintendent of Curriculum and Instruction
RE: BOE Curriculum Committee
Date: March 16, 2023

The March Curriculum Committee agenda includes program updates for the 6-12 Science Department as well as the Music Department. Coincidentally, March is *Music in our Schools Month*, a time dedicated to raising awareness of the importance of music education for all students.

Christian Dockum will present the annual Science Department Update for grades 6-12. His presentation will offer a brief program overview, highlighting the current and future work with the new EduPlanet21 platform and the development of Long Term Transfer Goals for the department. In addition, he will provide an overview of the Professional Learning focus for the department over the past two years, and a look ahead at some of the exciting work that the department will be focused on in the coming years.

The annual Music Department update will be presented by Colleen Thompson, Director of Music. The committee will hear program highlights regarding the K-1 curriculum development process, samples of student work from musical informances, new unit implementation for Music Explorations at MMS, and plans for the new Guitar Ensemble at DHS.



# 6-12 Science Department Update


## Christian Dockum

*6-12 Science Department Chair*

# Agenda

- 6-12 Science Program Overview
- Science Transfer Goals
- Curriculum Work
- Department Focused Professional Learning
- A Look Ahead
- Questions

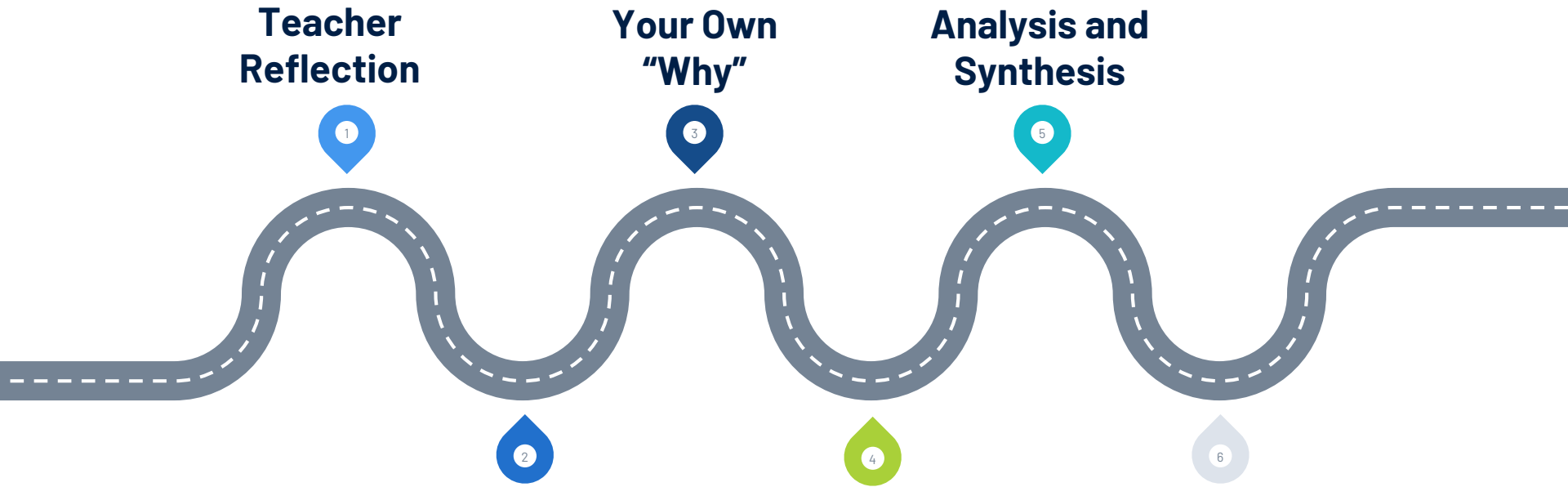
# 6-12 Science: Program Overview

- 3 Dimensional Approach
- Learning Progressions
- Student Centered Pedagogy

# 6-12 Science Transfer Goals

> The ability to transfer is arguably the long-term aim of all education. You truly understand and excel when you can take what you have learned in one way or context and use it in another, on your own.
>
> – McTighe and Wiggins, 2011

# Transfer Goal Development



***Transfer Goal #1: Solve Problems***

Individually and collaboratively define problems, develop questions, and design systemic solutions taking into account constraints that impact real-world situations.

***Transfer Goal #2: Construct Meaning***

Engage in scientific and engineering practices to design solutions and construct explanations supported by multiple sources of evidence consistent with scientific ideas, principles, and theories.

***Transfer Goal #3: Analyze and Evaluate Data***

Collect, analyze, and interpret data and apply appropriate mathematical concepts to evaluate the data, test solutions, or to make logical conclusions.

***Transfer Goal #4: Communicate Effectively***

Communicate the results of scientific investigations in multiple formats, using scientific evidence to analyze observations, justify conclusions, and/or support the revision of an engineering or scientific design.

***Transfer Goal #5: Collaboration***

*Engage in scientific discourse, ask useful questions to clarify or improve the arguments of others, and consider diverse perspectives.*

***Transfer Goal #6: Make Connections to Real World***

*Approach science as a reliable and tentative way of knowing and explaining the natural world around you.*

***Transfer Goal #7: Science Mindset***

Approach the sciences with a sense of curiosity, joy and excitement. Recognize and appreciate your place in the natural world and the inherent stewardship responsibilities.

# Performance Task Assessment Physics 400

Student are given a problem and have to transfer understanding of concepts and skills to a novel situation.

# 6-12 Science Curriculum Work

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**Process:**

- Priority Standards
- Essential Questions
- Phenomena and Storylines
- Learning Sequence

**EduPlanet 21: 2022**

- **5 teachers trained**
  **4 Teams**

**Completed Units**

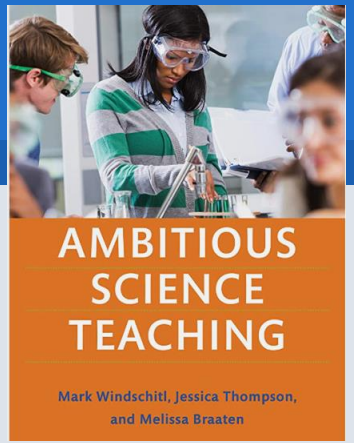
- **(2) 6th Grade Units**
- **(1) 7th Grade Unit**
- **(2) 8th Grade Units**
- **(3) Biology 400 Units**

**Next Steps:**

- **Increase Capacity**
- **Scope and Sequence of NGSS Aligned Courses**
- **4 year Curriculum Plan**
  - **Shift and revise**
    - **MS Units**
    - **Bio 300/400**
    - **Earth Science**

# 6-12 Science Professional Learning

## Ambitious Science Teacher Book Study




**Windschitl, Mark, et al. *Ambitious Science Teaching*. Harvard Education Press, 2018.**

"AST organizes the recommendations from research to provide a practical structure to help ALL students understand scientific ideas, participate in the practices of science, solve authentic problems and develop skills to continue learning on their own.

- Melissa Braaten, Co-Author

# Ambitious Science Teacher Framework

**Planning for Engagement with Big Science Ideas**

**Intellectual Engagement**

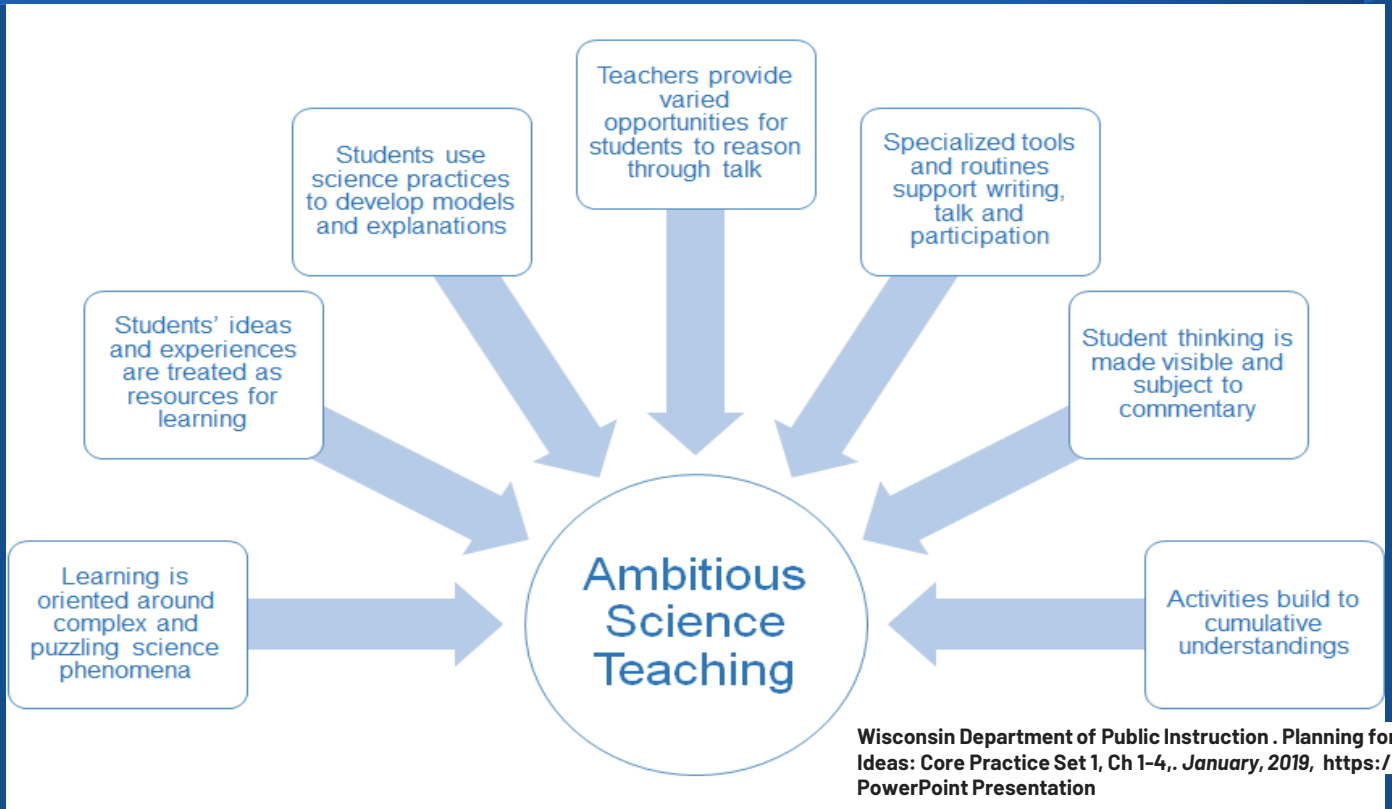
**Eliciting Students' Ideas**


**Drawing together Evidenced Based Explanations**

**Attention to Equity**

**Supporting Ongoing Changes in Thinking**

# Characteristics of Ambitious Science Teaching




Wisconsin Department of Public Instruction . Planning for Engagement with Big Science Ideas: Core Practice Set 1, Ch 1-4,. *January, 2019,* https://tinyurl.com/dyaekwws. PowerPoint Presentation

# Equity is Essential to AST

- Situating learning in familiar contexts
- Being responsive to student ideas, experiences, and questions
- Demonstrating and encouraging disciplinary conversations
- Use specialized forms of scaffolding for reading, writing and speaking
- Honoring students' current sense-making skills
- Frequently providing opportunities for students to show understanding

# Focused Professional Learning

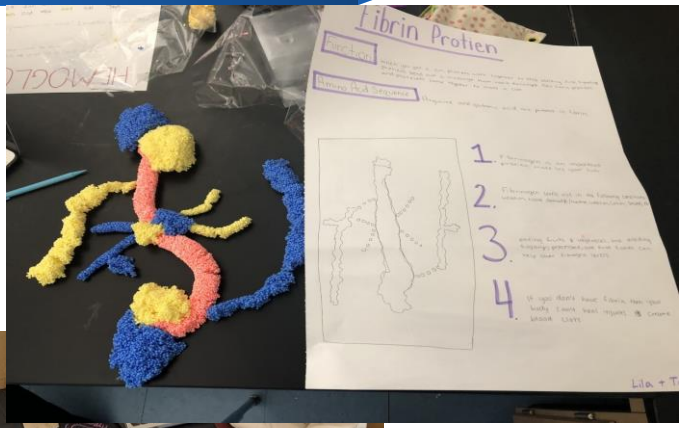
## Department Meetings

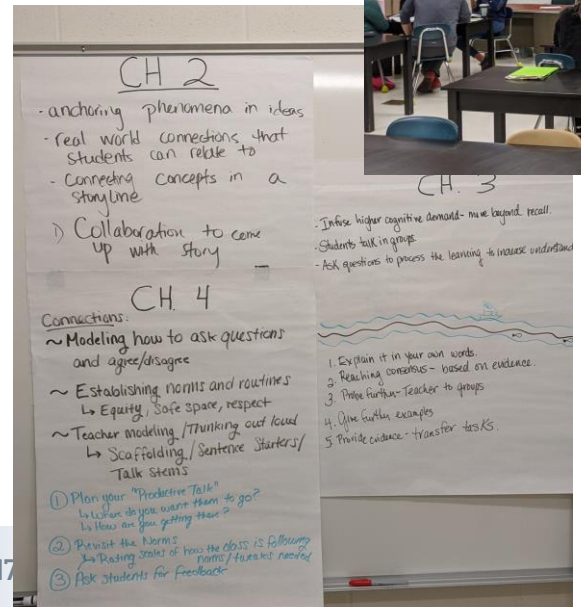
- **Talk as a Tool For Learning**
- **Peer discussion and sense making**
- **Application to the classroom**

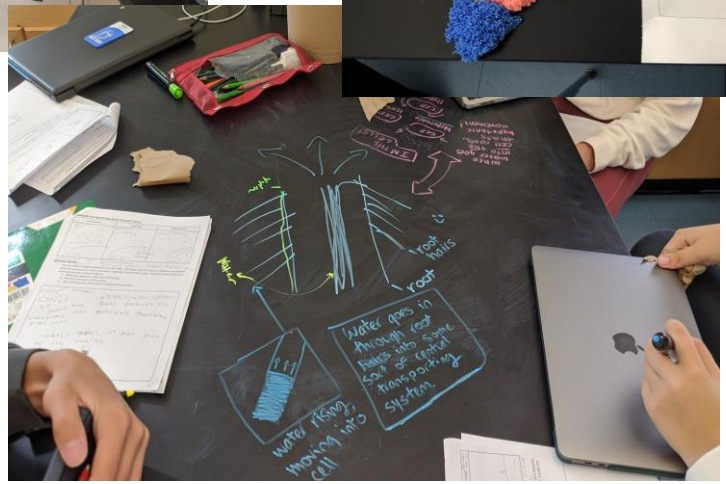
## Professional Learning Days

- Making Student Thinking Visible through Models
- Introducing Science Ideas and Sense Making Strategies

# Outcomes from Professional Learning



# A Look Ahead

# A Look Ahead

As we look to the future, the department will continue working towards:

- Building explicit connections between curriculum and guiding documents.
- Continuing integration of AST Core Practices into daily instruction.
- Articulating vertically aligned science practice expectations.
- Examining current course offerings at DHS to best support student interest and opportunity to meet graduation requirements for ALL students.

# Thank You!
# Questions?

# The 3 Dimensions of NGSS

## Science & Engineering Practices

1. Asking questions & defining problems
2. Developing & using models
3. Planning & carrying out investigations
4. Analyzing & interpreting data
5. Using mathematics & computational thinking
6. Constructing explanations & designing solutions
7. Engaging in argument from evidence
8. Obtaining, evaluating & communicating information

## Disciplinary Core Ideas

**PHYSICAL SCIENCE**

**PS 1**: Matter & its interactions
**PS 2**: Motion & stability: Forces & interactions
**PS 3**: Energy
**PS 4**: Waves & their applications in technologies for information transfer.

**LIFE SCIENCE**

**LS 1**: From molecules to organisms: structures & processes
**LS 2**: Ecosystems: interactions, energy & dynamics
**LS 3**: Heredity: Inheritance & variation of traits
**LS 4**: Biological evaluation: Unity & diversity

**EARTH & SPACE SCIENCE**

**ESS 1**: Earth's place in the universe
**ESS 2**: Earth's system
**ESS 3**: Earth & human activity

## Crosscutting Concepts

1. Patterns
2. Cause & effect
3. Scale, proportion & quantity
4. Systems & systems models
5. Energy & matter
6. Structure & function
7. Stability & change

**ENGINEERING, TECHNOLOGY & THE APPLICATION OF SCIENCE**

**ETS 1**: Engineering design
**ETS 2**: Links among engineering, technology, science & society

# K-12 Learning Progressions

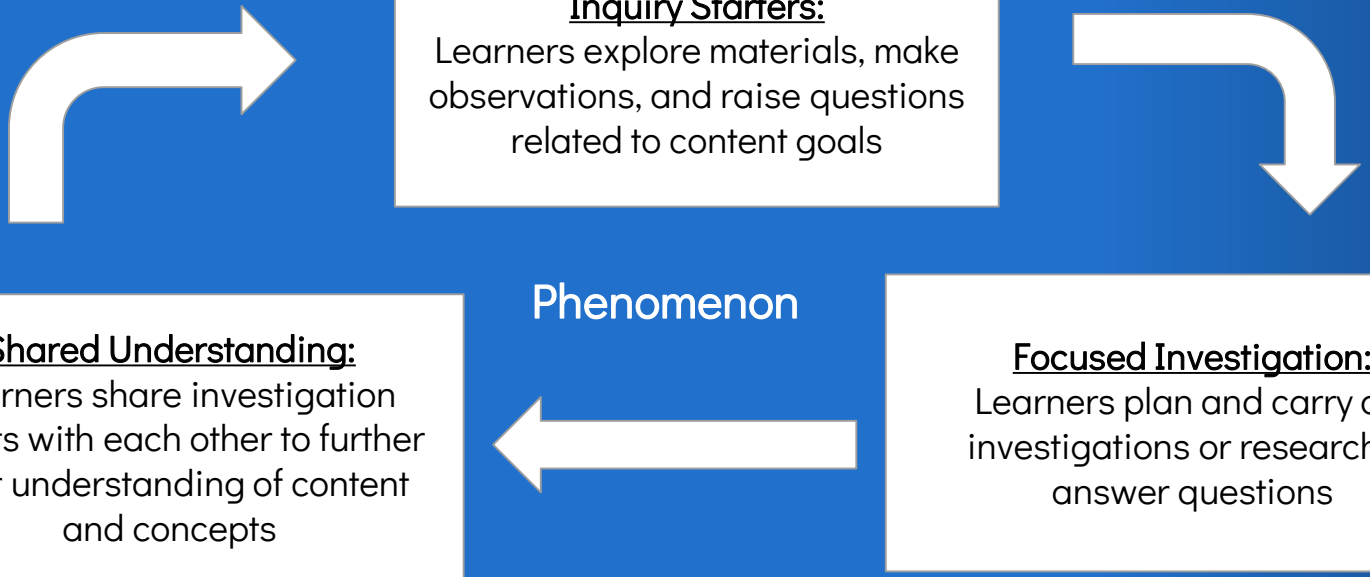
## Science Engineering Practices

## Disciplinary Core Ideas

## Cross Cutting Concepts

| | Grades K-2 | Grades 3-5 | Grades 6-8 | Grades 9-12 |
|---|---|---|---|---|
| **ESS2: Earth's Systems** | | | | |
| ESS2.A: Earth Materials and Systems | • Wind and water can change the shape of the land. (2-ESS2-1) | • Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around. (4-ESS2-1)<br>• Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather. (5-ESS2-1) | • All Earth processes are the result of energy flowing and matter cycling within and among the planet's systems. This energy is derived from the sun and Earth's hot interior. The energy that flows and matter that cycles produce chemical and physical changes in Earth's materials and living organisms. (MS-ESS2-1)<br>• The planet's systems interact over scales that range from microscopic to global in size, and they operate over fractions of a second to billions of years. These interactions have shaped Earth's history and will determine its future. (MS-ESS2-2) | • Earth's systems, being dynamic and interacting, cause feedback effects that can increase or decrease the original changes. (HSESS2-1),(HS-ESS2-2)<br>• Evidence from deep probes and seismic waves, reconstructions of historical changes in Earth's surface and its magnetic field, and an understanding of physical and chemical processes lead to a model of Earth with a hot but solid inner core, a liquid outer core, a solid mantle and crust. Motions of the mantle and its plates occur primarily through thermal convection, which involves the cycling of matter due to the outward flow of energy from Earth's interior and gravitational movement of denser materials toward the interior. (HS-ESS2-3)<br>• The geological record shows that changes to global and regional climate can be caused by interactions among changes in the sun's energy output or Earth's orbit, tectonic events, ocean circulation, volcanic activity, glaciers, vegetation, and human activities. These changes can occur on a variety of time scales from sudden (e.g., volcanic ash clouds) to intermediate (ice ages) to very long-term tectonic cycles. (HS-ESS2-4) |

# Student Centered Instruction



# Science in K-5

- Each grade level has 3 science units
- All units are aligned to NGSS
- 3 Dimensional Approach
- Inquiry-based approach
- Teachers alternate between science and social studies
- Next step: Creating more hands-on learning experiences

# MUSIC CURRICULUM UPDATES

March 16, 2023

# Music scheduling and sequence

- Elementary - K-5 General music: 2 40 minute classes every 6 days
- Middle school - 6-8 Band, Chorus, Music Explorations, Orchestra: 2 41 minute classes per week
- High school - Band, Chorus, Orchestra full year electives; Semester electives: Music Theory, Music Tech I and II, Guitar Ensemble. AP Music Theory - Full year

# K-1 General Music: First Steps in Music

- New curriculum has been fully implemented in K-1 General music classes
- Early childhood music curriculum focusing on child-centered music activities teaching students to become “tune-ful, beat-ful and art-ful” musicians
- 8-step “musical workout” - singing activities and movement activities

# K-1 General Music: First Steps Unit Development

- Developed Units by month with songs and activities that all teachers use in K-1 across the district
- Hard copy binder and Google folder with all songs and activities
- Guaranteed experiences

# K-1 General Music: First Steps in Music Assessment

- Data Collection
- Assess readiness for traditional notation
- Teachers discuss in PLC, share strategies

## First Steps in Music® Assessment

| | RATING SCALE* | | |
|---|---|---|---|
| 1) Pitch Exploration: The student is able to imitate vocal glissandi using head voice. | 3 | 2 | 1 |
| 2) Fragment Singing: The student is able to echo simple melodic patterns with and without words using head voice. | 3 | 2 | 1 |
| 3) Simple Song: The student is able to remember and sing an entire simple song using head voice | 3 | 2 | 1 |
| 4) Arioso: The student is able to spontaneously create an original tune using more than two tones. | 3 | 2 | 1 |
| 5) Songtales: The student is able to listen attentively to a song with several verses. | 3 | 2 | 1 |
| 6) Movement Exploration: The student is able to create movements that appropriately reflect the musical expressiveness of various styles of classical music. | 3 | 2 | 1 |
| 7) Movement for Form and Expression: The student is able to perform a series of prescribed movements with appropriate expression to a song, rhyme and/or piece of classical music. | 3 | 2 | 1 |
| 6) Beat Motions: The student is able to maintain a consistent beat in groups of 2s and 3s at MM = 120-136 | 3 | 2 | 1 |

**Rating Scale: (3) Consistently Competent, (2) Competent, (1) Emerging*

# General Music: "Informance" vs. Performance

- What is an informance?
- An "informance" is a way for students to share their musical growth over the course of a school year through a less formal demonstration of authentic music learning.
- More meaningful than polished, memorized, "show style" performances for elementary general music students
- Parents are invited in to watch and participate in a 30-minute music lesson

# Informance examples - videos

- 1st Grade: Bim Bam
- 3rd Grade: Bucket Drumming
- 5th Grade: Intro Mrimbi Jam
- Family Folk Dancing

# MMS Music Explorations

- Fully implemented new sequence and units
  - 4 main units and 2 mini-units per grade level 6-8
    - Music Composition (Noteflight)
    - Music Production (Soundtrap)
    - Piano
    - Guitar
    - Music Listening Journals
    - Music History

- 6th grade units - currently entering into EduPlanet

- Plan to enter 7th and 8th grade units this summer

# DHS Guitar Ensemble

- New class - one semester, open to 9th-12th grade students
- Differentiated to accommodate beginner-advanced players
- PD delivered by Shane Peters - Ridgefield orchestra, WCSU guitar instructor
  - Full music staff - participated as the guitar ensemble to learn differentiated instruction techniques
  - Curriculum work to bridge from 8th grade ME to 9th-12th
  - Curriculum will be written this summer, piloted, then entered into EduPlanet

# DHS Auditorium Project