ELEMENTARY SCIENCE MATERIALS RECOMMENDATION

COMMITTEE OF THE WHOLE MEETING

JUNE 6, 2023

ELEMENTARY SCHOOL SCIENCE PILOT TEAM MEMBERS

Teacher	Grade Level	School
Sarah Huska	2nd Grade	Willard
Jennifer Jenkins	2nd Grade	Lincoln
Jill Kruger	2nd Grade	Lincoln
Katie Till	2nd Grade	Willard
Lauren Baiocchi	3rd Grade	Lincoln
Andrea Costin	3rd Grade	Willard
Jasmine Davis	3rd Grade	Willard
Janeice Millon	3rd Grade	Willard
Kate Szostak	3rd Grade	Willard
Roxanne Bajo	4th Grade	Lincoln
Gail Barrett	4th Grade	Lincoln
Shana Joyce	4th Grade	Willard

GOALS FOR THE CURRICULUM EVALUATION PROCESS

- Engage in collaborative team process
- Guide decision-making through an evidence-based analysis
- Conduct an intensive study of curriculum (August 2022 – April 2023)
- Complete a rubric process to "paper screen" materials
- Pilot materials in the classroom setting

PILOT PROCESS LIMITATIONS

- Only one unit from each program was implemented in classrooms
- Units cover different strands of content not allowing for "apples to apples" comparison
- One unit may not highlight the range of strengths and/or weaknesses of each program

ESSENTIAL UNDERSTANDINGS FOR SELECTING INSTRUCTIONAL MATERIALS

- Teachers guide student learning; materials support the process
- There is no perfect instructional program of set of materials
- The pilot process has acknowledged limitations
- Professional development is critical for the success of implementation
- On-going collaboration is essential for instructional alignment

NEXT GENERATION SCIENCE STANDARDS: THE THREE DIMENSIONS OF SCIENCE LEARNING

Crosscutting Concepts: exploring connections across the four domains of science

Science and Engineering Practices: describe what scientists do to investigate the natural world and what engineers do to design and build systems

Disciplinary Core Ideas: key ideas in science that have broad importance within or across multiple science or engineering disciplines

MATERIALS PILOTED IN CLASSROOMS

AMPLIFY (K-8)

- Developed by science education experts at University of California, Berkeley's Hall of Science and Amplify's digital learning team
- Engages students in relevant, real-world problems where they investigate scientific phenomena
- Engages students in collaboration and discussion
- Supports students to develop models or explanations to arrive at solutions to problems

GREAT MINDS: PHD SCIENCE (K-5)

- Founded by a group of education advocates in 2007
- Designed to integrate three-dimensional teaching and learning
- Focuses on depth instead of breadth of science topics
- Examines real-world phenomena through hands-on learning

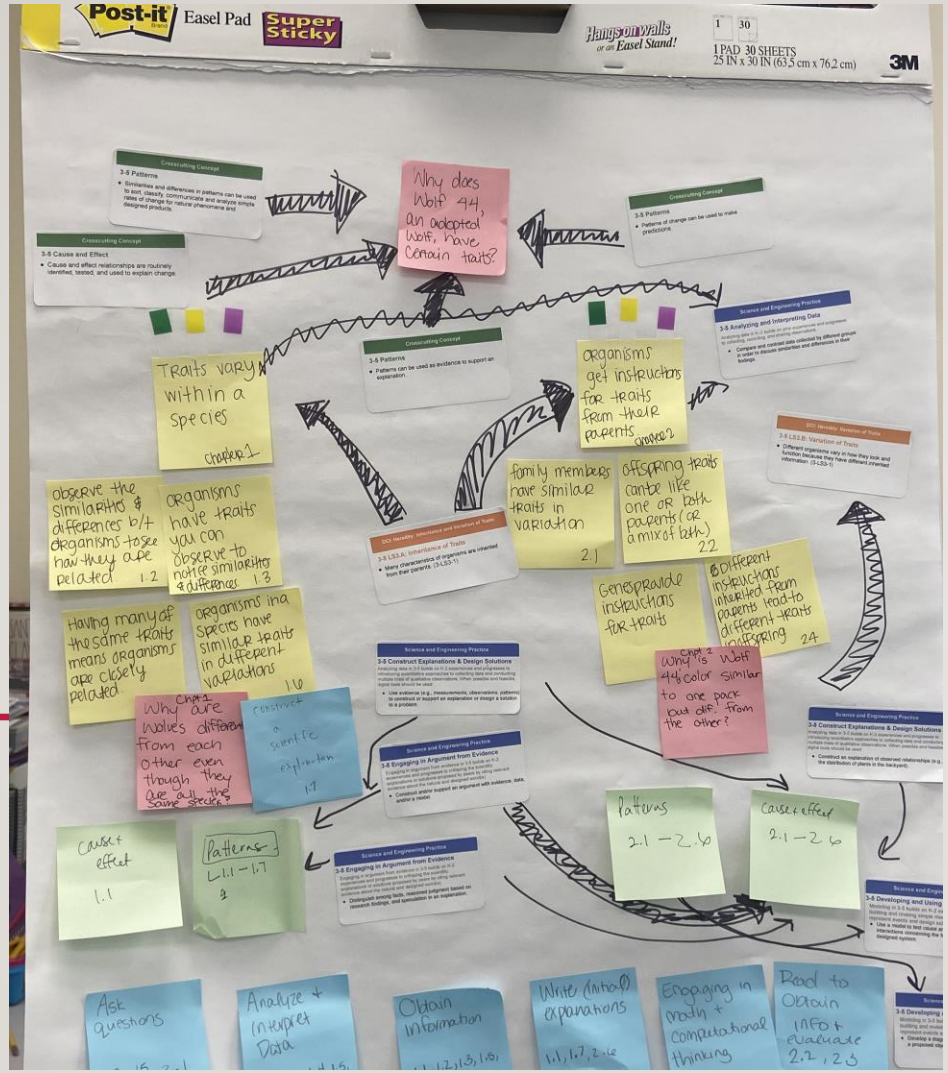
CLASSROOM PILOT UNITS

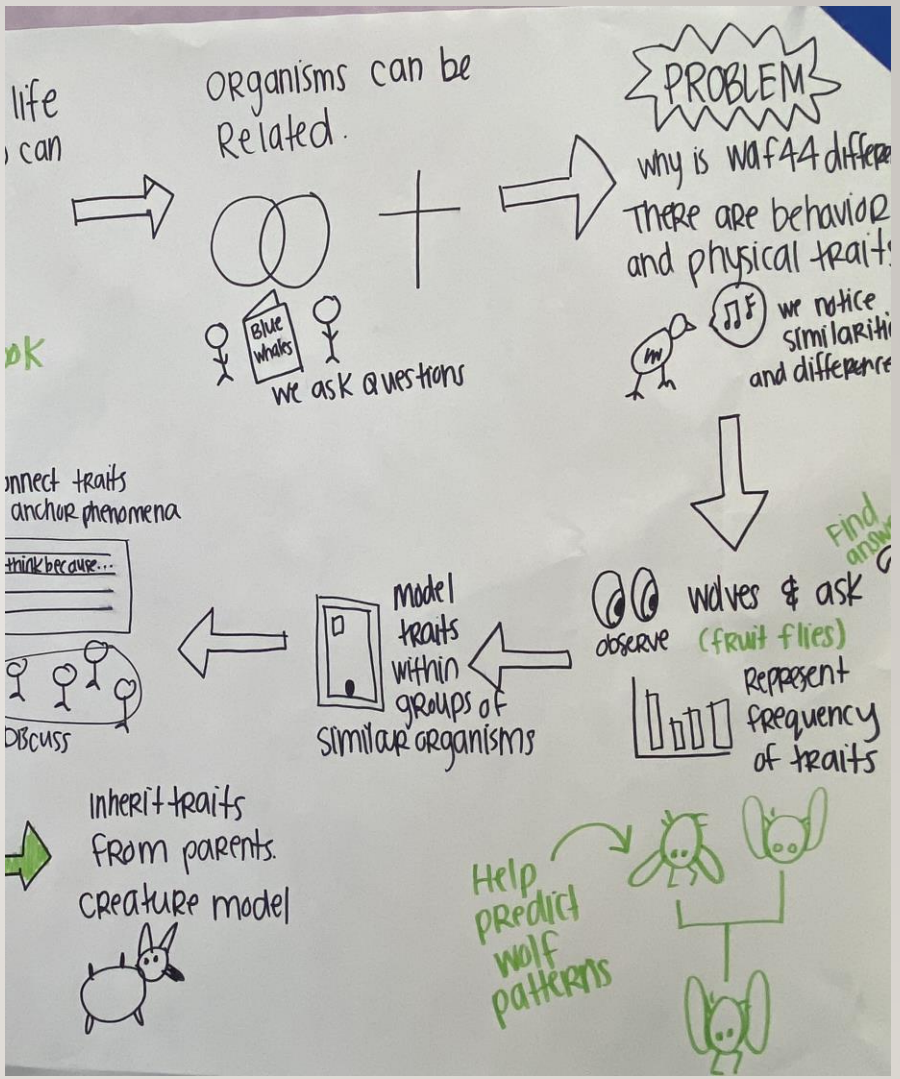
	Amplify Unit	PhD Science Unit
Grade 2	Plant and Animal Relationships	Earth Changes
Grade 3	Inheritance and Traits	Weather and Climate
Grade 4	Vision and Light	Earth Features

INSTRUCTIONAL MATERIALS RUBRIC CRITERIA: PAPER SCREEN

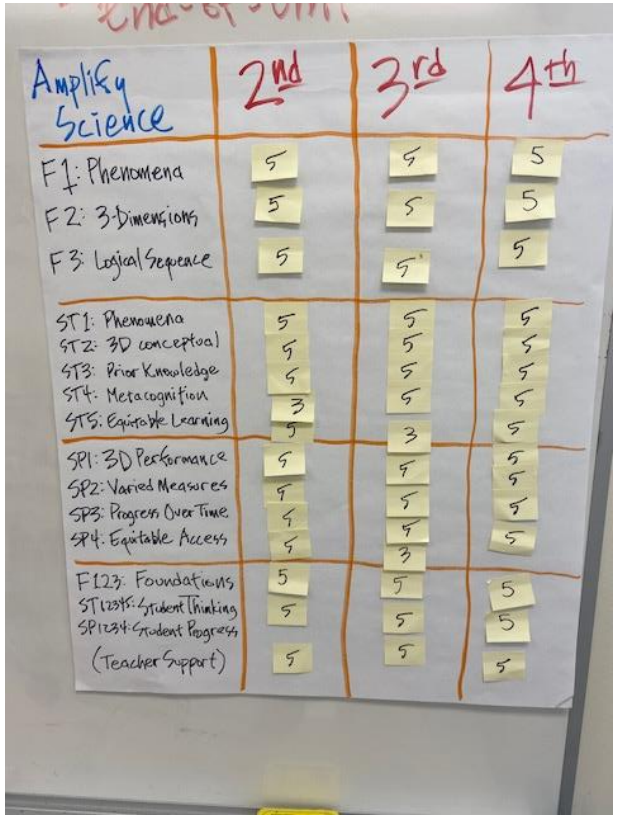
- Alignment to content and practice standards
- Coherence of student learning progressions
- Presence of teacher support
- Quality of formative and summative assessments
- Equitable practices

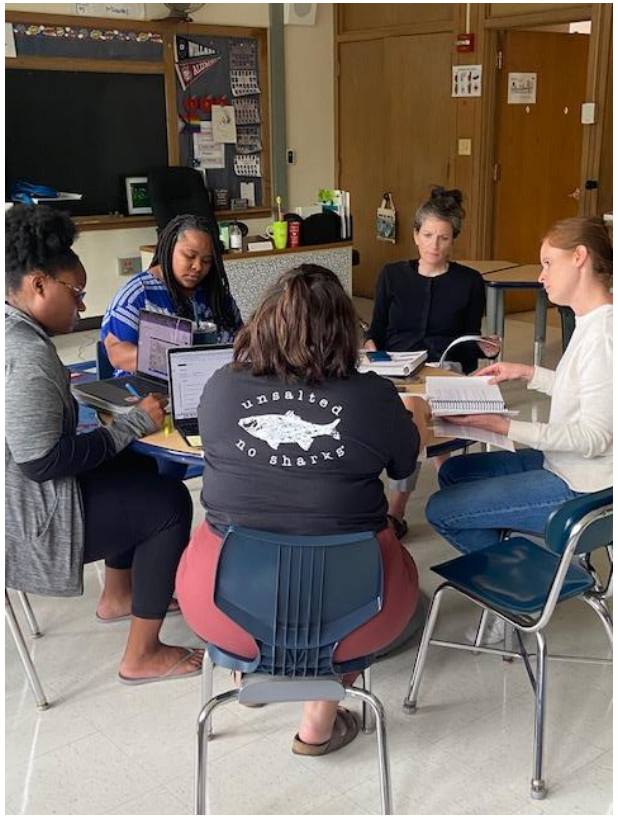
SCIENCE PILOT PAPER SCREEN





SCIENCE PILOT PAPER SCREEN





PILOT TOOLS AND DATA COLLECTION

- Expected goals for learning
- Student reflection on learning
- Teacher reflection of student learning
- Team reflection of student learning by program
- Evidence and scores for student learning and teacher support

TEACHER REFLECTION ON STUDENT LEARNING: FIVE TYPES OF STUDENT LEARNING EXPERIENCES

- Type 1: Prior-Knowledge
- Type 2: Intro to Phenomena
- Type 3: Activity connected to the Cross-Cutting Concepts and the Science and Engineering Practices
- Type 4: Formative Check-in
- Type 5: Return to Phenomena

CLASSROOM PILOT RESULTS

Amplify		PhD Science	
Student Learning		Student Learning	
Reflection Rubric	71%	Reflection Rubric	55%
Teacher Support	75%	Teacher Support	43%

CLASSROOM PILOT RESULTS: AMPLIFY

Student Learning

Strengths:

- Student experiences were well connected lesson to lesson and easily tied back to the anchor phenomena
- Students learn through a variety of experiences and learning tools to understand key concepts
- Ample opportunities for student collaboration and discussion

Limitations:

- Some lessons within the unit seemed repetitive
- Requires additional differentiation
- Lack of rubrics or student work samples

CLASSROOM RESULTS: AMPLIFY

Teacher Support

Strengths:

- Google Slide decks provided illustrated lesson sequences, objectives, and anticipated student responses to learning
- Materials kits provided all necessary resources for students and teachers
- Teacher guide offered suggestions for how to tailor instruction to match student learning needs

Limitations:

- Would benefit from additional options for differentiation

STUDENT FEEDBACK: AMPLIFY

- Students enjoyed the App-based simulations and experiments
- Found the student log books and illustrations/pictures helpful
- Enjoyed working with their partners
- Found the vocabulary word wall helpful
- Technical vocabulary could be hard because the phenomena was unfamiliar to them

CLASSROOM RESULTS: GREAT MINDS

Student Learning

Strengths:

- Student books contained activities that related back to concepts
- Time allocated for lessons were accurate

Limitations:

- Lesson connection to anchor phenomena not consistently clear
- Weak connection to real-world application
- Lack of opportunity to extend or support learning

CLASSROOM PILOT RESULTS: GREAT MINDS

Teacher Support

Strengths:

- Provided trade books with background information
- Specific lessons for engineering concepts

Limitations

- Teacher materials were difficult to navigate and instructions were convoluted
- Lacked background knowledge for the teacher to thoroughly understand learning concepts
- Google Slides were not thorough

STUDENT FEEDBACK: GREAT MINDS

- Students thought videos were helpful to gain a visual understanding of phenomena
- Diagrams, models, anchor charts, and pictures were also helpful
- Students liked the hands-on stations and experiments

ELEMENTARY SCIENCE TEAM MATERIALS RECOMMENDATION

- Elementary science team recommends the adoption of Amplify Science for Grades 1-4
- Materials will be adopted through a six-year contract
- Next renewal: 2028-2029

NEXT STEPS

Develop multi-year implementation plan

Provide summer work hours to facilitate planning and preparation

Engage with Amplify to determine professional learning format and frequency


QUESTIONS?