



NC National Estuarine Research Reserve Education Needs Assessment Results

The North Carolina National Estuarine Research Reserve conducted a needs assessment survey to help identify gaps in existing educational programs and to determine what types of changes need to be made to current K-12 and teacher professional development programs to better meet the needs of teachers and students in North Carolina's 20 coastal counties.

The survey targeted formal elementary school teachers and middle school and high school science teachers in the 20 coastal counties.

RESULTS:

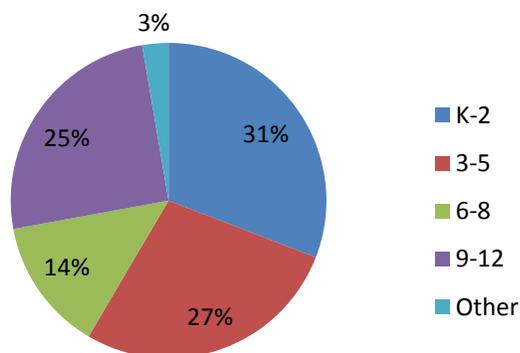
A total of 239 responses were collected from 1,326 email invitations for a response rate of 18%.

99.6% of respondents teach in the public school system. A small proportion (2.5%) also teaches in after-school programs.

We received responses from teachers in 11 coastal counties (Beaufort, Bertie, Camden, Carteret, Chowan, Craven, Currituck, Dare, New Hanover, Pasquotank and Perquimans). We received the greatest number of responses from Craven, Beaufort and Carteret Counties.

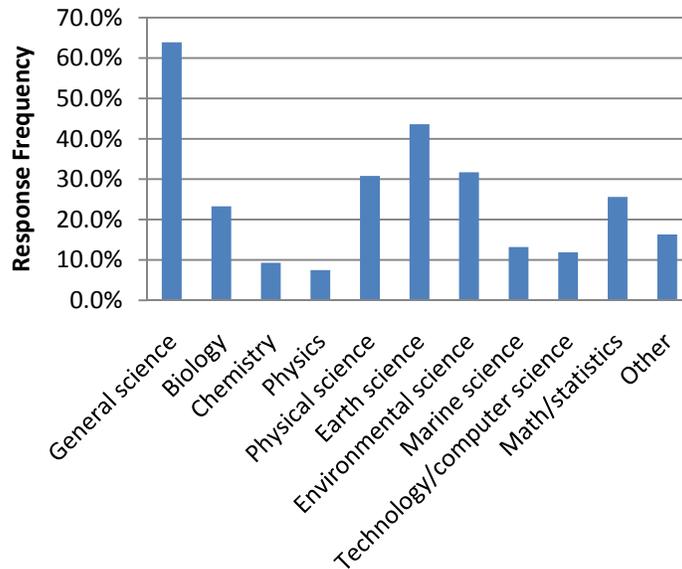
More than half of all respondents teach at the elementary level (Fig. 1).

Figure 1: What grade level do you teach?



64% of respondents teach general science, 43 % teach earth science and 31% teach environmental science (Fig. 2). Considering that the majority of respondents were elementary school teachers, it is not surprising that the more advanced science subjects, such as chemistry, biology and physics are under-represented in this sample.

Figure 2: Which of the following science subject matter courses do you teach?



The majority of respondents (54%) teach science to 25 students or fewer (Table 1).

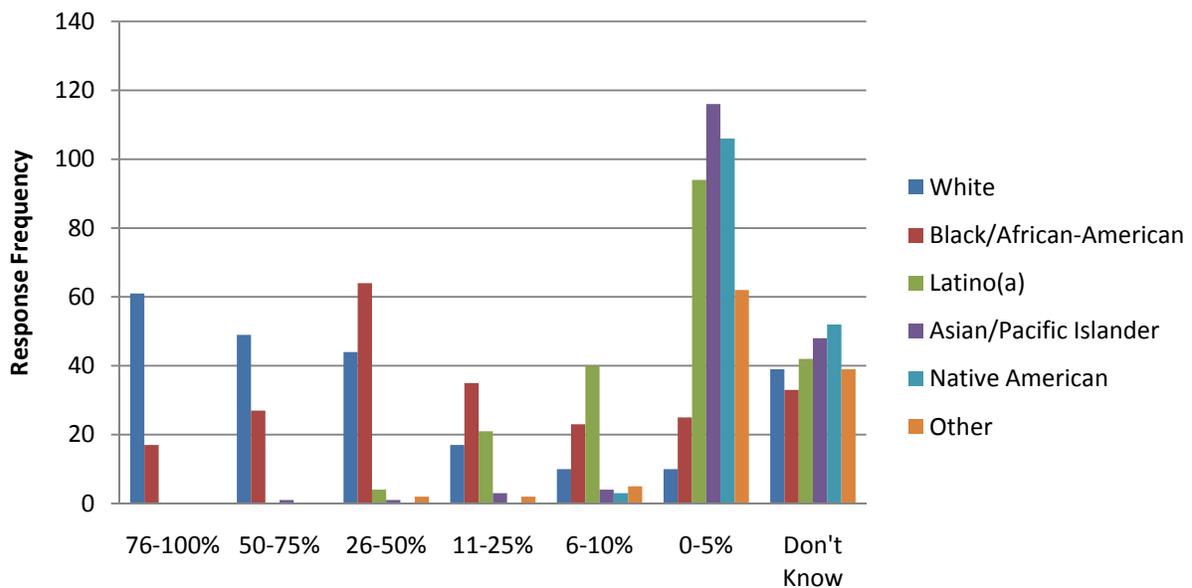
Table 1: Approximately how many students do you teach science to per year?		
Answer Options	Response Frequency	Response Count
1-25	54.2%	122
26-50	8.9%	20
51-75	7.6%	17
76-100	13.8%	31
101-125	6.2%	14
126-150	5.8%	13
151-175	2.2%	5
176-200	0.9%	2
> 200	0.4%	1
<i>answered question</i>		225

While the majority of respondents had only 0-5% ELL students, 13.5% had between 76-100% (Table 2).

Table 2: Approximately what percentage of students in your school or program are English Language Learners (ELL)?		
Answer Options	Response Frequency	Response Count
0-5%	49.1%	113
6-10%	14.3%	33
11-25%	7.8%	18
26-50%	1.7%	4
50-75%	0.4%	1
76-100%	13.5%	31
Don't know	13.0%	30
<i>answered question</i>		230

While most schools had a student body comprised of a majority white students, a few schools had a majority of African-American students. Most schools had very low percentages of Latino, Asian and Native American students (Fig. 3).

Figure 3: Percentage of students in various racial/ethnic groups



Science Class Information:

The majority of respondents teach only 1 class (prep) per year. 65% of respondents teach 3 or fewer classes per year while 35% teach 4 or more classes (Fig. 4). 42% of respondents have between 20 and 40 minutes for each science class (Fig. 5).

Figure 4: Number of classes taught per year

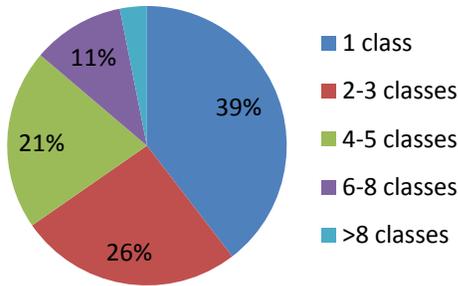
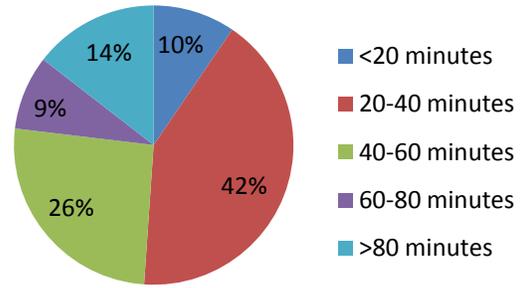


Figure 5: Length of science classes



Only 11% of teachers have longer class sessions for labs (Fig. 6). Of those teachers who do have extra time for labs, it is typically an additional 10-20 minutes. Only 11% of respondents have more than 40 minutes of additional time for labs (Fig 7).

Figure 6: Longer class sessions for labs?

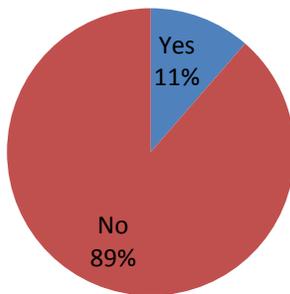
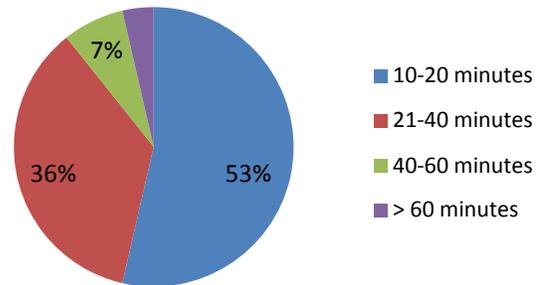


Figure 7: How much longer do you have on lab days?



Of the 11% of teachers that have longer lab sessions, the sessions tend to be infrequent. Only 26.7% of teachers that have longer labs have them weekly (Table 3).

Table 3: How often do you have the longer lab sessions?		
Answer Options	Response Frequency	Response Count
Twice per week	16.7%	5
Once per week	26.7%	8
Once every other week	10.0%	3
Once per month	6.7%	2
Infrequently	40.0%	12
<i>answered question</i>		30

Almost all respondents have access to computers for their students. 70% have enough computers to allow 1-2 students per computer (Figures 8 and 9).

Figure 8: Do you have access to computers for your students?

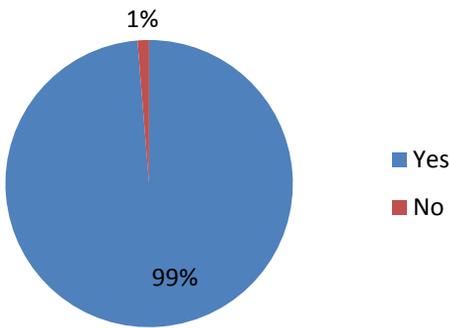
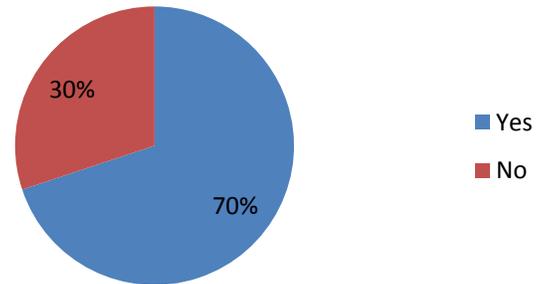


Figure 9: Are there enough computers to allow 1-2 students per computer?

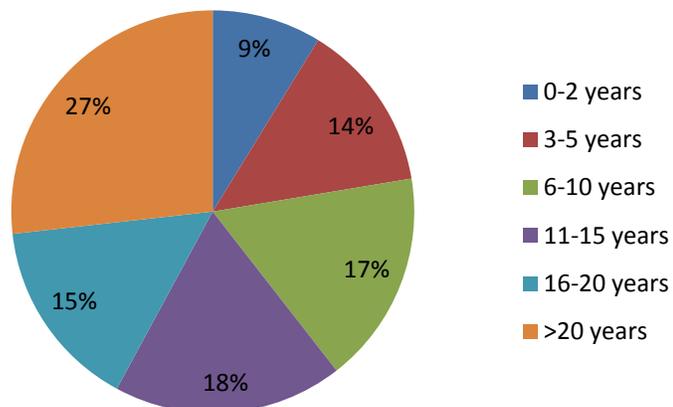


All computers are connected to the internet, however, the majority of the respondents were not sure what type of connection speed they had.

Respondent Demographics

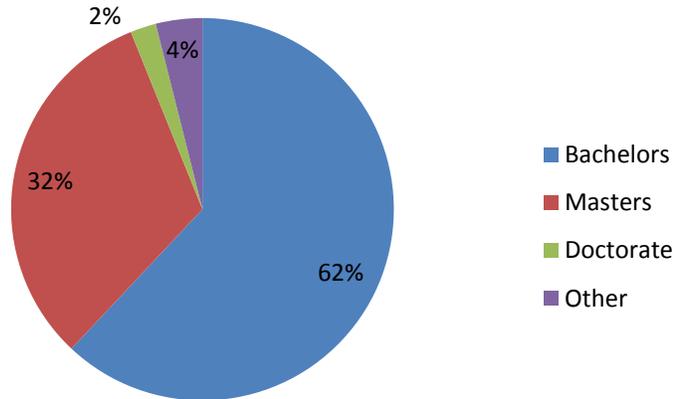
27% of teachers surveyed have been teaching for over 20 years, however, a wide range of experience exists in this sample (Fig. 10).

Figure 10: How many years have you been teaching?



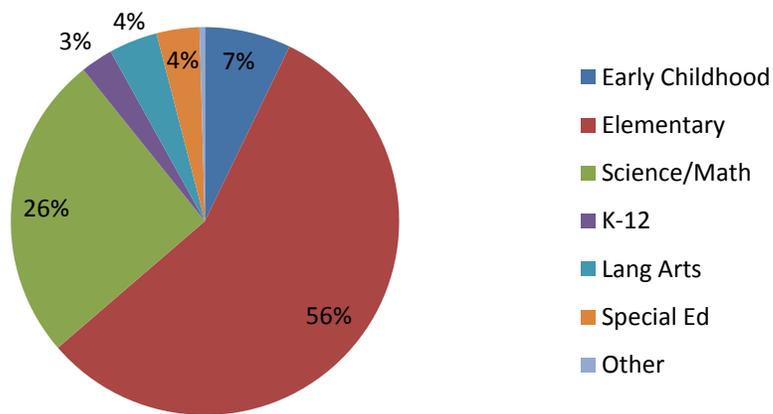
The majority of teachers surveyed (62%) have a bachelor's degree; 32% of respondents had a master's degree (Fig. 11).

Figure 11: What is your highest academic degree?



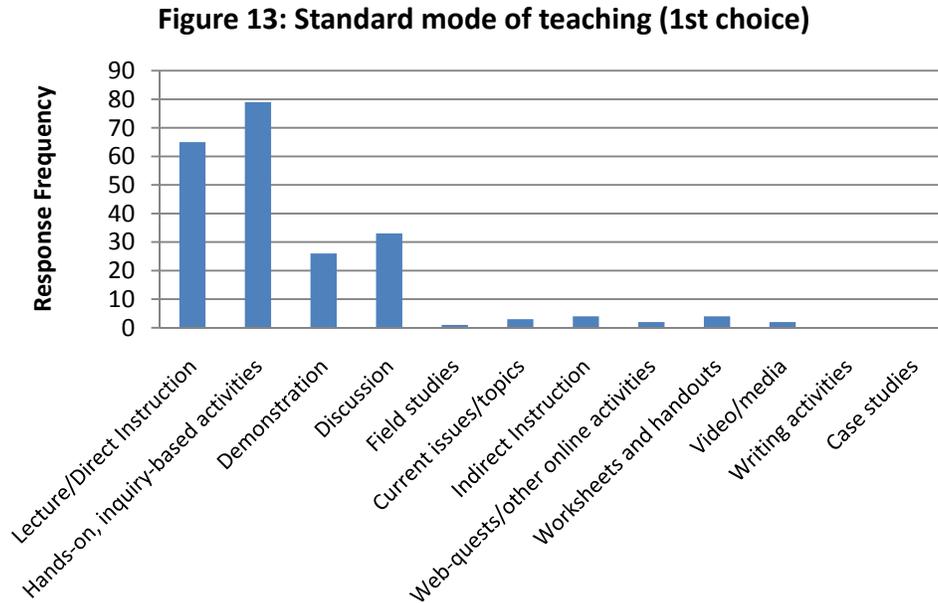
25% of respondents have a degree in science or science education. 97.8% are certified to teach in North Carolina. 54% of teachers surveyed are certified in elementary education. 26% are certified in Science/Math (Fig. 12).

Figure 12: Area of Certification



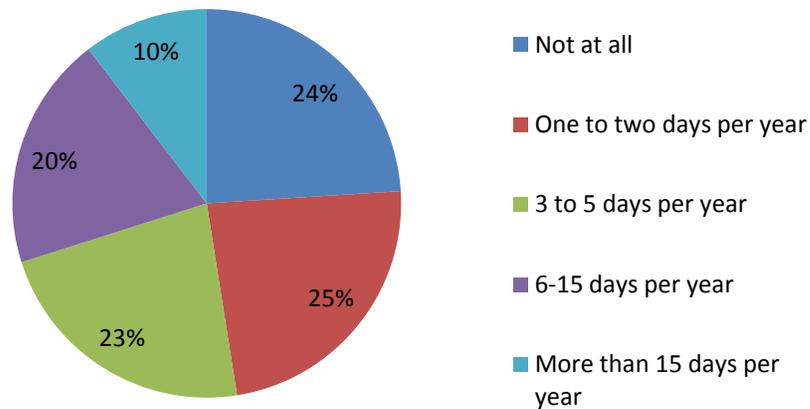
Teaching Practices:

The preferred modes of teaching for respondents are hands-on, inquiry-based activities and lecture/direct instruction (Fig. 13).



There was a wide array of responses regarding the number of days that are spent teaching about estuaries, watersheds or coastal areas. 24% did not cover the subjects at all. 10% spent more than 2 weeks on the topics each year (Fig. 14).

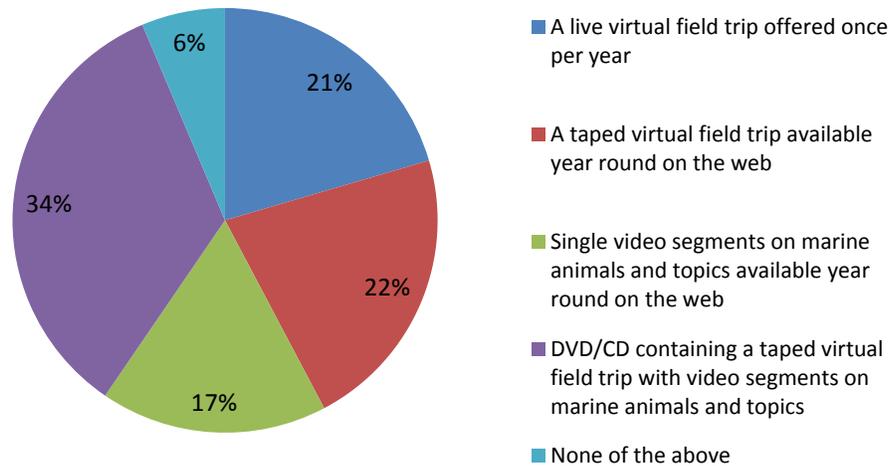
Figure 14: Number of days teaching about estuaries, watersheds or coastal areas



88% of respondents have never participated in a live virtual field trip such as Estuary Live.

The majority of teachers surveyed would prefer to use a DVD or CD containing taped field trips and/or a series of video segments on various topics. Only 21% expressed an interest in a live virtual field trip offered once each year (Fig. 15).

Figure 15: What would be more useful in the classroom?

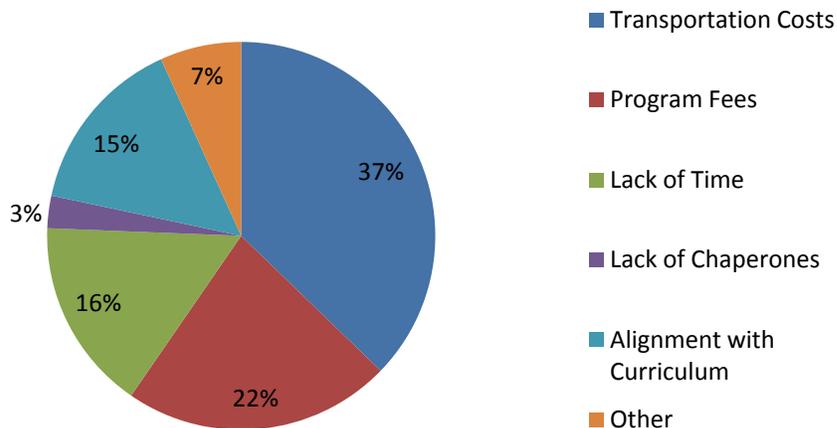


Half of the respondents prefer classroom-based activities while the other half prefers field-based experiences.

Half of respondents are aware of the NC National Estuarine Research Reserve System, however only 14% have ever brought students to one of the reserve sites for a field trip.

The barriers for taking a class on a field trip are numerous; however, the most common answer was transportation costs followed by program fees (Fig. 16).

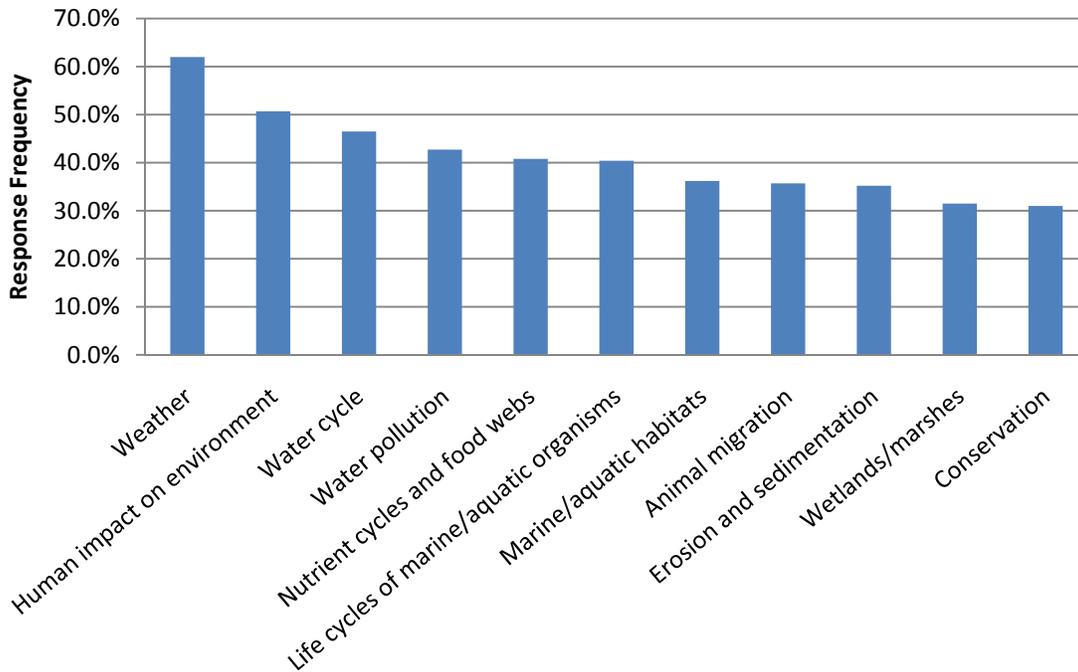
Figure 16: Barriers for taking a field trip



Educational Materials:

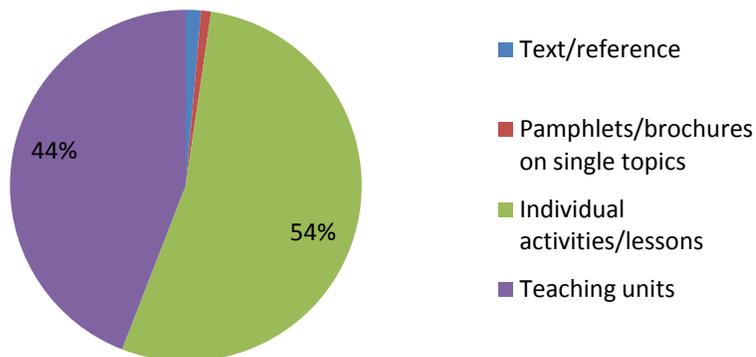
Teachers expressed interest in a variety of topics on which they would like to be developed into educational materials. The most popular topic was weather, with a response rate of over 60%. Figure 17 below lists the most popular topics (those that had at least a 30% response rate).

Figure 17: Which topics would you like developed into education materials?



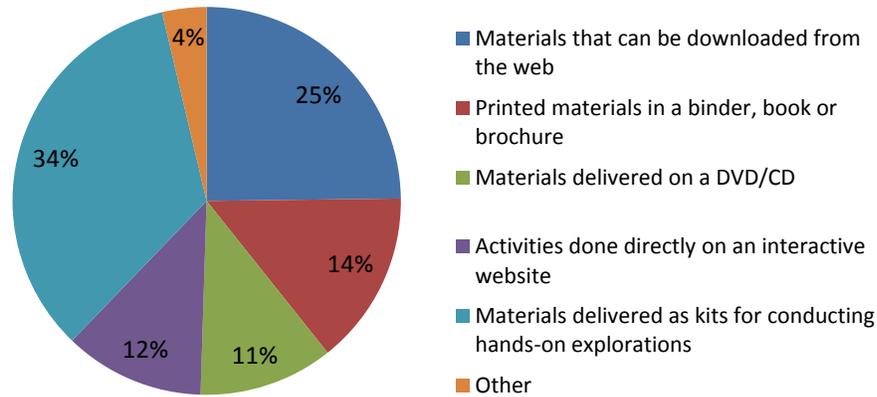
Almost all of the teachers surveyed would prefer for educational materials to be either individual activities/lessons or teaching units (Fig. 18).

Figure 18: In what form should materials be in?



34% of teachers surveyed would prefer to receive educational materials as kits for conducting hands-on activities. 25% would prefer materials that can be downloaded from the web (Fig. 19).

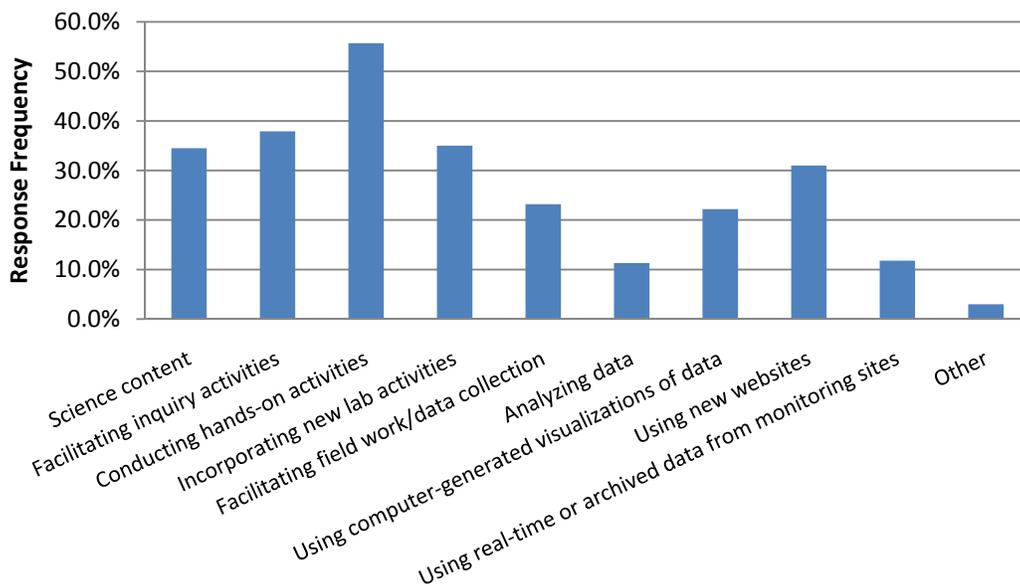
Figure 19: How would you like to receive educational materials?



Teacher Professional Development:

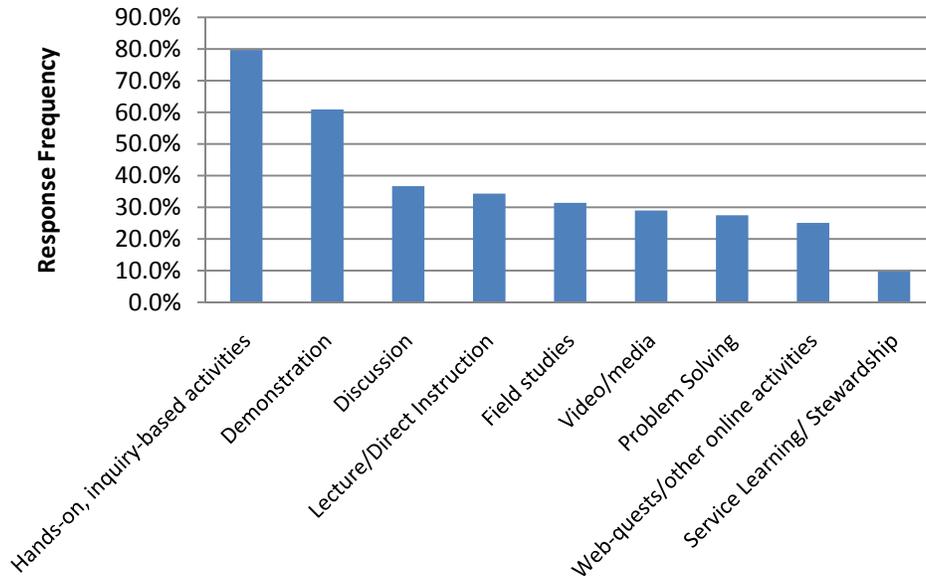
When it came to the question of professional development, most respondents were interested in receiving training on conducting hands-on activities (Fig. 20). Other professional development areas include facilitating inquiry activities, incorporating new lab activities into the classroom, and training on science content.

Figure 20: What type of professional development training do you need?



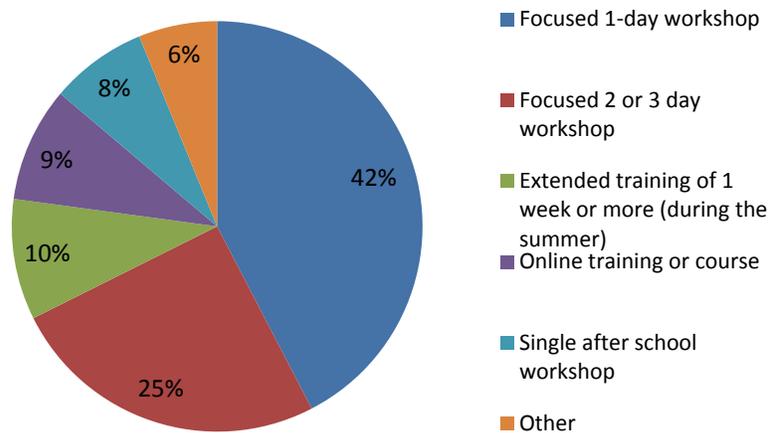
The two preferred modes of learning among teachers were hands-on activities and demonstrations (Fig. 21).

Figure 21: Preferred mode of learning



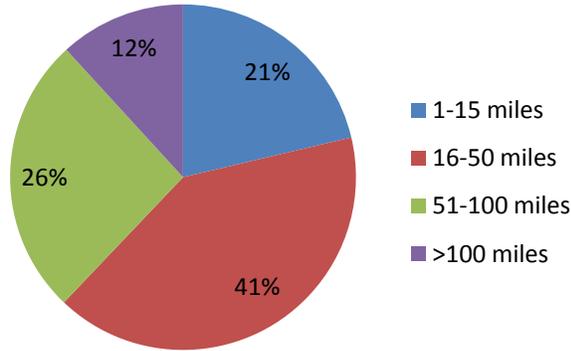
67% of teachers surveyed would prefer for professional development to consist of 1-3 day workshops (Fig. 22).

Figure 22: What type of professional development do you prefer?



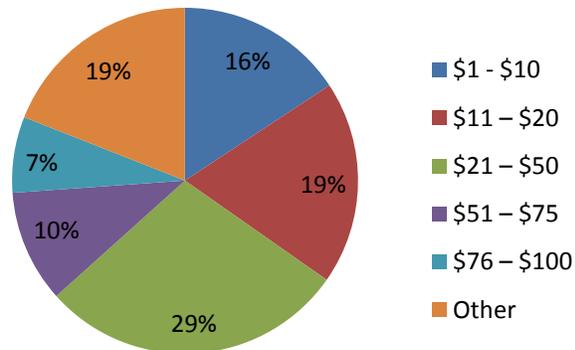
41% of teachers would be willing to travel up to 50 miles to attend professional development training, however, only 12% would travel greater than 100 miles for training (Fig. 23).

Figure 23: How far would you travel to attend professional development training?



Only 17% of respondents would be willing to pay over \$50 for a full day of training (Fig. 24). 19% of teachers responded by selecting “other” and although the details they provided varied, most stated that they would not be willing to pay out of pocket for training. They believe the training should either be free or should be paid for by the school system.

Figure 24: How much would you be willing to pay for a full-day of training?



The best way to reach teachers about professional development opportunities are through the school principal, by direct email, and through the curriculum coordinator (Fig. 25).

Figure 25: How do you find out about professional development opportunities?

