



Karen B. Salmon, Ph.D.
State Superintendent of Schools

Results of the 2019 Science Survey Education – Core Content Areas – Accountability Program

The following is a summary of the survey of local school systems conducted pursuant to House Bill 1227: Education-Core Content Areas Accountability Program. The information was gathered through an online survey in the fall of 2019. The 2019 administration of the science survey contained questions to explore and inform the legislatively mandated areas of focus regarding the progress being made on the implementation of the Next Generation Science Standards (NGSS) within the Local School Systems (LSSs): instructional time for science, availability and use of appropriate instructional materials aligned to the NGSS, instructional technology, and teacher certification. There number of respondents to the surveys were:

Respondents

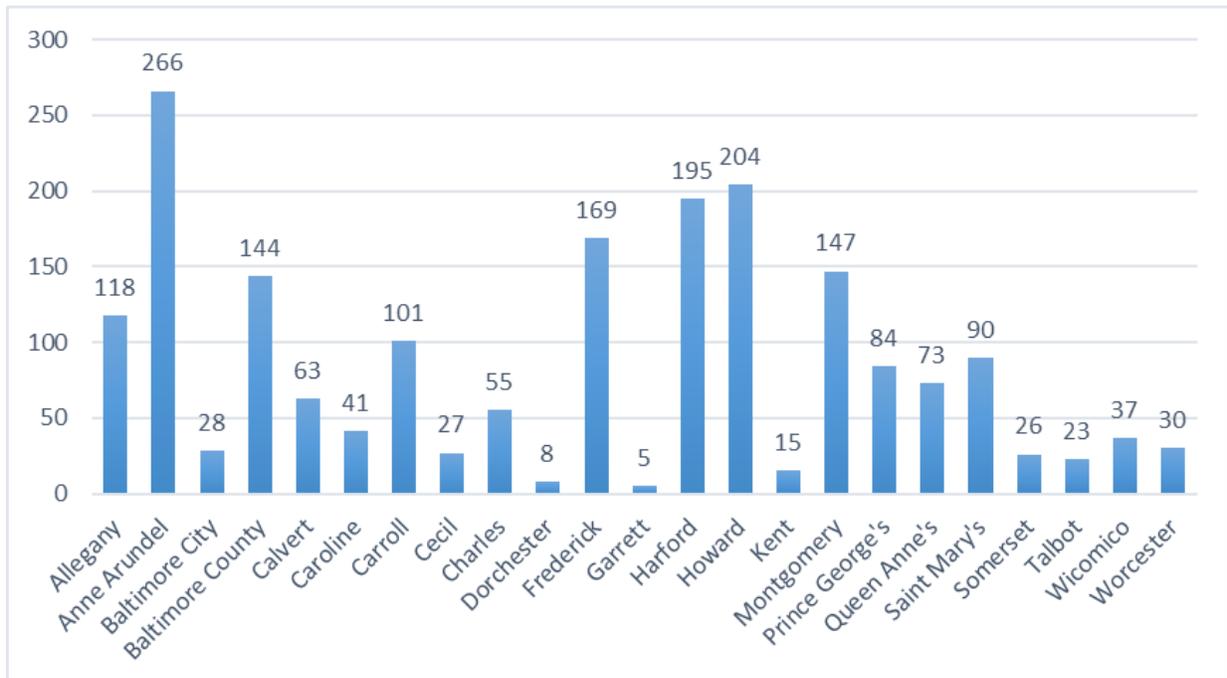
Type of Survey	Responses	LSS
Teacher Survey	1949	22
Supervisor Survey	26	18

Summary

Summary: The 2019 survey indicates that there is a discrepancy related to the different grade levels, regarding appropriate Professional Development focused on instruction and assessment of NGSS. Only approximately 60% of the elementary school respondents felt that there is appropriate professional development focused on the NGSS available to them. While over 80% the middle school and high school respondents felt they had appropriate professional development available to them. This is a significant difference of over 20%. The majority of elementary school respondents (74%) indicated that during the majority of the time spent doing science at the elementary school level, the students do not have laboratory experiences while the middle school and high school respondents felt their students do have these experiences. The data indicates that a majority of the respondents have resources available, and that technology is available and is being used, at all levels. Supervisors reported the percentages of classes being taught by teachers out of their certification area are generally low, some supervisors reported an increase in the number of science classes at both the middle school and high school levels being taught by teachers not certified in the subject.

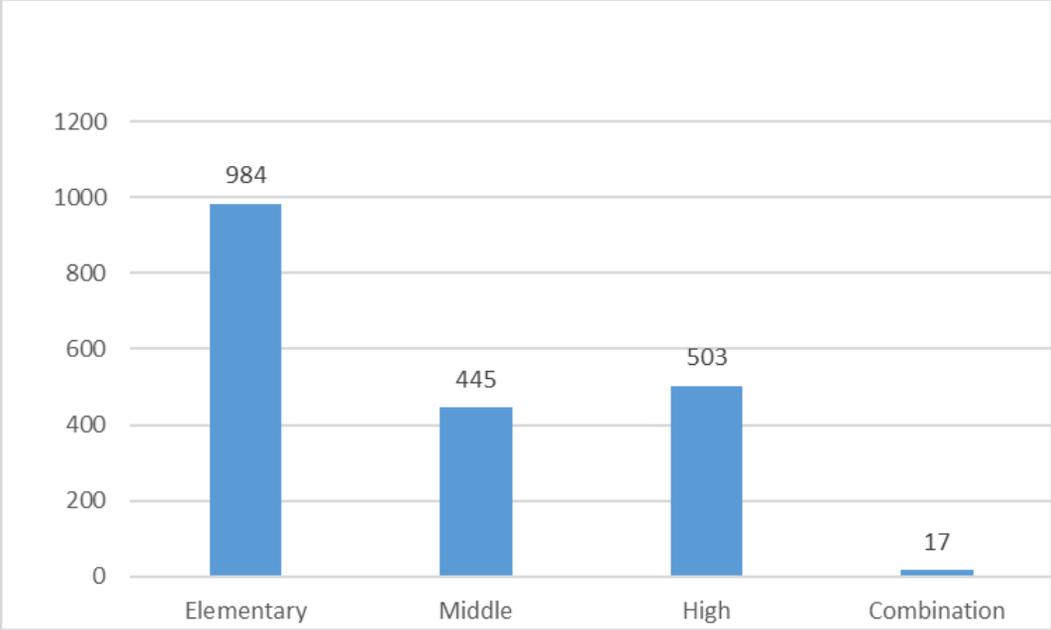
Summary of Science Teacher Survey

Teacher Responses by LSS



LSS	Count
Allegany	118
Anne Arundel	266
Baltimore City	28
Baltimore County	144
Calvert	63
Caroline	41
Carroll	101
Cecil	27
Charles	55
Dorchester	8
Frederick	169
Garrett	5
Harford	195
Howard	204
Kent	15
Montgomery	147
Prince George's	84
Queen Anne's	73
Saint Mary's	90
Somerset	26
Talbot	23
Washington	0
Wicomico	37
Worcester	30

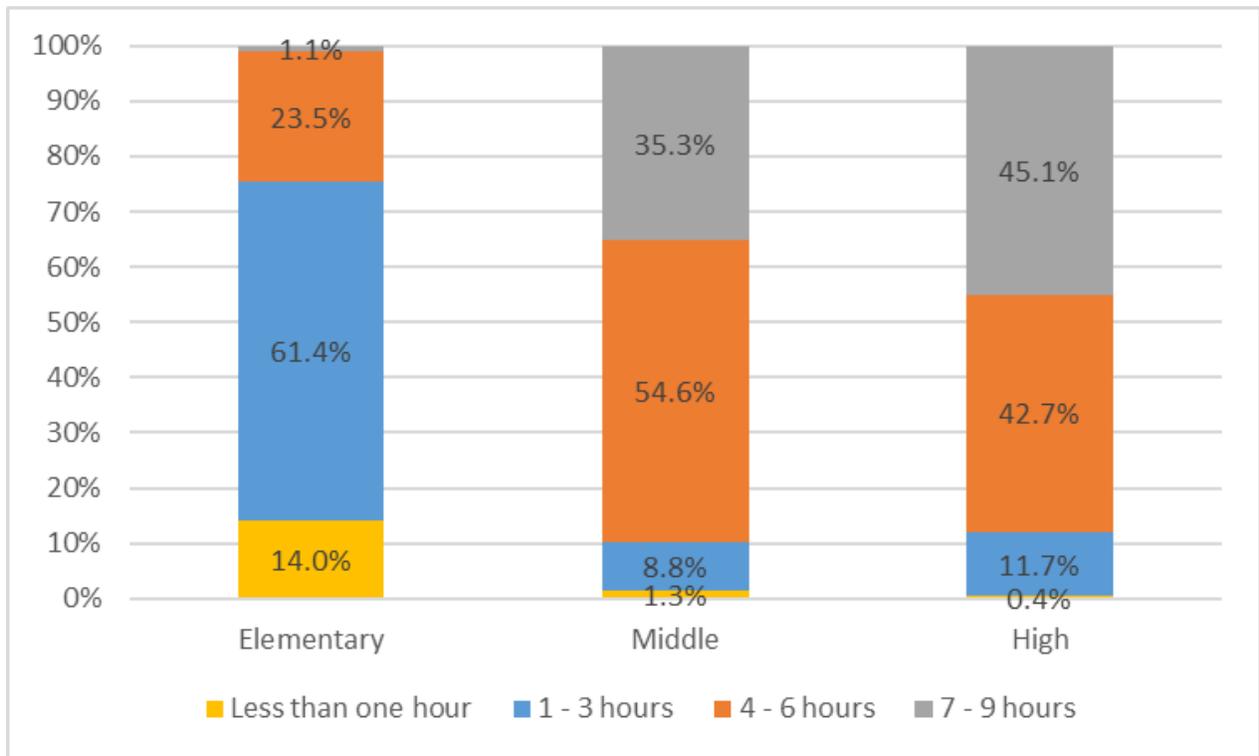
Teacher Response by Grade Level Taught



Grade Level	Count
Elementary	984
Middle	445
High	503
Combination	17

How many hours of instructional time are spent focused on NGSS curriculum in the science classroom per week?

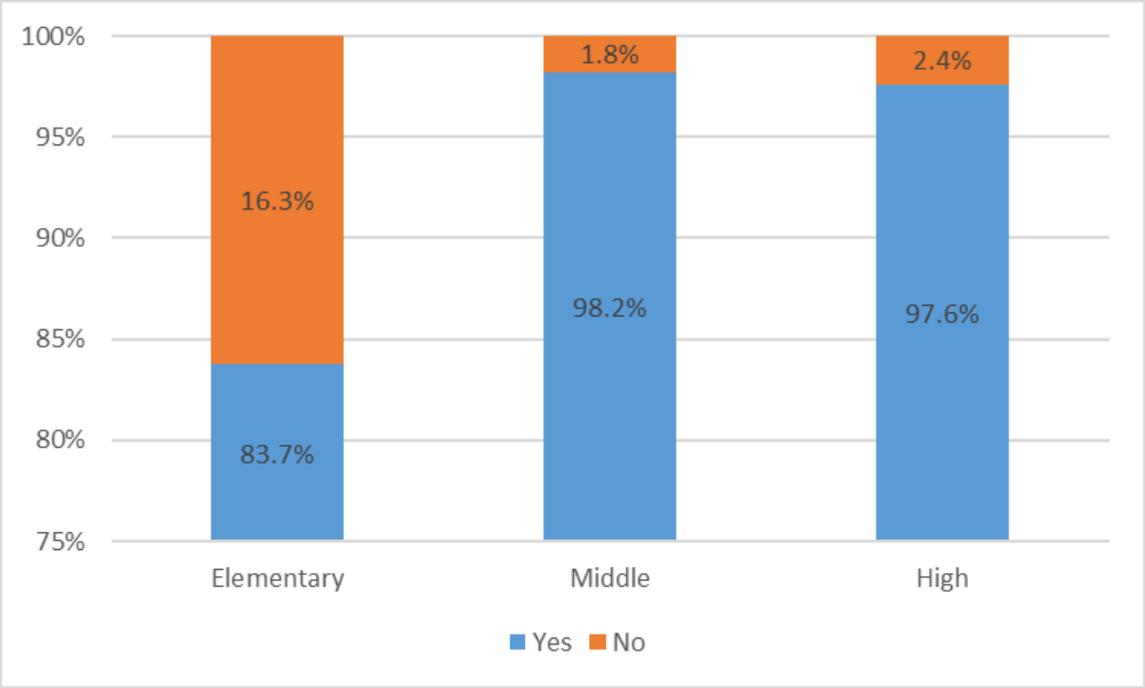
The frequency of science instruction across the state varies significantly among elementary schools, middles schools, and high schools.



Grade Level	Count	Less than one hour	1 - 3 hours	4 - 6 hours	7 - 9 hours
Elementary	984	14.0%	61.4%	23.5%	1.1%
Middle	445	1.3%	8.8%	54.6%	35.3%
High	503	0.4%	11.7%	42.7%	45.1%

Do your students participate in instructional activities which incorporate the NGSS in a classroom environment as part of their regular science class?

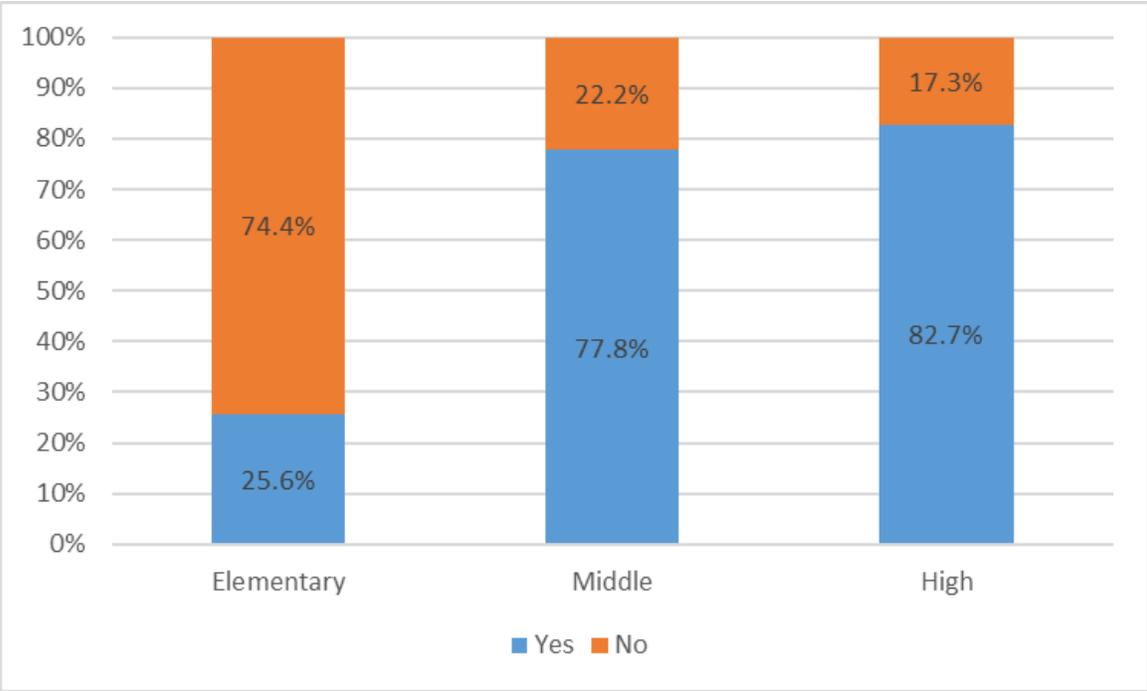
The majority of respondents at each grade level indicated that they teach using the NGSS as part of their regular instruction.



Grade Level	Count	Yes	No
Elementary	984	83.7%	16.3%
Middle	445	98.2%	1.8%
High	503	97.6%	2.4%

Do your students also have experiences which incorporate the NGSS in a laboratory environment in addition to their regular science class?

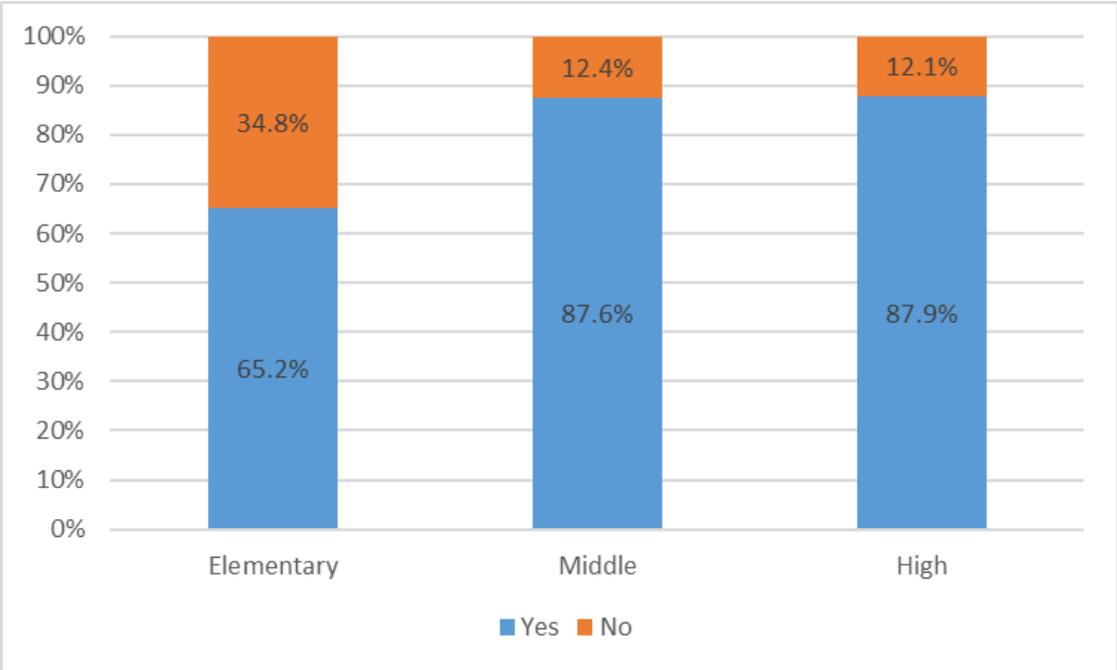
The majority of elementary school respondents (74%) indicated that their students do not have laboratory experiences that incorporate NGSS while a majority of the middle school and high school respondents felt their students do have these experiences.



Grade Level	Count	Yes	No
Elementary	984	25.6%	74.4%
Middle	445	77.8%	22.2%
High	503	82.7%	17.3%

Are appropriate resources, such as safety equipment, lab equipment, etc. which incorporate the NGSS available for science instruction in classrooms?

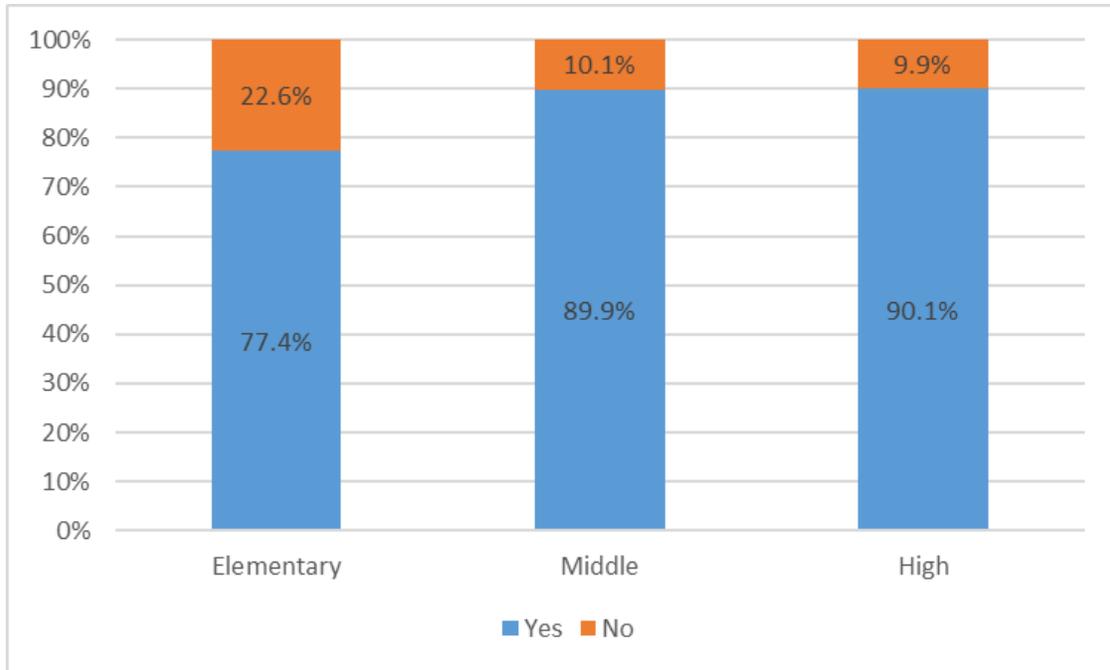
Over half of all respondents indicated that appropriate resources were available to their students. The middle school and high school respondents were at 87% while elementary school respondents were at 65%.



Grade Level	Count	Yes	No
Elementary	984	65.2%	34.8%
Middle	445	87.6%	12.4%
High	503	87.9%	12.1%

Is technology available which incorporates the NGSS for use in science instruction in classrooms?

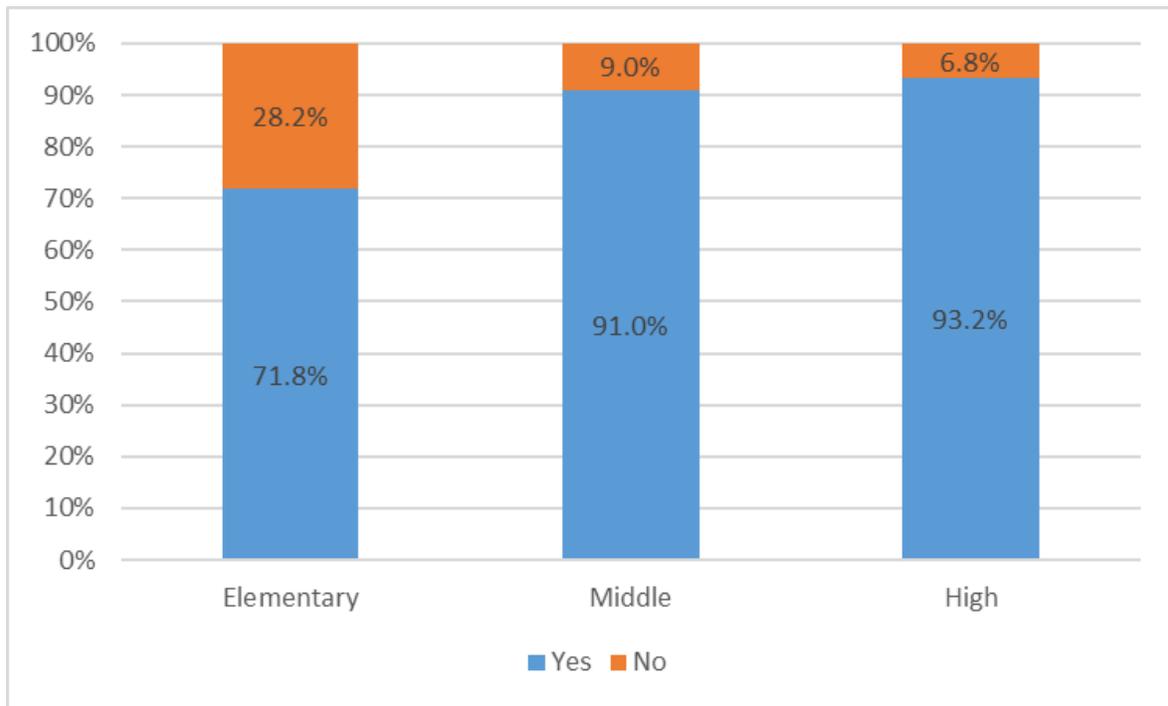
Most respondents (over 77%) indicated that technology is available for use in science instruction. This is similar to results from last year in which over 79% of respondents also indicated technology was available.



Grade Level	Count	Yes	No
Elementary	984	77.4%	22.6%
Middle	445	89.9%	10.1%
High	503	90.1%	9.9%

Is available technology which incorporates the NGSS used for science instruction in classrooms?

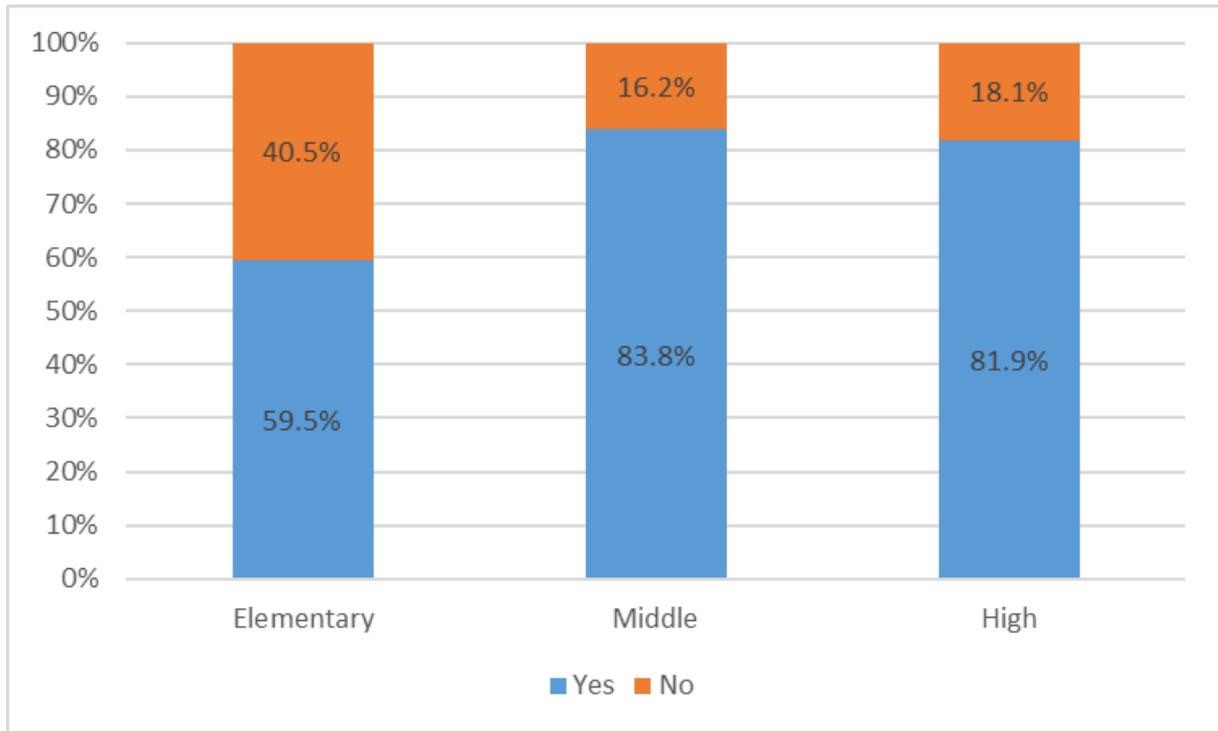
The majority of respondents (over 71%) indicated that they used the available technology which incorporates NGSS with their students. The high school educators and middle school educators responded that over 90% incorporate the available technology into instruction.



Grade Level	Count	Yes	No
Elementary	984	71.8%	28.2%
Middle	445	91.0%	9.0%
High	503	93.2%	6.8%

Is appropriate professional development focused on NGSS curriculum and assessments available to you?

There is a discrepancy related to the different grade levels, only approximately 60% of the elementary school respondents feel that there is appropriate professional development focused on the NGSS. As opposed to over 80% the middle school and high school respondents felt they had appropriate professional development available to them. This is a significant difference of over 20%.



Grade Level	Count	Yes	No
Elementary	984	59.5%	40.5%
Middle	445	83.8%	16.2%
High	503	81.9%	18.1%

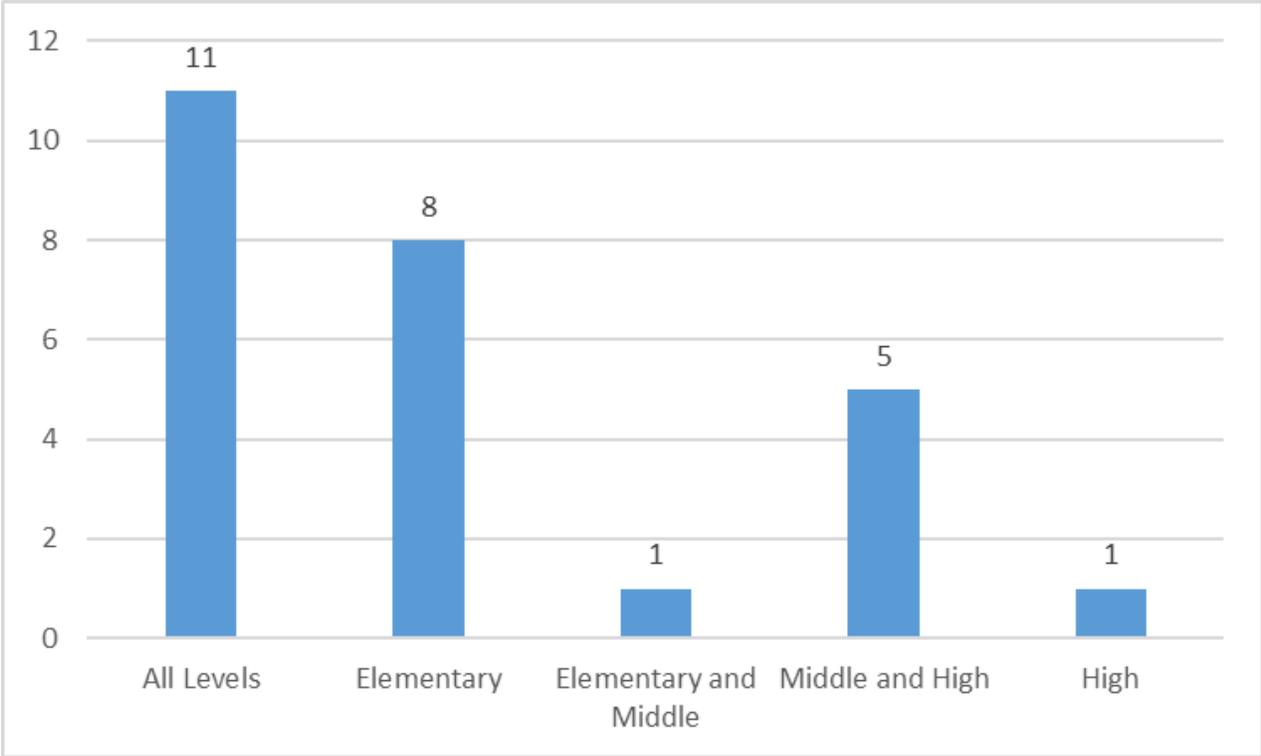
Science Supervisor Survey Results

Supervisor Responses by LSS

If there is a number in parentheses after the LSS name, this indicates that the number of responses in each LSS was greater than one as some respondents only supervise certain grade levels in those LSS.

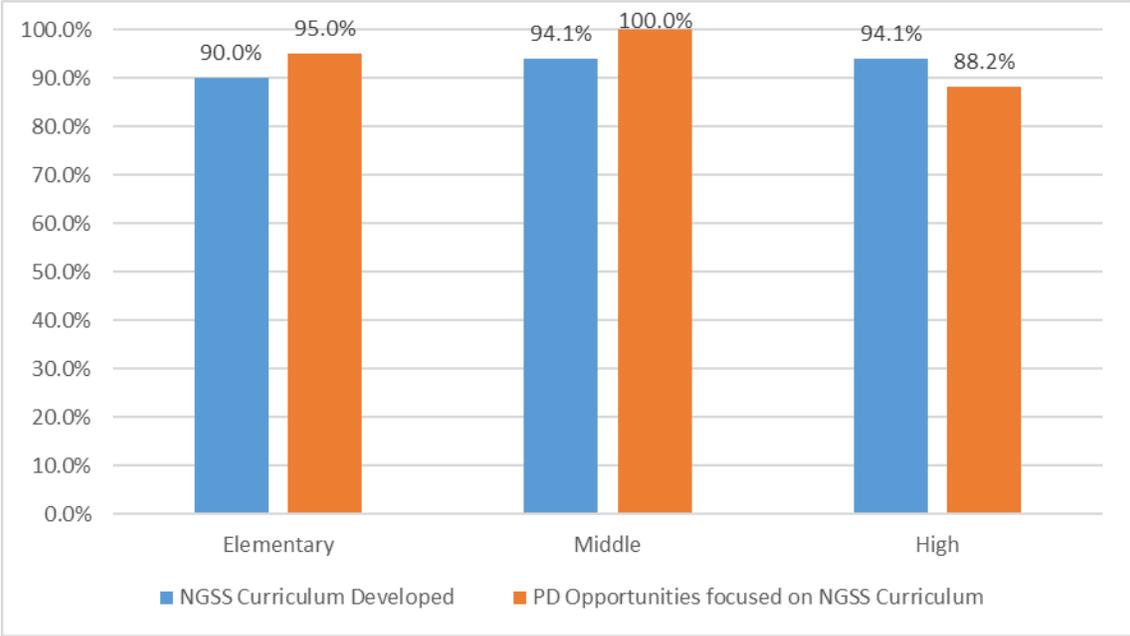
Respondent LSSs	Non-Respondent LSSs
Allegany (4)	Calvert
Anne Arundel	Cecil
Baltimore City (2)	Dorchester
Baltimore County (3)	Garrett
Caroline	Kent
Carroll (2)	Washington
Charles	
Frederick	
Harford	
Howard (2)	
Montgomery	
Prince George's	
Queen Anne's	
Saint Mary's	
Somerset	
Talbot	
Wicomico	
Worcester	

Supervisor Responses by Grade Level Supervised



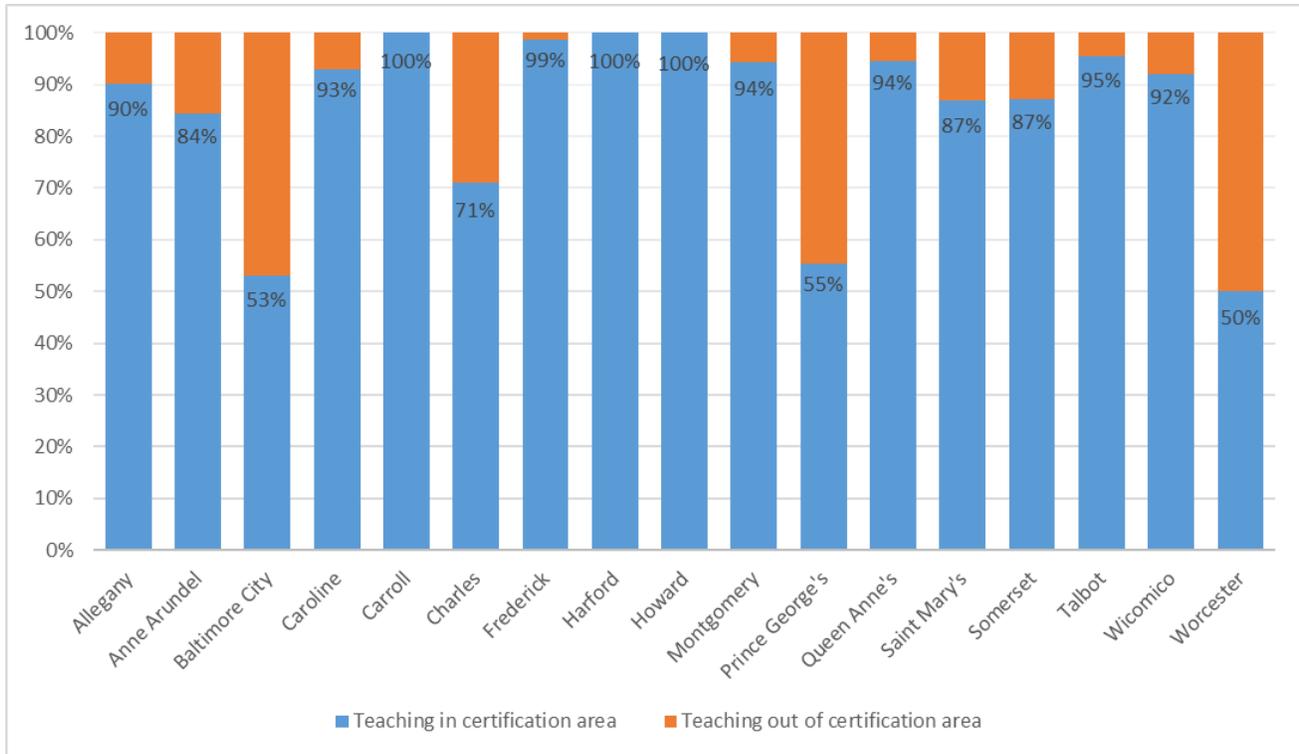
Grade Level Supervised	Count
All Levels	11
Elementary	8
Elementary and Middle	1
Middle and High	5
High	1

Curriculum Development and Implementation



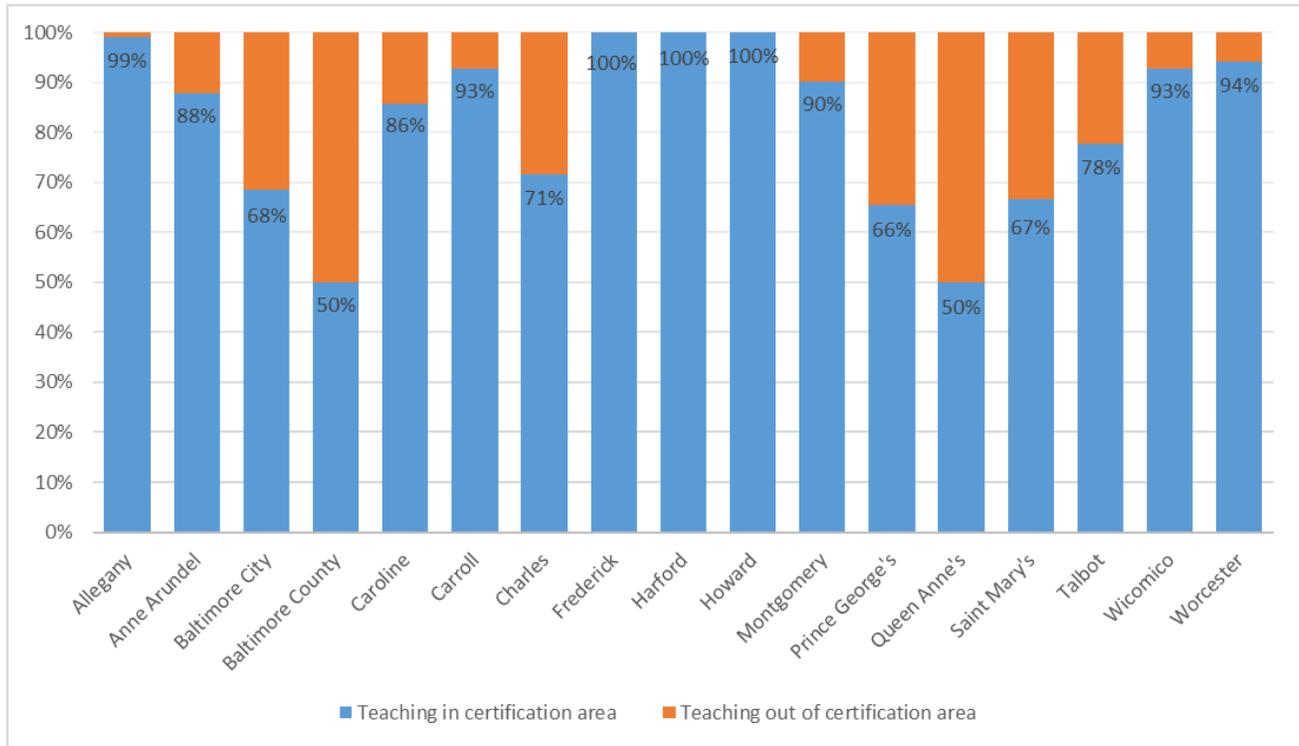
Grade Level	Count	NGSS Curriculum Developed	PD Opportunities focused on NGSS Curriculum
Elementary	20	90.0%	95.0%
Middle	17	94.1%	100.0%
High	17	94.1%	88.2%

Percentage of Middle School Science Classes Taught by Teachers in their Area of Certification, by LSS:



LSS	Count	Teaching in certification area	Teaching out of certification area
Allegany	81	90.1%	9.9%
Anne Arundel	812	84.4%	15.6%
Baltimore City	927	53.0%	47.0%
Caroline	14	92.9%	7.1%
Carroll	222	100.0%	0.0%
Charles	242	71.1%	28.9%
Frederick	369	98.6%	1.4%
Harford	335	100.0%	0.0%
Howard	630	100.0%	0.0%
Montgomery	2002	94.3%	5.7%
Prince George's	376	55.3%	44.7%
Queen Anne's	18	94.4%	5.6%
Saint Mary's	152	86.8%	13.2%
Somerset	31	87.1%	12.9%
Talbot	43	95.3%	4.7%
Wicomico	150	92.0%	8.0%
Worcester	32	50.0%	50.0%

Percentage of High School Science Classes Taught by Teachers in Area of Certification, by LSS



LSS	Count	Teaching in certification area	Teaching out of certification area
Allegany	111	99.1%	0.9%
Anne Arundel	1971	87.8%	12.2%
Baltimore City	1036	68.4%	31.6%
Baltimore County	2	50.0%	50.0%
Caroline	14	85.7%	14.3%
Carroll	386	92.7%	7.3%
Charles	375	71.5%	28.5%
Frederick	522	100.0%	0.0%
Harford	526	100.0%	0.0%
Howard	720	100.0%	0.0%
Montgomery	4398	90.1%	9.9%
Prince George's	360	65.6%	34.4%
Queen Anne's	32	50.0%	50.0%
Saint Mary's	201	66.7%	33.3%
Talbot	76	77.6%	22.4%
Wicomico	150	92.7%	7.3%
Worcester	118	94.1%	5.9%