High School Science CURRICULUM REVIEW COMMITTEE

Recommendation to the IMC

April 25, 2017

Members of the committee

- Melanie Bachart, Chiawana High
- Julia Dudley, Pasco High
- Tami Edwards, Chiawana High
- Linda Ehnes, Chiawana High
- Emily Jordan, Chiawana High
- Molly Tuinstra, Pasco High
- John Weisenfeld, Pasco High
- Sally Wright, Pasco High

Content areas taught among this team:

Biology, Earth & Physical, Chemistry, Physics, Environmental Science, Biotechnology, STEM, AP

Selection Process

Team developed pre-screening tool with middle and elementary

Created and implemented parent and staff survey

Chose the Equip Rubric for full evaluation

All members attended NGSS Equip Rubric training

Initially screened 8 curricula, narrowed to 4

4 Vendor presentations, narrowed to 3

- Discovery
- McGraw Hill-Glencoe
- STEMscopes

Used bias screener to evaluate top 3 choices

Evaluated all 3 with EQuIP rubric for physics, chemistry, biology, and earth science

Core Science Components Evaluated

With EQuIP for NGSS Alignment

- Biology
- Chemistry
- Earth Science
- Physics

EQuIP

Evaluated two units per component area:

Biology	Chemistry	Earth Science	Physics
Photosynthesis	Periodic Trends	Climate Change	Motion, Newton's 2nd Law
DNA	Nuclear Chemistry	Interior of the Earth	Characteristics of Waves

Beyond Core Science Components Evaluated

With Bias Screener and Pre-Screener:

- Environmental Science
- Biotechnology

Narrowing Materials

- Pre-screener applied to several materials
- Analyzed results of parent and teacher surveys
- Reviewed state recommendations from Oregon
- Vendor presentation
- Bias screener applied

Pre-Screener

- Collaboration between elementary, middle and high school resulted in a k-12 pre-screening tool
  - Compression planning used to identify components of pre-screening tool
- Considerations included
  - NGSS Alignment
  - Support of language development
  - Differentiation

Pre-Screening Criteria

Pre-Screening Rubric

Title: Science Materials	Publisher: Copyright:	Grade Levels:

Our Values	Y	N/S	Criteria We Must Include	Y/N/
Allows for Rigor and Remediation			Must include Technology Component that addresses the 21st Century Skills.	
Worldwide connections and local connections			Professional Development	
Language is accessible for all learners (ELL, SPED, Advanced), and language of instruction (Spanish and English and/or translation rights).			Must include support materials that address all language levels	
Technology Component that addresses the 21st Century Skills			Sustainability of the consumable resources/materials	
NGSS / 3-D (DCI, SEP, CC) Instruction and Assessment Aligned, including Performance Tasks			NGSS / 3-D (DCI, SEP, CC) Instruction and Assessment Aligned, including Performance Tasks	
Implementable Hands on inquiry based STEM/simulation centered on student learning			Differentiated learning materials and styles to address DOK	
Developmentally and Age appropriate				

Y – Yes N–No S–Somewhat

Bias Screener

- Guidelines for Identifying Bias
  - Prejudice in favor or against one thing, person, or group compared to another, usually in a way considered to be unfair
- Materials were screened with following criteria
  - Gender, Multicultural, Persons with Disabilities, Socio-Economic Status, Family, and Appropriateness

Vendor Presentations

Accelerate Learning*

- Develop with NGSS in mind
- Developed by teachers
- High degree of technology

Discovery

- Updated and revised with NGSS in mind
- Visually engaging
- High degree of technology

HMH Dimensions

- Not enough material to evaluate for NGSS

McGraw Hill

- A textbook option, rather than tech-based
- Similar to current adopted material
- Supplemental NGSS focused materials

* (STEMscopes)

Scoring Materials with EQuIP

Educators Evaluating the Quality of Instructional Products

Designed to identify high-quality materials aligned to the Common Core State Standards (CCSS) or Next Generation Science Standards (NGSS)

- Added 2 additional teachers for scoring
- All scorers attended a 3-hour training

EQuIP Rubric

I. NGSS 3D Design

a. Explaining Phenomena, Designing Solutions
b. 3 Dimensions
c. Integrating the 3 Dimensions
d. Unit Coherence
e. Multiple Science Domains
f. Math & ELA

EQuIP Rubric

II. NGSS Instructional Supports

a. Relevance and Authenticity
b. Student Ideas
c. Building progressions
d. Scientific Accuracy
e. Differentiated Instruction
f. Teacher Support for Unit coherence
g. Scaffolded Differentiation over Time

EQuIP Rubric

III. Monitoring NGSS Student Progress

a. Monitoring 3D student performance
b. Formative
c. Scoring Guidance
d. Unbiased tasks/items
e. Coherent Assessment System
f. Opportunity to Learn

Parent Survey Results

- Parents do not understand the NGSS.
- Parents agreed that hands-on labs and grade appropriate text were the two most important aspects of curriculum.
- Parents agreed that homework was the least important aspect of the curriculum.
- One parent indicated a desire for greater education in science related careers.
- Parents would like more parent education in science.

Teacher Survey Results

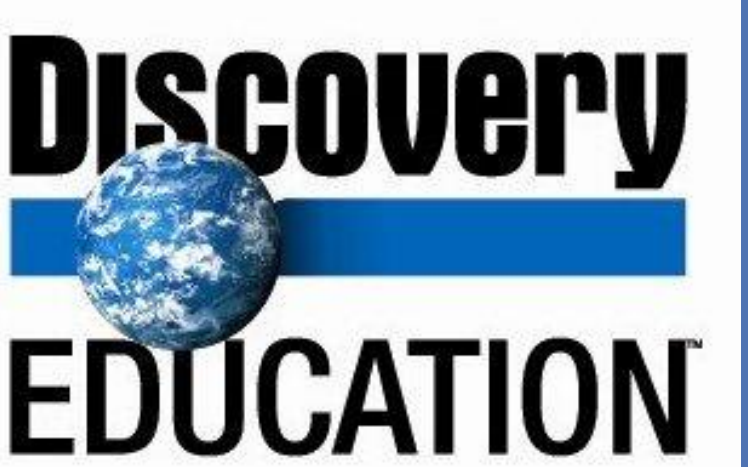
- Many want online simulations and tutorials
- Some concern that there are not enough computers/network capabilities to use online tools adequately
- Staff wants PD regarding curriculum and NGSS
- Time to work together and support each other
- Some concern that NGSS aligned curriculum availability is limited
- Staff wants K-12 vertical alignment opportunities

*26 High School teachers responded

Why not McGraw Hill?

- If curriculum is not scored as “adequate” for criteria I, then scoring does not continue.
- McGraw Hill did not meet criteria I which means it is not NGSS aligned.

Why not Discovery?



- Lack of hands on learning
- Lack of supports for literacy
- Reliance on technology is one to one; printing and downloading is limited
- Difficult for teachers to navigate which might reduce student and teacher use

Why STEMscopes?

STEMscopes™

- Exceptional alignment to 3D learning
- Supports literacy with scaffolds and differentiation
- Engaging through hands on inquiry
- Easy to navigate
- Support for content and instruction
- Easy to print materials
- Immediate feedback for students on formative assessments
- Positive teacher feedback

Next steps :

- Ongoing professional development for science teachers
  - In the curriculum
  - In developing phenomena
- Technology support; both computers and network
- Curriculum guides for all components and grade levels
- High School cross-building teaming
- K-12 vertical alignment
- Increase parent education/involvement regarding NGSS

Recommendation

Seeking a motion to recommend the adoption of "STEMscopes" published by Accelerate Learning to the Pasco School Board for use in grades 9th through 12th grade.

QUESTIONS?