# American Museum of Natural History MAT Earth Science Residency Program: 2024–25 External Evaluation Report

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# EXECUTIVE SUMMARY

The Master of Arts in Teaching – Earth Science Residency Program (MAT-ESRP), based at the American Museum of Natural History (AMNH) Richard Gilder Graduate School in New York City, is a collaboration between educators and scientists at AMNH and school districts in the Bronx, Brooklyn, Queens, and Yonkers. The cohort-based, 15-month, 36-credit program is designed to prepare and retain highly effective Earth science teachers to serve diverse student populations in high-need schools. Each cohort begins with a Museum Teaching Residency at AMNH, followed by a year of residencies in high-need schools. The program concludes with an AMNH-based Science Practicum. After completing the residency program, graduates are supported by the program's two-year New Teacher Induction Program as they begin their teaching careers.

Horizon Research, Inc. (HRI) is conducting the external evaluation for the MAT-ESRP. This external evaluation report covers the AMNH MAT-ESRP's most recent project year (October 1, 2024 – September 30, 2025). The evaluation takes a multi-method, multi-source approach to understand tradeoffs the project must negotiate as well as accomplishments and challenges. This year, evaluation methods included observations of meetings and program activities, interviews, surveys, and analysis of program-collected data.

The 2024–25 program year includes several highlights. Among these, the program recruited Cohort 13 that progressed throughout the program. All cohort members have now graduated, secured teaching positions, and are receiving robust support from the induction component.

Program leaders have continued to refine the application and interview processes to address feedback from previous applicants. For example, the program offered an early deadline so that applicants could hear sooner about program admittance, therefore granting them more time to decide whether to accept the offer to join Cohort 14. The program also increased the monthly stipend for residents starting with Cohort 13 to address applicants' considerations of various aspects of the cost of living.

Continuing efforts to infuse CRSE in all program components were evident in observations as well as in survey and interview data. CRSE has been a hallmark of the program since its inception and continues to serve as a foundational component.

Residents and alumni had many positive things to say about connections between their courses and their clinical experiences. They highlighted several, such as assessing student understanding, learning about the New Visions curriculum, and differentiating instruction. Some would appreciate a tighter alignment between the teaching methods being taught in their coursework and those of their mentor teachers.

Strong partnerships with schools continue to be a defining feature of the program. In interviews, partner school administrators described their appreciation for the level of communication from the program. Administrators pointed to the benefits of having residents in their schools, with several noting the opportunities for increased reflection and professionalism among mentor teachers as well as contributions the residents were able to make within their school communities.

The Mentor Academy continued in a hybrid format, with 5 of the 7 meetings in person and the other two by videoconference. Data from an end-of-year survey and interviews show that mentors have somewhat mixed opinions on many aspects of the academy. They especially appreciated the opportunity to meet their resident before the placement began and felt that co-teaching was a positive experience. However, some mentioned it would be helpful to learn from other mentors as in years past and would like a stronger focus on strengthening their mentoring skillset.

The program continued to provide robust induction support to new teachers. This component remained in a hybrid format for the 2024–25 school year. Although most attended in person, the hybrid format accommodated those who live farther away. Induction participants appreciated the opportunity to receive peer feedback and support, stressing the benefits of participating with their own cohort and earlier ones.

Finally, alumni from Cohorts 11 and 12, as well as their employers, had positive perceptions of their preparedness to teach as a result of the program. For example, both alumni and employers reported a high level of preparedness with regards to content knowledge and making content relevant to students' lives.

# INTRODUCTION

The Master of Arts in Teaching – Earth Science Residency Program (MAT-ESRP), based at the American Museum of Natural History (AMNH) in New York City, is a collaboration between educators and scientists at AMNH and school districts in the Bronx, Brooklyn, Queens, and Yonkers. Horizon Research, Inc. (HRI) is conducting the external evaluation for the 2024–25 year.

The Earth science teacher preparation program is based in AMNH's Richard Gilder Graduate School. The cohort-based, 15-month, 36-credit teacher residency program is designed to prepare and retain highly effective Earth science teachers to serve diverse student populations, including English language learners (ELLs) and students with special needs. Each cohort begins with a summer-long Museum Teaching Residency at AMNH. Program participants are then assigned a fall semester residency followed by a spring semester residency in the partner schools, all of which are high-need public middle and high schools in New York City. AMNH also supports residency school mentor teachers through Mentor Academy sessions, held online or at the museum, and meetings at the residency schools to provide a robust mentoring system for the residents. The program concludes with an AMNH-based Science Practicum: an immersive Earth and space research course during the second summer. After completing the residency program, MAT-ESRP graduates begin their teaching careers at high-need schools and are supported by AMNH's two-year New Teacher Induction Program.

Accomplishments for the 2024–25 year include:

- Graduating 19 residents from Cohort 13;
- Recruiting Cohort 14;
- Providing induction support for Cohorts 11 and 12; and
- Securing funding from the NY Empire State Teacher Residency Program to support Cohort 14.

# EVALUATION OVERVIEW

The external evaluation includes both formative and summative components. This section of the report provides an overview of the evaluation, followed by a description of the evaluation focus and activities.

The formative evaluation is guided by the following questions:

1. How does the program attempt to (a) attract diverse, well-qualified applicants and (b) select, enroll, and retain residents, and how effective are those efforts?

2. How do AMNH and school leaders function as partners?

3. In what ways does the project attract, prepare, support, and retain school-based mentors, and how effective are those efforts?

4. In what ways and to what extent do clinical experiences focus on specific project objectives, including CRSE and implementing CT activities?

5. In what ways and to what extent do enacted course experiences align with project objectives and support residents' clinical experiences?

6. To what extent does the induction program, including professional development opportunities, meet newly inducted teachers' needs?

7. In what ways and to what extent do residents and new teachers benefit from working with school-based and faculty mentors and coaching activities?

8. In what ways and to what extent do residents and new teachers benefit from being part of a cohort?

The summative evaluation focuses on project outcomes and impacts. MAT-ESRP's goals include specific targets for persistence in the program, certification, high-need school placement, and teacher retention. The project also aims to positively impact graduates' preparedness as Earth science teachers, including their preparedness to use CRSE practices and implement CT activities. HRI will collect data on each of these outcomes, guided by the following questions:

1. What is the impact of the MAT-R program on residents' preparedness to (a) teach science effectively to high-need underserved students, including ELL students and special education students; (b) use CRSE practices; and (c) implement CT activities?

2. What is the impact of the MAT-R program on graduates' preparedness to use CRSE practices and implement CT activities, and to teach underserved students, including ELL students and special education students?

3. What is the impact of MAT-R program graduates on high-need schools' performance in Earth science?

## 2024–25 Evaluation Activities

2024–25 evaluation activities completed by HRI are shown below.

### *Project Communication*

The HRI evaluation team met with the museum evaluation liaison individually and with the project leadership team as a whole on an alternating monthly basis.

### *Program Observations*

HRI staff observed:

- All MAT-ESRP faculty meetings (by videoconference);
- A sample of MAT-ESRP admissions committee meetings (by videoconference);
- The December 2024 Advisory Board meeting (in person);
- Sessions of the 2024–25 and 2025–26 Mentor Academy (by videoconference and in person);
- One session of EDU 640 (in person); and
- Monthly induction meetings (by videoconference).

### *Surveys*

HRI surveyed:

- Individuals who had shown interest in applying to the program or received a postcard or email from the program (administered in May 2025).
- Mentor teachers following the final session of the Mentor Academy (administered in June 2025).
- Cohorts 11 and 12 at the end of the 2024–25 school year (administered in May 2025); and
- Employers of Cohorts 11 and 12 at the end of the 2024–25 school year (administered in May 2025).

### *Individual Interviews*

HRI interviewed:

- Cohort 12 teachers at the start of their first year of teaching[1];
- Cohort 12 teachers at the conclusion of their first year of teaching[2]; and
- Administrators at 4 of 6 partner schools in the summer of 2025.[3]

[1] HRI invited all 18 teachers, 12 responded, and 10 interviews were completed. HRI summarized data from the interviews in a February 2025 memo.
[2] HRI invited all 18 teachers, 13 responded, and 11 interviews were completed.
[3] Despite repeated attempts, HRI was unable to schedule an interview with administrators at two partner schools.

### *Focus Group Interviews*

HRI conducted focus group interviews with:

- Six mentor teachers in person immediately following the January 2025 Mentor Academy session[4]; and
- All Cohort 13 residents in person in January 2025.[5]

### *Review of Project-Collected Data*

HRI reviewed:

- Demographic data for Cohort 14; and
- Data from course evaluation surveys administered by the program.[6]

The remainder of this report is organized by findings relevant to specific formative evaluation questions, drawing on evidence from various data collection activities, and concludes with a summary and recommendations for the project to consider.

# FINDINGS

## Attracting and Enrolling Diverse, Well-Qualified Individuals

In 2024–25, MAT-ESRP received 37 complete, eligible applications for Cohort 14. After reviewing all applications and interviewing 36 applicants, the program offered a position to 18. Ultimately, 16 accepted and two declined.

The program has made a concerted effort to reach a more diverse population of applicants. Table 1 summarizes the demographic characteristics of Cohort 14, which appear to be about as diverse as previous cohorts.

[4] HRI made a virtual focus group available a few days after the Mentor Academy session. One mentor teacher participated.
[5] HRI summarized data from the interviews in a March 2025 memo.
[6] HRI analyzed data from course evaluation surveys administered by the program and summarized the findings in a March 2025 memo.

**Table 1**
**Demographic Characteristics of Cohort 14**

| | Percent (N = 16) |
|---|---|
| **Gender** | |
| Female | 62% |
| Male | 38% |
| Non-binary | 0% |
| **Race/Ethnicity**† | |
| American Indian or Alaskan Native | 0% |
| Asian | 6% |
| Black or African American | 6% |
| Hispanic or Latino | 19% |
| Native Hawaiian or Other Pacific Islander | 0% |
| White | 63% |
| Two or more races | 19% |
| Prefer not to reply | 0% |

† Percentages add to more than 100 because respondents could choose more than one category.

To identify factors that might encourage or discourage applicants, program leaders asked HRI to survey anyone who had shown interest in the program.[7] HRI first administered the survey in 2021 and again each subsequent spring (2022–25) with minor revisions at the program's request.

To broaden the applicant pool, the program has used a service to identify potential candidates, specifically individuals who had taken the GRE and indicated that they were interested in pursuing a graduate degree in Earth and space science. For the most recent application cycle, the program sent a postcard and email message to 796 of these individuals, whether or not they had shown interest in the program. Including all those who (1) started an application (whether or not they completed it), (2) attended an interest session, or (3) received a postcard and email, 962 individuals were invited to respond to the survey[8]; 118 completed it. (HRI offered a $15 incentive for responding.) Because most of those who received the survey had interacted minimally or not at all with the program, the low response rate (12 percent) is not surprising. Nonetheless, it suggests caution should be used when interpreting results.

Table 2 shows the demographic characteristics of respondents to the 2025 survey, both overall and by whether they completed an application. Similar to the middle and high school science teaching force nationally,[9] most respondents identified as female, but they were much more diverse in terms of race/ethnicity. For example, nationally, just over 90 percent of middle and high school science teachers identify as White,[10] compared to 43 percent of survey respondents. Some differences are apparent between those who completed an application and those who did not. First, in terms of gender, among respondents who identified as female or male, there was a

[7] The project maintains records of those who express interest in the program. For example, the project collects contact information for anyone who attends an interest session.
[8] Many individuals were in more than one of these groups, but they received only one invitation.
[9] Banilower, E. R., Smith, P. S., Malzahn, K. A., Plumley, C. L., Gordon, E. M., & Hayes, M. L. (2018). *Report of the 2018 NSSME+*. Horizon Research, Inc.

more equal balance between the two in respondents who applied to program. On the other hand, respondents who identified as female were more prominent among those who did *not* apply to the program. For race/ethnicity, among respondents who identified as White, there appears to be a substantial difference between those who applied and those who did not, favoring those who did apply.

**Table 2**
**Demographic Characteristics of 2025 Survey Respondents, by Application Status**

| | Total (N = 115) | Did Not Apply (N = 88) | Applied (N = 27) |
|---|---|---|---|
| | Percent | Percent | Percent |
| **Gender** | | | |
| Female | 66% | 72% | 48% |
| Male | 24% | 19% | 41% |
| Gender variant/non-conforming | 5% | 3% | 11% |
| Transgender Female | 0% | 0% | 0% |
| Transgender Male | 0% | 0% | 0% |
| I use a different term | 2% | 2% | 0% |
| Prefer not to answer | 3% | 3% | 0% |
| **Race/Ethnicity**† | | | |
| American Indian or Alaska Native | 3% | 5% | 0% |
| Asian | 10% | 10% | 11% |
| Black or African American | 28% | 31% | 19% |
| Hispanic | 28% | 28% | 26% |
| Native Hawaiian or Other Pacific Islander | 1% | 1% | 0% |
| White | 43% | 36% | 67% |
| Prefer not to answer | 22% | 25% | 11% |

† Percentages may add to more than 100 because respondents could choose more than one category.

The remainder of this section describes respondents' perspectives on the recruitment process across the five years the survey has been administered. Table 3 shows the various ways individuals heard about the program. Three recruitment methods stand out above the rest in 2025: recruitment email (28 percent), museum website (22 percent), and social media (20 percent). Seventeen percent heard about the program through an internet search and 15 percent through the Empire State Teacher Residency Program website. Looking across years, some apparent differences are worth noting.[10] For example, in 2025, similar to 2022, the recruitment email appears to have been the most likely way prospective applicants heard about the program. In other years, the museum website or internet search were the most likely ways that prospective applicants heard about the program. Social media also appears to have been more effective in 2025 than in any other year. Furthermore, an option was added on 2025 survey for respondents to indicate the specific social media platform. Respondents were most likely to have found out

[10] Due to the large number of potential comparisons and the implications for statistical power, no tests of statistical difference were conducted. The report comments only on differences that appear to be substantial, but they should be interpreted with caution.

about the program through Facebook and LinkedIn compared to other social media platforms. Compared to previous years, respondents in 2025 were less likely to have heard about the program through an internet search or academic advisor. Respondents were also less likely to have heard about the program through the museum website in 2025 than they were in 2023 or 2024.

**Table 3**
**How Respondents Heard About the Program**

| | 2021 (N = 50) | 2022 (N = 68) | 2023 (N = 90) | 2024 (N = 94) | 2025 (N = 118) |
|---|---|---|---|---|---|
| | Percent[†] | Percent[†] | Percent[†] | Percent[†] | Percent[†] |
| Recruitment email | 10% | 21% | 21% | 23% | 28% |
| Museum website | 18% | 19% | 28% | 30% | 22% |
| Social media | 4% | 4% | 3% | 13% | 20% |
| Facebook | –[±] | –[±] | –[±] | –[±] | 8% |
| LinkedIn | –[±] | –[±] | –[±] | –[±] | 7% |
| Other social media platforms | –[±] | –[±] | –[±] | –[±] | 5% |
| Internet search | 30% | 19% | 29% | 18% | 17% |
| Empire State Teacher Residency Program website | –[±] | –[±] | –[±] | –[±] | 15% |
| Current or former professor | 16% | 12% | 4% | 11% | 10% |
| Academic advisor | 10% | 15% | 8% | 7% | 6% |
| Program graduate or current resident | 6% | 4% | 9% | 3% | 5% |
| An ad on a website not related to the Museum | –[±] | –[±] | –[±] | –[±] | 4% |
| Professional organization conference or newsletter | 2% | 1% | 4% | 4% | 3% |
| Staff of a different program at the Museum | 2% | 6% | 1% | 3% | 3% |
| Coworker | 2% | 3% | 4% | 1% | 3% |
| Recruitment postcard | 4% | 9% | 4% | 1% | 2% |
| Friend or relative who works at the Museum | 0% | 4% | 1% | 1% | 2% |
| Other | 20% | 3% | 14% | 6% | 7% |

[†] The percentages in this table add to more than 100 because respondents could select more than one category.
[±] Option was not available on this survey for participants to select.

HRI disaggregated data from 2025 in Table 3 by respondents' application status to see whether the most effective strategies functioned differently for the two groups (see Table 4). Some methods appear to be more effective for reaching those who completed an application. For example, 30 percent of those who applied to the program heard about it through a current or former professor, compared to 4 percent of those who did not complete an application. Similarly, an internet search appears to be more common among applicants (22 percent) than non-applicants (15 percent). However, learning about the program through either the museum or Empire State Teacher Residency Program websites appears to be more common among those who did not apply. Respondents who did not apply to the program were also more likely to have heard about the program through social media platforms than those who did apply to the program.

**Table 4**
**How Applicants Heard About the Program in 2024–25, by Application Status**

| | Did Not Apply (N = 91) | Applied (N = 27) |
|---|---|---|
| | Percent† | Percent† |
| Current or former professor | 4% | 30% |
| Recruitment email | 29% | 26% |
| Internet search | 15% | 22% |
| Museum website | 24% | 15% |
| Social media | 22% | 12% |
| Facebook | 9% | 4% |
| LinkedIn | 8% | 4% |
| Other social media platforms | 5% | 4% |
| Academic advisor | 4% | 11% |
| Empire State Teacher Residency Program website | 18% | 7% |
| Program graduate or current resident | 4% | 7% |
| An ad on a website not related to the Museum | 3% | 7% |
| Recruitment postcard | 0% | 7% |
| Professional organization conference or newsletter | 2% | 4% |
| Coworker | 2% | 4% |
| Staff of a different program at the Museum | 3% | 0% |
| Friend or relative who works at the Museum | 2% | 0% |
| Other | 5% | 11% |

† The percentages in this table add to more than 100 because respondents could select more than one category.

The survey asked about several factors that could encourage or discourage—or even prevent—potential applicants from completing the application (see Table 5). In 2024, the program received funding for Cohort 14 from the Empire State Teacher Residency. This funding source requires that graduates teach in New York City upon program completion. As such, additional items were added to the survey to learn more about aspects potentially discouraging applicants' decision to apply (e.g., cost of living associated with healthcare and housing).

Across all five years, most respondents rated most factors as at least encouraging. (That is, respondents gave a rating of Encouraged or Strongly Encouraged on a 7-point scale where 1=Prevented me from applying, 2=Strongly Discouraged, 3=Discouraged, 4=Slightly Discouraged, 5=Slightly Encouraged, 6=Encouraged, and 7=Strongly Encouraged). At the same time, some differences across years are apparent. The focus on Earth science and prerequisite science course requirements appear to be somewhat less encouraging than they were in previous years. Other factors appear to be more encouraging, namely the teaching requirement after graduation. Over the years, many factors appear to fluctuate, but the program's museum setting consistently stands out as a top factor encouraging potential applicants to apply.

**Table 5**
**Factors Encouraging† Potential Applicants' Decision to Apply to MAT-ESRP**

| | 2021 (N = 50) | 2022 (N = 68) | 2023 (N = 87) | 2024 (N = 94) | 2025 (N = 118) |
|---|---|---|---|---|---|
| | Percent | Percent | Percent | Percent | Percent |
| Museum setting for program | 96% | 79% | 83% | 86% | 87% |
| School residency model (i.e., two, one in fall and one in spring) | 68% | 62% | 74% | 65% | 72% |
| Focus on urban education | 68% | 55% | 67% | 63% | 71% |
| Program stipend/fellowship | 74% | 79% | 79% | 72% | 70% |
| Focus on high-needs schools | 70% | 57% | 66% | 61% | 69% |
| Program location (New York City) | 78% | 59% | 66% | 47% | 69% |
| Support offered after graduation | 74% | 68% | 67% | 61% | 64% |
| Focus on Earth science | 84% | 74% | 84% | 67% | 62% |
| Program length | 74% | 61% | 70% | 51% | 60% |
| Teaching requirement after graduation | 56% | 34% | 38% | 38% | 57% |
| GPA requirement | 50% | 50% | 59% | 45% | 56% |
| The requirement to teach in New York City for two years after graduation | –± | –± | –± | –± | 56% |
| Prerequisite science course requirements | 56% | 53% | 50% | 57% | 46% |
| Finding affordable health insurance | –± | –± | –± | –± | 41% |
| Time/effort required for application | 20% | 23% | 38% | 26% | 35% |
| Finding affordable housing during the two-year teaching requirement | –± | –± | –± | –± | 31% |
| Finding affordable housing during the residency | –± | –± | –± | –± | 30% |
| Application fee | 14% | 19% | 30% | 27% | 27% |
| Cost of living during the two-year teaching requirement | –± | –± | –± | –± | 27% |
| Cost of living during the residency | –± | –± | –± | –± | 24% |
| Cost of living | 12% | 13% | 21% | 24% | –± |

† Includes those who gave a rating of Encouraged or Strongly encouraged on a 7-point scale where 1=Prevented me from applying, 2=Strongly Discouraged, 3=Discouraged, 4=Slightly Discouraged, 5=Slightly Encouraged, 6=Encouraged, and 7=Strongly Encouraged.

± Option was not available on this survey for participants to select.

The program has made efforts in recent years to address factors perceived as most discouraging throughout the application process (e.g., reduced application fee, increased living stipend, overhauling the application portal to reduce time needed to apply). As shown in Table 6, some factors associated with the Empire State Teacher Residency program were ranked as discouraging by over half of respondents. For example, 30 percent of respondents were discouraged by the two-year teaching requirement following graduation, and 63 percent of respondents were discouraged by the cost of living during the time frame immediately following graduation. Furthermore, except for the program's location in New York City, every other factor seems to have become more discouraging in 2025 than it was in 2024. For example, despite a reduced application fee, half of respondents still rated it as discouraging in 2025, an increase from about a quarter of respondents in 2024. For five items, it is worth noting that even though they were seen as more discouraging in 2025 compared to 2024, the 2025 responses were no

more discouraging, and in some cases even less discouraging, than they had been historically in 2021–23:

- Time/effort required for the application;
- Teaching requirement after graduation;
- Focus on urban education;
- School residency model (i.e., two, one in the fall and one in the spring); and
- Focus on high-needs schools.

**Table 6**
**Factors Discouraging† Potential Applicants' Decision to Apply to MAT-ESRP**

| | 2021 (N = 50) | 2022 (N = 68) | 2023 (N = 87) | 2024 (N = 94) | 2025 (N = 118) |
|---|---|---|---|---|---|
| | Percent | Percent | Percent | Percent | Percent |
| Cost of living during the residency | –± | –± | –± | –± | 68% |
| Cost of living during the two-year teaching requirement | –± | –± | –± | –± | 63% |
| Finding affordable housing during the two-year teaching requirement | –± | –± | –± | –± | 61% |
| Finding affordable housing during the residency | –± | –± | –± | –± | 59% |
| Application fee | 69% | 57% | 48% | 27% | 50% |
| Prerequisite science course requirements | 34% | 10% | 27% | 11% | 39% |
| Time/effort required for application | 56% | 49% | 34% | 18% | 38% |
| Finding affordable health insurance | –± | –± | –± | –± | 38% |
| Focus on Earth science | 14% | 13% | 6% | 10% | 30% |
| The requirement to teach in New York City for two years after graduation | –± | –± | –± | –± | 30% |
| Teaching requirement after graduation | 22% | 46% | 39% | 16% | 24% |
| GPA requirement | 24% | 15% | 21% | 4% | 24% |
| Program length | 10% | 17% | 15% | 10% | 20% |
| Program location (New York City) | 16% | 29% | 24% | 24% | 19% |
| Program stipend/fellowship | 8% | 13% | 5% | 4% | 15% |
| Focus on urban education | 8% | 18% | 10% | 5% | 12% |
| Support offered after graduation | 6% | 6% | 7% | 5% | 11% |
| School residency model (i.e., two, one in fall and one in spring) | 12% | 9% | 10% | 5% | 9% |
| Focus on high-needs schools | 14% | 15% | 11% | 4% | 9% |
| Museum setting for program | 2% | 7% | 3% | 3% | 7% |
| Cost of living | 70% | 82% | 68% | 37% | –± |

† Includes those who gave a rating of Prevented me from applying, Strongly Discouraged, Discouraged, or Slightly Discouraged on a 7-point scale where 1=Prevented me from applying, 2=Strongly Discouraged, 3=Discouraged, 4=Slightly Discouraged, 5=Slightly Encouraged, 6=Encouraged, and 7=Strongly Encouraged.

± Option was not available on this survey for participants to select.

Because of the program's emphasis on ensuring the scope of their recruitment reaches applicants with diverse life experiences (including those with diverse racial and ethnic backgrounds), the

data in Table 5 were disaggregated by whether respondents were members of an underrepresented minority group. Table 7 shows the percentage responding that each factor encouraged or strongly encouraged them to apply in 2022, 2023, 2024, and 2025.[11] Thinking about the cost of living and noting the increase in the program stipend for 2024, even though program stipend/fellowship was seen as about equally encouraging from both groups in 2025, five new items detailing various aspects of the cost of living (health insurance, affordable housing during and after residency, and cost of living during and after residency) appear to be more encouraging for those from underrepresented groups than those who are not. In addition, a new item asking about the requirement to teach in New York City for two years following graduation appears to be more encouraging for those from underrepresented groups. Outside of new items, the influence of a couple of factors appears to have shifted across the four years. One item that shifted in 2025 was the time/effort required for the application. After being seen as about equally encouraging by both groups in 2023 and 2024, respondents from underrepresented minority groups rated the item as more encouraging than those not from underrepresented minority groups, reverting to the pattern seen in 2022. Other factors that have shifted across the four years include the program location in New York City and the teaching requirement after graduation, both of which appeared to be more encouraging for those from underrepresented groups in 2025 than in 2022.

[11] There were not enough respondents from underrepresented groups to disaggregate the results in 2021.

**Table 7**
**Factors Encouraging† Potential Applicants' Decision to Apply, by Designation Within an Underrepresented Minority Group**

| | 2022 Underrepresented Minority | | 2023 Underrepresented Minority | | 2024 Underrepresented Minority | | 2025 Underrepresented Minority | |
|---|---|---|---|---|---|---|---|---|
| | No (N = 48) | Yes (N = 20) | No (N = 69) | Yes (N = 25) | No (N = 69) | Yes (N = 25) | No (N = 58) | Yes (N = 56) |
| | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent |
| Museum setting for program | 81% | 74% | 83% | 96% | 83% | 96% | 90% | 86% |
| Focus on urban education | 56% | 70% | 57% | 79% | 57% | 79% | 64% | 80% |
| Focus on high-needs schools | 52% | 70% | 55% | 79% | 55% | 79% | 64% | 77% |
| School residency model (i.e., two, one in fall and one in spring) | 60% | 68% | 62% | 75% | 62% | 75% | 69% | 75% |
| The requirement to teach in New York City for two years after graduation | –± | –± | –± | –± | –± | –± | 40 | 74 |
| Support offered after graduation | 67% | 74% | 53% | 83% | 53% | 83% | 60% | 71% |
| Program location (New York City) | 60% | 55% | 40% | 68% | 40% | 68% | 67% | 71% |
| Program stipend/fellowship | 85% | 65% | 67% | 87% | 67% | 87% | 72% | 70% |
| Teaching requirement after graduation | 35% | 30% | 29% | 63% | 29% | 63% | 48% | 65% |
| Focus on Earth science | 77% | 65% | 68% | 64% | 68% | 64% | 66% | 61% |
| Program length | 52% | 63% | 43% | 72% | 43% | 72% | 61% | 61% |
| GPA requirement | 48% | 58% | 45% | 46% | 45% | 46% | 60% | 50% |
| Finding affordable health insurance | –± | –± | –± | –± | –± | –± | 34% | 48% |
| Prerequisite science course requirements | 56% | 47% | 57% | 58% | 57% | 58% | 47% | 45% |
| Time/effort required for application | 17% | 42% | 26% | 26% | 26% | 26% | 29% | 43% |
| Finding affordable housing during the two-year teaching requirement | –± | –± | –± | –± | –± | –± | 28% | 37% |
| Finding affordable housing during the residency | –± | –± | –± | –± | –± | –± | 28% | 35% |
| Cost of living during the two-year teaching requirement | –± | –± | –± | –± | –± | –± | 22% | 33% |
| Cost of living during the residency | –± | –± | –± | –± | –± | –± | 19% | 31% |
| Application fee | 21% | 15% | 28% | 25% | 28% | 25% | 28% | 27% |
| Cost of living | 6% | 32% | 24% | 25% | 24% | 25% | –± | –± |

† Includes those who gave a rating of Encouraged or Strongly encouraged on a 7-point scale where 1=Prevented me from applying, 2=Strong Discouraged, 3=Discouraged, 4=Slightly Discouraged, 5=Slightly Encouraged, 6=Encouraged, and 7=Strongly Encouraged.

± Option was not available on this survey for participants to select.

Of those who responded to the survey, 77 percent reported that they did *not* complete an application. These individuals were shown a follow-up question asking about factors that influenced their decision. As shown in Table 8, the reasons non-applicants gave appeared to vary somewhat across years. Most notable is the fluctuation in the percentage indicating they had made other plans before completing the application. Most recently, in 2025, this applied to 27 percent of respondents who did not complete an application, more similar to the levels observed in 2021 and 2023. Over time, there has also been a slight increase in financial considerations and not having the required coursework as reasons for not completing an application. The post-graduation teaching requirement was a less common reason for not completing an application than in 2022–24, with only 11 percent of respondents selecting this option.

**Table 8**
**Reasons for Not Completing an Application†**

| | 2021 (N = 34) | 2022 (N = 45) | 2023 (N = 53) | 2024 (N = 59) | 2025 (N = 91) |
|---|---|---|---|---|---|
| | Percent | Percent | Percent | Percent | Percent |
| Financial considerations (including the need to relocate to NYC) | –± | –± | 38% | 42% | 44% |
| Did not have the required coursework for admission to the program | –± | –± | 17% | 22% | 31% |
| Made other work/school plans before completing application | 21% | 67% | 30% | 47% | 27% |
| Could not commit to teaching in New York City | –± | –± | –± | –± | 15% |
| Could not commit to the requirement to teach in New York City for two years after graduation | –± | –± | –± | –± | 11% |
| Could not commit to the teaching requirement after graduation | 21% | 38% | 36% | 29% | –± |
| Other reason not previously mentioned, please specify | 79% | 24% | 34% | 17% | 20% |

† The percentages in this table add to more than 100 because respondents could select more than one option.
± Option was not available on this survey for participants to select.

The survey also asked about several aspects of the application process. Across all five years, at least half of respondents agreed or strongly agreed with all statements, suggesting applicants generally had a positive experience (see Table 9). From 2024 to 2025 there was an increase in the percentage agreeing with all three statements related to the information session: (1) it helped me understand funding and the post-graduation service requirement, (2) it helped me understand what the program consists of, and (3) it helped me understand the application and admissions process.

**Table 9**
**Respondents' Agreeing or Strongly Agreeing[†]**
**With Statements About the Application Process**

| | 2021 | | 2022 | | 2023 | | 2024 | | 2025 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | N[‡] | Percent | N[‡] | Percent | N[‡] | Percent | N[‡] | Percent | N[‡] | Percent |
| Deadlines for providing application information were clear. | 48 | 77% | 63 | 89% | 79 | 86% | 89 | 88% | 109 | 83% |
| The information session helped me understand funding and the post-graduation service requirement. | 29 | 69% | 40 | 83% | 41 | 83% | 52 | 75% | 78 | 81% |
| The information session helped me understand what the program consists of. | 29 | 86% | 41 | 80% | 44 | 84% | 50 | 76% | 79 | 80% |
| Steps for completing the application were clear. | 47 | 66% | 61 | 90% | 76 | 86% | 85 | 84% | 107 | 79% |
| Admission requirements were clear | 47 | 66% | 63 | 78% | 81 | 82% | 88 | 81% | 109 | 77% |
| The eligibility/transcript review helped me understand if I was qualified for the program. | 41 | 76% | 43 | 84% | 60 | 88% | 58 | 82% | 84 | 77% |
| Program representatives provided full answers to my questions. | 38 | 77% | 45 | 82% | 67 | 87% | 55 | 76% | 75 | 77% |
| The information session helped me understand the application and admissions process. | 29 | 72% | 43 | 79% | 50 | 74% | 53 | 70% | 75 | 77% |
| I was kept up to date about the status of my application. | 16 | 56% | 22 | 77% | 36 | 75% | 33 | 82% | 26 | 73% |
| Information on the program website was easy to find. | 49 | 61% | 63 | 78% | 79 | 76% | 89 | 78% | 107 | 73% |
| The web-based application portal was easy to use. | –[±] | –[±] | 55 | 83% | 68 | 79% | 82 | 85% | 101 | 70% |
| Program representatives responded in a timely manner when I contacted them. | –[§] | –[§] | –[§] | –[§] | 66 | 86% | 53 | 77% | –[±] | –[±] |

[†] Includes those who gave a rating of 5 or 6 on a scale from 1 (Strongly Disagree) to 6 (Strongly Agree).
[‡] Those who responded "not applicable" are not included in the N.
[§] In 2021 and 2022, this item was worded, "Program representatives were slow to respond when I contacted them."
[±] This statement was not included in this survey.

HRI disaggregated the data in Table 9 by whether respondents were members of an underrepresented minority group. Table 10 shows the percentage agreeing or strongly agreeing with each statement. From 2024 to 2025, one item shifted in agreement pattern to favor respondents identifying as members of an underrepresented minority group: the information session helped me understand the application and admissions process. In 2025, there was more agreement from respondents identifying as members of an underrepresented minority than those who did not identify as members of an underrepresented minority group, a reversal from the 2024 pattern. For five items, the agreement pattern from 2024 to 2025 shifted from favoring respondents identifying as members of an underrepresented minority group to those not identifying as being from an underrepresented minority:

- Deadlines for providing application information were clear;

- Steps for completing the application were clear;
- The eligibility/transcript review helped me understand if I was qualified for the program;
- Admissions requirements were clear; and
- Information on the program website was easy to find.

Looking across the four years, some apparent differences are worth noting. In 2022, respondents identifying as members of an underrepresented minority group had less agreement than those not from underrepresented backgrounds on nearly all items. By 2025, the trend reversed with respondents from underrepresented minority groups reporting stronger agreement on seven items. For instance, in 2022, those from underrepresented groups appeared to give substantially lower ratings to the following statements related to the program information sessions:

- It helped me understand funding and the post-graduation service requirement;
- It helped me understand what the program consists of; and
- It helped me understand funding and the post-graduation service requirement.

As mentioned, the differences appeared to reverse in 2025 for these statements, with respondents from underrepresented minority groups having stronger agreement. This trend in agreement for items related to the information sessions may be explained by the program's efforts to include a facilitator from an underrepresented group in each session, something that was initiated in 2023.

**Table 10**
**Respondents' Agreeing† With Statements About the Application Process, by Designation Within an Underrepresented Minority Group**

| | 2022 Underrepresented Minority | | | | 2023 Underrepresented Minority | | | | 2024 Underrepresented Minority | | | | 2025 Underrepresented Minority | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No | | Yes | | No | | Yes | | No | | Yes | | No | | Yes | |
| | N‡ | Pct | N | Pct | N‡ | Pct | N | Pct | N‡ | Pct | N | Pct | N‡ | Pct | N | Pct |
| I was kept up to date about the status of my application. | –± | –± | –± | –± | 19 | 79% | 17 | 70% | 25 | 80% | 8 | 88% | 16 | 63% | 10 | 90% |
| Program representatives responded in a timely manner when I contacted them. | –± | –± | –± | –± | 41 | 83% | 25 | 92% | 40 | 75% | 13 | 85% | 36 | 75% | 40 | 85% |
| The information session helped me understand the application and admissions process. | 31 | 84% | 12 | 67% | 34 | 64% | 16 | 94% | 44 | 70% | 9 | 67% | 31 | 68% | 42 | 83% |
| The information session helped me understand what the program consists of. | 30 | 87% | 11 | 64% | 29 | 82% | 15 | 86% | 40 | 70% | 10 | 100% | 32 | 75% | 45 | 82% |
| Deadlines for providing application information were clear. | 43 | 91% | 20 | 85% | 51 | 84% | 28 | 89% | 65 | 86% | 24 | 92% | 54 | 83% | 53 | 81% |
| The information session helped me understand funding and the post-graduation service requirement. | 29 | 90% | 11 | 64% | 27 | 74% | 14 | 100% | 42 | 71% | 10 | 90% | 32 | 59% | 44 | 80% |
| Program representatives provided full answers to my questions. | 29 | 86% | 16 | 75% | 42 | 86% | 25 | 88% | 42 | 71% | 13 | 92% | 34 | 74% | 39 | 79% |
| Steps for completing the application were clear. | 41 | 93% | 20 | 85% | 50 | 80% | 26 | 96% | 61 | 82% | 24 | 88% | 54 | 81% | 51 | 76% |
| The eligibility/transcript review helped me understand if I was qualified for the program. | 30 | 93% | 13 | 62% | 36 | 92% | 24 | 83% | 45 | 76% | 13 | 85% | 37 | 78% | 45 | 76% |
| The web-based application portal was easy to use. | 36 | 86% | 19 | 79% | 42 | 76% | 26 | 85% | 59 | 85% | 23 | 87% | 49 | 67% | 50 | 72% |
| Admission requirements were clear. | 43 | 86% | 20 | 85% | 52 | 81% | 29 | 83% | 63 | 79% | 25 | 84% | 53 | 83% | 54 | 72% |
| Information on the program website was easy to find. | 43 | 77% | 20 | 80% | 51 | 78% | 28 | 71% | 64 | 75% | 25 | 84% | 53 | 75% | 52 | 69% |

† Includes those who gave a rating of 5 or 6 on a scale from 1 (Strongly Disagree) to 6 (Strongly Agree).
‡ Those who responded "not applicable" are not included in the N.
± Option was not available on this survey for participants to select.

Respondents who participated in an admissions interview were presented with a series of statements about the process. These responses have been quite positive across all five years of the survey (see Table 11). With the exception of one item (I knew what to expect before the interview began), over 85 percent agreed or strongly agreed with each item in 2025.[12] The data for several statements suggest interviewees came away with a sense that interviewers took an interest in them as individuals. For example, in the most recent survey findings, all respondents agreed or strongly agreed that (1) they had an opportunity to describe their teaching background, (2) they had an opportunity to describe other strengths they could bring to the program/ classroom, (3) they understood the interview questions, and (4) interviewers showed an interest in what they had to say. In addition, all respondents in 2025 agreed or strongly agreed that scheduling the interview was easy and the purpose of the interview was clear. Some statements also suggest the interview process has improved. For example, the percentage of respondents agreeing or strongly agreeing that interviewers showed interest in what they were saying and that interviewers tried to help them feel comfortable appeared to increase after 2021, as did statements about understanding next steps.

[12] There were not enough responses to disaggregate these data by race/ethnicity.

**Table 11**
**Respondents' Agreeing or Strongly Agreeing[†]**
**With Statements About the Interview Process**

| | 2021 (N = 13) | 2022 (N = 18) | 2023 (N = 24) | 2024 (N = 20) | 2025 (N = 15) |
|---|---|---|---|---|---|
| | Percent[‡] | Percent[‡] | Percent[‡] | Percent[‡] | Percent[‡] |
| I had an opportunity to describe my teaching background. | –[±] | –[±] | –[±] | –[±] | 100% |
| I had an opportunity to describe other strengths I would bring to the program/classroom. | 84% | 89% | 96% | 85% | 100% |
| I understood the interview questions. | 84% | 95% | 88% | 85% | 100% |
| Interviewers showed interest in what I had to say. | 77% | 94% | 96% | 85% | 100% |
| Scheduling the interview was easy. | 92% | 94% | 92% | 85% | 100% |
| The purpose of the interview was clear. | 84% | 89% | 92% | 80% | 100% |
| I had an opportunity to ask questions. | 92% | 95% | 88% | 90% | 93% |
| I had an opportunity to describe my science background. | 84% | 89% | 96% | 79% | 93% |
| Interview questions were related to my qualifications. | 85% | 89% | 96% | 85% | 93% |
| Interviewers made an effort to help me feel comfortable during the interview. | 76% | 100% | 83% | 95% | 93% |
| After the interview, I understood what the next steps for my application were. | 76% | 95% | 88% | 85% | 87% |
| Interviewers answered my questions. | 85% | 94% | 92% | 80% | 87% |
| The length of the interview was appropriate. | 93% | 94% | 91% | 85% | 87% |
| I knew what to expect before the interview began. | 53% | 83% | 71% | 80% | 60% |

[†] Includes those who gave a rating of 5 or 6 on a scale from 1 (Strongly Disagree) to 6 (Strongly Agree).
[‡] Only those who participated in an admissions interview are included.
[±] Option was not available on this survey for participants to select.

All survey respondents were asked an open-ended question about parts of the application or admissions process that went particularly well. Most often, they mentioned that the expectations for the program and instructions for completing the application were clear (17 out of 54 responses) and that communication with the program was efficient and effective (16 out of 54 responses). For example:

> *One part of the application process that went particularly well was gathering and organizing the required documents, including my academic transcripts, publications, and statement of purpose. This process helped me clearly define my goals and recognize how my background aligned with the program.*

> *When [program staff] saw I had started an application, they reached out to look over my transcript and check my eligibility. I was unsure if I was eligible beforehand, which discouraged me a bit from completing the application process, so having it looked over was helpful. In addition, the application timeline was clear and quick.*

Additionally, the survey included one open-ended question about any part of the application or admissions process that was particularly challenging. Responses varied, but a few factors stood out. Out of the 42 responses sharing difficulties, 13 mentioned being unable to meet the course and/or application requirements, and another 5 mentioned the cost of living. Example responses include:

> *Finding out that even though I took a science education course, I didn't have the qualifications to apply.*
>
> *At first, it seemed that the program was for people with different [academic] backgrounds, but it was for people with different backgrounds in science.*
>
> *I did not apply because the stipend was not enough to motivate me to move to New York City from [my current city]. My current salary is $51,000/yearly, which allows me to live comfortably. Even with the stipend currently offered by the program, I would financially struggle with food/transportation/housing costs if I were admitted and needed to live in NYC.*

Other challenges mentioned by four or fewer included gathering application materials, delayed project communication, length of the application, understanding the program requirements, use of the portal, application timeline, and citizenship requirements.

## Alignment of Course Experiences With Project Objectives and Clinical Experiences

In January 2025, HRI interviewed Cohort 13 in two focus groups, with several questions focusing on connections between residents' coursework and their clinical experiences. Additionally, HRI interviewed members of Cohort 12 individually (June 2025) and asked questions about the impact of coursework and residency on their teaching thus far.[13] This section of the report summarizes data related to alignment of course experiences with program objectives and clinical experiences.

During interviews, Cohort 13 residents were asked to describe connections they have seen between their coursework and their school residencies. Interviewees mentioned several, such as assessing student understanding, planning field trips that aligned to Earth science standards, and observing teacher moves discussed in courses. As three stated:

> *I did like the assessment elements. . . . It was about being more aware of what your kids want and need, and seeing even informal assessments in classes, being able to determine what*

[13] Cohort 12 members had completed their first year of teaching.

*needs are with observation. And then, as far as formal assessments are concerned, . . . I got a lot more comfortable with building rubrics and making exit tickets. That was really the way I implemented a lot of the stuff that I learned in residency.*

*Over the summer, we took classes about teaching in informal science environments, and I think that class was the most relevant that we have taken so far to our residencies, because we had to have the field trips be relevant to what we were teaching in our classes. We had to consider the [Informal Science Education] strands of how students are engaging with the materials, and then we had to actually execute the field trip.*

*I'll say that I think there was a bunch of connections because my mentor teacher has been teaching for quite a while, 20 years, something like that. When we got the things in class, I'd be like, "Oh, I've seen that before." It was kind of nice to have preemptively seen a bunch of the techniques in terms of having talks, doing different things that concentrate on students interacting with other students. It was done a lot in the residency classroom before I even read about it in class. So that was cool to see the connection.*

In addition, residents were asked about their coursework related to using the New Visions Earth science curriculum, which NYC schools began using in 2024–25. Many residents in high school placements shared that they had been using the curriculum in their residency placements. Those who had not still appreciated being able to use it as a valuable resource for learning to lesson plan or as a source for inspiration. In their words:

*In our [course] team teaching, we were using New Visions curriculum, and I use that every single day in my residencies, and we've been using that across a few different of our classes this year at the museum. . . . I thought the idea of lesson planning and turning a unit or a curriculum into something you would use is really good practice.*

*I will say I am one of those people who is not using New Visions. I think it is helpful, to an extent, like knowing that it's a resource is good. I take an inspiration from it when I'm creating my own lessons.*

When asked for suggestions to improve connections between coursework and residency, several residents acknowledged that there seems to be a gap between theory, as they described it, being taught in classes and the practicality of their residencies. For example, some described learning about various teaching strategies (e.g., assessment strategies, use of learning targets) in their courses that differed from their use in residencies. Two shared:

*I understand assessment, and how assessment should be, or at least what the program wants me to think of assessment. . . . Then I turned to my residency, and I think I had a great relationship with my mentor, and she really cared about kids. But then, like our assessments,*

*boiled down to multiple choice tests. And so, there's the disconnect between what people that are teaching are actually doing . . . and what we were taught to do.*

*In class, there's the strong emphasis on having a learning target, bringing it up at the start of a class, bringing it up at the end, referencing it multiple times throughout, which I do agree with, but in residency . . . I would always try to find a substantial way to bring [the learning target] up where you learn something new about it each time . . . versus the museum classes and the theory that give me the impression that it's sufficient just to say it again. So that's one area where that sounds good on paper . . . all the theory and all the course materials are saying it should work when the rubber hits the road but it's not.*

Others also mentioned learning a great deal about CRSE in their courses but were still unsure on ways to incorporate it into their science classes. As one put it:

*I think one thing that I've noticed in this program is there is an expectation that we will teach using the culturally responsive framework, and we will be inclusive, and we will be able to teach ideas of equity and fairness and diversity, but I haven't experienced a model teacher teach that to me. So, I'm kind of just flying blind. I don't know how to teach inclusive science because no one's teaching me inclusive science right now.*

A few shared that they would benefit from more residency-based assignments so that they could practice using strategies from class in their residencies. One resident commented:

*I wish that there were more residency-based assignments because I learned the most from them. All of the residency-based assignments were the things where I was able to apply and do it for myself.*

Cohort 12 interviewees shared that their coursework has contributed to successful teaching experiences thus far. More specifically, they highlighted aspects such as understanding the NGSS, classroom resources from the program, and differentiating instruction that have been beneficial. In their words:

*Three-dimensional learning [has been helpful]. Really understanding how to read the standards, the performance expectations versus cross-cutting concepts, science and engineering practices, DCIs. There are other teachers on my team that aren't as familiar. And I realize I definitely do have a one up when it comes to understanding the standards.*

*It's been really, really good having that [content] knowledge. And not only the content knowledge of all the classes that we went through, but the resources that each of the classes gave us. . . . One of them is the website, Windy. You can look up the wind speeds and temperature and humidity, and all that stuff, and I use that thing all the time. If*

*there's a thunderstorm . . . I'll show students like, "Hey, look! You can see the lightning strikes all over the place," and they think that's awesome. The content that they taught us has been really, really helpful and reassuring to have that. But, more importantly, the tools that we can bring into the classroom that's been a really good thing to have in my toolbox.*

*The classes where we're focusing on things like differentiating for different students. I've had to learn to adapt it to my specific students, but I knew generally what to do because of those classes working around those topics. I had something to build from and make more specific.*

Additionally, Cohort 12 members were asked about the use of CRSE and CT in their teaching. Interviewees reflected positively on the CRSE aspects of coursework. Although some interviewees shared they have struggled to incorporate it into their lessons due to time constraints, others provided specific instances of implementation. For instance, one described tying content to their geographic location. They shared:

*I'm teaching where I grew up . . . so that helps me make very easy and quick connections to our space. But you know, being aware of how to do that, and why it's important was the cherry on top for doing it. There's an astronomy organization nearby, where they have multiple telescopes that can view the planets and other objects. So, I made sure students were aware of that, and if they had time on a weekend they could travel out there because it is free to the public.*

When asked about specific examples of CT in their lessons, most Cohort 12 interviewees shared that they have not been using it during their instruction. They cited reasons such as the uncertainty about how to use CT with younger students, as well as students' struggles to understand how to use various software platforms (e.g., Excel) and their data analysis skills. Still, a few shared that they have used CT and described using data sets in their lessons. As one commented:

*I wanted to get them exposed to real data. We did a few climate change lessons, and I went in and extracted that data and showed them the graphs, but they can barely read a graph.*

Cohort 12 interviewees were also asked about their school residency experiences, specifically how they had helped prepare them for teaching. Several mentioned that their residency experiences provided an opportunity to apply their coursework in a real classroom with students. For instance, one reflected on how their residency experience helped them decide how they would develop relationships with students. Two shared:

*What distinguishes AMNH from other programs is the student teaching experience. I really appreciated being in the classroom four days out of the week and being able to apply theory that we learn in class to the actual classroom with the students.*

*I think that the student relationship building piece was something that I got and learned from my residency and watching my mentor teacher interact with their students either in a way that I liked, and then was able to take back to my classroom, or in a way that I was like, "You know, I don't really like how that interaction went." And so I feel like I was able to consider, like the relationships that I wanted to have with my students.*

Finally, Cohort 12 offered few suggestions for improving the alignment between courses and clinical experiences. Some shared that it would have been beneficial to learn more about classroom management strategies. Other suggestions were more explicit guidance about what residents should learn while working with their mentors and guidance with long-term planning. Three shared:

*I'd say the biggest thing is if there could be a course or a bigger focus at some point on classroom management. There's so much to do, of course, but I feel like there was never a focus on that.*

*A suggestion is to have more structured support that mentors can give residents. . . . Like outlining clear expectations for residents, like "This is what you're supposed to be doing," or maybe even just, "Here are some of the things that you should be learning from your mentor. Make sure you're asking about these sorts of things or you're doing these sorts of activities at your residency."*

*The program did a really great job with how to make a lesson plan, I would have liked more help on building a yearlong context and how to decide what standards go where and map them out across the year.*

## Developing Partnerships With Residency Schools

During the 2024–25 school year, the program placed residents and supported mentor teachers at six schools. HRI interviewed school administrators (principals or vice principals) from 4 of the 6 partner schools to learn more about the partnership from the schools' perspective. These interviews took place during the summer of 2025, allowing interviewees to reflect on the 2024–25 academic year.

Interviewed school administrators were asked about their interactions with residents of the MAT-ESR program, including frequency of interactions. All four administrators discussed having opportunities to interact with residents on a regular basis. Typical interactions included (1)

learning more about the school and courses offered, (2) general instructional support through observations and informal feedback for both the mentor teacher and resident, and (3) advice on searching for employment upon graduation. Three interviewees mentioned offering residents opportunities to be observed and receive feedback from a school administrator. As two commented:

> *We try to meet weekly. . . . I would visit the classes as often as I do, which is sometimes once, twice, maybe three times a week and pop in. When I would give feedback to the mentor teachers, I would also give feedback for the resident, have some informal check-ins with them, but overall we would check in frequently.*

> *I gave some job advice, and there were a few [residency assignments] that I needed to be interviewed for, so they were asking me questions about the school and the vision of the school and our student population. Day to day, it was cordial conversation every now and then giving them a little bit of feedback on what I saw in the classroom, or I know that they would co-create work products, so slides or worksheets, and those were shared with me from their mentor teacher, so I would give feedback to their mentors that was then relayed to them.*

All four interviewed partner school administrators shared that the communication between their schools and the program is clear and sufficiently frequency. All said that their school's onsite senior specialist is the most frequent point of contact, but the administrators also have other opportunities to interact with program leaders. The following quotes illustrate administrators' thoughts on communication:

> *The communication we've had with [the senior specialist] has been phenomenal. . . . [The senior specialist] is always on it, and also very reflective and open to hearing how they can support the residents and helping our students and vice versa, so it's been a really good experience.*

> *Communication has been great. The museum will keep me updated. . . . Anytime there is a meeting, [museum staff member] always sends out a pre-agenda and a save-the-date a month or two in advance. . . . The mentors seem to always know what's going on and there's not any questions. They know when the meetings are, they know when the Saturday sessions are, they know when the projects are due for the residents.*

> *The fact that [the senior specialist] is onsite is great to be able to have an in-person conversation . . . and much better than having a lot of additional emails.*

> *From my end, the communication has been very strong. . . . Whenever I needed something and reached out, they would rapidly respond. With [the Senior Specialist], it is super easy to communicate, and it feels very collaborative.*

Throughout the year, administrators appreciated other opportunities to communicate with the program by attending meetings with other school partners and having AMNH program leaders visit schools in the spring. These additional opportunities for communication with the project helped administrators understand upcoming program changes, including the Empire State requirements and best practices for supporting mentors. Two administrators shared:

> *The partner meetings were helpful because I learned about the Empire State Residency program, and it was interesting. I also like hearing about where the graduates end up and the actual numbers. . . . It's interesting to see that and our part in it.*

> *One of the things I was able to share and talk back and forth about [when meeting with program leaders] was figuring out what the expectations of the museum were. It became clear to me as I was working more closely with my teachers that they didn't quite understand how to support their residents, . . . and I don't know exactly what has been communicated at the Mentor Academy . . . so talking through it and then really thinking about that helped me think about how to really come at this new development for next year so that I have a stronger voice in it.*

Outside of meeting with other partner school administrators and museum staff, 3 of the 4 administrators interviewed also had an opportunity to interact with the incoming cohort in June when Cohort 14 toured the partner schools. Administrators shared that the school visits are beneficial for sharing the unique opportunities and attributes of each partner school with residents. Three administrators detailed the benefits of these visits:

> *Our school is not like any of the other partner schools, so having the future cohort come in . . . it helps give them a better idea of whether they think [our school] would be a place they would want to spend time in the following year. I think the June visits are helpful because it gives residents a snapshot before they're actually there and also a sense of the commute that they would have . . . and that's beneficial in itself as well, especially for people who are not from New York City.*

> *Residents have to rank where they want to do their residency, so I think it is helpful to go and see the different varieties of schools out there. It gives residents a good introduction to how different schools are, size-wise, student population, location, it's such a vast city.*

> *[The June visit] gives the residents a tangible example of what to expect, it is probably one of their first tastes of what being in a school setting can be. Plus, they are with our current residents, so they get to hear from them.*

All interviewees were asked about ways the program has supported their school and the benefits that they have seen come out of the partnership. Interviewees shared that the residents have been a source of additional support for students and mentor teachers, with one administrator citing

residents' ability to support changing science standards. Residents have brought new ideas to the classroom and been involved in student organizations outside of class time. Two administrators also commented on how the partnership encourages mentor teachers to reflect and improve their own practice. Administrators described the benefits of having residents at their school as follows:

> *It was really beautiful to see the residents take on the leadership role in a classroom . . . a natural progression of them developing into teachers in the room and building relationships. . . . Additionally, residents have been really amazing help when it comes to afterschool targeted support. With one of the teachers, they were doing everything in their power to make sure we can get those kids to complete their investigations that they tried to leave half done and unless they're done, they're not eligible for the Regents. The teacher and the resident were working tirelessly to make sure that that number went from, I think it was initially 15 kids down to it ended up three not being able to take it, so just a really good partnership between the teacher and the resident there.*

> *Mentor teachers really appreciated the support that they got from the museum as well as working with the residents with the new curriculum. That was extremely helpful. The residents coming in with a stronger understanding of what the course entailed was also nice, especially for some of my senior teachers that maybe don't work with the museum as closely, but because they're all in the same department, it was nice to have other people who have been through classes that they could lean on.*

> *The partnership raises the general professionalism of our mentors. . . . It makes them be more reflective and more professional about their own teaching. The partnership makes it feel like a special place because of our tie to the program in the museum.*

Additionally, the program has supported partner schools by providing funds for supplies for mentor teachers, field trip opportunities at the museum, and professional development opportunities. The schools have also benefited from the partnership by being able to hire program alumni. Two administrators shared:

> *Sixth grade does a lot of Earth Science with rocks and minerals and weather. The field trip gives students a much different perspective. When they're actually seeing large minerals or going to the gems and minerals exhibit, it is a way that makes kids more excited about the topic. . . . One of the residents that was with us got access for our students to a special planetarium kind of experience, or we've brought in different museum staff to be guest lecturers at our school for our students, so there's been more access to scientists and the work of science through the partnership.*

> *A lot of my teachers are former residents . . . because they were part of the program, they had access to a lot of the things that the museum has. Several of them went on [an excursion] discovering rocks upstate, and then they bring back tons of rocks, which is*

*amazing because we built entire lessons around that in the Earth science unit. . . . So they were breaking apart all the rocks that the residents and my teachers had from that experience through the museum and had gotten all of this stuff, . . . so that was a direct and explicit benefit that I think normal schools wouldn't get.*

When asked if there were any challenges with the partnership, two interviewees acknowledged challenges with individual residents, and one interviewee mentioned the coordination of field trips as a minor challenge. In all cases, administrators acknowledged that their concerns were part of the nature of hosting a residency partnership and appreciated the support they received from the museum when navigating delicate situations with residents. Three administrators shared:

*The spring cohort . . . they were very much go-getters and got jobs really early in the semester, but then it seemed as though once they had the job, they stopped being dedicated to my school community, and they were absent quite a bit. In conversations with mentors, they were still there, and they did what they needed to do, but it seemed that they were checked out. . . . I hadn't experienced that with any other cohort except for this cohort in the spring.*

*Not all of the residents come in with the maturity level or organizational skills to handle the intensity of the work and interpersonal relationships. . . . It's more like can they handle the tasks that are assigned to them. If one of my mentors is asking them to grade X number of papers by a date, are they getting it done or not? And then when that mentor follows up, what's that pushback, or how do they respond to having not finished that task? It's extra work to take care of, in essence, what is a full ability to manage workload or personal relationships, but I wouldn't say that has anything to do particularly with the program. It is just another piece of what makes the work of a school complicated. It's like there are so many benefits, but there are also costs as well. Overall, the benefits do really exceed the costs, but there are costs there.*

*Residents had that one assignment where they take kids to the museum for a field trip, and when you get poor organization on that, then suddenly your entire school is going on a field trip every week [because of planning difficulties], . . . so I want to coordinate that a little bit better this year. That's a tiny thing that will be easy to fix with stronger communication. I need to know when these things are happening, but there were no major challenges at all.*

Finally, when the administrators were asked about ways that the program could provide more support to schools, three interviewees shared a range of ideas. One administrator focused on growing the partnership, a second focused on emphasizing benefits of the partnership for their students, and a third administrator mentioned additional support for mentor-resident pairings:

*I've been thinking a lot about the sustainability of this program. . . . We have [several] mentors and seasoned teachers, so it is kind of missed opportunity not to talk to all of us as a way—or at least help us figure out how we can expand our models to our respective campuses. . . . I don't know how they can rethink the model to shift it and build on principal relationships. . . . That's a direction I would continue to encourage looking down. . . . I would love to see what programs look like at other sites. . . . Is there something that they're doing that I should be doing and vice versa to strengthen the program?*

*That's always what I'm interested in, is ultimately how is this impacting kids? I think there is an opportunity for more courses to integrate museum resources and experiences into their coursework and for Mentor Academy to do that. Those are the two ways I would think about that. . . . The students are taking these science classes at the same time, and I feel like more field work or museum work that's directly connected to the science that they're teaching and more of the materials and speakers from the museum would support that. . . . So how are we using this program as a way not just to train a teacher to fill a vacancy, which is the ultimate goal, but beyond . . . how are we having these students practice using that and pulling from the museum's resources, not just as a teacher training organization, but as an organization that can provide cool experiences to kids?*

*Sometimes, but not this year, the mentor-resident pairings are not conducive to either team, so if there's an additional step that could be taken to really try to match individuals who would support each other, and they would be reciprocated. When you work in the workforce, you don't get to pick your colleagues, but because the intent of this is to support a teacher in developing into that role, it would be helpful to try to think about some other qualities that they have to make sure that the partnership is strong for both.*

All four partner school administrators spoke positively about the partnership with the program, agreeing the partnership was beneficial for both parties and that they were pleased to be involved. At a school where the partnership is ending, an administrator shared, "It will be a loss for us because it is great to have that support and hopefully, we will find a way back in the future." Another interviewee described the staffing benefits offered by the partnership:

*I hired another graduate of the program who's going to be starting in the fall. Pretty much all of my Earth Science department . . . are affiliated with the program in some way so I definitely see the benefit of the program, and I like what they're doing and the support that they're giving to these residents so that they become strong teachers.*

## Attracting, Preparing, and Supporting School-Based Mentors

MAT-ESRP's strong connections to schools and mentors are evident in the program's success in recruiting and retaining mentors. Most Cohort 13 mentor teachers also mentored in previous years, and several are program alumni who eagerly volunteered for the role. The program offers robust support for mentors, anchored by the Mentor Academy, to which all past and present mentors are invited. This section of the report summarizes feedback on the program's efforts to attract, prepare, and support mentors, drawing on:

- Mentor Academy observations,
- interviews with mentors, and
- an end-of-year mentor survey.

### *Preparing and Supporting Mentors*

Thanks to strong, long-running partnerships with schools, MAT-ESRP has always been able to place residents with mentor teachers. A strong draw for mentors is the support the program offers. For the 2024–25 Mentor Academy (for Cohort 13), 5 of the 7 days were held in person (including the first two days in August), and two were held remotely. The first day in August was exclusively for new or more novice mentors. All mentors (past and present) were invited to attend the remaining sessions. HRI observed the August, January, and June Mentor Academy sessions in person, and the November session virtually.

The mentoring component of MAT-ESRP has long relied on a set of tools developed for the program in collaboration with the New Teacher Center. Early Mentor Academies focused heavily on helping mentors learn to use these tools, whereas later ones focused on other topics (e.g., CRSE) while still giving some attention to the tools, especially for new mentors. For the 2024–25 Academy, program leaders decided to focus again on the mentoring tools, providing a refresher for some and a first opportunity for deep, sustained engagement for others. The Mentor Academy goals for this year were to:

1. Support and deepen mentors' abilities to use mentoring language and tools to have evidence-based conversations with residents;
2. Strengthen mentors' understanding and use of the Observation Rubric and Disposition Teaching and Learning Tool to support resident development over time;
3. Deepen mentor's understanding of residents' assignments; and
4. Use the museum for learning and reflection.

Observation data make it clear that the program was designed to meet these goals. The program partnered with the New Teacher Center, which led several sessions on mentoring tools and practices. For instance, on the first day, new or more novice mentors were acquainted with the observation rubric and dispositions tool. Program faculty modeled ways to use each tool and provided opportunities for mentors to practice using the tools. On Day 2, all mentors discussed

the collaborative assessment log (CAL), the mentoring language tool, and their mentoring stances. This work continued into Day 3, where mentors spent time collaborating on ways to better support residents' lesson planning development using the mentoring tools.

Day 2 and Day 4, which occurred just before the fall and spring residencies, gave mentors time to review feedback residents had given on their experiences from the prior semester. Mentors met in school-specific breakout groups and discussed feedback for their school. Additionally, these sessions included time for mentors to meet with their new Cohort 13 resident.

Finally, some of the in-person Mentor Academy sessions included opportunities for mentors to utilize the museum for learning. For example, on Day 1, mentors visited the Insectarium, and, on Day 6, they visited the Hall of Gems and Minerals. Both sessions were reflection activities for them to consider their mentoring experiences thus far.

### *Mentor Perspectives on the Academy*

HRI surveyed mentors following the final Academy session in June 2025 to learn about their opinions of their experience, both in the Academy and in working with their residents. In addition, HRI conducted a focus group interview in January 2025 immediately following Day 4 of the Academy. HRI made a Zoom interview available the following week to accommodate those who could not attend the first interview. One additional mentor participated. The interviews focused on the mentoring experience, in particular the Mentor Academy and how the program's expectations were communicated with mentors.

As mentioned earlier, the program partnered with the New Teacher Center to revisit the use of mentoring tools for the 2024–25 academic year. The mentor survey included items about mentors' perceptions of this component. As can be seen in Table 12, almost all mentors agreed to some extent with each item, with roughly three-quarters or more agreeing or strongly agreeing that the New Teacher Center sessions reflected careful planning and organization and that they learned how to better support their residents through the use of mentoring tools. Only one respondent disagreed with any of the statements.

**Table 12**
**Mentors' Opinions About the New Teacher Center Component of Mentor Academy**

| | Strongly Disagree | Disagree | Slightly Disagree | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| | Percent of Respondents (N = 22) | | | | | |
| The New Teacher Center sessions reflected careful planning and organization. | 0% | 5% | 0% | 18% | 55% | 23% |
| The goals of the New Teacher Center sessions were made clear. | 0% | 0% | 0% | 27% | 50% | 23% |
| The atmosphere of the New Teacher Center sessions encouraged me to make contributions to the discussions. | 0% | 5% | 0% | 36% | 41% | 18% |
| I learned how to better support by MAT-ESRP teacher residents through the use of mentoring tools. | 0% | 5% | 0% | 23% | 59% | 14% |

Another survey question asked mentors to give their opinions of several broad aspects of the Academy. Overall, the ratings were positive (see Table 13). Most mentors either agreed or strongly agreed that (1) it was helpful to have time during Mentor Academy to meet with their teacher residents and (2) Mentor Academy meetings allowed them to better support their residents. However, 41 percent of mentors disagreed to some extent that Mentor Academy meetings were a good use of their time. At the project's request, HRI disaggregated the survey data by mentor role (see Appendix). Of the 22 mentors who responded to the survey, 17 described themselves as content mentors and five as specialist teachers (Special Education or ENL/ELL). This resulted in one very small group of mentors (the specialist teachers), and for that reason, comparisons should be considered tentative at best. That said, there appear to be some differences between the two groups, or at least among those who responded to the survey. For example, 41 percent of content mentors agreed or strongly agreed that Mentor Academy meetings allowed them to better support their resident, whereas 80 percent of specialist teachers reported similar levels of agreement. Similarly, 41 percent of content mentors agreed or strongly agreed that they learned how to better support their resident's use of CRSE practices, with 80 percent of specialist teachers agreeing or strongly agreeing. It is unclear why these differences appear between the two groups.

**Table 13**
**Mentors' Opinions About the Mentor Academy**

| | Strongly Disagree | Disagree | Slightly Disagree | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| | Percent of Respondents (N = 22) | | | | | |
| It was helpful to have time during Mentor Academy meetings to meet with the teacher residents. | 0% | 0% | 5% | 5% | 59% | 32% |
| Using Museum halls during the Mentor Academy was useful. | 0% | 9% | 5% | 32% | 41% | 14% |
| Mentor Academy meetings allowed me to better support my MAT-ESRP teacher resident. | 0% | 5% | 9% | 36% | 36% | 14% |
| I learned more about culturally responsive and sustaining education practices by attending Mentor Academy workshops. | 0% | 18% | 0% | 32% | 36% | 14% |
| I learned how to better support my MAT-ESRP teacher resident's use of culturally responsive and sustaining education practices. | 0% | 14% | 0% | 36% | 41% | 9% |
| Mentor Academy meetings were a good use of my time. | 5% | 0% | 36% | 23% | 27% | 9% |

Table 14 shows survey data related to the Mentor Academy across years. When examining these data, there appear to be some differences. The apparent drop in ratings related to CRSE is not surprising given that CRSE was not as much of a focus in the two most recent Academies. Explanations for other apparent decreases are not as clear. For example, in 2023, almost all mentors either agreed or strongly agreed that Mentor Academy meetings allowed them to better support their MAT-ESRP teacher residents. However, in 2024 and 2025, only half agreed or strongly agreed with this item. A similar trend is apparent in participants' perceptions about the Mentor Academy meetings being a good use of their time.

**Table 14**
**Mentors' Opinions About the Mentor Academy, by Year**

| | 2022 (N = 18) | 2023 (N = 17) | 2024 (N = 20) | 2025 (N = 22) |
|---|---|---|---|---|
| | Percent of Respondents | | | |
| It was helpful to have time during Mentor Academy meetings to meet with the teacher residents. | 88% | 100% | 90% | 91% |
| Using Museum halls during the Mentor Academy was useful. | 71% | 82% | 65% | 55% |
| I learned how to better support my MAT-ESRP teacher resident's use of culturally responsive and sustaining education practices. | –[±] | 82% | 65% | 50% |
| I learned more about culturally responsive and sustaining education practices by attending Mentor Academy workshops. | –[±] | 88% | 60% | 50% |
| Mentor Academy meetings allowed me to better support my MAT-ESRP teacher resident. | 78% | 94% | 50% | 50% |
| Mentor Academy meetings were a good use of my time. | 56% | 88% | 35% | 36% |

[†] Includes those who gave a rating of 5 or 6 on a scale from 1 (Strongly Disagree) to 6 (Strongly Agree).
[±] This statement was not included.

As mentioned above, HRI conducted a focus group interviews with six mentors in January. HRI interviewed one additional mentor by Zoom the week following the January Academy session. All but one individual in the in-person interview was from one school, and one was particularly vocal and negative. It is not clear how representative the group was of mentors overall. However, feedback from the mentor in the Zoom interview was more balanced. With those caveats, feedback from these interviews is shared below.

Mentors were asked about their overall impressions of the Academy. Several in the in-person focus group said that the Academy focused too heavily on pedagogy and surface-level ways to use the mentoring tools, rather than offering meaningful support for improving residents' teaching. Two commented:

> *It was a lot of, "Here are these tools, we're going to read them together because we read everything out loud." And no, that's not actual support. That is not trusting me to take this seriously. I want to talk about what happens when somebody is in this lower range. How as a mentor do you help them? Not how do you grade them. I know how to grade, I know how to use a rubric. . . . I do feel like there is a big mix in terms of actual support in making mentor teachers a real asset.*

> *I feel like everything is very superficial when we come to these mentor meetings. Last year they were doing the OpenSciEd PD that was like, "Here's how you set norms for a classroom," and we got that again this year. . . . And my feeling about that is if we are qualified to be mentor teachers, those are not the things that we need to learn how to do. If we're qualified to be mentor teachers, the things that we need to learn how to do are to*

*use that CAL really well. Like modeling, showing us a variety of CALs. Showing how, if this is the thing that they're asking for, here are some of the mentor moves or co-teaching moves that you could do. . . . We have been taught how to read them but not how to help the residents move through them.*

Interviewees also suggested the sessions would be more beneficial with a stronger focus on developing mentors' skills and providing differentiated support, such as grouping mentors based on years of experience or mentoring role (content teacher or specialist). They shared:

*I need a place where I can explore other ways to incorporate new practices into my mentoring. So, maybe something like having it also based on how many years you've been a mentor because the people who've been doing it for seven years are in a completely different place than the second years. I've been given a bunch of the tools that we're currently going over this year in particular. And today I was like, "I could really just use time to talk to the other Earth science teachers in this room about how they're supporting the mentee." I was envisioning different table groups of the ENL coordinators, table groups of the SpEd coordinators, table groups of middle school teachers, the high school teachers, and then even the high school teachers could branch off to chemistry, biology, or Earth science.*

*The one thing that I would love to do would be to connect with other people like myself. Maybe we could have more of a break off for our next meeting, where we all bring what we're sharing with our mentees, and maybe we could streamline like all the Special Ed stuff and the ENL teachers could do the same thing. We could create our PowerPoints and such so that every mentee is getting the same [training].*

### Mentor Perspectives on the MAT-ESRP

The June 2025 mentor survey also asked about mentoring activities, use of program tools, and benefits of the program. Regarding mentoring activities, mentors were asked how often they engaged with their residents in various ways (see Table 15). In both semesters, more than three-fourths reported having co-taught lessons with their teacher residents at least 1–3 times per week. Similarly, approximately 70 percent of mentors in both the fall and spring semester provided feedback to their teacher resident and co-developed lesson plans with their resident.

**Table 15**
**Frequency With Which Mentors Engaged in Activities with Residents, by Semester**

| | Fall 2024 (N = 21) | | | | | Spring 2025 (N = 22) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Never | Less than once a month | 1–3 times per month | 1–3 times per week | Every day | Never | Less than once a month | 1–3 times per month | 1–3 times per week | Every day |
| | Percent of Respondents | | | | | Percent of Respondents | | | | |
| I co-taught lessons with my MAT-ESRP teacher resident. | 10% | 5% | 10% | 29% | 48% | 14% | 0% | 0% | 41% | 45% |
| I provided feedback to my MAT-ESRP teacher resident. | 0% | 14% | 14% | 48% | 24% | 5% | 5% | 18% | 36% | 36% |
| I co-developed lesson plans with my MAT-ESRP teacher resident. | 10% | 10% | 19% | 33% | 29% | 14% | 5% | 14% | 45% | 23% |
| I collaboratively managed small group work together with my MAT-ESRP teacher resident. | 10% | 5% | 24% | 38% | 24% | 14% | 5% | 18% | 41% | 23% |
| I debriefed with my MAT-ESRP teacher resident after they led a lesson or activity. | 5% | 10% | 19% | 52% | 14% | 9% | 5% | 14% | 55% | 18% |
| I graded student work collaboratively with my MAT-ESRP teacher resident. | 5% | 10% | 14% | 57% | 14% | 14% | 9% | 27% | 32% | 18% |
| I took notes on my MAT-ESRP teacher resident's instruction. | 14% | 19% | 51% | 14% | 0% | 18% | 9% | 59% | 14% | 0% |
| I helped my MAT-ESRP teacher resident prepare for job searches. | 65% | 20% | 5% | 10% | 0% | 41% | 18% | 32% | 9% | 0% |
| I debriefed with my MAT-ESRP teacher resident after looking at video of their instruction. | 79% | 16% | 5% | 0% | 0% | 80% | 5% | 15% | 0% | 0% |

The survey also asked mentors how often they used tools and resources provided by the program each semester (see Table 16). These data are more difficult to interpret, in part because one would not expect residents to use some tools frequently (e.g., the Getting to Know Students tool). Still, it appears that in both semesters, the Seating Chart tool and CAL were used most. In half or more residencies, the following tools were never used in either semester:

- Getting to Know Students tool
- Instructional Groups tool
- ASW (Analyzing Student Work) tool

**Table 16**
**Frequency With Which Mentoring Tools Were Used in Residencies**

| | Fall 2024 (N = 21) | | | | | Spring 2025 (N = 22) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Never | Less than once a month | 1–3 times per month | 1–3 times per week | Every day | Never | Less than once a month | 1–3 times per month | 1–3 times per week | Every day |
| | Percent of Respondents | | | | | Percent of Respondents | | | | |
| Seating Chart tool | 38% | 14% | 43% | 0% | 5% | 41% | 18% | 32% | 5% | 5% |
| The museum and/or other informal learning resources | 10% | 55% | 35% | 0% | 0% | 19% | 43% | 33% | 5% | 0% |
| Getting to Know Students tool | 57% | 33% | 10% | 0% | 0% | 64% | 27% | 5% | 5% | 0% |
| Instructional Groups tool | 68% | 26% | 0% | 5% | 0% | 70% | 25% | 0% | 5% | 0% |
| CAL (Collaborative Assessment Log) | 10% | 38% | 52% | 0% | 0% | 9% | 45% | 45% | 0% | 0% |
| MAT-ESRP Observation Rubric | 19% | 52% | 29% | 0% | 0% | 18% | 55% | 27% | 0% | 0% |
| ASW (Analyzing Student Work) tool | 65% | 20% | 15% | 0% | 0% | 71% | 14% | 14% | 0% | 0% |
| MAT-ESRP Disposition Tool | 24% | 71% | 5% | 0% | 0% | 23% | 68% | 9% | 0% | 0% |

Table 17 shows mentors' responses to several questions about benefits of the experience and helpfulness of mentoring tools. The survey asked about the fall and spring semesters separately because some respondents had a resident in only one semester. In both semesters, the vast majority of mentors agreed to some extent with several items, such as (1) co-teaching with the resident was a positive experience, (2) their students benefited academically from the resident, and (3) student behavior was improved by having residents present. Mentors' impressions of the observation rubric and dispositions tool were also positive.

## Table 17
## Mentor Opinions About Classroom Benefits of Residents and Program Tools, by Semester

| | Fall 2024 (N = 21) | | | | | | Spring 2025 (N = 22) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Strongly Disagree | Disagree | Slightly Disagree | Slightly Agree | Agree | Strongly Agree | Strongly Disagree | Disagree | Slightly Disagree | Slightly Agree | Agree | Strongly Agree |
| | Percent of Respondents | | | | | | Percent of Respondents | | | | | |
| Co-teaching with the AMNH teacher resident was a positive experience overall. | 10% | 0% | 5% | 0% | 19% | 67% | 5% | 9% | 14% | 9% | 18% | 45% |
| My students benefited academically from having the teacher resident in my classroom. | 0% | 5% | 10% | 5% | 24% | 57% | 5% | 0% | 5% | 27% | 32% | 32% |
| Student behavior was improved by having the teacher resident in my classroom. | 5% | 5% | 5% | 29% | 33% | 24% | 5% | 14% | 5% | 36% | 32% | 9% |
| The MAT-ESRP Disposition Tool was useful in supporting my teacher resident's growth and having structured conversations. | 5% | 5% | 0% | 33% | 48% | 10% | 0% | 5% | 5% | 41% | 50% | 0% |
| The MAT-ESRP Observation Rubric was useful in supporting my teacher resident's growth and having structured conversations. | 0% | 0% | 0% | 52% | 48% | 0% | 0% | 0% | 14% | 45% | 41% | 0% |

The mentor survey also asked mentors about their overall experience with the program. As can be seen in Table 18, most mentors either agreed or strongly agreed with each item, with half or more strongly agreeing that the connection to AMNH has brought helpful resources to their classroom and that they have changed some of their classroom practices as a result of their involvement in the program. However, it should be noted that about one-third or less strongly agreed that they understand the expectations the program has of them as a mentor teacher and that communication from the program was clear.

**Table 18**
**Mentors' Opinions About Their Experience**

| | Strongly Disagree | Disagree | Slightly Disagree | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| | Percent of Respondents (N = 22) | | | | | |
| The connection to AMNH has brought helpful resources to my classroom. | 0% | 0% | 0% | 10% | 29% | 62% |
| I have changed some of my own classroom practices as a result of my involvement in the MAT-ESR program. | 0% | 0% | 5% | 9% | 36% | 50% |
| I have seen positive changes in my school because of my involvement in the MAT-ESR program. | 0% | 0% | 5% | 9% | 41% | 45% |
| I feel included and heard in the MAT-ESRP learning community. | 0% | 0% | 9% | 27% | 27% | 36% |
| I understand the expectations that the MAT-ESR program had of me as a mentor teacher. | 0% | 0% | 0% | 14% | 55% | 32% |
| I have taken my class(es) on field trips to AMNH in addition to the Fall course requirement. | 14% | 14% | 10% | 14% | 19% | 29% |
| Communication from the MAT-ESR program was clear. | 0% | 0% | 0% | 9% | 64% | 27% |

In focus group interviews, mentors were asked about the clarity of program expectations and the level of communication they receive from the program. Similar to survey responses, many mentors shared that they feel that program expectations could be clearer. One suggestion made was a checklist from the program that outlined the tasks they should be completing each semester (e.g., a specific number of CALs), as well general guidelines for mentors. Regarding communication, some described a need for more communication related to residency-based assignments. They shared:

> *Every mentor is coming at [mentoring] from such a different angle, . . . so having more structure of what the mentor is expected to do, especially the content mentor and then maybe fleshing out how ENL and SP mentors fit into that puzzle piece might be really helpful. If we could all get on the same page, we know that these are our expectations of what should be happening in every single mentor room. It could be really helpful to make the program even more robust, and then it would be less jarring for the mentees as they*

*transition [residency placements]. . . . Maybe if there were some sort of collaborative, "This is what the mentors are doing. This is the expectation of the mentor relationship. How many CALs to complete." I'd love a checklist.*

*I want to know what the museum expectations are [for assignments]. . . . In the fall, there was the analyzing and interpreting data one where they had picked a lesson that they wanted to do based on New Visions, but we as a department had decided to cut that lesson two weeks ahead of time. And then I was like, "That lesson's gone. You've got to pick a different one." That happened multiple times where they had an assignment and then we were like, "Sorry, you can't do that because we as a department made a decision." There wasn't this communication about what the assignment is supposed to be or when it's supposed to happen, especially in the fall.*

Table 19 shows survey data about mentors' opinions of their experience with the program across years. When examining these data, there appear to be some differences. For example, in 2022, 64 percent of mentors agreed or strongly agreed that they changed some of their own classroom practices as a result of their involvement with the program. In 2025, almost 90 percent either agreed or strongly agreed with this item. However, in 2023 and 2024, almost all mentors either agreed or strongly agreed that they felt included and heard in the MAT-ESRP learning community (92 percent and 89 percent, respectively), compared to 63 percent in 2025.

**Table 19**
**Mentors' Opinions About Their Experience, by Year**

| | 2022 (N = 18) | 2023 (N = 17) | 2024 (N = 20) | 2025 (N = 22) |
|---|---|---|---|---|
| | Percent of Respondents | | | |
| Communication from the MAT-ESR program was clear. | 79% | 92% | 95% | 91% |
| The connection to AMNH has brought helpful resources to my classroom. | 86% | 100% | 84% | 91% |
| I understand the expectations that the MAT-ESR program had of me as a mentor teacher. | 93% | 92% | 95% | 87% |
| I have changed some of my own classroom practices as a result of my involvement in the MAT-ESR program. | 64% | 75% | 79% | 86% |
| I have seen positive changes in my school because of my involvement in the MAT-ESR program. | 79% | 67% | 74% | 86% |
| I feel included and heard in the MAT-ESRP learning community. | 79% | 92% | 89% | 63% |

† Includes those who gave a rating of 5 or 6 on a scale from 1 (Strongly Disagree) to 6 (Strongly Agree).

Senior Specialists are program faculty assigned to specific partner schools who provide more individualized support to mentors (e.g., troubleshooting issues with residents, clarifying program requirements). As such, mentors were asked about their experiences with their Senior Specialist during the 2024–25 academic year (see Table 20). Mentors' opinions were highly positive, with

all either agreeing or strongly agreeing that their Senior Specialist is helpful when they have questions about the program and that they are knowledgeable.

**Table 20**
**Mentors' Opinions About Their Experience with Senior Specialists**

| | Strongly Disagree | Disagree | Slightly Disagree | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| | Percent of Respondents (N = 22) | | | | | |
| The Senior Specialist is helpful when I have questions about the program. | 0% | 0% | 0% | 0% | 32% | 68% |
| The Senior Specialist at our school is knowledgeable. | 0% | 0% | 0% | 0% | 45% | 55% |
| Monthly mentor teacher meetings with the Senior Specialist are helpful. | 0% | 5% | 9% | 23% | 27% | 36% |

## Induction Support for Recent Graduates

MAT-ESRP continues to support graduates through their first years of teaching. Drawing on interviews, observations, and alumni survey data, this section of the report summarizes feedback on induction activities.

MAT-ESRP faculty provided ongoing induction support for recent graduates (Cohorts 11 and 12), holding monthly hybrid meetings and quarterly planning forums during the 2024–25 school year. Monthly meetings continued to be held for 90 minutes to address Zoom fatigue for those who joined virtually. In some instances, the in-person meeting started 15–30 minutes before the hybrid meeting to allow time for informal community gathering. Even though many attendees opted to join in person, the hybrid format allowed alumni farther away to participate and build community within and across cohorts. The planning forums were held for 2–3 hours and offered in a hybrid format.

In interviews, members of Cohort 12 generally reported finding the induction sessions helpful. They appreciated having the opportunity to connect with and receive feedback from other first-year teachers as they navigated their first year. When asked which specific induction activities they found most valuable, members of Cohort 12 responded with a variety of activities, such as the sharing of museum resources. Four shared:

> *I appreciate the resources [from induction]. I appreciate having a place to get stuff for my classroom because the hardest part about science is showing students the science, for example density changes, and I think the museum helps with that, providing the resources. I also really like the connection, the networking. That's really why I go.*

> *It feels nice to check in and get validation, catching up with people from the museum and seeing where they're at. Some of the most valuable time I've had is in the breakout rooms*

*talking to the other teachers discussing some of the different challenges and brainstorming ideas together. There have been a couple of times that I've worked directly with people leading it, . . . and I can discuss a specific challenge I'm having. That's been helpful too.*

*The induction sessions are helpful because they build connections between the cohorts, especially when there is not enough time in the day to connect with other teachers. It gives time for us every month to see where we're at in a certain topic, see where we can improve for the next set of lessons that we are going to be talking about. Catching up with each other helps too, expanding our connections with everyone especially when it is two different cohorts joining . . . and especially this year with the new curriculum.*

*I think induction is the best part of the program. I would be so lost without . . . the support of meeting regularly. Even when I had to miss a meeting, or if I could not stay for the whole time, [the program] would make an effort to reach out and connect to see if I needed support with anything.*

The induction program is structured to support beginning teachers for two years. As such, members of Cohorts 11 and 12 attend monthly meetups together. Members of Cohort 12 commented on the benefits of working with Cohort 11 during induction. For example:

*It was helpful being with other teachers who had the exact same experience as me, going through the same training that I did and, in some cases, they are using the same curriculum as me. At induction meetings I was able to talk to people who are in my position a year from now, that was really useful for me. . . . It gave me hope, seeing that they still have it together and they still come to events through the museum and they're still receiving support, even though it's not their first year anymore.*

*There were times when Cohort 11 would give us advice. For example, when the first Regents was coming up in January, telling us what to expect that week or telling us what to do to prepare, giving advice for future events throughout the year. Most recently, at our last induction meeting, Cohort 11 was telling us what we should do leading up to the last day of school, like trying to pack as much as you can, to give us different information, so that was helpful.*

Priorities for induction support included both providing social emotional support for teachers and helping teachers provide that same support to their students. These priorities were addressed by four main goals at induction meetings:

- To bring the community together and reflect on different areas of teaching and learning;
- To successfully navigate and learn about best lesson planning strategies;

- To engage in small group conversation to highlight what is working and problem solve challenges; and
- To introduce and utilize the museum's broader community and resources to enhance teaching practices.

Year 2024–25 also offered beginning teachers opportunities to brainstorm and lead sessions during induction meetings with support from peer mentors that was relevant to teachers' needs in the moment, such as managing supplies. As two teachers shared:

> *Induction gives everyone a chance to give their voice having one of us lead and facilitate the conversations.*

> *The first moment [of induction] that comes to mind is during one of the first meet-ups when I had my own breakout room of two or three people to discuss teaching without any materials. . . . I was panicking about not having any of the supplies that I was supposed to have, . . . and people had different ways to use videos or simulations and ideas for how to substitute things I could find in office supplies that were helpful.*

In addition, beginning teachers had opportunities to share video recordings of their teaching. Teachers in Cohort 12 had varying opinions of this opportunity. As four teachers explained:

> *I like that there was an activity we did where we had to record ourselves teaching and then show it to the group. . . . It is nice to see other people's strategies . . . for managing their classroom or even if it's outside of classroom management, what are some of the activities that they do. . . . I think it is a good way to learn, watching other people teach.*

> *As far as the discussions we had, it was cool to see the recordings of people teaching and being able to have a conversation with other people about things that they are doing really well and things that they could work on and having that person share what's going on in their own classroom.*

> *There were a few sessions when we had people submit videos of themselves teaching. I think that would have been a valuable experience if I was in person, but it was really hard to see and hear the videos sometimes, and I didn't really get much out of it.*

> *Not as helpful for me was the [video recording sharing]. . . . Seeing how someone runs their classroom, I can get some ideas from that, but there are also some things that are very personal to their personality and teaching style. I can see that they are doing something in a different way, but also, I know this person, and I know that they are a very different person than I am. It's good to get new ideas and see how someone else might run something, but that does not mean that it is going to be how I need to do it in my classroom.*

HRI surveyed members of Cohorts 11 and 12 at the conclusion of the 2024–25 school year. [14] At the time of the survey, Cohort 11 had completed two years of induction activities, and Cohort 12 had completed one year of induction activities. One section of the survey asked about their agreement with statements regarding induction activities. As can be seen in Table 21, there was less agreement from Cohort 12 regarding the statements about induction activities. It is important to note that the survey did not ask respondents to indicate the frequency with which they attended induction activities, so it is possible that respondents provided responses having limited or even no interactions with the induction program. In addition, some members of Cohort 12 completed their first year of induction outside of New York and/or were not in positions teaching high school Earth Science, which could impact the relevance inductees perceived given the shift to and focus on the New Visions curriculum in New York. In Cohort 12 interviews, three teachers shared some of the limitations of the induction sessions for their individual circumstances:

> *The induction meetings were really designed for first-year teachers, and there was a lot of things that they were discussing and problems that they were working through together that I didn't really have the opportunity to experience in the same way this past year.*

> *I think for the few stragglers who are not teaching Earth Science, induction feels very focused on that one subject. So the few times that I went [to induction sessions, I just didn't feel like it was that productive of a space for me.*

> *Some of the things that they do [at induction] aren't as helpful for me because I'm not teaching an Earth Science class in New York City. So looking at Regents prep or their new curriculum New Visions, it doesn't apply to me, so some of the things aren't as helpful for my situation, but I do appreciate the general problem solving with the people there.*

[14] Twenty-three of 33 invitees responded to the survey, a response rate of 70 percent. Ten individuals are part of Cohort 11; 13 belong to Cohort 12.

**Table 21**
**Respondents' Agreeing† With Statements About Induction Activities**

| | Cohort 11 (N = 10) | Cohort 12 (N = 13) | Cohort 11 and 12 Combined (N = 23) |
|---|---|---|---|
| | Percent of Respondents | | |
| There were sufficient opportunities to celebrate teaching successes. | 100% | 69% | 83% |
| There were sufficient opportunities to collaborate with my peers during induction activities. | 100% | 69% | 83% |
| I received useful support when sharing a challenge. | 100% | 62% | 78% |
| Participating in induction activities helped me reflect on my own teaching practices. | 100% | 62% | 78% |
| I felt comfortable participating in induction activities. | 100% | 62% | 78% |
| The content of induction activities was interesting to me. | 100% | 46% | 70% |
| Induction activities were a good use of my time. | 90% | 54% | 70% |
| Induction activities provided strategies I have been able to apply to my instruction. | 90% | 38% | 61% |

† Includes those who gave a rating of 5 or 6 on a scale from 1 (Strongly Disagree) to 6 (Strongly Agree).

Finally, members of Cohort 12 offered a variety of suggestions for improving induction activities. Suggestions included (1) setting aside time to focus on general science content for middle school teachers, (2) discussions focused on planning structures and routines, (3) highlighting more ways to differentiate lessons for students, (4) providing additional ideas on how to use the shared museum resources outside of the target lessons, and (5) incorporating more current events. Four shared:

> *Maybe . . . more stuff that's like middle school focused, like groups for people who are not at all working on Earth science. . . . I don't really find it that productive when there is a group of Earth science teachers, and they're working on something super specific and helpful. And then [for] everybody else it's like, "Oh, if you have anything else you need to work on, that's what you can work on." And it's just a working space. Like I could be doing that at home—I don't want to have to travel [to induction for that].*

> *The focus on planning has been very helpful, it's something that I want continued support on. Like, yeah, planning process, like, keep building your routine for those related things. I think just generally like planning your use of non-classroom time as a teacher would be helpful and getting a sense of how other people are using their before-school time, their after-school time, their preps and plannings. . . . And I think it'd be cool to get more stuff on how to incorporate some of the current events. I know that the emails will say, "Hey, here are some things that have happened recently." I definitely try to look for things to include that match what kind of thing I'm teaching.*

*I mean my big one—and I think this is something that . . . I'm going to be learning forever—but I would like more support and content on differentiation. Yeah, I think that's the area that I have the most room for growth.*

*I think one thing that would also benefit the most would be [learning] how to incorporate these [museum resources] into other lessons that are not primarily like the main lesson at hand. . . . Because I did see that over time [in] induction that people will talk about like, "Oh, I use this link like five times in five different lessons." And I was like, I didn't know you could use them for that many throughout the year. And so, I think that would also be a bit of a help.*

## Alumni Surveys

HRI surveyed members of Cohorts 11 and 12 at the conclusion of the 2024–25 school year.[15] At the time of the survey, Cohort 11 had completed two years of teaching, and Cohort 12 had finished their first year. Using a retrospective pre/post approach, the survey asked about their preparedness to implement practices emphasized in the MAT-ESRP. This section of the report summarizes findings from the survey, organized by cohort.

### *Cohort 11*

The survey asked Cohort 11 to rate their overall preparedness upon completing the program. As seen in Table 22, all respondents reported that they were either adequately prepared or very well prepared.

**Table 22**
**Respondents' Overall Preparedness Upon Program Completion**

| Unprepared | Poorly Prepared | Somewhat Prepared | Adequately Prepared | Very Well Prepared |
|---|---|---|---|---|
| Percent of Respondents (N = 10) | | | | |
| 0% | 0% | 0% | 40% | 60% |

Table 23 shows Cohort 11 members' ratings of their own preparedness in several areas at three time points: upon completing the program, at the end of their first year of teaching, and at the end of their second year of teaching. The first two time points come from the June 2024 survey, while the third time point comes from the June 2025 survey. Although the two groups of respondents overlap considerably, they are not all the same individuals (7 of the 10 were the same both years). Because of this and the small number of respondents, results should be interpreted with caution.

[15] Eighteen of 33 invitees responded to the survey, a response rate of 55 percent. Ten individuals are part of Cohort 11; 14 belong to Cohort 12.

Although Cohort 11 identified several areas where they did not feel fairly or very well prepared when they completed the program, it appears that they had considerable growth by the end of their second year of teaching. For example, they appeared to make considerable growth in their feelings of preparedness in three areas during their first two years of teaching (see Table 23)[16]:

- adjust content to students' level of understanding;
- effectively plan and implement instruction; and
- address students' different learning challenges, strengths, and social-emotional needs.

In each case, roughly 60 percent or less of respondents felt fairly well prepared or very well prepared upon completion of the program, compared to nearly 100 percent two years later.

Despite Cohort 11's considerable progress, there is still room for growth, as would be expected for any second-year teacher. Less than two-thirds of respondents reported feeling fairly well prepared or very well prepared to (1) collaborate with families, (2) strive to understand and be responsive to family and community needs, (3) plan for and implement safety and emergency procedures, and (4) provide opportunities for students to critically examine topics related to power, privilege, oppression, access, or equity. In addition, for each of these items, there appears to be a decrease in Cohort 11's preparedness after years one and two of program completion. Although the reason for this is unclear, one possible explanation is that the survey was not completed by the same alumni across the two years.

[16] Because of the large number of potential comparisons and the resulting loss of statistical power, differences between items were not tested for statistical significance. As such, any apparent differences noted should be interpreted with caution.

## Table 23
## Cohort 11 Graduates' Ratings of Their Preparedness†

| | Upon Completing Program± (N = 10) | One Year After Completing Program± (N = 10) | Two Years After Completing Program‡ (N = 10) |
|---|---|---|---|
| | Percent of Respondents | | |
| **Science Content** | | | |
| Use effective communication skills to teach content knowledge | 90% | 100% | 100% |
| Surface and respond to student ideas | 90% | 90% | 100% |
| Know and understand major concepts and principles of the science being taught | N/A | N/A | 100% |
| **Student Needs** | | | |
| Foster growth by emphasizing strengths rather than deficits | 80% | 100% | 100% |
| Adjust content to students' level of understanding | 60% | 70% | 100% |
| Address students' different learning challenges, strengths, and socio-emotional needs | 50% | 70% | 100% |
| Relate science to the personal lives, needs, and interests of students | 90% | 100% | 90% |
| Embrace and understand differences and show respect and sensitivity to students and colleagues, their communities, and/or cultures | 80% | 100% | 90% |
| Set high expectations for learning and achievement by framing clear learning goals | 70% | 80% | 80% |
| **Instructional Planning** | | | |
| Effectively plan and implement instruction | 50% | 100% | 100% |
| Identify inclusive curriculum and assessment resources | 80% | 90% | 100% |
| Align goals, strategies, and assessments | 90% | 100% | 90% |
| Align science instruction with state science standards appropriate to the grade level | 90% | 100% | 90% |
| Engage students in doing science through the Science and Engineering Practices | 90% | 100% | 80% |
| Develop and manage diverse and effective student groups | 50% | 80% | 80% |
| Provide opportunities for students to critically examine topics related to power, privilege, oppression, access, or equity | 50% | 70% | 50% |
| **Learning Environment** | | | |
| Create and maintain effective learning environments that encourage enthusiasm for learning and engagement in science | 90% | 100% | 90% |
| Use instructional time completely and effectively | 80% | 90% | 90% |
| Create an effective environment for learning | 70% | 90% | 80% |
| **Instructional Strategies** | | | |
| Use AMNH and its resources in instruction | 80% | 90% | 90% |
| Use informal science learning experiences in your instruction | 80% | 90% | 90% |
| Use technology effectively to support learning | 80% | 90% | 90% |
| Use a variety of assessment strategies to assess students | 90% | 90% | 80% |
| Use questioning and discussion strategies | 80% | 90% | 70% |
| **School and Community Relations** | | | |
| Build relationships to support students and their well-being | 80% | 100% | 90% |
| Know and understand the culture of the school | 50% | 90% | 90% |
| Welcome conversation and listen to students, families, and school community | 70% | 90% | 80% |
| Strive to understand and be responsive to family and community needs | 40% | 90% | 60% |
| Collaborate with families | 30% | 90% | 40% |
| **Safety** | | | |
| Plan for and attend to material safety | 90% | 100% | 90% |
| Plan for and attend to the ethical treatment of living organisms | 80% | 90% | 80% |
| Plan for and implement safety and emergency procedures | 90% | 100% | 60% |
| **Professionalism** | | | |
| Interact well with colleagues and others | 70% | 100% | 100% |
| Collaborate with colleagues for continual learning | 90% | 100% | 90% |
| Engage in reflective practices | 90% | 100% | 90% |
| Stay current on both educational and science research and trends | 80% | 80% | 90% |
| Set professional goals | 70% | 80% | 80% |
| Use supervisor's feedback constructively to improve practice | 90% | 100% | 70% |

† Includes those giving a rating of 3 or 4 on a scale of 1, not adequately prepared; 2, somewhat prepared; 3, fairly well prepared; and 4, very well prepared.

± These data come from a survey administered in June 2024 at the end of Cohort 11's first year of teaching.

‡ These data come from a survey administered in June 2025 at the end of Cohort 11's second year of teaching.

The survey also included an open-ended item that asked alumni to describe the most helpful aspects of the program that prepared them for teaching. Of the seven Cohort 11 respondents who provided a response, five described the benefits of having residency placements to gain teaching experience. Other helpful aspects, mentioned individually, were learning to be a reflective educator and how to interpret the NGSS. Three wrote:

> *The school residencies and school-based assignments [were the most helpful]. The experiences working with classes of actual students and implementing lesson plans with them helped me prepare for teaching the most.*
>
> *The hands-on teaching experience (in residency) was the most helpful in preparing me to be in a classroom.*
>
> *The program was most helpful in preparing me to reflect on my teaching practices. It is so essential to always identify your own flaws in teaching and knowing how to readjust yourself when there are always so many stressors.*

### Cohort 12

When asked about their overall preparedness upon program completion, slightly more than three-quarters of respondents reported feeling adequately prepared or very well prepared (see Table 24).

**Table 24**
**Respondents' Overall Preparedness Upon Program Completion**

| Unprepared | Poorly Prepared | Somewhat Prepared | Adequately Prepared | Very Well Prepared |
|---|---|---|---|---|
| Percent of Respondents (N = 13) | | | | |
| 0 | 0 | 23 | 46 | 31 |

Overall, Cohort 12 appeared to grow considerably in their preparedness during their first year of teaching in several areas (see Table 19). For example, roughly 85 percent of respondents reported feeling fairly well prepared or very well prepared to (1) collaborate with colleagues for continual learning and (2) align goals, strategies, and assessments upon completing the program. However, following their first year of teaching, all reported feeling fairly well prepared or very well prepared.[17]

Like Cohort 11, Cohort 12 still has room for growth in some areas. At the end of their first year of teaching, less than two-thirds of respondents reported feeling fairly well prepared or very well prepared to (1) collaborate with families, (2) use AMNH and its resources in instruction, and (3) provide opportunities for students to critically examine topics related to power, privilege, oppression, access, or equity.

[17] Because of the large number of potential comparisons and the resulting loss of statistical power, differences between items were not tested for statistical significance. As such, any apparent differences noted should be interpreted with caution.

## Table 25
## Cohort 12 Graduates' Ratings of Their Preparedness†

| | Upon Completing Program | Now (One year later) |
|---|---|---|
| | Percent of Respondents (N = 14) | |
| **Science Content** | | |
| Know and understand major concepts and principles of the science being taught | 100% | 100% |
| Use effective communication skills to teach content knowledge | 93% | 100% |
| Surface and respond to student ideas | 93% | 100% |
| **Student Needs** | | |
| Set high expectations for learning and achievement by framing clear learning goals | 93% | 93% |
| Embrace and understand differences and show respect and sensitivity to students and colleagues, their communities, and/or cultures | 79% | 86% |
| Foster growth by emphasizing strengths rather than deficits | 79% | 86% |
| Relate science to the personal lives, needs, and interests of students | 79% | 86% |
| Adjust content to students' level of understanding | 64% | 79% |
| Address students' different learning challenges, strengths, and socio-emotional needs | 64% | 71% |
| **Instructional Planning** | | |
| Engage students in doing science through the Science and Engineering Practices | 93% | 100% |
| Align goals, strategies, and assessments | 86% | 100% |
| Identify inclusive curriculum and assessment resources | 86% | 93% |
| Effectively plan and implement instruction | 79% | 93% |
| Align science instruction with state science standards appropriate to the grade level | 86% | 86% |
| Develop and manage diverse and effective student groups | 79% | 86% |
| Provide opportunities for students to critically examine topics related to power, privilege, oppression, access, or equity | 50% | 57% |
| **Learning Environment** | | |
| Create an effective environment for learning | 79% | 86% |
| Use instructional time completely and effectively | 71% | 86% |
| Create and maintain effective learning environments that encourage enthusiasm for learning and engagement in science | 71% | 79% |
| **Instructional Strategies** | | |
| Use technology effectively to support learning | 86% | 93% |
| Use a variety of assessment strategies to assess students | 86% | 93% |
| Use questioning and discussion strategies | 86% | 86% |
| Use informal science learning experiences in your instruction | 79% | 79% |
| Use AMNH and its resources in instruction | 79% | 64% |
| **School and Community Relations** | | |
| Build relationships to support students and their well-being | 77% | 93% |
| Know and understand the culture of the school | 64% | 86% |
| Strive to understand and be responsive to family and community needs | 64% | 71% |
| Welcome conversation and listen to students, families, and school community | 64% | 71% |
| Collaborate with families | 50% | 64% |
| **Safety** | | |
| Plan for and attend to material safety | 69% | 85% |
| Plan for and implement safety and emergency procedures | 57% | 71% |
| Plan for and attend to the ethical treatment of living organisms | 71% | 86% |
| **Professionalism** | | |
| Use supervisor's feedback constructively to improve practice | 92% | 100% |
| Collaborate with colleagues for continual learning | 85% | 100% |
| Engage in reflective practices | 85% | 92% |
| Interact well with colleagues and others | 85% | 92% |
| Set professional goals | 77% | 77% |
| Stay current on both educational and science research and trends | 69% | 77% |

† Includes those giving a rating of 3 or 4 on a scale of 1, not adequately prepared; 2, somewhat prepared; 3, fairly well prepared; and 4, very well prepared.

The survey also included an open-ended item that asked alumni to describe the most helpful aspects of the program that prepared them for teaching. Thirteen Cohort 12 respondents provided a response. Similar to Cohort 11, the most frequent response (8 of 13 respondents), described the benefits of having residency placements to gain teaching experience. Other helpful aspects, mentioned by two or three responses, included learning pedagogy and content, learning about NGSS, and having regular observations and receiving feedback from senior specialists. Helpful aspects mentioned individually by Cohort 12 included residency-based assignments, SpEd coursework, learning to be a reflective educator, and the museum residency. Three wrote:

> *Residency with my mentor teachers [was most helpful]. I got experience helping students, teaching lessons, leading class, creating/planning lessons, grading work, and more. My first residency gave me a shotgun approach to learn from multiple teachers in multiple subjects and grades, and my other residency gave me a chance to follow the routines of one teacher. Also, weekly observations in residency. It provided regular opportunities for reflection and feedback. Having regular observations also [helped me adjust] to having people observe my teaching and made me more comfortable having someone observe me teach.*

> *MAT-ESRP helped me prepare for teaching by exposing me to different learning environments (informal and formal), describing pedagogy in clear and concise terms, and engaging in conflict resolution when applicable.*

> *The residency portion of the program was the most helpful as I felt comfortable delivering and planning lessons for students. I also feel very knowledgeable of the NGSS and how to ensure my students are meeting the standards.*

## Employers Survey

In addition to surveying Cohorts 11 and 12 at the conclusion of the school year, HRI surveyed their employers (e.g., principals, assistant principals). The survey asked these individuals to assess the preparedness of Cohorts 11 and 12 in comparison to other recently hired beginning teachers.[18] Table 26 summarizes the results.

[18] The survey asked, "In comparison to other beginning teachers you have hired recently, generally how would you rate AMNH-MAT graduates for their ability to do the following:" Employers responded on a scale ranging from 0 to 4: 0, I don't know; 1, not adequately prepared; 2, somewhat prepared; 3, fairly well prepared; and 4, very well prepared. Twenty-two of 29 employers responded to the survey, a response rate of 76 percent.

On 29 of the 37 statements, at least 80 percent of employers rated Cohort 11 and 12 graduates as fairly or very well prepared (the top two points of the four-point scale,[19] compared to other recent hires). In particular, the following items stand out as areas in which their employers thought the graduates were well prepared:

- knowing and understanding major concepts and principles of the science being taught;
- embracing and understanding differences by showing respect and sensitivity to students and colleagues, their communities, and/or cultures;
- aligning science instruction with state science standards appropriate to the grade level;
- creating and maintaining effective learning environments that encourage enthusiasm for learning and engagement in science;
- using informal science learning experiences in instruction;
- knowing and understanding the culture of the school;
- planning for and implementing safety and emergency procedures;
- collaborating with colleagues for continual learning; and
- engaging in reflective practices.

The data also highlights areas where, according to their employers, graduates can improve. For example, fewer than three-quarters of employers reported that their graduates were at least fairly well prepared to develop and manage diverse and effective groups.(Appendix Tables A–19 through A–31 show the full distribution of responses and disaggregate data by cohort.) Other items with similar ratings include (1) using instructional time completely and effectively, and (2) providing opportunities for students to critically examine topics related to power, privilege, oppression, access, or equity.

[19] Those responding "I don't know" are excluded from the analysis.

## Table 26
## Employers' Assessment of Cohorts 11 and 12 Preparedness[†]

| | N[‡] | Percent of Respondents |
|---|---|---|
| **Science Content** | | |
| Know and understand major concepts and principles of the science being taught | 22 | 100% |
| Surface and respond to student ideas | 22 | 86% |
| Use effective communication skills to teach content knowledge | 22 | 86% |
| **Student Needs** | | |
| Embrace and understand differences by showing respect and sensitivity to students and colleagues, their communities, and/or cultures | 22 | 91% |
| Foster growth by emphasizing strengths and expressing that all students have the ability to grow | 22 | 86% |
| Relate science to the personal lives, needs, and interests of students | 22 | 82% |
| Set high expectations for learning and achievement by framing clear learning goals | 22 | 82% |
| Address students' different learning challenges, strengths, and socio-emotional needs | 22 | 77% |
| Adjust content to students' level of understanding | 22 | 77% |
| **Instructional Planning** | | |
| Align science instruction with state science standards appropriate to the grade level | 22 | 91% |
| Effectively plan and implement instruction | 22 | 82% |
| Engage students in doing science through the Science and Engineering Practices | 22 | 82% |
| Identify inclusive curriculum and assessments | 22 | 77% |
| Develop and manage diverse and effective student groups | 22 | 73% |
| Provide opportunities for students to critically examine topics related to power, privilege, oppression, access, or equity | 21 | 71% |
| **Learning Environment** | | |
| Create and maintain effective learning environments that encourage enthusiasm for learning and engagement in science | 22 | 82% |
| Create an effective environment for learning | 22 | 77% |
| Use instructional time completely and effectively | 22 | 73% |
| **Instructional Strategies** | | |
| Use technology effectively to support learning | 22 | 86% |
| Use AMNH and its resources in instruction | 22 | 82% |
| Use a variety of assessment strategies to assess students | 22 | 82% |
| Use informal science learning experiences in instruction | 22 | 82% |
| Use questioning and discussion strategies | 22 | 82% |
| **School & Community Relations** | | |
| Build relationships to support students and their well-being | 21 | 90% |
| Know and understand the culture of the school | 21 | 90% |
| Strive to understand and be responsive to family and community needs | 21 | 90% |
| Welcome conversation and listen to students, families, and school community | 22 | 87% |
| Collaborate with families | 20 | 75% |
| **Safety** | | |
| Plan for and attend to material safety | 14 | 100% |
| Plan for and attend to the ethical treatment of living organisms | 19 | 100% |
| Plan for and implement safety and emergency procedures | 19 | 100% |
| **Professionalism** | | |
| Collaborate with colleagues for continual learning | 22 | 95% |
| Engage in reflective practices | 22 | 95% |
| Interact well with colleagues and others | 22 | 95% |
| Use supervisor's feedback constructively to improve practice | 22 | 91% |
| Stay current on both educational and science research and trends | 21 | 90% |
| Set professional goals | 20 | 85% |

[†] Includes those giving a rating of 3 or 4 on a scale of 1, not adequately prepared; 2, somewhat prepared; 3, fairly well prepared; and 4, very well prepared. Excludes those giving a rating of 0, I don't know.

As seen in Table 27, when asked to rate their overall satisfaction with their graduates, roughly three-quarters of employers responded that they were very satisfied. One employer reported feeling somewhat dissatisfied.

**Table 27**
**Respondents' Satisfaction With Graduates**

| Very Dissatisfied | Dissatisfied | Somewhat dissatisfied | Somewhat satisfied | Satisfied | Very Satisfied |
|---|---|---|---|---|---|
| Percent of Respondents (N = 22) | | | | | |
| 0% | 0% | 5% | 9% | 14% | 73% |

The employers survey also contained several open-ended items to gain better insight into their perceptions of preparedness for Cohorts 11 and 12. One item asked employers how they would describe the preparedness of their graduate(s) compared to other beginning teachers they have recently hired. Several who responded (13 out of 18) described the program graduates as more prepared, specifically highlighting their strong instructional practices, content knowledge, and ability to build relationships with students. They shared:

> *[Graduate] is one of the most prepared first year teachers I've ever hired. The preparation provided in the AMNH-MAT program is directly aligned with the goals of the school district in terms of instructional techniques.*
>
> *High level of preparation in content and curriculum. Your program has done an exceptional job at preparing [graduate] for work in an urban environment.*
>
> *[Graduate] was the most prepared first-year teacher that I have ever hired. They are very impressive, in their teaching ability as well as their ability to connect with the students!*

Similarly, employers were asked what they valued the most out of the preparation their graduate(s) received. Almost all employers highlighted either graduates' pedagogical skills, content knowledge, or work ethic. Three wrote:

> *I feel strongly that AMNH-MAT set a strong foundation and has provided [graduate] the tools and guidance to become a successful pedagogue.*
>
> *I value both teachers' commitment to connecting students to authentic scientific practices and institutions of scientific learning.*
>
> *[Graduate] came to us very well prepared to lead a classroom. I am continually impressed with their work ethic and preparedness. Even though they are a first-year teacher, they teach like a seasoned pro.*

Employers were also asked what they wished their program graduate(s) would have had more preparation or practice around before starting to teach. Many shared a need for more emphasis on instructional planning that anticipates the needs of their students. As two described:

> *Our AMNH-MAT graduate struggles with understanding the importance of classroom structures (being adequately prepared for students, ensuring materials meet the needs for all types of learners, providing fun and engaging lessons).*

> *Pedagogical moves with live instruction, using different engagement strategies, creating more opportunities for critical examinations and discussion. Using grade level content and anticipating misconceptions and adjusting to address them in real time. Planning through the lens of assessment, knowing what to assess, when to assess and how to plan assessment data collection. Using real time data and seeing when to adjust lesson pacing.*

## SUMMARY AND RECOMMENDATIONS

The 2024–25 year of the MAT-ESRP TQP grant includes several highlights. Among these, the program recruited another diverse cohort, and Cohort 13 members progressed throughout the program. All cohort members graduated, with all graduates able to secure jobs teaching in their own classrooms upon graduation. As they begin their careers, they are receiving robust support from the program's induction component.

Program leaders have continued to refine the application and interview processes to address feedback from previous applicants. For example, the program offered an early deadline so that applicants could hear sooner about program admittance, therefore granting them more time to decide whether to accept the offer to join Cohort 14. The program also increased the monthly stipend for residents starting with Cohort 13 to address applicants' considerations of various aspects of the cost of living.

Continuing efforts to infuse CRSE in all program components were evident in observations as well as in survey and interview data. CRSE has been a hallmark of the program since its inception and continues to serve as a foundational component.

Residents and alumni had many positive things to say about connections between their courses and their clinical experiences. They highlighted several, such as assessing student understanding, learning about the New Visions curriculum, and differentiating instruction. Some would appreciate a tighter alignment between the teaching methods being taught in their coursework and those of their mentor teachers.

Strong partnerships with schools continue to be a defining feature of the program. In interviews, partner school administrators described their appreciation for the level of communication from the program. Administrators pointed to the benefits of having residents in their schools, with several noting the opportunities for increased reflection and professionalism among mentor teachers as well as contributions the residents were able to make within their school communities.

The Mentor Academy continued in a hybrid format, with 5 of the 7 meetings in person and the other two by videoconference. Data from an end-of-year survey and interviews show that mentors have somewhat mixed opinions on many aspects of the academy. They especially appreciated the opportunity to meet their resident before the placement began and felt that co-teaching was a positive experience. However, some mentioned it would be helpful to learn from other mentors as in years past and would like a stronger focus on strengthening their mentoring skillset.

The program continued to provide robust induction support to new teachers. This component remained in a hybrid format for the 2024–25 school year. Although most attended in person, the hybrid format accommodated those who live farther away. Induction participants appreciated the opportunity to receive peer feedback and support, stressing the benefits of participating with their own cohort and earlier ones.

Finally, alumni from Cohorts 11 and 12, as well as their employers, had positive perceptions of their preparedness to teach as a result of the program. For example, both alumni and employers reported a high level of preparedness with regards to content knowledge and making content relevant to students' lives.

Again, the program can point to many important accomplishments in 2024–25. In the spirit of a critical friend, HRI offers the following considerations as the program seeks to continue improving.

- *Continue using results of the admissions survey to reflect on the effectiveness of advertising strategies.*

  With the application portal for Cohort 15 opening, now is an opportune time to reflect on results from the admissions survey. The program uses a variety of complementary advertising efforts to recruit applicants. Respondents to the admissions survey reported how they learned about the program, and when those responses were disaggregated by whether or not individuals completed an application (see Table 4), the results indicate that some advertising strategies were particularly effective. One that stands out is referrals from professors at applicants' undergraduate institutions; about a third of this year's applicants learned about the program this way, more than any other. The program already cultivates relationships with these professors. That work is paying and may justify even more effort on this front. This year's survey data also point to the increasing effectiveness of the museum's

social media strategy. Among all survey respondents (not just those who applied), 20 percent learned about the program this way, up from 13 percent the year before. Only two other strategies were more common (the recruitment email at 28 percent and the museum website at 22 percent).

- *Consider eliminating the application fee.*
  The program has always required an application fee to encourage only those who are truly interested in the program to apply. In 2022, the fee was reduced from $50 to $10 to encourage more people to apply, and it seems to have made a difference. In 2021, 69 percent of survey respondents said the fee was either discouraging or prevented them from applying. That percentage dropped to 27 percent by 2024. However, it rebounded to 50 percent in 2025. Only 1 percent said it prevented them from applying, and 24 percent said it was just "slightly discouraging," but if the museum can afford to eliminate the fee, it seems worth considering. An individual's decision not to apply is influenced by several factors. If one can be removed, it might tip the scales in the right direction for some individuals. The application process itself requires considerable time investment and probably ensures that only those who are genuinely interested actually apply.

- *Consider involving mentors more in planning the Mentor Academy.*
  The MAT-ESRP offers robust, ongoing support for mentors. From HRI's perspective, the program is unique in the amount of support it provides and in the opportunities it affords mentors to reflect on and improve their own practice. Access to museum resources also sets the program apart. Mentors clearly value the experience they have mentoring residents, but for the last two years, some of their ratings of the Mentor Academy have dipped relative to previous years. For example, in 2024 and 2025, only about a third indicated that Mentor Academy was a good use of their time. In another part of the most recent survey, two-thirds of respondents said they felt included and heard in the MAT-ESRP learning community, which is considerably lower than previous years. If these two results are related, the program might think of new ways to involve mentors in planning Mentor Academy. The program routinely gets feedback from mentors both formally (through the evaluation) and informally (through one-on-one conversations between program leaders and mentors). Two other possibilities are a standing mentor advisory group and designated listening sessions. The former could convene a small group of experienced, thoughtful mentors to help plan upcoming Academies. The latter could set aside time during Academy sessions to solicit feedback from a larger group of mentors. These are, of course, just two possibilities among many, but the goal would be to make mentors feel they have more of a voice and to ensure that Academy offerings align with mentors' perceived needs.

# APPENDIX

# ITEM FREQUENCIES

## Table A-1
## Content Mentors' Opinions About the Mentor Academy

| | Strongly Disagree | Disagree | Slightly Disagree | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| | Percent of Respondents (N = 17) | | | | | |
| It was helpful to have time during Mentor Academy workshops to meet with the teacher residents | 0% | 0% | 0% | 6% | 65% | 29% |
| Using Museum halls during the Mentor Academy workshops were useful | 0% | 12% | 0% | 29% | 47% | 12% |
| Mentor Academy workshops allowed me to better support my MAT-ESRP teacher resident | 0% | 6% | 12% | 41% | 29% | 12% |
| Mentor Academy workshops were a good use of my time | 6% | 0% | 36% | 23% | 27% | 9% |
| I learned more about culturally responsive and sustaining education practices by attending Mentor Academy workshops and/or monthly meetings | 0% | 24% | 0% | 29% | 41% | 6% |
| I learned about how to better support my MAT-ESRP teacher residents' use of culturally responsive and sustaining education practices | 0% | 18% | 0% | 41% | 35% | 6% |

## Table A-2
## Specialist Teachers' Opinions About the Mentor Academy

| | Strongly Disagree | Disagree | Slightly Disagree | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| | Percent of Respondents (N = 5) | | | | | |
| It was helpful to have time during Mentor Academy workshops to meet with the teacher residents | 0% | 0% | 20% | 0% | 40% | 40% |
| I learned more about culturally responsive and sustaining education practices by attending Mentor Academy workshops and/or monthly meetings | 0% | 0% | 0% | 40% | 20% | 40% |
| Mentor Academy workshops were a good use of my time | 0% | 0% | 40% | 20% | 0% | 40% |
| Mentor Academy workshops allowed me to better support my MAT-ESRP teacher resident | 0% | 0% | 0% | 20% | 60% | 20% |
| I learned about how to better support my MAT-ESRP teacher residents' use of culturally responsive and sustaining education practices | 0% | 0% | 0% | 20% | 60% | 20% |
| Using Museum halls during the Mentor Academy workshops were useful | 0% | 0% | 20% | 40% | 20% | 20% |

## Table A-3
## Cohort 11 Graduates' Ratings of Their Preparedness to Teach Science Content

| | Upon Completion of the Program | | | | Two Years After Completing the Program | | | |
|---|---|---|---|---|---|---|---|---|
| | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
| | Percent of Respondents (N = 10) | | | | Percent of Respondents (N = 10) | | | |
| Use effective communication skills to teach content knowledge | 0% | 10% | 90% | 0% | 0% | 0% | 40% | 60% |
| Surface and respond to student ideas | 0% | 10% | 80% | 10% | 0% | 0% | 40% | 60% |
| Know and understand major concepts and principles of the science being taught | N/A | N/A | N/A | N/A | 0% | 0% | 50% | 50% |

## Table A-4
## Cohort 11 Graduates' Ratings of Their Preparedness to Address Student Needs

| | Upon Completion of the Program | | | | Two Years After Completing the Program | | | |
|---|---|---|---|---|---|---|---|---|
| | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
| | Percent of Respondents (N = 10) | | | | Percent of Respondents (N = 10) | | | |
| Embrace and understand differences and show respect and sensitivity to students and colleagues, their communities, and/or cultures | 0% | 20% | 30% | 50% | 0% | 10% | 30% | 60% |
| Adjust content to students' level of understanding | 0% | 40% | 40% | 20% | 0% | 0% | 50% | 50% |
| Relate science to the personal lives, needs, and interests of students | 0% | 10% | 50% | 40% | 0% | 10% | 40% | 50% |
| Foster growth by emphasizing strengths rather than deficits | 0% | 20% | 30% | 50% | 0% | 0% | 60% | 40% |
| Address students' different learning challenges, strengths, and socio-emotional needs | 0% | 50% | 50% | 0% | 0% | 0% | 80% | 20% |
| Set high expectations for learning and achievement by framing clear learning goals | 0% | 30% | 50% | 20% | 0% | 20% | 60% | 20% |

## Table A-5
## Cohort 11 Graduates' Ratings of Their Preparedness for Instructional Planning

| | Upon Completion of the Program | | | | Two Years After Completing the Program | | | |
|---|---|---|---|---|---|---|---|---|
| | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
| | Percent of Respondents (N = 10) | | | | Percent of Respondents (N = 10) | | | |
| Effectively plan and implement instruction | 0% | 50% | 30% | 20% | 0% | 0% | 0% | 100% |
| Identify inclusive curriculum and assessment resources | 0% | 20% | 70% | 10% | 0% | 0% | 0% | 100% |
| Align science instruction with state science standards appropriate to the grade level | 0% | 10% | 30% | 60% | 0% | 0% | 10% | 90% |
| Align goals, strategies, and assessments | 0% | 10% | 50% | 40% | 0% | 0% | 10% | 90% |
| Engage students in doing science through the Science and Engineering Practices | 0% | 10% | 60% | 30% | 0% | 0% | 20% | 80% |
| Develop and manage diverse and effective student groups | 0% | 50% | 50% | 0% | 0% | 0% | 20% | 80% |
| Provide opportunities for students to critically examine topics related to power, privilege, oppression, access, or equity | 0% | 50% | 50% | 0% | 0% | 0% | 50% | 50% |

## Table A-6
## Cohort 11 Graduates' Ratings of Their Preparedness to Establish a Learning Environment

| | Upon Completion of the Program | | | | Two Years After Completing the Program | | | |
|---|---|---|---|---|---|---|---|---|
| | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
| | Percent of Respondents (N = 10) | | | | Percent of Respondents (N = 10) | | | |
| Use instructional time completely and effectively | 0% | 20% | 60% | 20% | 0% | 10% | 50% | 40% |
| Create an effective environment for learning | 0% | 30% | 50% | 20% | 0% | 20% | 40% | 40% |
| Create and maintain effective learning environments that encourage enthusiasm for learning and engagement in science | 0% | 10% | 50% | 40% | 0% | 0% | 30% | 60% |

## Table A-7
## Cohort 11 Graduates' Ratings of Their Preparedness to Implement Instructional Strategies

| | Upon Completion of the Program | | | | Two Years After Completing the Program | | | |
|---|---|---|---|---|---|---|---|---|
| | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
| | Percent of Respondents (N = 10) | | | | Percent of Respondents (N = 10) | | | |
| Use AMNH and its resources in instruction | 0% | 20% | 20% | 60% | 0% | 10% | 50% | 40% |
| Use informal science learning experiences in your instruction | 0% | 20% | 20% | 60% | 0% | 10% | 60% | 30% |
| Use technology effectively to support learning | 0% | 20% | 50% | 30% | 0% | 10% | 60% | 30% |
| Use questioning and discussion strategies | 10% | 10% | 50% | 30% | 0% | 30% | 40% | 30% |
| Use a variety of assessment strategies to assess students | 0% | 10% | 40% | 50% | 0% | 20% | 60% | 20% |

## Table A-8
## Cohort 11 Graduates' Ratings of Their Preparedness for School and Community Relations

| | Upon Completion of the Program | | | | Two Years After Completing the Program | | | |
|---|---|---|---|---|---|---|---|---|
| | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
| | Percent of Respondents (N = 10) | | | | Percent of Respondents (N = 10) | | | |
| Build relationships to support students and their well-being | 0% | 20% | 40% | 40% | 0% | 10% | 20% | 70% |
| Know and understand the culture of the school | 10% | 40% | 10% | 40% | 0% | 10% | 40% | 50% |
| Strive to understand and be responsive to family and community needs | 10% | 50% | 20% | 20% | 0% | 40% | 20% | 40% |
| Welcome conversation and listen to students, families, and school community | 10% | 20% | 60% | 10% | 0% | 20% | 60% | 20% |
| Collaborate with families | 10% | 60% | 20% | 10% | 0% | 60% | 30% | 10% |

## Table A-9
## Cohort 11 Graduates' Ratings of Their Preparedness to Follow Lab Safety

| | Upon Completion of the Program | | | | Two Years After Completing the Program | | | |
|---|---|---|---|---|---|---|---|---|
| | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
| | Percent of Respondents (N = 10) | | | | Percent of Respondents (N = 10) | | | |
| Plan for and attend to material safety | 0% | 10% | 30% | 60% | 0% | 10% | 10% | 80% |
| Plan for and attend to the ethical treatment of living organisms | 0% | 20% | 10% | 70% | 13% | 20% | 20% | 60% |
| Plan for and implement safety and emergency procedures | 0% | 10% | 40% | 50% | 0% | 40% | 10% | 50% |

## Table A-10
## Cohort 11 Graduates' Ratings of Their Preparedness for Professionalism

| | Upon Completion of the Program | | | | Two Years After Completing the Program | | | |
|---|---|---|---|---|---|---|---|---|
| | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
| | Percent of Respondents (N = 10) | | | | Percent of Respondents (N = 10) | | | |
| Collaborate with colleagues for continual learning | 0% | 10% | 40% | 50% | 0% | 10% | 20% | 70% |
| Use supervisor's feedback constructively to improve practice | 0% | 10% | 40% | 50% | 0% | 30% | 10% | 60% |
| Interact well with colleagues and others | 0% | 30% | 10% | 60% | 0% | 0% | 50% | 50% |
| Engage in reflective practices | 0% | 10% | 30% | 60% | 0% | 10% | 40% | 50% |
| Stay current on both educational and science research trends | 0% | 20% | 60% | 20% | 0% | 10% | 60% | 30% |
| Set professional goals | 0% | 30% | 50% | 20% | 0% | 20% | 50% | 30% |

## Table A-11
## Cohort 12 Graduates' Ratings of Their Preparedness to Teach Science Content

| | Upon Completion of the Program | | | | One Year After Completing the Program | | | |
|---|---|---|---|---|---|---|---|---|
| | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
| | Percent of Respondents (N = 14) | | | | Percent of Respondents (N = 14) | | | |
| Know and understand major concepts and principles of the science being taught | 0 | 0 | 43 | 57 | 0 | 0 | 29 | 71 |
| Use effective communication skills to teach content knowledge | 0 | 7 | 64 | 29 | 0 | 0 | 43 | 57 |
| Surface and respond to student ideas | 0 | 7 | 71 | 21 | 0 | 0 | 71 | 29 |

## Table A-12
## Cohort 12 Graduates' Ratings of Their Preparedness to Address Student Needs

| | Upon Completion of the Program | | | | One Year After Completing the Program | | | |
|---|---|---|---|---|---|---|---|---|
| | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
| | Percent of Respondents (N = 14) | | | | Percent of Respondents (N = 14) | | | |
| Foster growth by emphasizing strengths rather than deficits | 0% | 21% | 36% | 43% | 0% | 14% | 43% | 43% |
| Set high expectations for learning and achievement by framing clear learning goals | 0% | 7% | 50% | 43% | 0% | 7% | 57% | 36% |
| Relate science to the personal lives, needs, and interests of students | 0% | 21% | 36% | 43% | 0% | 14% | 50% | 36% |
| Embrace and understand differences and show respect and sensitivity to students and colleagues, their communities, and/or cultures | 0% | 21% | 43% | 36% | 0% | 14% | 50% | 36% |
| Address students' different learning challenges, strengths, and socio-emotional needs | 0% | 36% | 43% | 21% | 0% | 29% | 50% | 21% |
| Adjust content to students' level of understanding | 7% | 29% | 43% | 21% | 0% | 21% | 64% | 14% |

## Table A-13
## Cohort 12 Graduates' Ratings of Their Preparedness for Instructional Planning

| | Upon Completion of the Program | | | | One Year After Completing the Program | | | |
|---|---|---|---|---|---|---|---|---|
| | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
| | Percent of Respondents (N = 14) | | | | Percent of Respondents (N = 14) | | | |
| Align science instruction with state science standards appropriate to the grade level | 0% | 14% | 29% | 57% | 0% | 14% | 43% | 43% |
| Align goals, strategies, and assessments | 0% | 14% | 36% | 50% | 0% | 0% | 62% | 38% |
| Engage students in doing science through the Science and Engineering Practices | 0% | 7% | 57% | 36% | 0% | 0% | 71% | 29% |
| Effectively plan and implement instruction | 0% | 21% | 50% | 29% | 0% | 7% | 64% | 29% |
| Identify inclusive curriculum and assessment resources | 0% | 14% | 64% | 21% | 0% | 7% | 64% | 29% |
| Develop and manage diverse and effective student groups | 0% | 21% | 50% | 29% | 0% | 14% | 57% | 29% |
| Provide opportunities for students to critically examine topics related to power, privilege, oppression, access, or equity | 0% | 50% | 21% | 29% | 7% | 36% | 36% | 21% |

## Table A-14
## Cohort 12 Graduates' Ratings of Their Preparedness to Establish a Learning Environment

| | Upon Completion of the Program | | | | One Year After Completing the Program | | | |
|---|---|---|---|---|---|---|---|---|
| | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
| | Percent of Respondents (N = 14) | | | | Percent of Respondents (N = 14) | | | |
| Use instructional time completely and effectively | 0% | 29% | 43% | 29% | 0% | 14% | 50% | 36% |
| Create an effective environment for learning | 0% | 21% | 50% | 29% | 7% | 7% | 50% | 36% |
| Create and maintain effective learning environments that encourage enthusiasm for learning and engagement in science | 0% | 29% | 36% | 36% | 7% | 14% | 43% | 36% |

## Table A-15
## Cohort 12 Graduates' Ratings of Their Preparedness to Implement Instructional Strategies

| | Upon Completion of the Program | | | | One Year After Completing the Program | | | |
|---|---|---|---|---|---|---|---|---|
| | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
| | Percent of Respondents (N = 14) | | | | Percent of Respondents (N = 14) | | | |
| Use technology effectively to support student learning | 0% | 14% | 36% | 50% | 0% | 7% | 50% | 43% |
| Use a variety of assessment strategies to assess students | 0% | 14% | 50% | 36% | 0% | 7% | 64% | 29% |
| Use questioning and discussion strategies | 0% | 14% | 57% | 29% | 0% | 14% | 57% | 29% |
| Use informal science learning experiences in your instruction | 0% | 21% | 43% | 36% | 0% | 21% | 50% | 29% |
| Use AMNH and its resources in instruction | 0% | 21% | 57% | 21% | 0% | 36% | 57% | 7% |

## Table A-16
## Cohort 12 Graduates' Ratings of Their Preparedness for School and Community Relations

| | Upon Completion of the Program | | | | One Year After Completing the Program | | | |
|---|---|---|---|---|---|---|---|---|
| | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
| | Percent of Respondents (N = 14) | | | | Percent of Respondents (N = 14) | | | |
| Build relationships to support students and their well-being | 0% | 23% | 46% | 31% | 0% | 7% | 50% | 43% |
| Know and understand the culture of the school | 7% | 29% | 43% | 21% | 0% | 14% | 43% | 43% |
| Welcome conversation and listen to students, families, and school community | 0% | 36% | 50% | 14% | 0% | 29% | 43% | 29% |
| Strive to understand and be responsive to family and community needs | 0% | 36% | 57% | 7% | 0% | 29% | 57% | 14% |
| Collaborate with families | 14% | 36% | 43% | 7% | 0% | 36% | 50% | 14% |

## Table A-17
## Cohort 12 Graduates' Ratings of Their Preparedness to Follow Lab Safety

| | Upon Completion of the Program | | | | One Year After Completing the Program | | | |
|---|---|---|---|---|---|---|---|---|
| | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
| | Percent of Respondents (N = 14) | | | | Percent of Respondents (N = 14) | | | |
| Plan for and attend to material safety | 0% | 31% | 23% | 46% | 0% | 15% | 46% | 38% |
| Plan for and attend to the ethical treatment of living organisms | 7% | 21% | 36% | 36% | 7% | 7% | 50% | 36% |
| Plan for and implement safety and emergency procedures | 0% | 43% | 29% | 29% | 0% | 29% | 36% | 36% |

## Table A-18
## Cohort 12 Graduates' Ratings of Their Preparedness for Professionalism

| | Upon Completion of the Program | | | | One Year After Completing the Program | | | |
|---|---|---|---|---|---|---|---|---|
| | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
| | Percent of Respondents (N = 13) | | | | Percent of Respondents (N = 13) | | | |
| Use supervisor's feedback constructively to improve practice | 0% | 8% | 62% | 31% | 0% | 0% | 62% | 38% |
| Collaborate with colleagues for continual learning | 0% | 15% | 62% | 23% | 0% | 0% | 62% | 38% |
| Engage in reflective practices | 0% | 15% | 46% | 38% | 0% | 8% | 54% | 38% |
| Interact well with colleagues and others | 0% | 15% | 62% | 23% | 0% | 8% | 54% | 38% |
| Stay current on both educational and science research trends | 0% | 31% | 15% | 54% | 0% | 23% | 38% | 38% |
| Set professional goals | 0% | 23% | 46% | 31% | 0% | 23% | 38% | 38% |

## Table A-19
## Employers' Assessment of
## Cohort 11 and Cohort 12 Graduate Preparedness in Science Content

| | Do Not Know | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
|---|---|---|---|---|---|
| | Percent of Respondents (N = 22) | | | | |
| Know and understand major concepts and principles of the science being taught | 0% | 0% | 0% | 12% | 88% |
| Use effective communication skills to teach content knowledge | 0% | 0% | 13% | 31% | 56% |
| Surface and respond to student ideas | 0% | 12% | 0% | 47% | 41% |

## Table A-20
## Employers' Assessment of
## Cohort 11 and Cohort 12 Graduate Preparedness in Addressing Student Needs

| | Do Not Know | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
|---|---|---|---|---|---|
| | Percent of Respondents (N = 22) | | | | |
| Embrace and understand differences by showing respect and sensitivity to students and colleagues, their communities, and/or cultures | 0% | 0% | 9% | 9% | 82% |
| Foster growth by emphasizing strengths and expressing that all students have the ability to grow | 0% | 9% | 5% | 23% | 64% |
| Relate science to the personal lives, needs and interests of students | 0% | 5% | 14% | 23% | 59% |
| Set high expectations for learning and achievement by framing clear learning goals | 0% | 5% | 14% | 23% | 59% |
| Adjust content to students' level of understanding | 0% | 5% | 18% | 27% | 50% |
| Address students' different learning challenges, strengths, and socio-emotional needs | 0% | 14% | 9% | 36% | 41% |

## Table A-21
## Employers' Assessment of
## Cohort 11 and Cohort 12 Graduate Preparedness in Instructional Planning

| | Do Not Know | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
|---|---|---|---|---|---|
| | Percent of Respondents (N = 22) | | | | |
| Align science instruction with state science standards appropriate to the grade level | 0% | 5% | 5% | 14% | 77% |
| Align goals, strategies, and assessments | 0% | 5% | 5% | 27% | 64% |
| Effectively plan and implement instruction | 0% | 5% | 14% | 27% | 55% |
| Engage students in doing science through the Science and Engineering Practices | 6% | 5% | 14% | 32% | 50% |
| Develop and manage diverse and effective student groups | 0% | 9% | 18% | 23% | 50% |
| Identify inclusive curriculum and assessment resources | 0% | 9% | 14% | 36% | 41% |
| Provide opportunities for students to critically examine topics related to power, privilege, oppression, access, or equity | 5% | 9% | 18% | 32% | 36% |

## Table A-22
## Employers' Assessment of
## Cohort 11 and Cohort 12 Graduate Preparedness in Developing a Learning Environment

| | Do Not Know | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
|---|---|---|---|---|---|
| | Percent of Respondents (N = 22) | | | | |
| Create and maintain effective learning environments that encourage enthusiasm for learning and engagement in science | 0% | 14% | 5% | 23% | 59% |
| Create an effective environment for learning | 0% | 9% | 14% | 32% | 45% |
| Use instructional time completely and effectively | 0% | 18% | 9% | 32% | 41% |

## Table A-23
## Employers' Assessment of
## Cohort 11 and Cohort 12 Graduate Preparedness in Instructional Strategies

| | Do Not Know | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
|---|---|---|---|---|---|
| | Percent of Respondents (N = 22) | | | | |
| Use technology effectively to support learning | 0% | 0% | 14% | 27% | 59% |
| Use AMNH and its resources in instruction | 14% | 0% | 5% | 23% | 59% |
| Use informal science learning experiences in instruction | 0% | 5% | 14% | 36% | 45% |
| Use a variety of assessment strategies to assess students | 0% | 5% | 14% | 50% | 32% |
| Use questioning and discussion strategies | 0% | 9% | 9% | 55% | 27% |

## Table A-24
## Employers' Assessment of
## Cohort 11 and Cohort 12 Preparedness in Establishing School & Community Relations

| | Do Not Know | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
|---|---|---|---|---|---|
| | Percent of Respondents (N = 22) | | | | |
| Know and understand the culture of the school | 5% | 0% | 9% | 9% | 77% |
| Welcome conversation and listen to students, families, and school community | 0% | 5% | 9% | 23% | 64% |
| Build relationships to support students and their well-being | 5% | 5% | 5% | 23% | 64% |
| Strive to understand and be responsive to family and community needs | 5% | 5% | 5% | 23% | 64% |
| Collaborate with families | 9% | 5% | 18% | 27% | 41% |

## Table A-25
## Employers' Assessment of
## Cohort 11 and Cohort 12 Graduate Preparedness in Safety Protocols

| | Do Not Know | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
|---|---|---|---|---|---|
| | Percent of Respondents (N = 22) | | | | |
| Plan for and attend to material safety | 14% | 0% | 0% | 27% | 59% |
| Plan for and implement safety and emergency procedures | 14% | 0% | 0% | 36% | 50% |
| Plan for and attend to the ethical treatment of living organisms | 36% | 0% | 0% | 18% | 45% |

## Table A-26
## Employers' Assessment of
## Cohort 11 and Cohort 12 Graduate Preparedness in Maintaining Professionalism

| | Do Not Know | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
|---|---|---|---|---|---|
| | Percent of Respondents (N = 22) | | | | |
| Interact well with colleagues and others | 0% | 5% | 0% | 14% | 82% |
| Collaborate with colleagues for continual learning | 0% | 5% | 0% | 23% | 73% |
| Use supervisor's feedback constructively to improve practice | 0% | 0% | 9% | 27% | 64% |
| Engage in reflective practices | 0% | 5% | 0% | 41% | 55% |
| Set professional goals | 5% | 5% | 10% | 29% | 52% |
| Stay current on both educational and science research and trends | 5% | 5% | 5% | 36% | 50% |

## Table A-27
## Employers' Assessment of
## Cohort 11 Graduate Preparedness

| | Do Not Know | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
|---|---|---|---|---|---|
| | Percent of Respondents (N = 10†) | | | | |
| **Science Content** | | | | | |
| Know and understand major concepts and principles of the science being taught | 0% | 0% | 0% | 0% | 100% |
| Surface and respond to student ideas | 0% | 0% | 0% | 30% | 70% |
| Use effective communication skills to teach content knowledge | 0% | 0% | 0% | 30% | 70% |
| **Student Needs** | | | | | |
| Embrace and understand differences by showing respect and sensitivity to students and colleagues, their communities, and/or cultures | 0% | 0% | 0% | 10% | 90% |
| Foster growth by emphasizing strengths and expressing that all students have the ability to grow | 0% | 0% | 0% | 20% | 80% |
| Relate science to the personal lives, needs, and interests of students | 0% | 0% | 0% | 20% | 80% |
| Set high expectations for learning and achievement by framing clear learning goals | 0% | 0% | 0% | 30% | 70% |
| Adjust content to students' level of understanding | 0% | 0% | 10% | 20% | 70% |
| Address students' different learning challenges, strengths, and socio-emotional needs | 0% | 0% | 10% | 30% | 60% |
| **Instructional Planning** | | | | | |
| Align science instruction with state science standards appropriate to the grade level | 0% | 0% | 0% | 20% | 80% |
| Align goals, strategies, and assessments | 0% | 0% | 0% | 30% | 70% |
| Engage students in doing science through the Science and Engineering Practices | 0% | 0% | 0% | 40% | 60% |
| Develop and manage diverse and effective student groups | 0% | 0% | 10% | 30% | 60% |
| Effectively plan and implement instruction | 0% | 0% | 0% | 50% | 50% |
| Identify inclusive curriculum and assessments | 0% | 0% | 10% | 40% | 50% |
| Provide opportunities for students to critically examine topics related to power, privilege, oppression, access, or equity | 10% | 0% | 10% | 30% | 50% |
| **Learning Environment** | | | | | |
| Create and maintain effective learning environments that encourage enthusiasm for learning and engagement in science | 0% | 10% | 0% | 10% | 80% |
| Create an effective environment for learning | 0% | 10% | 0% | 30% | 60% |
| Use instructional time completely and effectively | 0% | 0% | 20% | 30% | 50% |

| | | | | | |
|---|---|---|---|---|---|
| **Instructional Strategies** | | | | | |
| Use technology effectively to support learning | 0% | 0% | 0% | 20% | 80% |
| Use informal science learning experiences in instruction | 0% | 0% | 0% | 30% | 70% |
| Use AMNH and its resources in instruction | 20% | 0% | 0% | 10% | 70% |
| Use a variety of assessment strategies to assess students | 0% | 0% | 10% | 50% | 40% |
| Use questioning and discussion strategies | 0% | 0% | 10% | 50% | 40% |
| **School & Community Relations** | | | | | |
| Know and understand the culture of the school | 10% | 0% | 0% | 10% | 80% |
| Welcome conversation and listen to students, families, and school community | 0% | 0% | 10% | 20% | 70% |
| Build relationships to support students and their well-being | 10% | 0% | 0% | 20% | 70% |
| Strive to understand and be responsive to family and community needs | 10% | 0% | 0% | 20% | 70% |
| Collaborate with families | 10% | 0% | 10% | 30% | 50% |
| **Safety** | | | | | |
| Plan for and attend to the ethical treatment of living organisms | 30% | 0% | 0% | 0% | 70% |
| Plan for and attend to material safety | 20% | 0% | 0% | 20% | 60% |
| Plan for and implement safety and emergency procedures | 20% | 0% | 0% | 20% | 60% |
| **Professionalism** | | | | | |
| Collaborate with colleagues for continual learning | 0% | 0% | 0% | 10% | 90% |
| Interact well with colleagues and others | 0% | 0% | 0% | 10% | 90% |
| Engage in reflective practices | 0% | 0% | 0% | 20% | 80% |
| Use supervisor's feedback constructively to improve practice | 0% | 0% | 0% | 20% | 80% |
| Stay current on both educational and science research and trends | 10% | 0% | 0% | 40% | 50% |
| Set professional goals | 0% | 0% | 0% | 40% | 50% |

† Ten employers of solely Cohort 11 graduates responded to the survey, representing 11 graduates (one respondent employed two Cohort 11 graduates).

## Table A-28
## Employers' Assessment of
## Cohort 12 Graduate Preparedness

| | Do Not Know | Not Adequately Prepared | Somewhat Prepared | Fairly Well Prepared | Very Well Prepared |
|---|---|---|---|---|---|
| | Percent of Respondents (N = 11†) | | | | |
| **Science Content** | | | | | |
| Know and understand major concepts and principles of the science being taught | 0% | 0% | 0% | 9% | 91% |
| Use effective communication skills to teach content knowledge | 0% | 0% | 27% | 18% | 55% |
| Surface and respond to student ideas | 0% | 18% | 9% | 18% | 55% |
| **Student Needs** | | | | | |
| Embrace and understand differences by showing respect and sensitivity to students and colleagues, their communities, and/or cultures | 0% | 0% | 18% | 9% | 72% |
| Foster growth by emphasizing strengths and expressing that all students have the ability to grow | 0% | 18% | 9% | 27% | 46% |
| Set high expectations for learning and achievement by framing clear learning goals | 0% | 9% | 27% | 18% | 46% |
| Relate science to the personal lives, needs, and interests of students | 0% | 9% | 27% | 27% | 36% |
| Adjust content to students' level of understanding | 0% | 9% | 27% | 27% | 36% |
| Address students' different learning challenges, strengths, and socio-emotional needs | 0% | 27% | 9% | 36% | 27% |
| **Instructional Planning** | | | | | |
| Align science instruction with state science standards appropriate to the grade level | 0% | 9% | 9% | 9% | 73% |
| Align goals, strategies, and assessments | 0% | 9% | 9% | 27% | 55% |
| Effectively plan and implement instruction | 0% | 9% | 27% | 9% | 55% |
| Engage students in doing science through the Science and Engineering Practices | 0% | 9% | 27% | 27% | 36% |
| Identify inclusive curriculum and assessments | 0% | 18% | 18% | 27% | 36% |
| Develop and manage diverse and effective student groups | 0% | 18% | 27% | 18% | 36% |
| Provide opportunities for students to critically examine topics related to power, privilege, oppression, access, or equity | 0% | 18% | 27% | 27% | 27% |
| **Learning Environment** | | | | | |
| Create and maintain effective learning environments that encourage enthusiasm for learning and engagement in science | 0% | 18% | 9% | 36% | 36% |
| Create an effective environment for learning | 0% | 9% | 27% | 27% | 36% |
| Use instructional time completely and effectively | 0% | 36% | 0% | 27% | 36% |

| | | | | | |
|---|---|---|---|---|---|
| **Instructional Strategies** | | | | | |
| Use AMNH and its resources in instruction | 9% | 0% | 9% | 27% | 55% |
| Use technology effectively to support learning | 0% | 0% | 27% | 27% | 46% |
| Use a variety of assessment strategies to assess students | 0% | 9% | 18% | 46% | 27% |
| Use informal science learning experiences in instruction | 0% | 9% | 27% | 36% | 27% |
| Use questioning and discussion strategies | 0% | 18% | 9% | 55% | 18% |
| **School & Community Relations** | | | | | |
| Know and understand the culture of the school | 0% | 0% | 18% | 9% | 73% |
| Build relationships to support students and their well-being | 0% | 9% | 9% | 18% | 64% |
| Strive to understand and be responsive to family and community needs | 0% | 9% | 9% | 18% | 64% |
| Welcome conversation and listen to students, families, and school community | 0% | 9% | 9% | 18% | 64% |
| Collaborate with families | 9% | 9% | 18% | 27% | 36% |
| **Safety** | | | | | |
| Plan for and attend to material safety | 9% | 0% | 0% | 36% | 55% |
| Plan for and implement safety and emergency procedures | 9% | 0% | 0% | 55% | 36% |
| Plan for and attend to the ethical treatment of living organisms | 46% | 0% | 0% | 36% | 18% |
| **Professionalism** | | | | | |
| Collaborate with colleagues for continual learning | 0% | 9% | 0% | 36% | 55% |
| Engage in reflective practices | 0% | 9% | 0% | 64% | 27% |
| Interact well with colleagues and others | 0% | 9% | 0% | 18% | 73% |
| Use supervisor's feedback constructively to improve practice | 0% | 0% | 18% | 36% | 46% |
| Stay current on both educational and science research and trends | 0% | 9% | 9% | 36% | 46% |
| Set professional goals | 0% | 9% | 18% | 18% | 55% |

† Eleven employers of solely Cohort 12 graduates responded to the survey, representing 11 graduates.

## Table A-29
## Employers' Satisfaction with Cohort 11 and Cohort 12 Graduates

| | Very Dissatisfied | Dissatisfied | Somewhat Dissatisfied | Somewhat Satisfied | Satisfied | Very Satisfied |
|---|---|---|---|---|---|---|
| | Percent of Respondents (N = 22) | | | | | |
| How would you rate your overall satisfaction with AMNH-MAT graduates? | 0% | 0% | 5% | 9% | 14% | 73% |

## Table A-30
## Employers' Satisfaction with Cohort 11 Graduates

| | Very Dissatisfied | Dissatisfied | Somewhat Dissatisfied | Somewhat Satisfied | Satisfied | Very Satisfied |
|---|---|---|---|---|---|---|
| | Percent of Respondents (N = 10†) | | | | | |
| How would you rate your overall satisfaction with AMNH-MAT graduates? | 0% | 0% | 0% | 0% | 10% | 90% |

† Ten employers of solely Cohort 11 graduates responded to the survey, representing 11 graduates (one respondent employed two Cohort 11 graduates).

## Table A-31
## Employers' Satisfaction with Cohort 12 Graduates

| | Very Dissatisfied | Dissatisfied | Somewhat Dissatisfied | Somewhat Satisfied | Satisfied | Very Satisfied |
|---|---|---|---|---|---|---|
| | Percent of Respondents (N = 11†) | | | | | |
| How would you rate your overall satisfaction with AMNH-MAT graduates? | 0% | 0% | 9% | 18% | 18% | 55% |

† Eleven employers of solely Cohort 12 graduates responded to the survey, representing 11 graduates.

## Table A-32
## Cohort 11 Opinions About Induction Activities

| | Strongly Disagree | Disagree | Slightly Disagree | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| | Percent of Respondents (N = 10) | | | | | |
| Participating in induction activities helped me reflect on my own teaching practices | 0% | 0% | 0% | 0% | 20% | 80% |
| I received useful support when sharing a challenge | 0% | 0% | 0% | 0% | 30% | 70% |
| I feel comfortable participating in induction activities | 0% | 0% | 0% | 0% | 30% | 70% |
| There were sufficient opportunities to celebrate teaching successes | 0% | 0% | 0% | 0% | 30% | 70% |
| There were sufficient opportunities to collaborate with my peers during induction activities | 0% | 0% | 0% | 0% | 40% | 60% |
| Induction activities were a good use of my time | 0% | 0% | 0% | 10% | 30% | 60% |
| Induction activities provided strategies I have been able to apply to my instruction | 0% | 0% | 0% | 10% | 40% | 50% |
| The content of induction activities was interesting to me | 0% | 0% | 0% | 0% | 60% | 40% |

## Table A-33
## Cohort 12 Opinions About Induction Activities

| | Strongly Disagree | Disagree | Slightly Disagree | Slightly Agree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| | Percent of Respondents (N = 13) | | | | | |
| I feel comfortable participating in induction activities | 0% | 15% | 23% | 0% | 31% | 31% |
| There were sufficient opportunities to collaborate with my peers during induction activities | 0% | 8% | 0% | 23% | 46% | 23% |
| Participating in induction activities helped me reflect on my own teaching practices | 0% | 8% | 8% | 23% | 38% | 23% |
| I received useful support when sharing a challenge | 0% | 8% | 15% | 15% | 38% | 23% |
| Induction activities were a good use of my time | 0% | 15% | 8% | 23% | 31% | 23% |
| There were sufficient opportunities to celebrate teaching successes | 0% | 8% | 0% | 23% | 54% | 15% |
| The content of induction activities was interesting to me | 0% | 23% | 8% | 23% | 46% | 0% |
| Induction activities provided strategies I have been able to apply to my instruction | 0% | 8% | 23% | 31% | 38% | 0% |