

Middle School Science Adoption

APRIL 20, 2017

Recommendation

Amplify Science 6-8

For use in general middle school science, GMSP 6th and 7th, and 5th grade GESP

Rationale



The Next Generation Science Standards were adopted by Washington State in 2013 and the state developed a 3-5 year implementation timeline to respond to content and instructional shifts.

The current materials for middle school science are not aligned to current Washington State standards for science.

New materials have been published in the last year or two, BSD began evaluating materials in 2015.

Preparing for Pilot

1. Spring 2014-Developed Middle School Science Leadership Team to increase understanding of NGSS
2. Fall 2015-Jan 2016 -Conducted interest based strategies with district science leaders and other district stakeholders to develop 6-12 science articulation.
3. Spring 2016 - Developed criterion for evaluation of materials based on 5 innovations of NGSS and three additional criteria from IBS.
4. Spring 2016 -Gathered Information -Teachers and Curriculum developers gathered materials from vendors and discussed with other Washington State curriculum leaders.
5. Spring 2016 -Scored materials based on criterion.
6. Spring 2016 - Scores presented to middle school science teachers during PD Day – No major concerns brought up at that time.
7. Spring 2016- Formed Adoption committee.
8. Spring 2016 - Narrowed scored materials down to two choices by the adoption committee

Piloted Materials



- IQWST (Investigation and Questioning Our World Through Science and Technology) published by Accelerate Learning
 - 6th grade – Where have all the creatures gone?
 - 7th grade – What makes weather change?
 - 8th grade – How can I make new stuff from old stuff?
- Amplify Science 6-8 published by Amplify
 - 6th grade – Metabolism Unit & Engineering Internship
 - 7th grade – Plate Motion & Engineering Internship
 - 8th grade – Force and Motion & Engineering Internship

AmplifyTM
Science

Description of Pilot

Number of teachers piloting	37
Number of teachers teaching course	40 teachers teach the course
How teachers were selected	All were invited to pilot
Schools involved in pilot	All middle schools represented
Number of students involved in pilot	3800 students
Number of students enrolled in the course	3950 students enrolled in the courses
Demographics of students	Representative of district because we had nearly the entire sample.
Duration of pilot	Each unit taught for approximately 9 weeks
Rational for duration.	Duration was determined by the length of the unit piloted

Data Collection

1. *Adoption committee* evaluated used the evaluation criteria multiple units of instruction from each published
2. *Students* completed a survey after each instructional material was used
3. *Teachers* completed a survey after each instructional material was used
4. *Parent* feedback collected using electronic parent feedback form

Evaluation Criteria

Criteria 1: Integrating Three Dimensions

Criteria 2: Focus on Engaging Phenomena

Criteria 3: Engineering Design and the Nature of Science

Criteria 4: K–12 Learning Progression

Criteria 5: Connections to ELA and Mathematics

Criteria 6: Aligns to models recommended by NGSS Implementation Planning Team

Criteria 7: Support for Equity in the School Context

Criteria 8: Connections to Computer Science and Computational Thinking

Adoption Committee Evaluation

Evidence for the IQWST Innovation Rating

Criterion	1	2	3	4
1A			●	●
1B		●		●
2		●	●	
3	●	●	●	
4				●
5		●	●	●
6		●		●
7	●	●	●	
8	●	●		

IQWST

AMPLIFY 6-8 Rubric

Criteria	1	2	3	4
1A * 3-D Learning Activities		●	●	●
1B * 3-D Assessment			●	●
2 * Engaging Phenomena			●	●
3 * Engineering		●	●	●
4 Learning Progression				
5 English/Math Connect				
6 Curriculum model 6-7-8				
7 * All Students <small>race SPED English learners gifted</small>			●	●
8 Amplify Science <small>6-8</small>				

Amplify

Student Feedback

	IQWST	Amplify
The <u>activities</u> helped me learn the content	63%	73%
The <u>visuals</u> helped me learn the content	49%	66%
The <u>readings</u> helped me learn the content	53%	55%

*percentages refer to students who “strongly agreed” or “agreed” on the following scale:

Strongly disagree
Disagree
Neutral
Agree
Strongly agree

6th grade Comparison

For each row, select the unit that was better for that statement

	IQWST	Amplify	Equal
Easier to Use	25%	48%	36%
More Interesting	24%	54%	29%
More Readable	23%	44%	43%

Recommendation for future middle school students

IQWST	12.0%	106
Amplify	53.1%	467
Either one	29.0%	255
Neither one	5.9%	52

7th grade Comparison

For each row, select the unit that was better for that statement

	IQWST	AMPLIFY	Equal
Easier to Use	18%	49%	33%
More Interesting	19%	54%	27%
More Readable	19%	42%	39%

Recommendation for future middle school students

IQWST	12.3%	117
Amplify	48.8%	464
Either one	28.5%	271
Neither one	10.3%	98

8th grade Comparison

For each row, select the unit that was better for that statement

	IQWST	Amplify	Equal
Easier to Use	29%	40%	44%
More Interesting	34%	39%	41%
More Readable	29%	33%	53%

Recommendation for future middle school students

IQWST	24.0%	320
Amplify	32.8%	437
Either one	31.2%	416
Neither one	12.1%	161

*Green is IQWST, Blue is Amplify

Teacher Feedback

3	Compelling phenomena that supports students' engagement in science.				
	Agree	23%	Agree	43%	
	Strongly agree	3%	Strongly agree	30%	
4	Opportunities for students to express, clarify, and represent their thinking.				
	Agree	31%	Agree	37%	
	Strongly agree	9%	Strongly agree	33%	
6	Opportunities for students to use creativity to design and investigate.				
	Agree	6%	Agree	33%	
	Strongly agree		Strongly agree	13%	
11	Opportunities for students to summarize and reflect on their learning.				
	Agree	41%	Agree	47%	
	Strongly agree	6%	Strongly agree	40%	

Teachers Compare Curricula - 1

Which instructional material was stronger in each of the following criteria?		IOWST	Amplify	Equal
1	Depth of science content learning for students	47%	40%	13%
2	Student engagement in the science and engineering practices	13%	67%	20%
3	Explicit connections to cross cutting concepts	10%	63%	27%
4	Engineering experiences	3%	83%	13%
5	Student explanation of phenomena	20%	63%	17%

Teachers Compare Curricula - 2

Which instructional material was stronger in each of the following criteria?		IOWST	Amplify	Equal
6	Supports for advanced learners	41%	17%	41%
7	Supports for struggling learners	10%	67%	23%
8	Supports for English learners	17%	53%	30%
9	Online materials	0%	87%	13%
10	Physical materials	40%	37%	23%
11	Assessments	10%	70%	20%

Parent Feedback

Open ended question:

What comments do you have on the Amplify and/or IQWST curricula options?

	Positive	Negative	Can't Tell
Amplify	66%	20%	14%
IQWST	53%	47%	
Can't Tell			38 responses

There were 82 responses to the survey for parent feedback

Parent Quotes

“My student did not like the IQWST curricula. She says that it was too much reading and not very fun. She also told me that they were not able to dissect the sea lamprey and yellow perch on their own. I think that it would be better if the students got to be up close and actually participate in the dissecting. She tells me that the Amplify curricula is more fun, less reading, but when there is, it is interesting. She seems to be having more fun in science now that the Amplify curricula has started.”

“I am worried that Amplify is too tech heavy and does not offer enough "hands-on-equipment" experiences. Middle school kids LOVE lab equipment. They love labs! I want my kids and all kids to know how to handle beakers, fire, test tubes, etc. The real stuff...not probes and apps.”

“I child highly enjoys the IQWST curricula because of the varieties of labs which made learning enjoyable and clarified any confusion.”

“I did not care for the IQWST curriculum. It was not engaging my child. I found the parent participation questions to be confusing and redundant.”

Committee Discussions

1. Committee used a protocol used for looking at each set of data
 - Prediction
 - Observation
 - Inference
2. Further discussion summarizing all of data
3. Discussed concerns that were raised

Process for Making a Decision

Thumbs Up: I think it's a good decision and will advocate for it.

Thumbs Sideways: I am comfortable with the proposal but might want to discuss some minor issues.

Thumbs Down: I still need to discuss certain issues and suggest changes that should be made.

Summary

The middle school science adoption committee recommends:

Amplify Science 6-8