Summative Evaluation Report for the Well-Rounded Access Program

Prepared for the Oregon Department of Education

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INTRODUCTION

In October 2020, the U.S. Department of Education awarded the Oregon Department of Education (ODE) a 5-Year $9.8 million grant to fund the Well-Rounded Access Program (WRAP), aimed at expanding the availability of and access to high quality STEAM (science, technology, engineering, arts, and math) and Arts-specific opportunities for all Oregon K-12 students. The WRAP focused on three main components to accomplish its goals: Course development to create widespread availability of STEAM and Arts courses and curricular resources; Course access structures to ensure that available courses and resources are equitably accessible for all teachers and students; and Communication around these efforts to all interested parties, including teachers, administrators, parents, students, and community education partners.

The Course Development component of WRAP focused on three strategies: (1) expanding the availability of teacher professional development opportunities for two existing high school level STEAM courses—High School Science for All's Patterns series and Exploring Computer Science (ECS); (2) supporting ECS in the development of an elementary-level summer workshop for computational thinking; and (3) funding the development of new elementary-level Arts resources: Arts, Care & Connection lesson modules and associated teacher professional development.

The Course Access Structures component sought to increase teachers' access to STEAM and Arts professional development opportunities and curriculum materials by increasing the availability of these resources across Oregon with a focus on rural schools and districts. It also addressed student access to STEAM and Arts-specific courses and potential barriers to participation by focusing on (1) curriculum revisions for Patterns to increase accessibility in rural schools and districts and improve Arts integration; and (2) promoting instructional approaches related to equity including social emotional learning, trauma informed, culturally responsive, and linguistically inclusive teaching practices for all WRAP-funded programs.

Finally, the Communication component sought to increase awareness of the benefits of STEAM and Arts-specific education for students, families, educators, administrators and communities through the distribution of funding webinars, STEAM and Arts-related toolkits, curriculum materials, and digital newsletters.

In April 2022, the STEM Research Center (SRC) at Oregon State University was contracted as the independent external evaluator for WRAP, to monitor progress and provide timely feedback to ODE to ensure success of the project. ODE and SRC collaboratively developed 13 evaluation questions across the three focus areas described above: Course Development, Course Access Structures, and Communication. The initial, formative evaluation phase focused on gathering baseline data to inform and refine the program's strategies related to the evaluation areas. In this report, the SRC provides final data summaries and findings to identify and highlight the successes and challenges associated with the Well-rounded Access Program. We include key conclusions and recommendations that could inform future efforts to support Well-rounded Education in Oregon in the future.

EVALUATION QUESTIONS

The 13 evaluation questions are organized by the three focus areas described above: Course Development; Course Access Structures, and Communication

Course Development

1. To what extent did the WRAP lead to increased arts availability and access for public K-5 students and for which students (i.e., rural and urban)?

2. To what extent did instruction time increase (either through STEAM-based integration practices or individual content instruction) for elementary school students in the content areas of science, computer science, or arts?

3. To what extent did access to high quality STEAM-based or arts specific curriculum increase for educators in both in-person and online settings?

4. To what extent did educators feel support with the WRAP courses they used, and to what extent are they likely to continue them? Why or why not?

5. To what extent were WRAP courses applicable and accessible across regions and geographic locales?

Course Access Structures

1. How did students in WRAP courses experience self-efficacy, relevance, and enjoyment, and did it differ for different groups of students? To what extent were students engaged with the course content and to what extent do students see themselves using the skills and knowledge they learned in the future?

2. What barriers to participation in well-rounded education persisted and for whom and why?

3. To what extent did WRAP create sustainable options for course access and why?

4. What strategies were most successful at improving WRAP course access and why?

5. To what extent did WRAP-sponsored professional development opportunities increase teachers' perceptions of their ability to provide instruction related to social-emotional learning, trauma informed, culturally responsive, and linguistically inclusive teaching practices within the WRAP courses?

6. To what extent did teachers utilize course-sponsored professional development and course materials made available by WRAP and why or why not?

Communication

1. To what extent did this program increase community, students, families, and educators'

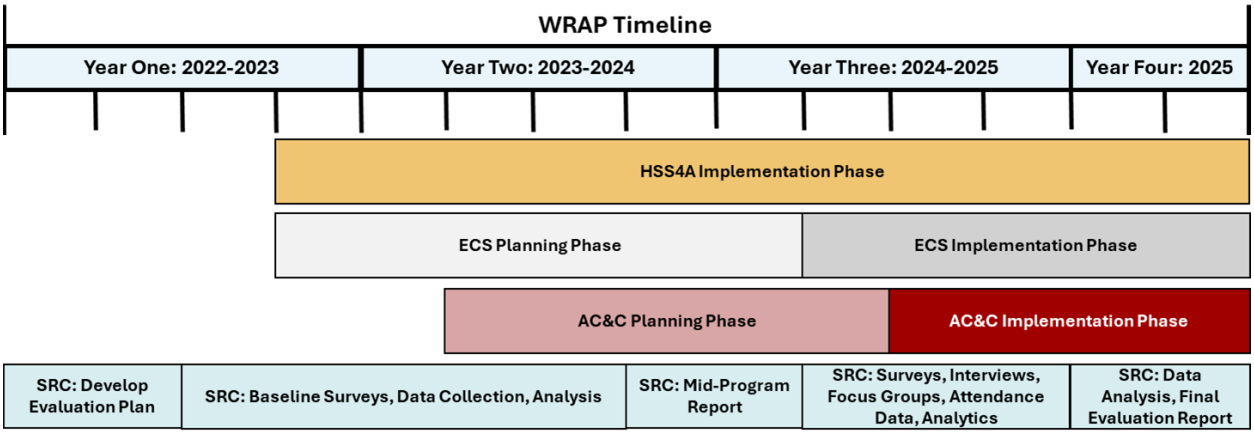
awareness of what STEAM and Arts education are and their benefits?

2. To what extent did school administrators understand their funding options for access to well-rounded courses and to what extent were these funding options utilized?

TIMELINE

Due to the slower-than-expected rollout of WRAP, the timeline available for evaluation data collection differed for the three WRAP-funded programs: High School Science for All (HSS4A), Exploring Computer Science (ECS), and Arts, Care & Connection (AC&C) (Figure 1). HSS4A began implementation at the end of project Year One (approx. January 2023); ECS started implementation midway through project Year Three (approx. July 2024). AC&C carried out a pilot project midway through Year Three (approx. October 2024), and full implementation began in Year Four. The STEM Research Center (SRC) began evaluation activities in Year One and concluded in Year Four. Therefore, there was a range of available data from each project to inform the evaluation which is noted in each section of the report.

Figure 1. Timeline of WRAP program planning and implementation of HSS4A, ECS, AC&C, and the project evaluation. Read a description of this timeline in the appendix.



METHODS

Data collection and analysis were guided by the evaluation questions. This evaluation utilized a mixed methods approach, combining both quantitative and qualitative data from a variety of sources (Appendix A). Quantitative data included: statewide datasets focused on STEAM and Arts courses from several surveys co-developed by the SRC and ODE; attendance data from teacher professional development; and website analytics. Qualitative data included: interviews, focus group interviews, community engagement sessions and open-response items on surveys. Data collection protocols and detailed description of methodology can be found in the Appendix materials. A quick reference of acronyms that appear frequently in this report can be found in Table 1. Within the Results and Summaries of Findings section, a list of relevant data sources is provided at the beginning of each evaluation question. Note that survey sample sizes may vary throughout the report, depending on number of completed responses for a given set of questions or if a sub-set of respondents was asked a sub-set of questions.

Table 1. Key of acronyms that will appear frequently in this report.

Acronyms	Full Name
A4LNW	Arts for Learning Northwest
AC&C	Arts, Care & Connection
ECS	Exploring Computer Science
HSS4A	High School Science for All
ODE	Oregon Department of Education
SRC	STEM Research Center of Oregon State University
STEAM	Science, Technology, Engineering, Arts, Math
STEM	Science, Technology, Engineering, Math
WRAP	Well-Rounded Access Program

KEY CONCLUSIONS AND RECOMMENDATIONS

Accomplishments

- **Course Development:**
    - **WRAP increased the availability and accessibility of Patterns and Arts, Care, & Connection (AC&C) professional development and curriculum materials in both urban and rural locations. Although the availability of Exploring Computer Science (ECS) professional development did not increase, it appeared to become more accessible to rural teachers.** These differences in availability and accessibility were strongly influenced by the structure of each program:
        - The Patterns professional development distribution model included numerous online webinars during the academic year, allowing more science teachers in both urban and rural areas to access this resource each year. In addition, curriculum materials and supporting resources are freely available online to download.
        - In contrast, availability of ECS professional development was restricted by the cohort model of professional development, which could only accommodate a small number of teachers each year. In addition, curriculum resources are only available for download by teachers who participated in the professional development.
        - The AC&C model was similar to Patterns and included both online and in-person workshops, which allowed many teachers to participate in professional development. In addition, nearly one hundred Arts lessons were made available for download for potential use in teachers' classrooms.

      While both of these professional development program structures have benefits and challenges, if creating greater availability and accessibility is the goal, future projects should consider the distribution model of professional development and resources when designing programs.
- **Course Access:**
    - **WRAP addressed several persistent curriculum-related accessibility issues for both high school science teachers and elementary teachers**. For example, science teachers reported that the Patterns curriculum did not include relevant phenomena for rural students and lacked sufficient Arts integration. Elementary teachers reported a strong perception that Arts-specific curriculum resources were insufficient. WRAP addressed these issues by providing funding for:
        - Revisions of Patterns curriculum to include Arts integration and to better support teachers and students in rural schools and districts.
        - Development and distribution of Arts, Care, & Connections lessons hosted on multiple websites for free download.

      Future work could examine the success of these efforts as the curriculum materials become more readily available to teachers in the future.

    - **WRAP embedded sustainability structures into the program to ensure that course access continues beyond the lifetime of the grant.** By building upon two existing, statewide STEAM programs and developing new Arts-specific resources centered around committed partners and stakeholders, WRAP created promising avenues to sustain the work in the future.
- **Communication:**
    - **Evidence suggests that awareness of and interest in the benefits of well-rounded and Arts education may have increased over the timeframe of WRAP as a result of the program's communication efforts.** The growing interest in both the WRAP and Arts Education newsletters suggests that there may be opportunities for increasing awareness of the benefits of Arts and well-rounded education through similar communication efforts in the future.

Continuing Challenges

- **Despite widespread use of two WRAP-supported courses across Oregon (i.e., Patterns and ECS), there were persistent curricular and structural challenges in availability and applicability in rural districts.** While some of the curricular challenges were addressed by WRAP (e.g., Patterns curriculum revisions to support rural teachers and students), structural issues (e.g., lack of resources) were outside of the scope of WRAP and will require interventions at the state or district level.

- **Although access to Arts-related curriculum materials (e.g., AC&C lessons, Arts Access Toolkit) increased over the timeframe of WRAP as a direct result of WRAP activities, there continues to be a strong perception that access to Arts-specific curriculum resources at the elementary level is insufficient.** Because the AC&C resources became available late in the project, there may not be broad awareness yet of these materials by elementary teachers across Oregon. Future work could focus on examining the extent to which these resources are utilized by elementary teachers and promoting them through channels that teachers regularly utilize.

- **While educators reported that there were many STEAM resources available, they noted that finding, accessing and vetting dispersed resources was time-consuming, and many available resources were of low utility and insufficient to fully meet instructional needs**. Future work, including the upcoming release of the STEAM Toolkit, could focus on consolidating resources in a central location and communicating directly with teachers about how to obtain these resources.

RESULTS AND SUMMARIES OF FINDINGS

Course Development (CD)

CD-1. To what extent did the WRAP lead to increased Arts availability and access for public K-5 students and for which students (i.e., rural and urban)?

CD-1 Data Sources

1. Statewide Arts Course Availability Data
2. 2023 Elementary Science & Arts Integration Teacher Survey (n=270)
3. 2025 Elementary Arts & Computational Thinking Integration Teacher Survey (n=289)
4. AC&C Lesson Web Analytics

CD-1 Background

To increase Arts availability and access for public K-5 students across Oregon, WRAP funded Arts for Learning Northwest (A4LNW) to create the Arts, Care, & Connection (AC&C) learning modules and related professional development for elementary teachers. However, because the program launched late in the project, AC&C lessons weren't available until February 2025, limiting the STEM Research Center's (SRC) ability to assess their impact on teachers' perceptions of Arts availability and accessibility.

The SRC evaluated changes in Arts availability statewide through three approaches:

- Course Data Analysis: Using Oregon Department of Education (ODE) data, they compared the proportion of urban and rural elementary schools offering at least one Arts course during the timeframe of the WRAP project.
- Teacher Surveys: Surveys conducted at the beginning (2023) and end of the WRAP project (2025) assessed changes in the extent to which Arts instruction is a part of the recommended teaching schedule (i.e., required), and the frequency with which Arts are taught by elementary classroom teachers.
- Resource Accessibility: They measured perceived accessibility of Arts-specific resources via the 2025 survey and tracked AC&C lesson download frequency from A4LNW.

Notes: While both the 2023 and 2025 surveys were distributed statewide, they were not completed by the same teachers each year, limiting direct year-to-year comparisons; For this study, "Arts" includes—but is not limited to—visual arts, media arts, theatre, music, band, and dance.

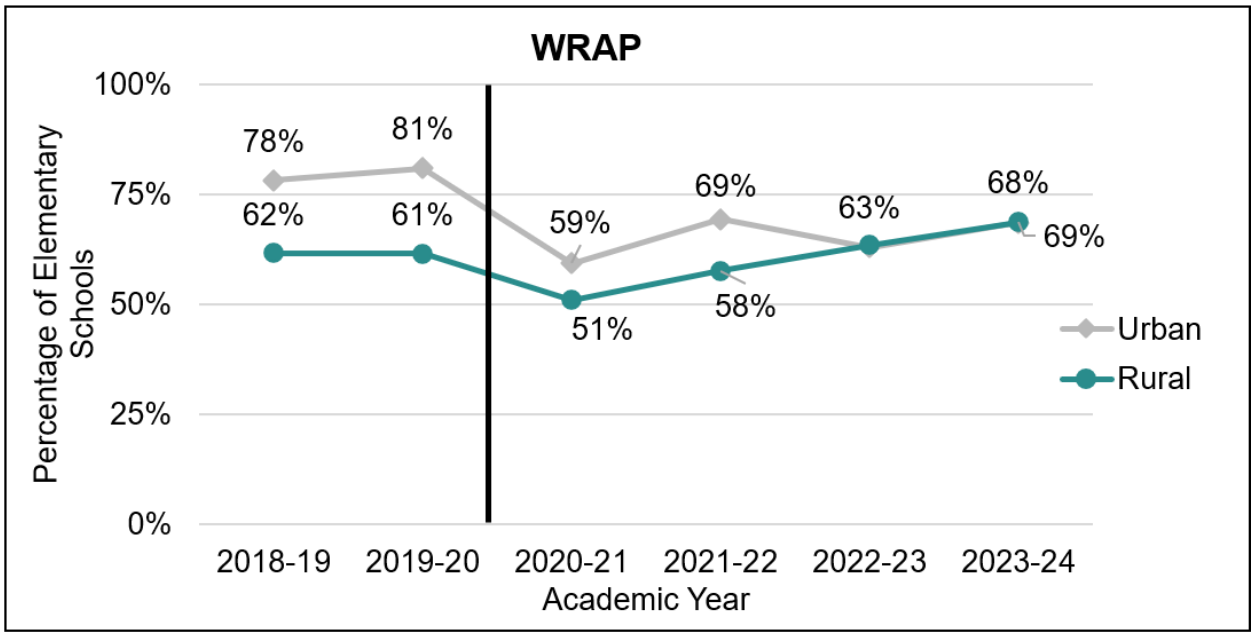
CD-1 Findings Summary

- **Based on elementary school Arts course availability data from ODE, Arts courses in rural areas did not substantially change and may have decreased slightly in urban areas during the timeframe of WRAP** (Figure CD-1.1). Arts course availability showed a decrease between 2019/20- 2020/21 (likely due to COVID-19 disruptions). Since then, availability in rural areas has recovered to exceed pre-COVID-19 percentages, while availability in urban areas has fluctuated.

- **There was no change in elementary schools' recommended Arts instruction schedule, which remained low (~25%).** Most elementary classroom teachers surveyed (70-75%) reported Arts instruction is not required in their school—a finding that stayed the same over the WRAP funding period (Figure CD-1.2). Note, however that, other than physical education, there are no state-required instructional minutes for elementary courses—these are determined at the district or school-level.
- **Arts instruction by classroom teachers may have increased over the timeframe of WRAP.** Despite the fact that most schools do not require Arts instruction, 91% of elementary classroom teachers surveyed in 2025 reported that they engaged in Arts instruction to some extent, up from 73% in 2023, suggesting that Arts availability for K-5 students may be greater than expected based on course data alone (Figure CD-1.3).
- **Arts educational resources are perceived as not widely available.** Most elementary teachers surveyed in 2025 (65%) perceived that there are not sufficient arts resources available, with little difference between responses from teachers in rural and urban areas (Figure CD-1.4).
- **WRAP-funded arts resources are beginning to be accessed.** Despite the late rollout of AC&C learning modules, 98 Arts-specific lessons across four thematic areas were developed and made available on the A4LNW website in early 2025 (Table CD-1.1). Since February 2025, AC&C lessons have been downloaded nearly 400 times and 58% of available lessons have been downloaded at least once. Visual arts, theatre and music lessons have received the most downloads while dance lessons have received the fewest thus far.

Arts Availability

Figure CD-1.1. Percentage of rural and urban Oregon elementary schools that offer at least one Arts course each academic year (2018-19 - 2023-24) based on ODE statewide course data. Note that 2024-25 data was not yet available at the time of this report. Read the data table for Figure CD-1.1. in the appendix.



Elementary Arts Availability

Figure CD-1.2. Percentage of elementary classroom teachers who reported that Arts instruction was required as part of their school's recommended teaching schedule (2023, n=138; 2025, n=250). Note: the 2023 survey did not include an 'unsure' multiple choice option. **"Is arts instruction part of your school's recommended teaching schedule for classroom teachers?**"

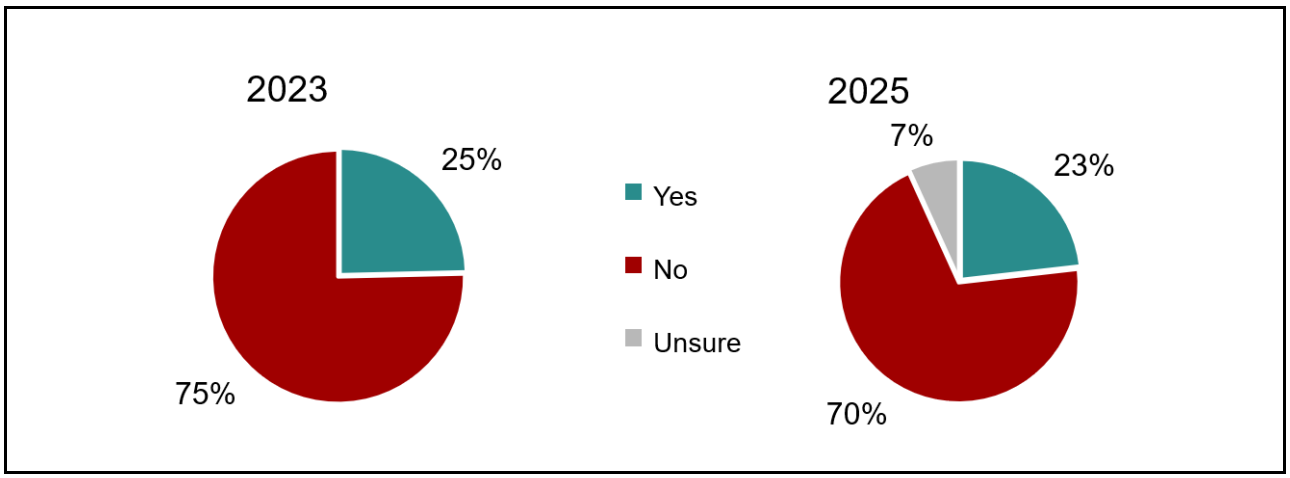
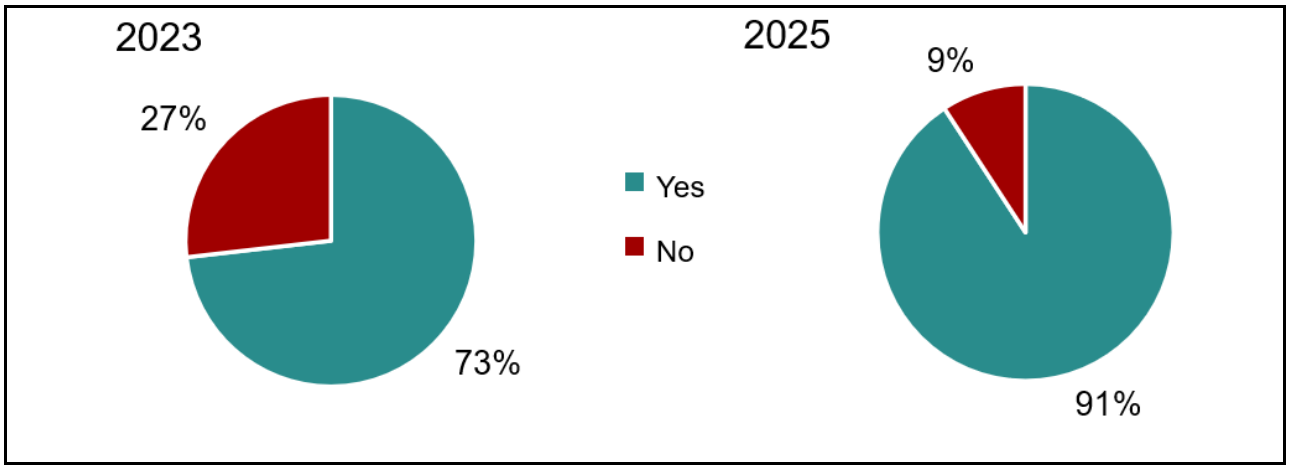


Figure CD-1.3. Percentage of elementary classroom teachers who reported that they engage in at least some Arts instruction in the classroom (2023 survey, n=138; 2025, n=249). "**Do you personally engage in arts instruction (dedicated or integrated) in your classroom?**"



Elementary Arts Resource Availability and Accessibility

Figure CD-1.4. Extent to which elementary teachers (2025, n=243) agreed to the statement: "**There are sufficient arts resources**."

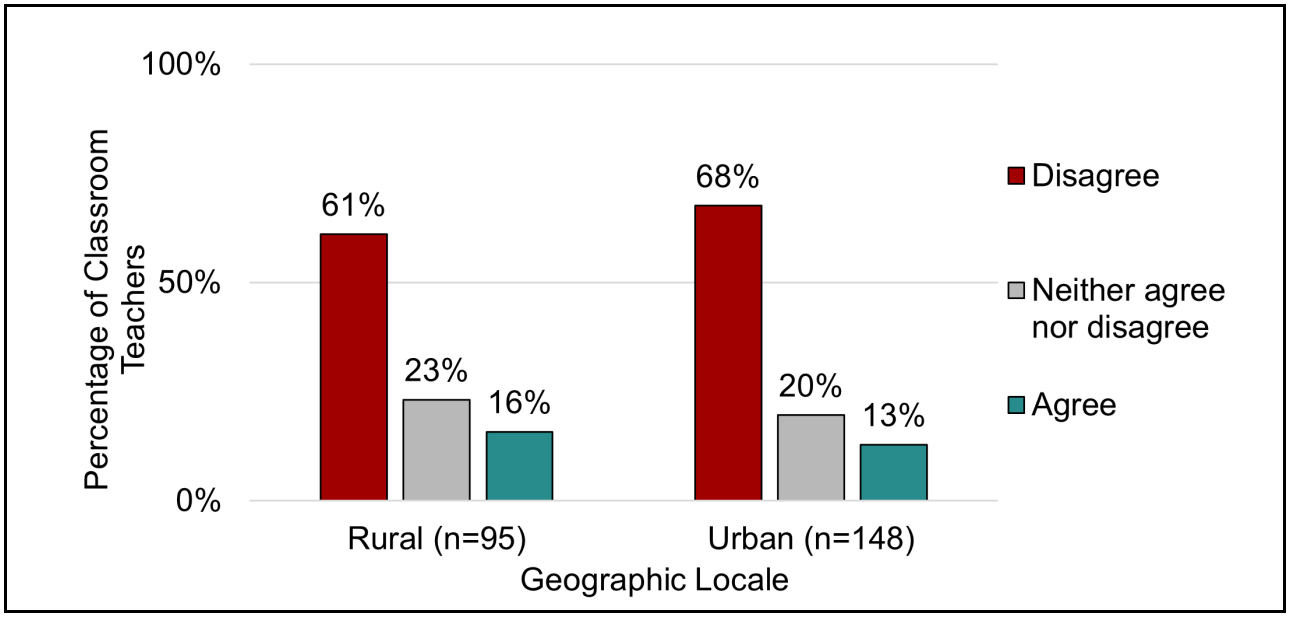


Table CD-1.1. Number of AC&C lessons that were available and downloaded at least once from the A4LNW website (2/2025-8/2025).

Thematic Area	Number of Available Lessons	Number of Lessons Downloaded at Least Once	Median Number of Downloads Per Lesson	Total Downloads
Visual Arts	27	21	10	226
Music	24	13	6	71
Theatre	24	13	3	83
Dance	23	10	3	17
Total	**98**	**57**	**4**	**397**

CD-1 Conclusions

- **Arts instruction appears to be widely available for K-5 students in Oregon, in both urban and rural areas.** Although few elementary schools report offering standalone Arts courses, the majority of elementary classroom teachers reported that they engaged in Arts instruction to some extent and this number may have increased over time, suggesting that Arts availability for K-5 students may be greater than expected based on course availability data alone.
- **Although access to Arts-related curriculum materials increased over the timeframe of WRAP as a direct result of WRAP activities, there continues to be a strong perception that access to Arts-specific curriculum resources at the elementary level is insufficient.** WRAP funding increased the number of Arts-specific

curriculum materials and associated professional development (AC&C) for elementary school teachers. However, the Arts resources became available in the last year of the project, so at this time there is not broad awareness or usage of these materials by elementary teachers across Oregon. Future work could focus on examining the extent to which these resources are utilized by elementary teachers and promoting them through channels that teachers regularly utilize.

CD-2. To what extent did instruction time increase (either through STEAM-based integration practices or individual content instruction) for elementary school students in the content areas of science, computer science, or arts?

CD-2. Data Sources

1. 2023 Elementary Science & Arts Integration Teacher Survey (n=270)
2. 2025 Elementary Arts & Computational Thinking Integration Teacher Survey (n=289)

CD-2. Background

To expand elementary Arts instruction, WRAP provided funding to Arts for Learning Northwest (A4LNW) for the creation of the Arts, Care, & Connection (AC&C) learning modules (launched in early 2025) and associated professional development for elementary teachers (launched in fall of 2024). To expand elementary computer science/computational thinking instruction, Exploring Computer Science (ECS) utilized WRAP funding to offer a Computational Thinking workshop for elementary teachers at their Summer Equity Symposium, which was first offered during the 2024 symposium.

To evaluate changes in elementary Arts and computer science/computational thinking instruction time during the WRAP initiative, the STEM Research Center (SRC) conducted two statewide surveys of elementary teachers, one near the beginning of the project (2023) and one near the end (2025). Findings from these surveys provided insight into how frequently Arts and computer science/computational thinking were taught across the WRAP timeframe.

Note: Since WRAP did not focus on providing science instruction resources at the elementary level, the SRC did not address changes in science instruction here. However, Science instruction time was documented in the 2023 Baseline Report to support future evaluations, should the Oregon Department of Education (ODE) or other stakeholders pursue systemic investments in elementary science education.

CD-2. Findings Summary

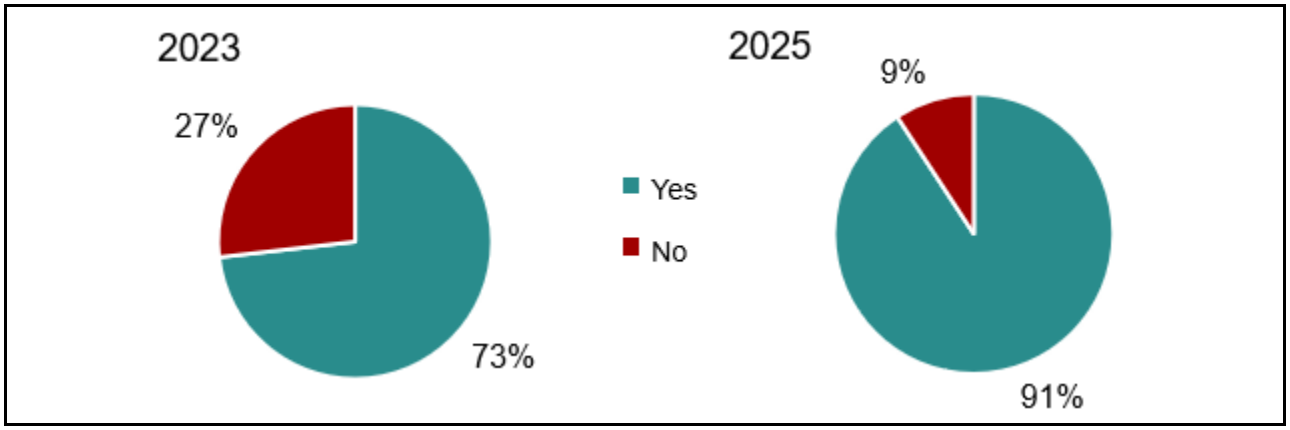
- **While a greater proportion of classroom teachers surveyed engaged in Arts instruction between 2023 and 2025, instruction frequency decreased over time.** The proportion of classroom teachers surveyed who engage in Arts instruction increased between 2023 and 2025 (Figure CD-2.1), from 73% in 2023 to 91% in 2025. However, the frequency of Arts instruction decreased between the two samples (CD-2.2)—self-reported at least weekly arts instruction fell from 63% in 2023 to 41% in 2025. The duration of arts instruction on a weekly basis appeared to be similar across time (Figure CD-2.3).
- **Arts instruction frequency did not differ between rural and urban-based classroom teachers.** Arts instruction frequency was similarly reported by rural and urban elementary classroom teachers in the 2025 survey, with about 40% reporting engaging in Arts instruction on at least a weekly basis. Open-ended responses for the

'Other' category indicated a flexible approach towards teaching arts when opportunities arise (e.g., "when time allows" or "during reading and writing lessons").

- **Computer science and/or computational thinking are not perceived to be widely taught at the elementary level.** A majority of elementary classroom teachers (72%) in the 2025 survey reported that computer science and/or computational thinking are not part of their school's curriculum (Figure CD-2.5). In addition, only 11% of elementary teachers in the survey reported engaging their students in computer science or computational thinking in some form.

Arts Instruction

Figure CD-2.1. Elementary classroom teachers in the 2023 survey (n=138) and 2025 survey (n=249) reported they engaged in at least some Arts instruction. "**Do you personally engage in arts instruction (dedicated or integrated) in your classroom?**"



Arts Instruction Time

Figure CD-2.2. Elementary classroom teachers in the 2023 survey (n=103) and 2025 (n=223) survey, who teach Arts, reported the frequency of their Arts instruction. "**When you teach arts as part of your teaching, approximately what is the frequency of your teaching?**" Read the data table for Figure CD-2.2. in the appendix.

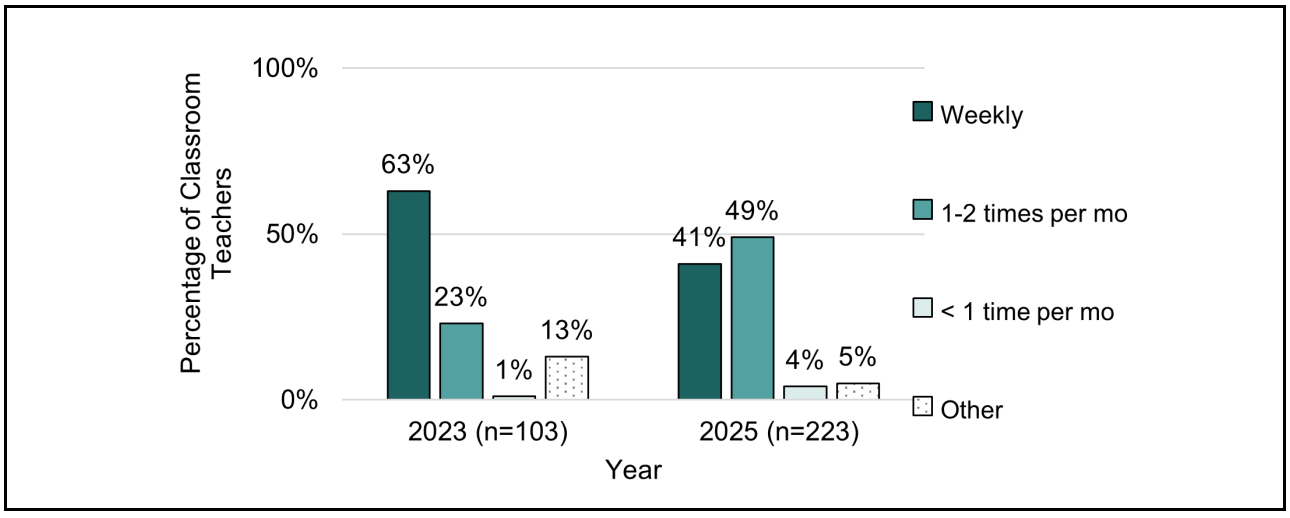


Figure CD-2.3. Elementary classroom teachers in the 2023 survey (n=101) and 2025 (n=224) survey, who teach arts, reported the amount of time they estimate spending on arts instruction each week. "**When you teach arts as part of your teaching, approximately how much total time do you spend teaching arts each week?**" Read the data table for Figure CD-2.3. in the appendix.

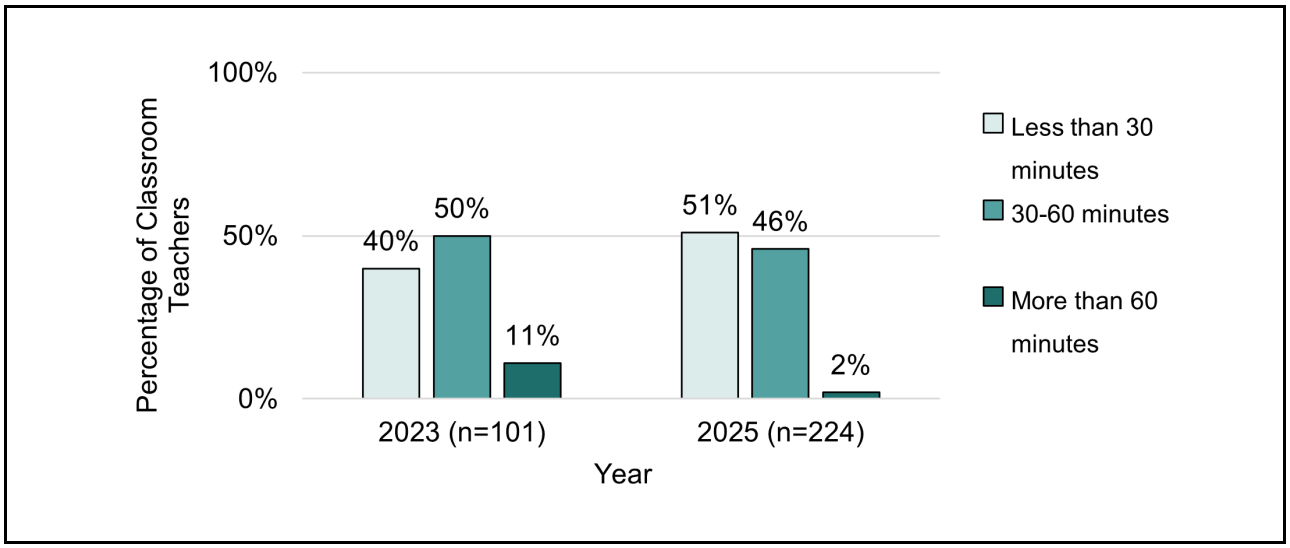
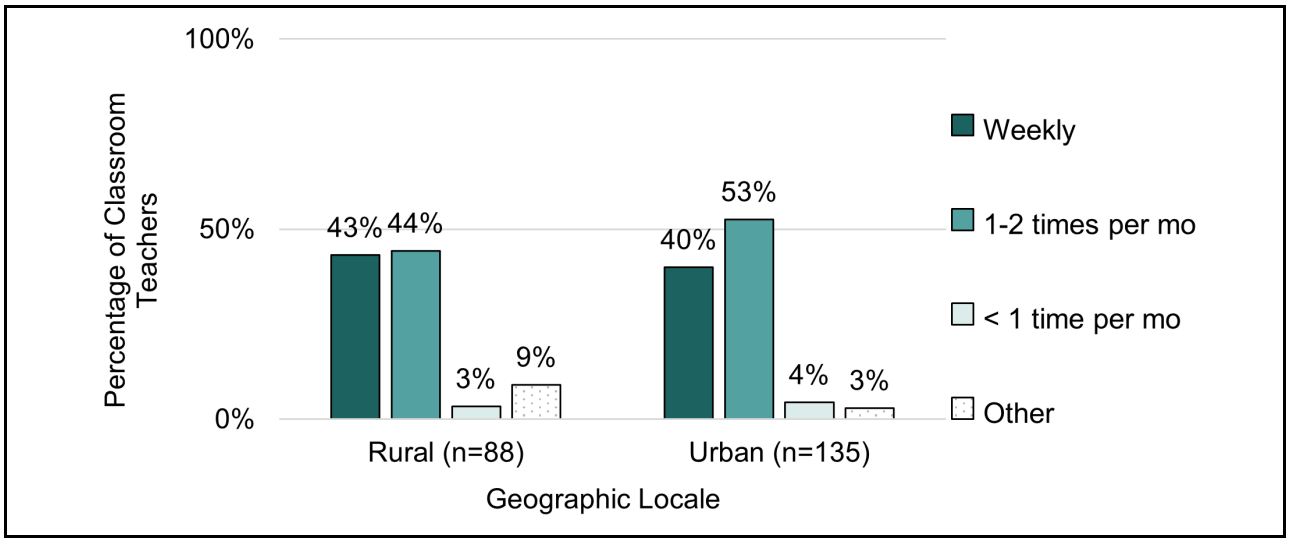


Figure CD-2.4. Frequency of rural and urban elementary classroom teacher engagement in Arts instruction (2025; n=224). "**When you teach arts as part of your teaching, approximately what is the frequency of your teaching?**" Read the data table for Figure CD-2.4. in the appendix.



Elementary Computer Science and Computational Thinking Instruction

Figure CD-2.5. Percentage of elementary classroom teachers in the 2025 survey (n=283) who agreed with the statement: "**Is computer science or computational thinking part of your school's curriculum?**"

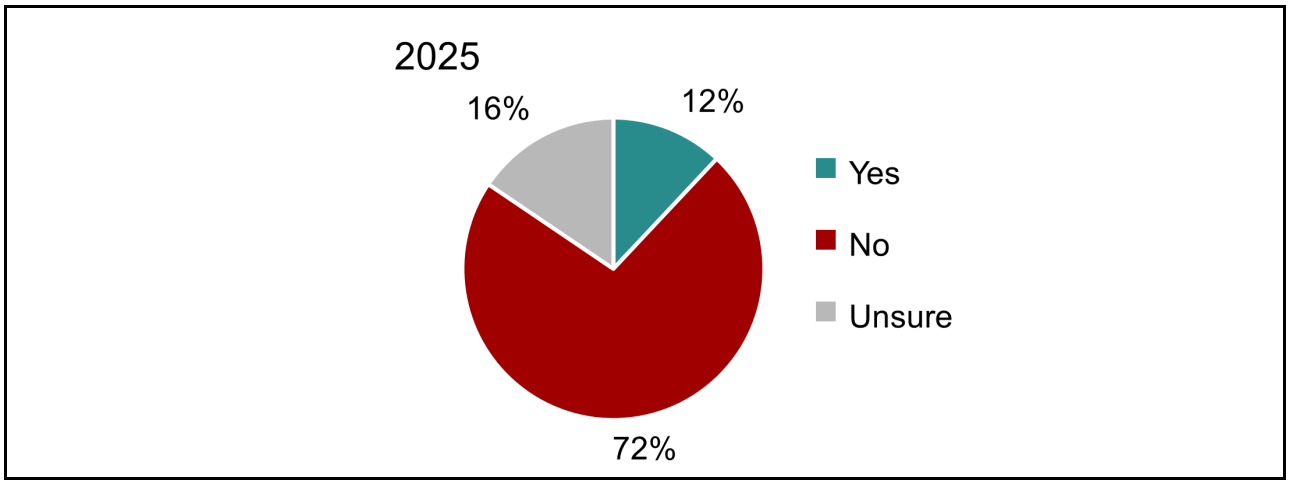
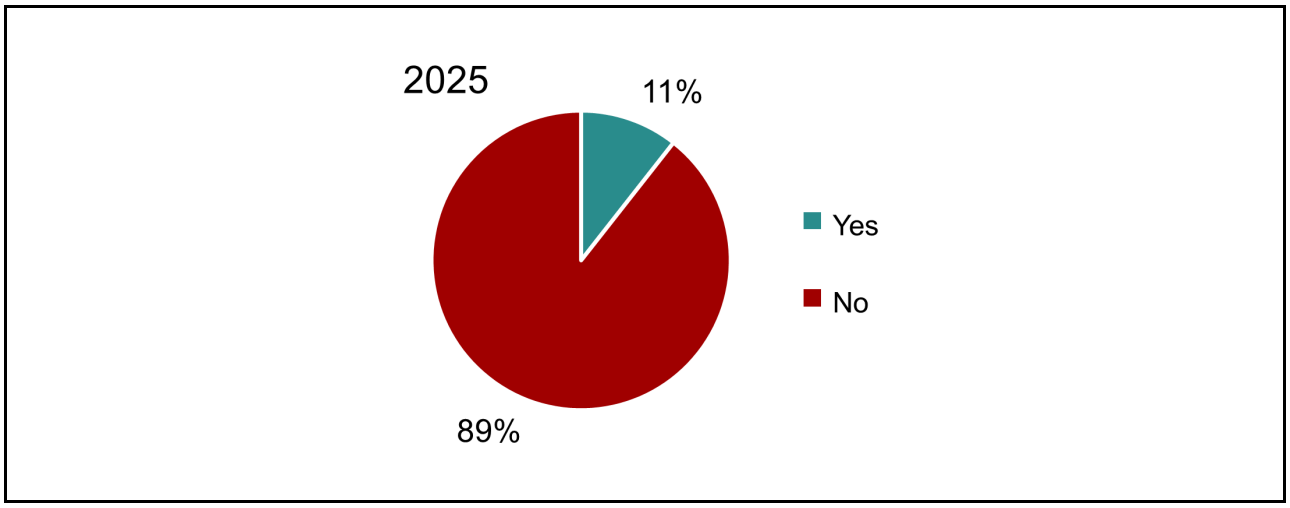


Figure CD-2.6. Percentage of elementary classroom teachers in the 2025 survey (n=283) who agreed with the statement: "**Do you teach computer science or computational thinking in your classroom as part of your regular teaching schedule?**



CD-2. Conclusions

- **Although the amount of Arts instruction time per teacher hasn't changed considerably over the WRAP timeframe, evidence indicates that the number of elementary classroom teachers who are teaching Art has increased, suggesting that more students are being exposed to Arts education, and this was the case in both urban and rural districts.** However, future work could focus on whether the current amount of Arts instruction is sufficient, or if further increases are warranted.

- **At this time, elementary teachers do not engage their students substantially in computer science and computational thinking.** Recommending computer science/computational thinking as part of the teaching schedule does not necessarily lead to adoption in the classroom.

CD-3. To what extent did access to high quality STEAM-based or Arts-specific curriculum increase for educators in both in-person and online settings?

CD-3 Data Sources

1. AC&C Professional Development Opportunities & Attendance Data
2. Patterns Professional Development Opportunities & Attendance Data
3. ECS Professional Development Opportunities & Attendance Data
4. 2025 High School Science & Computer Science Teacher Survey (n=101)
5. 2025 Elementary Arts & Computational Thinking Integration Teacher Survey (n=289)
6. High School Science Teacher Interviews (n=23)
7. High School Computer Science Teacher Interviews (n=14)
8. Elementary Teacher Interviews (n=6)

CD-3 Background

To expand access to high-quality STEAM and Arts-specific curriculum across Oregon, WRAP funded three key initiatives:

- High School Science for All (HSS4A): supported improvements to the Patterns curriculum and provided expanded professional development opportunities for high school science teachers.
- Exploring Computer Science (ECS): expanded professional development and implementation support for high school computer science teachers and computational thinking instruction for elementary teachers.
- Arts for Learning Northwest (A4LNW): developed Arts, Care, & Connection (AC&C) lessons and associated professional development for elementary teachers.

WRAP also promoted these opportunities through multiple communication channels, including the WRAP website, WRAP newsletter, and the Arts Education newsletter.

To evaluate the effectiveness of this strategy, the STEM Research Center (SRC) conducted surveys and interviews with high school science, computer science, and elementary teachers. These findings offered insight into teachers' perceptions of access to STEAM and Arts-specific professional development and curricular resources. The SRC also tracked the availability of Patterns, ECS, and AC&C professional development offerings as an indicator of access to high-quality curriculum during WRAP's implementation.

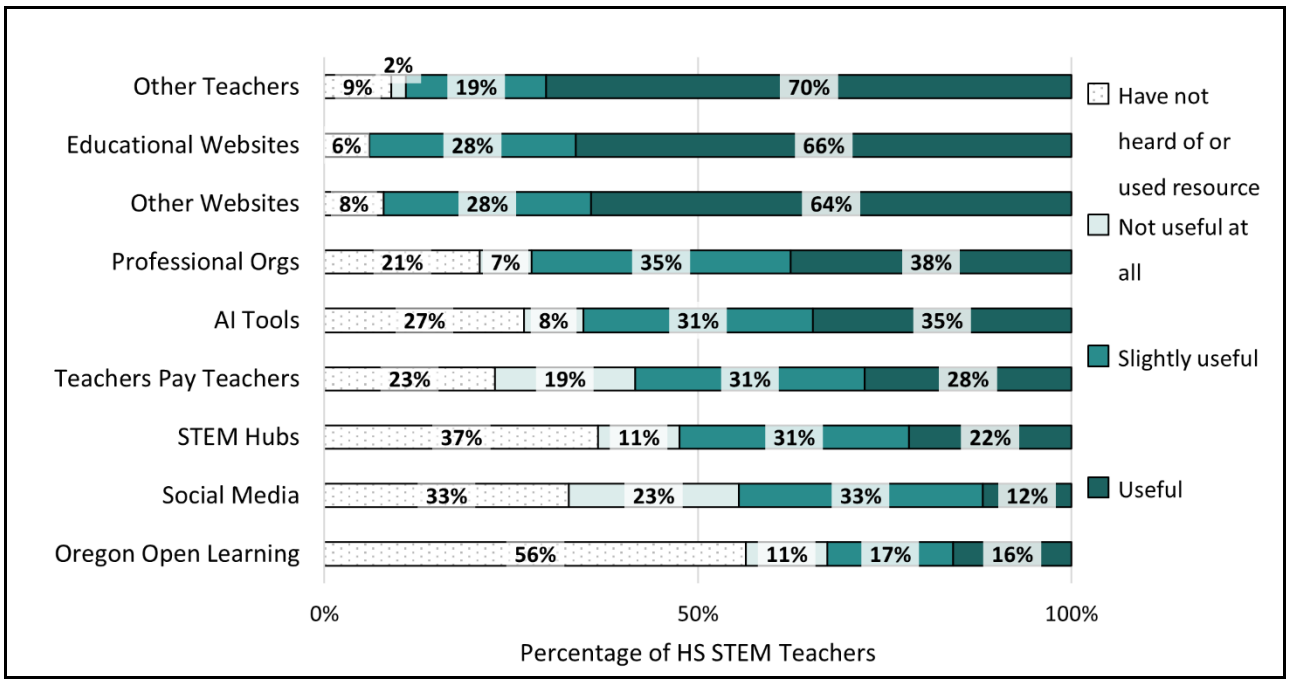
Note: Because AC&C targeted grades K–5, only elementary teachers were surveyed about Arts-specific resources

CD-3 Findings Summary – Access to STEAM

In general, teachers that were surveyed and interviewed indicated that STEAM resources were widely available and accessible, although of variable utility. Although teachers reported that they found STEAM resources in a variety of locations, many of these resources

were perceived to be of limited utility (see Figure CD-3.1). In addition, they were widely distributed rather than being stored in a centrally available location, which may have negatively affected accessibility for some teachers.

Figure CD-3.1. Perceived utility of STEAM resources used by high school science and computer science teachers from the 2025 survey (n=101). Read the data table for Figure CD-3.1. in the appendix.



Despite the availability of resources listed above, fewer than half of the high school and elementary teachers surveyed indicated that there were sufficient STEAM resources available. A slightly higher percentage of rural than urban teachers agreed that there were sufficient STEAM resources (Figures CD-3.2 & CD-3.3). In addition, a greater percentage of HS teachers than elementary agreed that there were sufficient STEAM resources.

Figure CD-3.2. Extent to which high school science and computer science teachers (2025, n=101) agreed to the statement: "**There are sufficient STEAM resources for high school teachers.**" Read the data table for Figure CD-3.2. in the appendix.

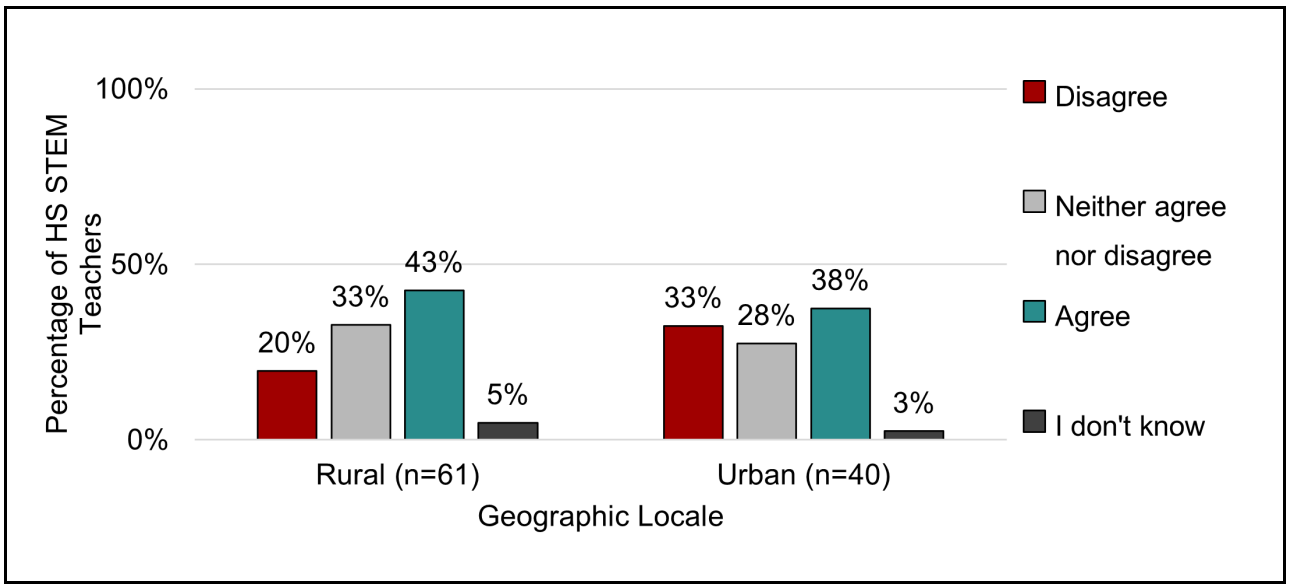
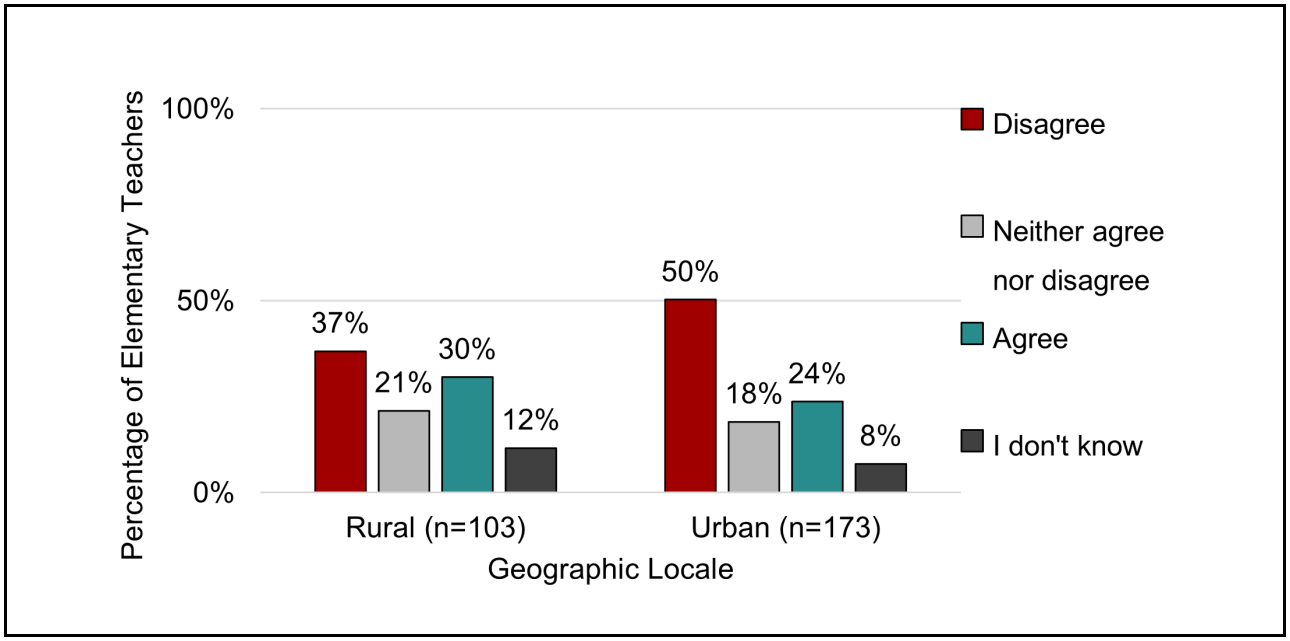


Figure CD-3.3. Extent to which elementary teachers (2025, n=276) agreed to the statement: "**There are sufficient STEAM resources for elementary teachers.**" Read the data table for Figure CD-3.3. in the appendix.



Availability of Patterns professional development sessions increased substantially as a result of WRAP funding. Specifically, the HSS4A team changed their professional development distribution model during the timeframe of the WRAP to include numerous online

webinars during the academic year with associated stipends for participants, in addition to the in-person summer workshops.

- The number of Patterns webinars/workshops that were offered more than tripled in the first year of WRAP and increased slightly the following year. Although the number of workshops decreased by nearly half in the third year of WRAP, there were still twice as many available as during the baseline year (Figure CD-3.4).
- When comparing pre-WRAP and during WRAP, most of the increase in professional development opportunities was due to the increased availability of online webinars during the academic year; number of in-person workshop opportunities offered each summer remained nearly the same across time.
- The number of Physics webinars tripled, and Chemistry webinars doubled in the first two years of WRAP; numbers of each decreased by half in year three of WRAP. In addition, webinars aimed at supporting rural teachers specifically were introduced in the second year of WRAP (Figure CD-3.5).

Figure CD-3.4. The number of Patterns online webinars and in-person workshops offered by HSS4A each summer and the subsequent academic year before and during WRAP. Read the data table for Figure CD-3.4. in the appendix.

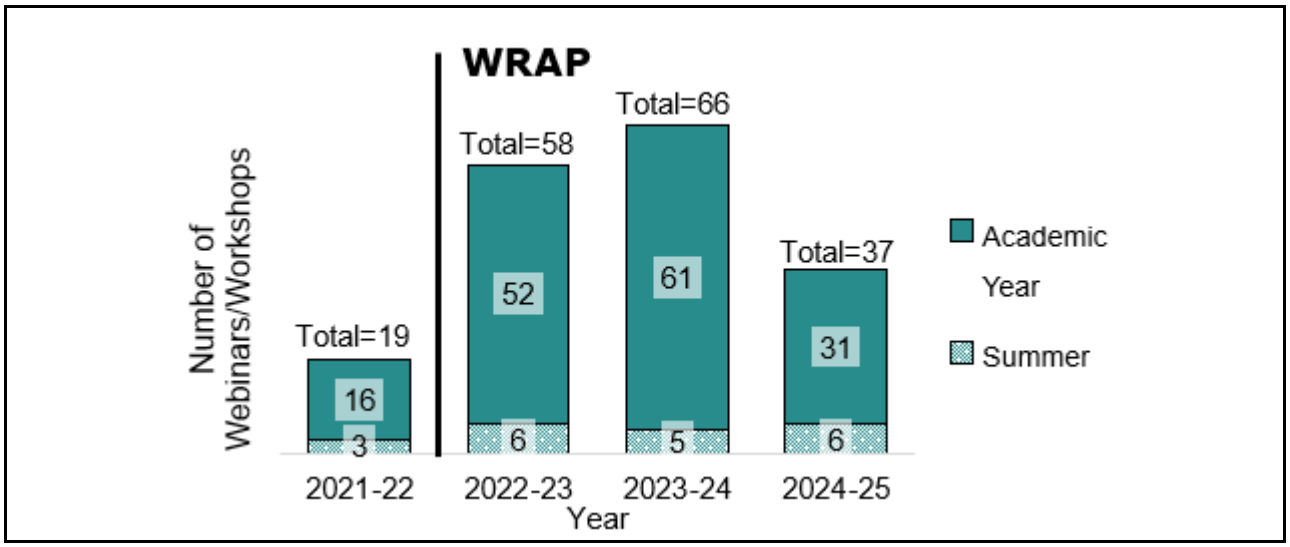
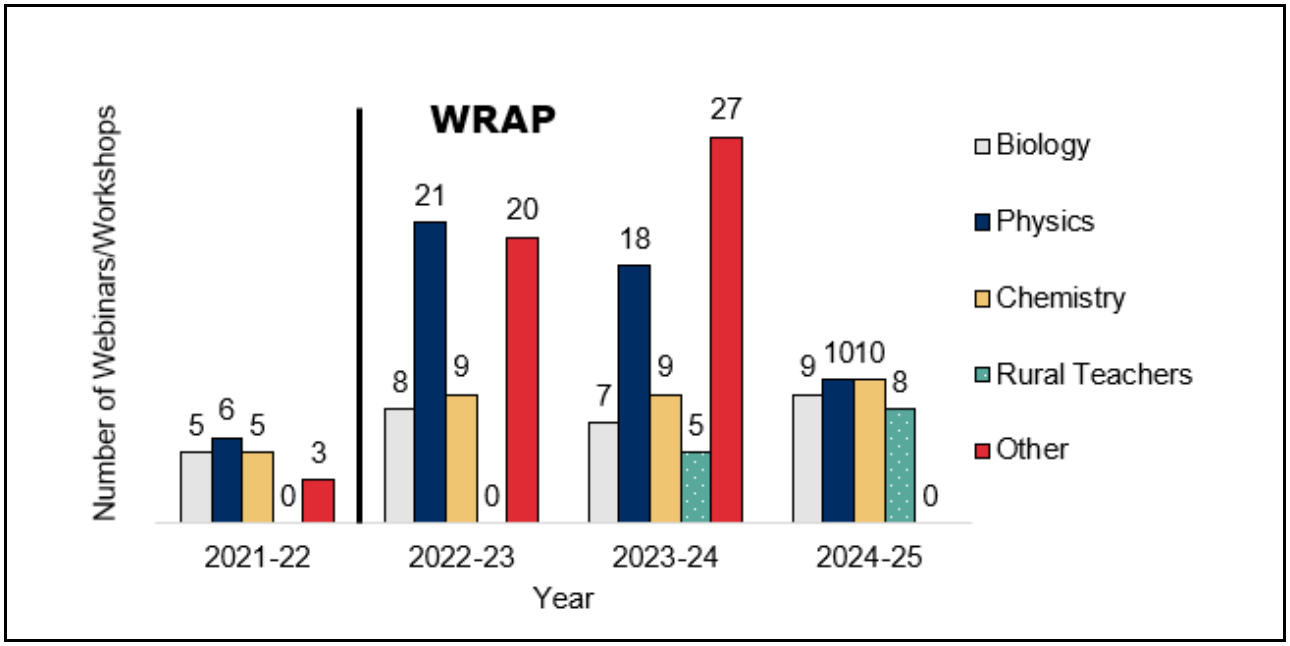


Figure CD-3.5. The number of Patterns webinars/workshops by topic for the baseline year (2021/22) and the three years of WRAP (2022-23 – 2024-25). “Other” included Supporting Student Discourse, Working with Desmos, and Overview of Patterns Sequence. Read the data table for Figure CD-3.5. in the appendix.



The availability of professional development opportunities for the other WRAP-funded high school-level STEAM program, ECS, did not increase over the timeframe of WRAP. ECS utilized a cohort model of professional development supported by in-person summer workshops which constrained the number of possible participants each year.

A computer science-related workshop for K-5 educators, Computational Thinking, was made available through WRAP funding beginning in the summer of 2024. The workshop was provided during the ECS Summer Equity Symposiums in 2024 and 2025, supporting a total of 56 elementary teachers to learn about incorporating computational thinking into their classrooms.

CD-3 Findings Summary – Access to Arts

There was no evidence that elementary teachers perceived that access to high quality Arts-specific curriculum has increased over the timeframe of WRAP, and in fact sufficient access to such resources appeared to be rather low. Although teachers identified a variety of resources that they use to locate Arts-specific curricular resources such as educational websites and other teachers (see Figure CD-3.6), **the majority of elementary teachers that were surveyed (61% rural, 67% urban) somewhat or strongly disagreed that there were sufficient Arts-specific curricular resources available across Oregon** (Figure CD-3.7).

Figure CD-3.6. Percentage of elementary classroom and arts teachers (2025; n=243) who utilize each resource to locate Arts-specific curricular materials. Read the data table for Figure CD-3.6. in the appendix.

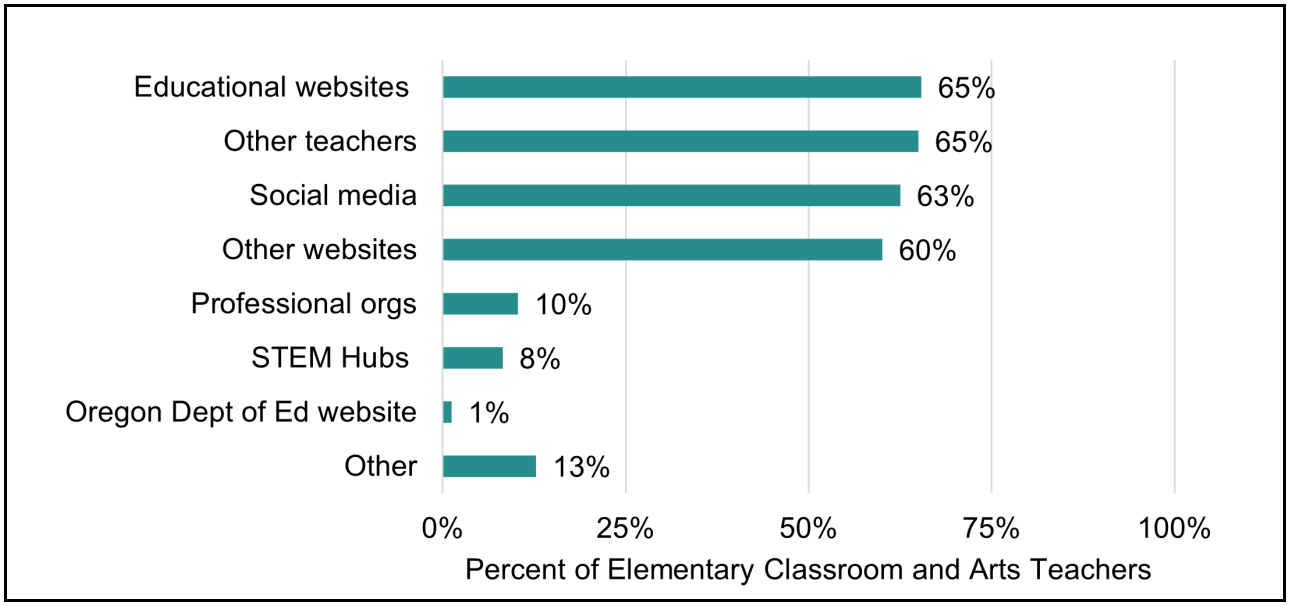
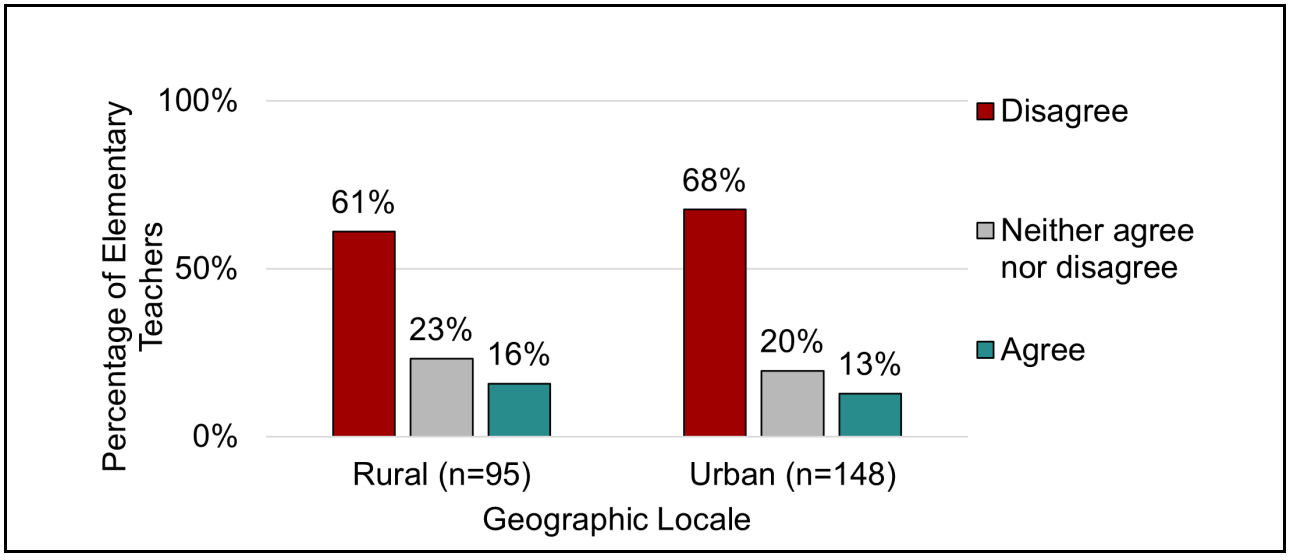


Figure CD-3.7. Extent to which elementary teachers (2025, n=276) agreed to the statement: "**There are sufficient arts resources for elementary teachers**." Read the data table for Figure CD-3.7. in the appendix.



Availability of AC&C learning modules and associated professional development increased substantially as a result of WRAP funding. Nearly 100 Arts-specific lessons for a variety of topics (e.g., visual arts, music) available for download (Table CD-3.1) and 45 AC&C professional development opportunities were offered, reaching more than 600 people (Table CD-3.2). However, these resources did not become widely available until the final year of the

project, and the majority of elementary teachers that SRC surveyed (96%) were unfamiliar with this program.

Table CD-3.1. The number of AC&C lessons that were available and downloaded at least once from the A4LNW website (2/2025-8/2025).

Thematic Area	Number of Available Lessons	Number of Lessons Downloaded at Least Once	Total Downloads
Visual Arts	27	21	226
Music	24	13	71
Theatre	24	13	83
Dance	23	10	17
Total	**98**	**57**	**397**

Table CD-3.2. The number of attendees for AC&C professional development opportunities.

Professional Development Format	Total Number of Attendees
In-Person Workshops (n=30)	483
Online Webinars (n=15)	143
Total	**626**

CD-3 Conclusions

- **Educators did not perceive a noticeable increase in access to high quality STEAM curriculum during the WRAP timeframe.**
- **While educators reported that there were many STEAM resources available, they noted that finding, accessing and vetting dispersed resources was time-consuming, and many available resources were of low utility and insufficient to fully meet instructional needs.** Future work could focus on consolidating resources in a central location and communicating directly with teachers about how to obtain these resources.
- **Although access to Arts-related curriculum materials increased over the timeframe of WRAP as a direct result of WRAP activities, there continues to be a strong perception among elementary teachers that access to Arts-specific curriculum resources is insufficient.** WRAP funding increased the number of Arts-specific curriculum materials and associated professional development (AC&C) for elementary school teachers. However, the Arts resources became available in the last year of the project, so at this time there is not broad awareness or usage of these materials by elementary teachers across Oregon. Future work could focus on examining the extent to which these resources are utilized by elementary teachers and promoting them through channels that teachers regularly utilize.

CD-4. To what extent did educators feel support with the WRAP courses they used, and to what extent are they likely to continue them? Why or why not?

CD-4 Data Sources

1. High School Science & Computer Science Teacher Survey (n=101)
2. 2025 Elementary Arts & Computational Thinking Integration Teacher Survey (n=289)
3. High School Science Teacher Interviews (n=23)
4. High School Computer Science Teacher Interviews (n=14)
5. Elementary Teacher Interviews (n=6)

CD-4 Background

To evaluate the extent to which teachers felt supported with WRAP-funded courses (Patterns and Exploring Computer Science (ECS)), the STEM Research Center (SRC) surveyed and interviewed a sample of teachers who have engaged with WRAP-funded courses or professional development. Teachers were also asked whether they intended to continue using WRAP courses and to share their reasons for doing so.

Note: Because the Arts, Care, & Connection (AC&C) lessons were released late in the WRAP timeline, few elementary teachers had implemented them. As a result, SRC was unable to fully assess educator support for that program.

CD-4 Findings Summary: Extent of support for Patterns and ECS users

Patterns. A total of 14 participants in the statewide high school science and computer science survey were current Patterns users. Most of these respondents felt somewhat to moderately supported by their administration, other teachers, and the Patterns professional development team (Table CD-4.1). In contrast, all 15 Patterns teachers that the SRC interviewed felt well supported by the Patterns staff, other teachers, and school administrators. Specifically:

- Patterns staff were described as knowledgeable and helpful both online and at in-person professional development events. Educators felt comfortable reaching out to Patterns staff for support when necessary.
- Several educators indicated that other teachers either at their own school or elsewhere provided support in using Patterns. This included teachers at Patterns professional learning community meetings, workshops, and those they interacted with through informal teacher networks. One teacher described a structural limitation for rural teachers: as a teacher from a small school, they had no colleagues to co-plan with, leading to a more isolated experience.
- Some teachers reported strong support from school leadership including encouragement to attend Patterns professional development and sponsorship to summer trainings. Others noted a more hands-off approach from administrators, especially at smaller schools or those who have not adopted the curriculum.

Table CD-4.1. Extent to which Patterns (n=14) teachers felt supported when using the curriculum (2025 high school science and computer science survey).

	None at all	A little	Some-what	Moderately	A great deal
From my administration	0	1	2	6	0
From other teachers	0	1	3	3	0
From the Patterns professional development team	0	1	4	5	0

ECS. Only two participants in the statewide high school science and computer science survey were current ECS users. These teachers reported getting most support from the ECS professional development team and some support from administrators, with less support attributed to fellow teachers. The seven ECS teachers that were interviewed generally felt well supported by the ECS staff and other teachers, and some felt supported by administrators, while others did not. Specifically:

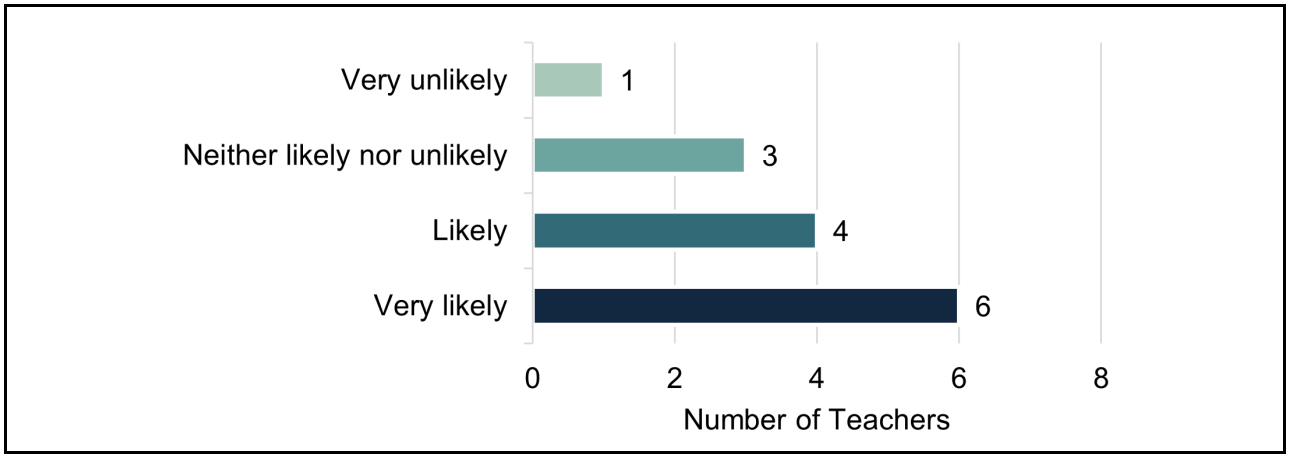
- ECS staff were described as supportive and accessible when teachers had questions about the curriculum.
- There was an email list for teachers in each ECS cohort so they could support each other and offer solutions when teachers had a problem with their lesson.
- Because computer science is an elective, some teachers had trouble convincing administrators to allow them to create an ECS course.

CD-4 Findings Summary: Likelihood of continued use of WRAP courses

Patterns. The likelihood of continued use of Patterns was assessed in two ways. First, teachers were asked how likely they were to continue using Patterns. Then, since some teachers are required to use Patterns because it has been adopted by their school or district, they were also asked whether they would continue to use Patterns if it had not been adopted. The majority of current Patterns users that were surveyed (10/14) and interviewed (14/15) indicated that they were likely to very likely to continue using the Patterns curriculum (Figure CD-4.1). Some of the benefits of Patterns included:

- Attention to high school science standards
- Availability of Spanish versions
- A curriculum structure that allows for keeping students on a consistent calendar for topics
- Excellent scaffolding in the curriculum, especially for freshman physics
- Patterns provides a good balance between content knowledge and student-centered activities such as discovery-based learning and engineering projects.

Figure CD-4.1. Patterns science teachers surveyed (n=14) were asked the likelihood of continuing to use Patterns curriculum. "**To what extent are you likely to continue to use Patterns curriculum?**"



Of the 10 surveyed teachers who indicated they were likely or very likely to continue using Patterns, six reported that they would not use the curriculum if it had not been adopted by their school/district. Some of the challenges with the curriculum include:

- Requires a large investment of time to make modifications either to add scaffolding of concepts (e.g. math skills and chemistry knowledge); to update out-of-date materials; or to make student-facing materials more user-friendly.
- Skepticism about the effectiveness of the phenomenon approach.
- Issues with pacing (too much time on one subject, too little on others).
- Concern that Patterns borrows too heavily from copyrighted materials (such as Living by Chemistry) without proper attribution, raising questions about its legitimacy and sustainability.

ECS. Two of the three ECS teachers that were surveyed and six of the seven ECS teachers interviewed indicated that they would continue to use the ECS curriculum. Benefits of the curriculum included:

- It works well as a foundational course and does not require students to have extensive previous knowledge.
- The equity focus in ECS makes it more accessible for all students, including girls and students from populations that are not traditionally prevalent in CS.
- ECS teaches transferrable skills (e.g., problem solving, algorithmic thinking) that are broadly useful in other disciplines or educational pursuits.

The two teachers who were unlikely to continue using ECS stated that ECS was not challenging enough for students with ample prior knowledge in the area of CS.

AC&C. As noted above, the AC&C lessons became available late in the project and few teachers have had the opportunity to utilize them. None of the elementary teachers surveyed had used AC&C lessons. However, one elementary teacher that was interviewed had used an

AC&C module with their students and they reported that they would continue to use AC&C modules during the upcoming year.

CD-4 Conclusions

- **Overall, educators who used the Patterns or ECS curriculum felt somewhat to well supported** by the professional development staff, other teachers, and/or school administrators.
- **The strong willingness of Patterns and ECS teachers to continue teaching these courses, even if not required by their school, reflects the high value they place on the curricula and suggests promising potential for long-term sustainability of these programs**.

CD-5. To what extent were WRAP courses applicable and accessible across regions and geographic locales?

CD-5 Data Sources

1. AC&C Professional Development Opportunities & Attendance Data
2. Patterns Professional Development Opportunities & Attendance Data
3. ECS Professional Development Opportunities & Attendance Data
4. High School Science & Computer Science Teacher Survey (n=101)
5. High School Science Teacher Interviews (n=23)
6. High School Computer Science Teacher Interviews (n=14)
7. Elementary Teacher Interviews (n=6)
8. AC&C Lesson Web Analytics

CD-5 Background

A key focus of WRAP was to improve the applicability and accessibility of the WRAP-funded courses (i.e., Patterns, ECS, and AC&C) across Oregon, with particular emphasis on rural schools and districts. Specifically:

- HSS4A used WRAP funding to review and modify the Patterns curriculum and teacher professional development to better meet the needs of rural students.
- ECS prioritized building administrative support and professional development to promote more equitable distribution of ECS courses statewide, including in rural districts.
- Arts for Learning Northwest (A4LNW) received WRAP funding to design and develop Arts, Care, & Connection (AC&C) lessons intended to be applicable and accessible for elementary teachers across Oregon.

To assess course accessibility for teachers, the STEM Research Center (SRC) analyzed WRAP professional development enrollment data, focusing on the geographic distribution of participants from urban and rural schools. To evaluate curriculum applicability for students, SRC conducted surveys and interviews with current Patterns and ECS users. These data provided insight into teachers' perceptions of curriculum benefits and challenges, and how these varied by geographic context. Because only one elementary teacher interviewed had used an AC&C module, SRC could not fully assess its applicability. Instead, they used the geographic distribution of AC&C lesson downloads from A4LNW's website as a proxy for accessibility across Oregon.

CD-5 Findings Summary – Accessibility of Patterns and ECS for teachers

Based on professional development enrollment data, both Patterns and ECS professional development appeared to be accessible to teachers across Oregon, in both rural and urban schools/districts (Figure CD-5.1 and Figure CD-5.2). Geographic distribution of teachers participating in each professional development increased across the state during the timeframe of WRAP, including more rural areas in central and eastern Oregon.

Figure CD-5.1. Heat maps showing the geographic distribution of teachers who attended Patterns professional development during the baseline year (2021) (left) and during cumulative WRAP years (2022-2025) (right). Bright colors show areas of higher density of teachers who participated in professional development; cooler blue colors are areas with fewer teachers. Read a detailed description of Figure CD-5.1. in the appendix.

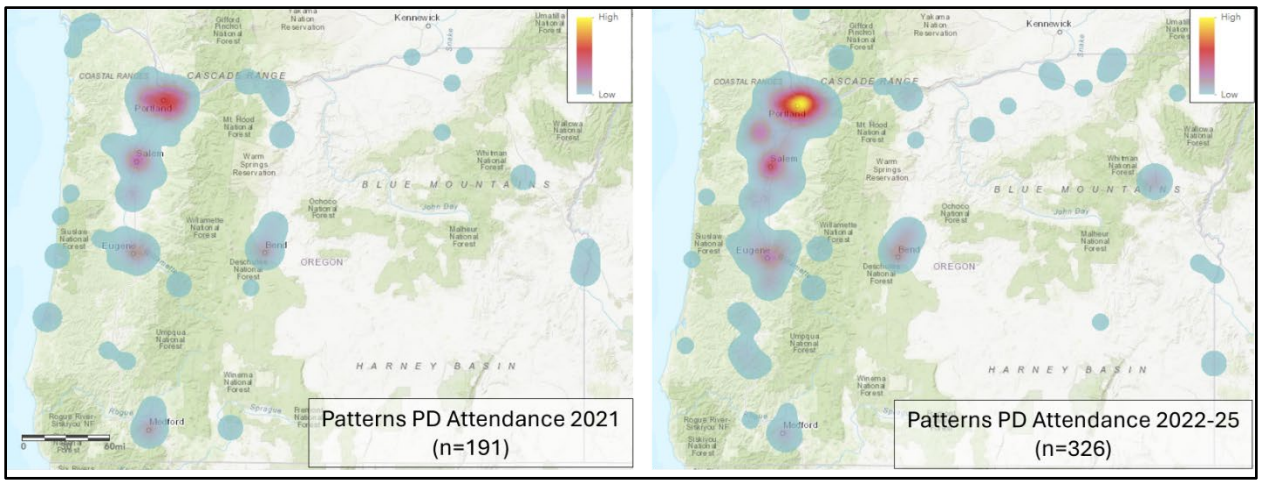
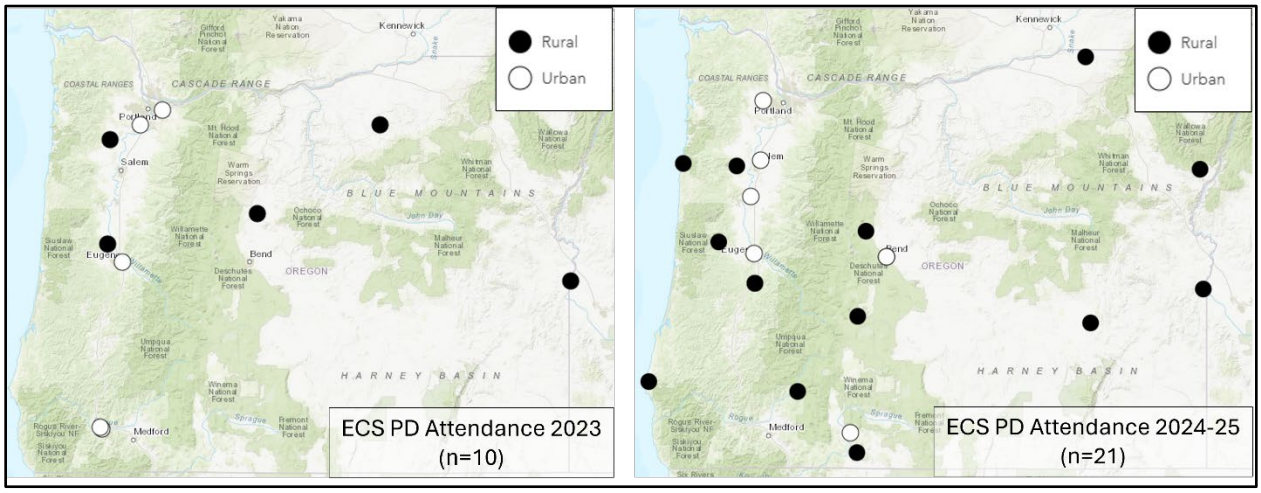


Figure CD-5.2. Maps showing the geographic distribution of teachers who attended ECS professional development during the baseline year (2023) (left) and during WRAP years (2024-2025). Read a detailed description of Figure CD-5.2. in the appendix.



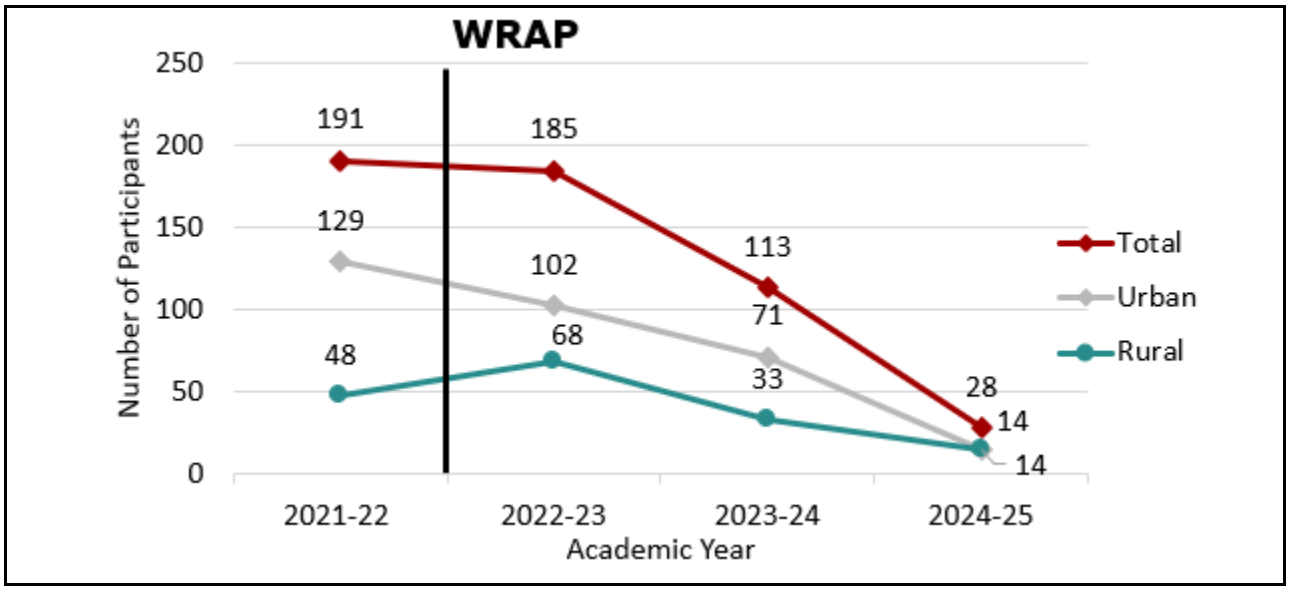
Participation (first-time) in Patterns webinars/workshops was similar to baseline numbers immediately after WRAP activities began, then gradually decreased over time (Figure CD-5.3).

- The total number of first-time participants in Patterns webinars/workshops was essentially the same as the baseline year in the first year of WRAP.
- Numbers of first-time participants then decreased by 40% in the subsequent year and fell another 75% during the final year of WRAP.

First-time participation in Patterns professional development by rural educators increased immediately after WRAP activities began, then steadily decreased over time (Figure CD-5.3).

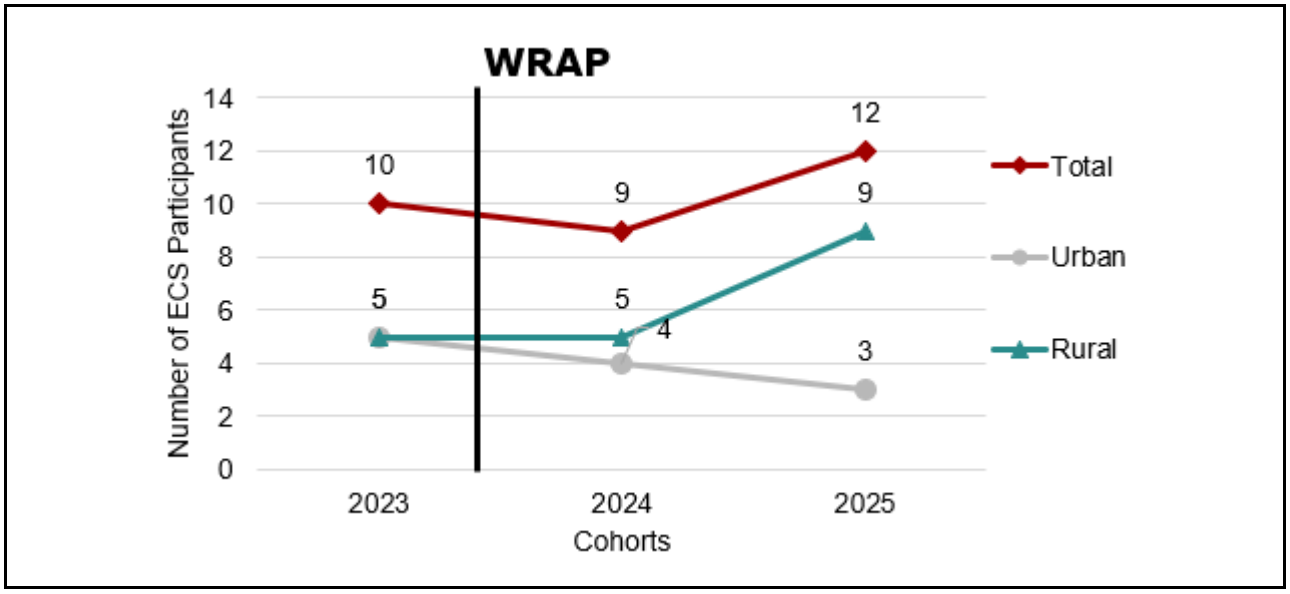
- The number of first-time rural participants increased by 40% in the first year of WRAP. However, it fell by half in the following year and half again in the final year of WRAP.
- There was a higher proportion of first-time, rural participants (36%) in the first year of WRAP than in any other year.

Figure CD-5.3. Number of first-time (not repeat) participants (rural and urban) enrolled in Patterns professional development during the baseline and WRAP-funded years. Note that the number of synchronous webinars available was reduced in fall 2024.



Although the total number of participants in ECS professional development remained constant over time, the number of rural participants doubled in 2025 compared to the baseline year (CD-5.4).

Figure CD-5.4 Number of rural and urban teachers enrolled in ECS professional development during the baseline and WRAP-funded years. Read the data table for Figure CD-5.4. in the appendix.



CD-5 Findings Summary – Accessibility of AC&C for teachers

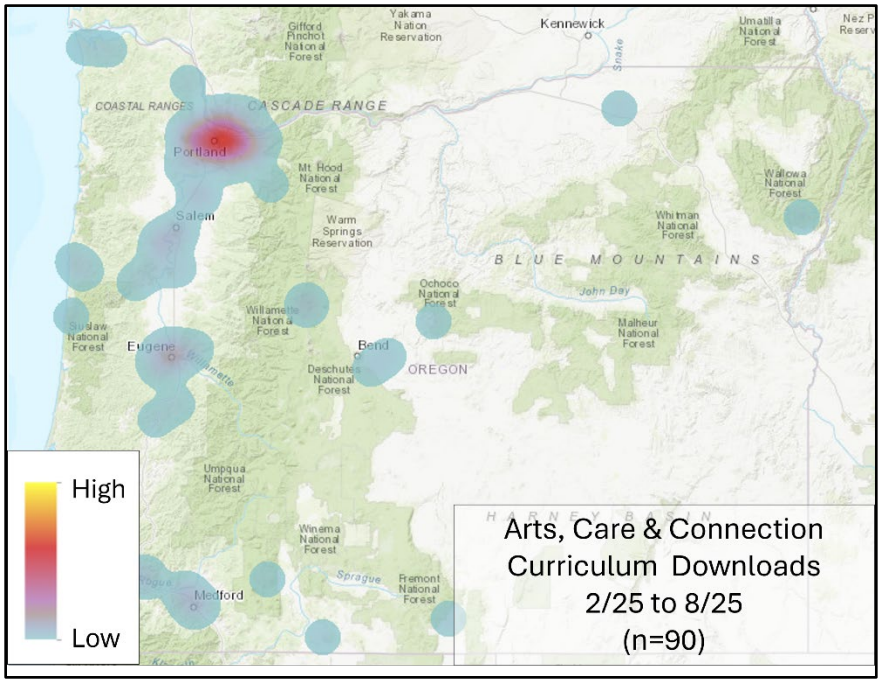
Based on professional development enrollment data, AC&C professional development appeared to be accessible to teachers (Table CD-5.1)**.** AC&C offered 45 professional development opportunities in different modalities (online and in-person) and across geographic locales (rural and urban), reaching a total of 626 attendees. Though attendees' geographic location was not tracked for the online webinars, half of the in-person workshops were hosted in rural areas and half in urban areas.

Table CD-5.1. The number of attendees for AC&C professional development opportunities.

Professional Development Format	Total Number of Attendees
In-Person Workshops (n=30)	483
Online Webinars (n=15)	143
Total	626

AC&C lesson modules became available for download from the A4LNW website in February 2025. Since then, there have been 397 downloads of the AC&C lessons from 90 users across both urban and rural locations across Oregon (Figure CD-5.5).

Figure CD-5.5. A heat map showing the geographic distribution (based on zip codes) of people (based on unique email address) in Oregon who downloaded at least one AC&C lesson between February to August 2025. Bright colors show areas of higher density of downloads; cooler blue colors are lower density. Read a detailed description for Figure CD-5.5. in the appendix.



CD-5 Findings Summary – Applicability to and accessibility for students

Patterns

- **Patterns teachers that were surveyed and interviewed (n=29; 12 rural,17 urban) perceived that the curriculum was applicable to students, providing them with a number of important educational benefits including**:
    - Teaches critical thinking skills, especially through the use of inquiry-based strategies such as problem-based learning.
    - Promotes data literacy, especially the ability to interpret graphical data representations.
    - Is relevant to students when using local phenomena to ground the lessons.
    - Provides continuity both in the sequence of disciplines (physics, chemistry, and biology) and in ways of thinking scientifically.
- **Despite these benefits of the Patterns curriculum, teachers also noted some challenges with its applicability and accessibility for all students, particularly students with IEPs, English language learners, and students at rural schools and schools located outside of the Portland-Metro area**, including:
    - Language issues were a barrier for some students, particularly English language learners who may have difficulty accessing the academic vocabulary.

    - Language issues were a barrier for some students, particularly English language learners who may have difficulty accessing the academic vocabulary.
    - The phenomena used as the basis of the Patterns modules were often Portland-specific and therefore, not relevant for students in other districts, especially in rural districts, requiring extensive modification of the curriculum by rural teachers.
    - Too much content for some students to get through.
- **Patterns teachers also identified some challenges in terms of the curriculum itself, and its applicability and accessibility in different districts/regions** including:
    - The Patterns curriculum has not yet been added to the State of Oregon's approved Instructional Materials list, making it inaccessible for some teachers to use.
    - Some teachers in rural schools perceived that a lack of resources (e.g. financial, lab materials, technology), made Patterns less accessible.
    - Scheduling issues (e.g. class length) made Patterns use more difficult for some who had shorter classes (e.g., 45-minute class times, but Patterns labs require 90 minutes).
    - Three of the Patterns teachers that were interviewed felt that Patterns does not cover all of the NGSS standards for chemistry (2) or biology (1) and needed to be modified for future use.

Due to the challenges described above, all of the Patterns teachers that were surveyed and interviewed described modifying the curriculum to some extent to ensure that it was appropriate for their students and classrooms.

Exploring Computer Science

- **ECS teachers surveyed and interviewed perceived that the curriculum was applicable and accessible to students, providing them with a number of important educational benefits including:**
    - ECS teaches transferrable skills (e.g., problem solving, algorithmic thinking) that are broadly useful in other disciplines or educational pursuits.
    - The equity focus in ECS makes it more accessible for all students, including girls and students from populations that are not traditionally prevalent in CS.
    - ECS connects to students' lives in ways that make it relevant and useful.
    - ECS is accessible for a wide range of students with differing prior knowledge and experience.
- Only three current ECS teachers identified challenges associated with the applicability of ECS for students. Specifically, they perceived that **ECS was not challenging enough for students with ample prior computer science knowledge**.
- **Because computer science is an elective, it is not required to be taught in every high school so accessibility of ECS varied for students across the state, particularly for schools in rural districts.** Interviewees identified some specific, perceived challenges to accessibility of ECS and computer science:
    - Availability of teachers who have participated in ECS professional development.

- Availability of computer science-related resources (e.g., computers, fast internet) to support the ECS curriculum.
- Scheduling issues when multiple electives are offered at the same time.
- A persistent student-held belief that computer science is not accessible for them based on issues of social identity (e.g., girls).

CD-5 Conclusions

- **WRAP-sponsored course professional development was accessible for teachers across geographic regions, including both rural and urban schools.** Participation in both Patterns and ECS professional development increased for rural teachers over the timeframe of the WRAP. Opportunities for Arts professional development increased with the availability of AC&C workshops and webinars, reaching participants in different modalities (online and in-person) and geographies (in rural and urban areas).
- **The structure and delivery of professional development influenced teacher access.** The Patterns program's use of numerous online webinars during the timeframe of the WRAP substantially expanded reach, allowing many more science teachers to access this resource each year. In contrast, access to ECS professional development may have been somewhat restricted by the cohort model of professional development which could only accommodate a small number of teachers each year. While both models of professional development have benefits and challenges, if creating greater accessibility is the goal, future projects should consider the professional development distribution model when designing programs.
- **Despite widespread use of WRAP courses across Oregon, there were persistent curricular and structural challenges in availability and applicability in rural districts.** While some of the curricular challenges were addressed by WRAP (e.g., Patterns curriculum revisions to support rural teachers and students), structural issues (e.g., lack of resources) were outside of the scope of WRAP and will require interventions at the state or district level.

Course Access Structures (CAS)

CAS-1. How did students in WRAP courses experience self-efficacy, relevance, and enjoyment, and did it differ for different groups of students? To what extent were students engaged with the course content and to what extent do students see themselves using the skills and knowledge they learned in the future?

CAS-1 Data Sources

1. High School Science & Computer Science Teacher Survey (Patterns teachers n=14; ECS teachers n=3)
2. High School Science Teacher Interviews (Patterns teachers n=5)
3. High School Computer Science Teacher Interviews (ECS teachers n=7)
4. Elementary Teacher Interviews (n=6)
5. Patterns Student Satisfaction Survey (n=248)
6. ECS Student Satisfaction Survey (n=9)

CAS-1 Background

Student engagement and experience were key indicators for evaluating WRAP's Course Access Structures. To assess student outcomes—such as self-efficacy, relevance, enjoyment, and utility—the STEM Research Center (SRC) utilized two types of data: student survey data and WRAP teacher survey and interview data.

- The Oregon Department of Education (ODE) partnered with high school teachers to distribute feedback surveys to students enrolled in Patterns or Exploring Computer Science (ECS) courses. Patterns course feedback surveys yielded 248 student responses across subjects (Biology, Physics, and Chemistry) and grade levels (9th, 10th, and 11th). The ECS course feedback surveys yielded only 9 student responses, so there are limitations to the conclusions that can be made from these data. Note that geographic locale (i.e., rural or urban) was not collected in the student feedback surveys.
- Patterns and ECS teacher perspectives about student outcomes from the surveys and interviews provide additional insight into student engagement with these courses.

No findings related to this evaluation question are available for AC&C due to insufficient data: No elementary teachers surveyed had used AC&C, only one teacher interviewed had used AC&C, and the student feedback survey was implemented in only one classroom.

CAS-1 Findings Summary – Student Experience with ECS

- ∉ ECS seems to affirm students' existing computer science self-efficacy. This may be due to the fact that computer science is an elective course so students who choose to participate may already have interest and skills in computer science.
- ∉ ECS is perceived (by students and teachers) to be relevant to students' lives.
- ∉ Students enjoy the class (topics, projects, skills learned) and teachers perceive ECS as engaging and accessible for their students.

- Both students and teachers perceive the topics and skills covered in ECS (e.g., foundational understanding of computers and computer science; and inquiry skills) as useful and applicable for students' future goals.

Self-Efficacy: Most ECS students from the student satisfaction survey (67%; 6 of 9) reported some self-confidence in their computer science knowledge/skills that stayed consistent before and after taking ECS. Two students reported change: one reported increased confidence in their affirmative response before and after (from Agree to Highly Agree); one shifted from not considering themselves as someone who is good at computer science to Unsure.

Relevance: A majority of ECS students from the satisfaction survey reported that ECS topics had relevance to their lives *at least some of the time* (78%; 7 of 9) and perceived that their holistic self was valued in this class *at least some of the time* (67%; 6 of 9). Similarly, ECS teachers in the survey generally considered the ECS curriculum to be relevant to students' lives (67%, 2 of 3), as did the ECS teachers interviewed.

Enjoyment and Engagement: Most students in the satisfaction survey reported they looked forward to going to ECS (89%; 8 of 9). In an open-ended prompt, students shared their favorite aspects of the course, which included: building robots, using problem-solving and critical thinking skills; working with computers and coding; and an introduction to the potential of technologies. Similarly, ECS teachers in the survey found ECS to be interesting/accessible for students with identities that have historically been excluded from computer science (e.g., gender or ethnic/racial identities). They also indicated the curriculum is accessible for students with diverse needs and cognitively appropriate for their students, which are important entry points for engagement.

Utility for the Future: Most students in the satisfaction survey reported they believed the skills/knowledge they learned in the class would be useful for their future goals (89%; 8 of 9). ECS teachers surveyed indicated that ECS provides students with a foundational understanding of computers and computer science. ECS teachers interviewed perceived that ECS provides students with transferrable skills (including technology literacy and inquiry skills) that are broadly useful in other disciplines or educational pursuits.

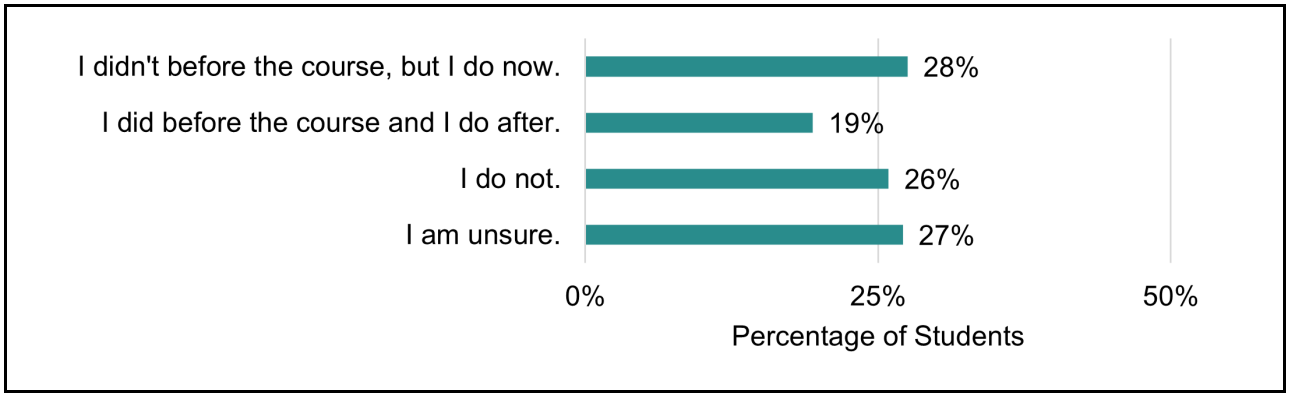
CAS-1 Findings Summary – Student Experience with Patterns

- **Patterns increased science self-efficacy for a third of student survey respondents** (Figure CAS-1.1).
- **Patterns was perceived by students (Figure CAS-1.2) and teachers (Figure CAS-1.4) to have relevance to students' lives, however rural teachers adapt curriculum and examples to be more relevant for their students.**
- **While most students (60%) reported looking forward to going to their Patterns science class nearly 40% said they rarely did so** (Figure CAS-1.5)**.** Students at the high school level have science course requirements, so many of the respondents likely had no choice but to attend their science class.

- **Patterns teachers reported some challenges with student engagement and accessibility**, describing that the curriculum is not easily adaptable for students with differing needs.
- **Both students and teachers perceive the topics and skills covered in Patterns (e.g., critical thinking and data literacy skills) as useful and applicable for students' future goals** (Figure CAS-1.6).

Self-Efficacy: 47% of Patterns respondents from the student satisfaction survey reported they have self-efficacy in science (that they either 'considered themselves as someone good at science' before and after the course or did not consider themselves as someone good at science before the course, but did after the course), more than half of whom reported that the Patterns course increased their self-efficacy in science (Figure CAS-1.1) (considered themselves as good at science after the course).

Figure CAS-1.1. Patterns students in the satisfaction survey (n=247) report retrospectively on their self-perception as 'someone who is good at science'. "**I consider myself as someone who is good at science.**" Read the data table for Figure CAS-1.1. in the appendix.



Relevance: Most Patterns students (63%) in the satisfaction survey reported the topics in the class were *at least sometimes* relevant to their own life and *at least sometimes* felt their personal identities were valued in the class (69%) (Figure CAS-1.2). In the teacher survey, Patterns teachers generally agreed (71%; 10 of 14) that the curriculum used phenomenon relevant to student (Figure CAS-1.4). In interviews, Patterns teachers perceived that the curriculum was relevant to students' lives by using Oregon-based phenomenon to exemplify concepts. However, rural teachers often found that Patterns phenomena were less relevant for their students, and several described making modifications to include phenomena localized to their region.

Figure CAS-1.2. Patterns students in the satisfaction survey reported on the relevance of the course to their lives (n=247). "**I could relate to the topics covered in this class to my own life**."

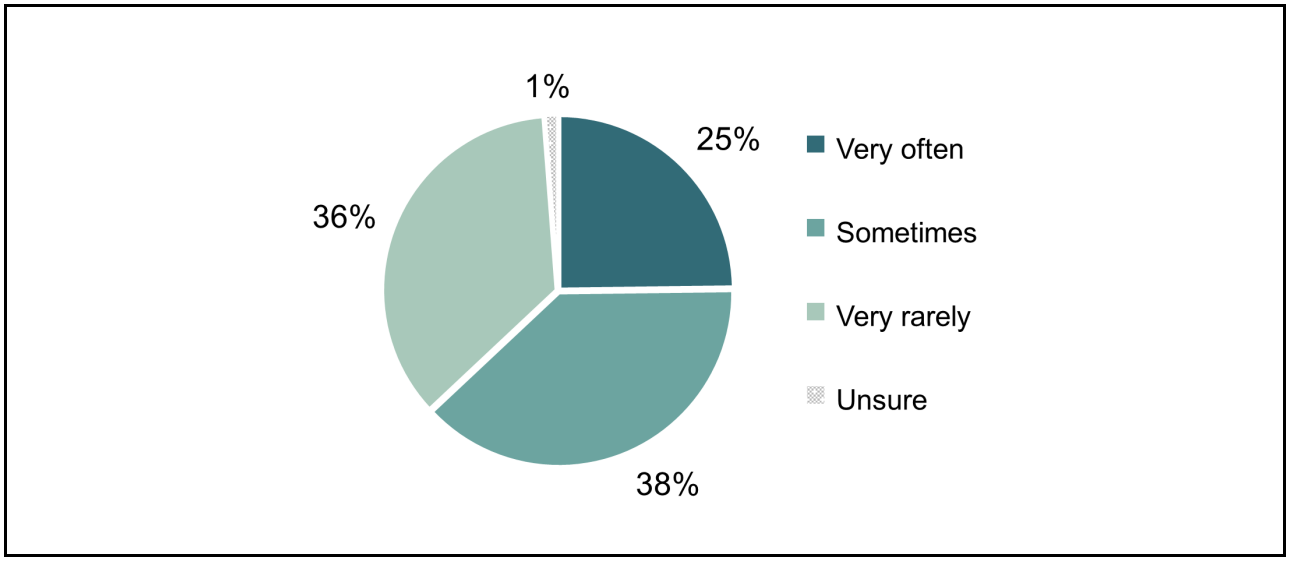


Figure CAS-1.3. Patterns students in the satisfaction survey reported on the relevance of the course to their lives (n=247). "**I felt like my personal experiences, culture, identities, and ways of being were valued in this class."**

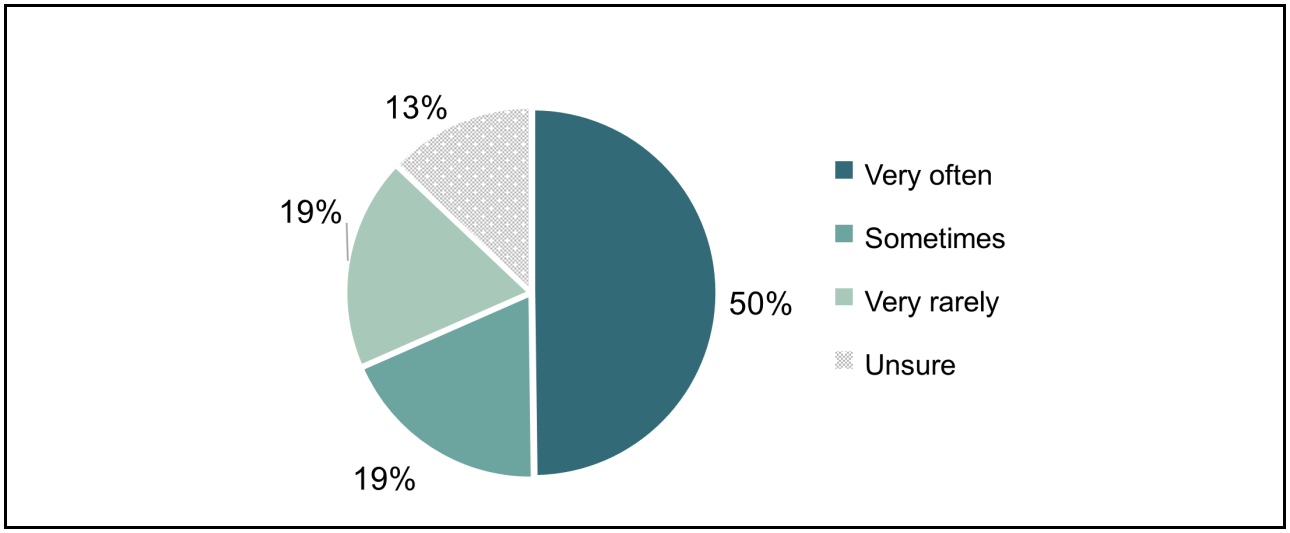
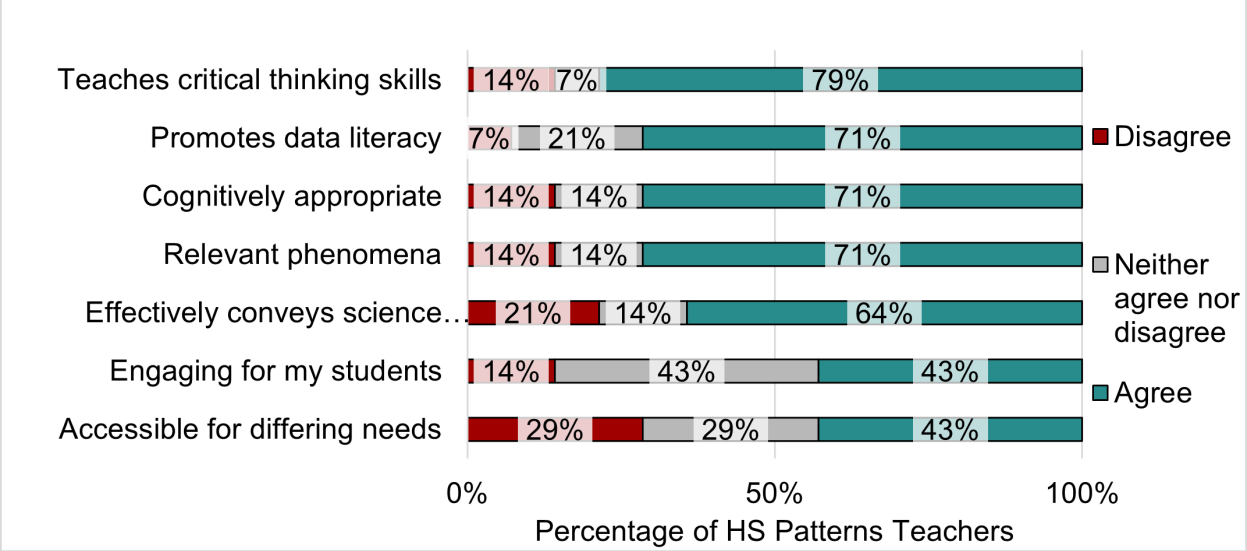


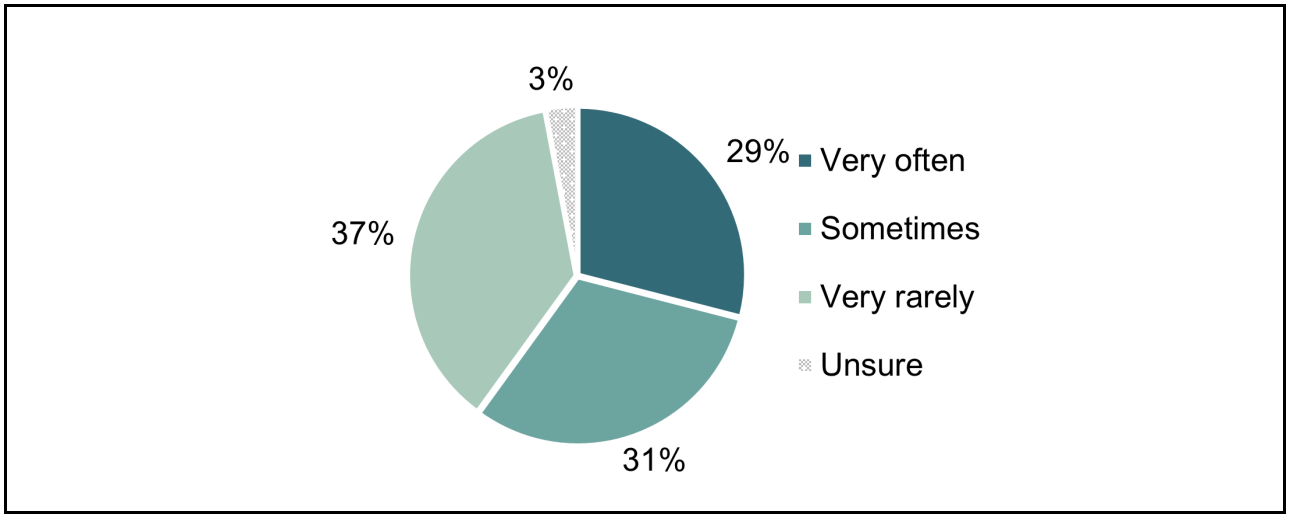
Figure CAS-1.4. Current Patterns teachers in the 2025 survey sample (n=14) rated the following Patterns elements on a scale from Disagree to Agree. Read the data table for Figure CAS-1.4. in the appendix.



Enjoyment and Engagement: 60% of Patterns students from the satisfaction survey reported they *at least sometimes* looked forward to going to their Patterns class (Figure CAS-1.5). In an open-ended prompt, students shared their favorite aspects of the course: working with other students and having in-class discussions, hands-on projects, and the variety of topics. Patterns teachers from the survey reported the curriculum was Cognitively Appropriate for students (71%), though only 43% found it Engaging for students or Accessible for students with differing needs (Figure CAS-1.4).

In the open-ended prompt about these aspects, some teachers (n=4) describe challenges with adapting the curriculum for students who are struggling with the cognitive load, particularly in abstract or higher-order tasks. Due to absences and varied student readiness, teachers (n=4) reported needing to slow down instruction or break concepts into smaller chunks. However, a few teachers (n=2) also shared that they have seen students who have previously struggled with the content gain confidence in content areas and these two teachers appreciated that students have opportunities within the curriculum to choose topics of interest, fostering ownership and deeper understanding.

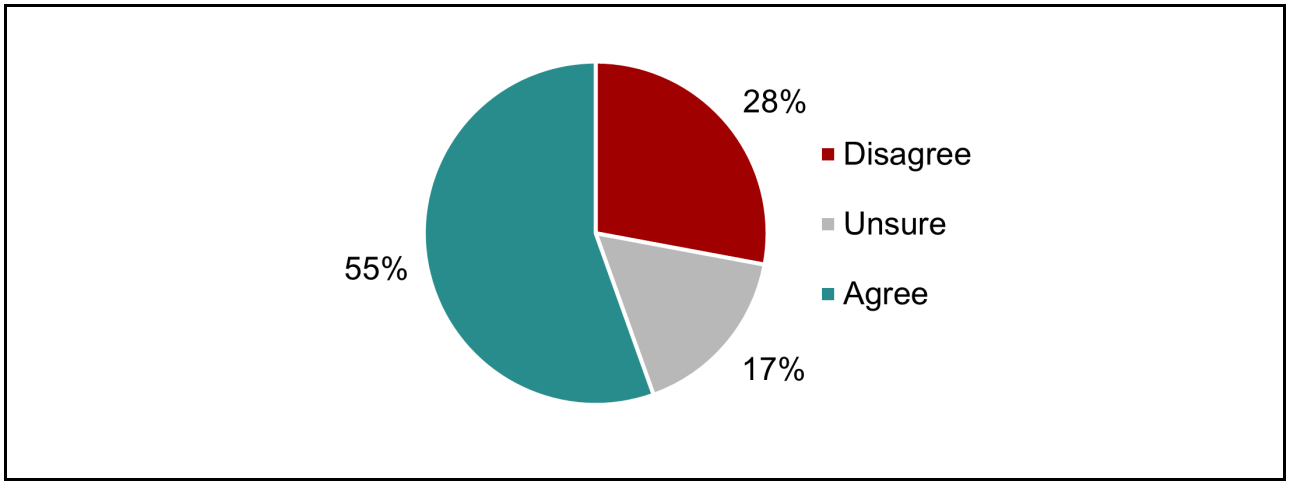
Figure CAS-1.5. Patterns students from the satisfaction survey (n=247) reported how frequently they looked forward to going to their Patterns class. (Note that original scale was condensed for clarity). "**I looked forward to going to this class.**"



Utility for the Future: A slight majority of Patterns students from the satisfaction survey Agreed that the skills/knowledge they gained through the class will be useful for their future goals (55%) (CAS-1.6). Patters teachers from the survey Agreed with interviewed teachers that the curriculum provided students with important educational benefits:

- Critical thinking skills, using inquiry-based strategies such as problem-based learning.
- Data literacy skills, especially the ability to interpret graphical representations.

Figure CAS-1.6. Patterns students from the satisfaction survey (n=247) reported their level of agreement to the following statement: "**I believe the things I learned in this class will be useful to achieve my future college, career, and/or life goals.**"



CAS-1 Conclusions

- **Limited student data and teacher perceptions suggest that WRAP courses were generally perceived as relevant and enjoyable by students, with indications that they may have promoted student self-efficacy.** Because these concepts are strongly correlated with persistence in STEM, it may be beneficial to include such assessments as part of the WRAP curriculum for future tracking purposes. In addition, these concepts should be assessed by geographic region (urban/rural) and social identity (gender, race/ethnicity) to better understand if and how they vary for different students.

CAS-2. What barriers to participation in well-rounded education persisted and for whom and why?

CAS-2 Data Sources

1. High School Science Teacher Interviews (n=23)
2. High School Computer Science Teacher Interviews (n=14)
3. Elementary Teacher Interviews (n=6)

CAS-2 Background

A central goal of WRAP was to increase access to a well-rounded education across Oregon, with a particular emphasis on STEAM and Arts opportunities in rural schools and districts.

The 2023 Baseline Report, informed by input from teachers, administrators, and community education partners, identified six major challenges to delivering STEAM and Arts education. WRAP directly addressed two of these:

1. Lack of knowledge base for some teachers when teaching STEAM or Arts-specific content
2. Lack of appropriate curriculum for teaching STEAM or Arts-specific content

To assess the persistence of these and other barriers, the STEM Research Center (SRC) conducted interviews with high school science and computer science teachers, as well as elementary classroom and arts teachers. Because “well-rounded education” can be interpreted in various ways, teachers were first asked to define the term in their own words. They were then asked to identify perceived barriers to achieving well-rounded education—either within their own schools or across Oregon more broadly.

CAS-2 Findings Summary

Definition of well-rounded education. Both high school science and computer science teachers, and elementary teachers were asked to describe how they would define well-rounded education. The most common themes of well-rounded education:

- Involves exposure to many different subjects/disciplines, including STEM, arts, and the humanities.
- Includes career-readiness, and 21st century/transferable skills (e.g., problem-solving, emotional intelligence, asking questions, metacognition).
- Requires access to and availability of hands-on learning opportunities and resources.
- Includes after school/out of school opportunities (e.g., clubs, programs, field trips).
- Relies on having well-educated/trained teachers.

Barriers to well-rounded education. Teachers were asked to describe barriers to well-rounded education either at their school or across Oregon broadly. Teachers’ perceptions of barriers fell into two categories and tended to be geographic in nature, affecting rural schools more than urban:

- Teacher preparedness
    - Interviewees perceived that rural school districts tend to attract early-careers science teachers and have trouble retaining teachers once they have gained experience.
    - Interviewees perceived that teachers in rural districts are commonly asked to teach a greater variety of science topics than those specifically within their academic background or for which they have an endorsement.
    - Interviewees perceived that there are too few teachers with prior training or experience in computer science, particularly in rural areas.
- Funding and resource availability
    - Interviewees perceived that small rural schools tend to have fewer options for electives that would provide well-rounded opportunities, such as Arts or computer science.
    - Interviewees perceived that rural schools and districts often have more limited access to technology, and funding for materials and equipment.
    - Interviewees perceived that rural schools and districts often have more limited access to funding for out-of-class experiences such as field trips, bringing in artists, or connecting students with career experiences.

CAS-2 Conclusions

- **Recruiting/retaining specialized teachers, providing adequate professional development and training, and resource/funding availability appear to be significant barriers for providing well-rounded education, especially in rural schools and districts.** The teachers interviewed did not identify a lack of curriculum as a significant barrier to providing well-rounded education.
- **Most of the barriers to well-rounded education that were identified by interviewed teachers are systemic in nature, and unlikely to be surmounted through solutions that focus on curriculum and professional development.**

CAS-3. To what extent did WRAP create sustainable options for course access and why?

CAS-3 Data Sources

1. ODE Leadership Interviews
2. High School Science Teacher Interviews (n=23)
3. High School Computer Science Teacher Interviews (n=14)

CAS-3 Background

Because WRAP was a 5-year program after which funding would no longer be available to support well-rounded education initiatives in Oregon, there was a strong effort to embed sustainability structures into the program to ensure that these efforts could continue after WRAP ended. To understand the extent to which WRAP created sustainable options for course access, the STEM Research Center (SRC) conducted interviews with administrators and leadership at the Oregon Department of Education (ODE). Interviews with high school teachers also provided insight into sustainability of the Patterns and ECS curriculum in the future and the elementary teacher survey reinforced needs for expanded Arts resources.

CAS-3 Findings Summary

There were a number of structural sustainability elements that were embedded in the WRAP to help ensure that access to high-quality STEAM and Arts-specific courses would be sustainable after WRAP ended.

- **Focus on existing projects.**
    - WRAP focused on expanding and revising two existing STEAM programs: Patterns and ECS. These programs already had financial support and were being utilized across Oregon.
    - WRAP provided additional funding for these established programs to update and grow. Specifically, WRAP focused on strengthening equity structures and enhancing accessibility for rural educators both of which may lead to greater utilization of these programs across Oregon in the future.
- **Develop new programs around unmet needs**.
    - WRAP worked with Arts for Learning Northwest to develop Arts, Care, & Connection (AC&C) lessons and associated professional development for elementary teachers in Oregon—resources that elementary teachers have reported are currently insufficient, so AC&C is meeting a current and persistent need for teachers across Oregon.
    - Lessons were intentionally aligned with the transformative SEL standards which elementary teachers are required to address, suggesting that they will be highly relevant and more likely to be utilized in the future.
- **Ensure long term availability of resources.**
    - The WRAP team has ensured that the resources created by the project, including Arts lessons, the Arts Access toolkit, and the STEAM toolkit, will be available for

download from the ODE website and/or the Oregon Open Learning site for the foreseeable future.
    - Particularly with elementary teachers, there already exists a robust grassroots network of teachers who can spread the word about Arts lessons potentially leading to more use of these resources.

While time will tell how successful the above strategies are in enhancing sustainability for course access, there is already some evidence from teachers that suggests these courses will continue to be utilized widely. Specifically, the majority of Patterns and ECS teachers who were interviewed and surveyed indicated that they would continue to use these curricula, even if not required by their school, reflecting the high value they place on these programs and suggesting promising potential for long-term sustainability of these programs.

CAS-3 Conclusions

There were a number of robust structural sustainability elements embedded in WRAP to ensure its success going forward. Future work could examine to what extent each of these elements contributed to the sustainability of the course access structures promoted in the WRAP.

CAS-4. What strategies were most successful at improving WRAP course access and why?

CAS-4 Data Sources

1. High School Science & Computer Science Teacher Survey (n=101)
2. High School Science Teacher Interviews (n=23)
3. High School Computer Science Teacher Interviews (n=14)
4. High School Science Teacher Focus Group Interviews (n=11)
5. High School Computer Science Teacher Focus Group Interviews (n=5)

CAS-4 Background

To understand what motivated teacher participation in WRAP-supported professional development, the STEM Research Center (SRC) analyzed data from surveys, interviews, and focus group interviews. These sources highlighted strategies that encouraged engagement with professional development for WRAP-supported courses: Patterns and Exploring Computer Science (ECS). Only one elementary teacher interviewed had used Arts, Care, & Connections (AC&C), therefore SRC was unable to answer this evaluation question related to AC&C.

CAS-4 Findings Summary: Patterns

- **The availability of stipends** for professional development attendance was important for science teachers in making decisions to attend professional development. Survey data show that 12/13 science teachers reported that the availability of stipends was one of the factors that influenced their decision to attend Patterns professional development and 6/13 reported they would not have attended without a stipend. In interviews and panels, science teachers also indicated the importance of stipends in making decisions to attend Patterns professional development: “the fact that we were offered stipends for participating in workshops is a big motivator.”
- **The availability of online webinars** offered in 2022-23, as opposed to in-person workshops led to increased access to professional development for some teachers. In interviews and panel discussions science teachers reflected on the challenges of in-person professional development (travel and cost) and how on-line webinars allowed them to participate in the professional development by providing a flexible schedule: “Virtual is really nice, especially if it's in the evening and you can get out of the school and if you can make it home and do it at home, I think that's really nice.”

CAS-4 Findings Summary: Exploring Computer Science

- **Interviewed teachers did not perceive that access to ECS had improved over the course of the WRAP.** In particular, the teachers who used ECS generally learned about it through a general internet search, heard about it from another teacher, or inherited it when they began to teach CS at their school.
- **Because of the cohort model utilized by ECS, it was not possible to accommodate more teachers than usual in professional development during the WRAP**

timeframe. Despite this limitation, cohort models for professional development can be a more effective strategy than one-off webinars or workshops for some teachers. For example, ECS teachers who participated in interviews and panel discussions indicated that the ECS cohort model helped build a sense of community, provided supportive learning environments and opportunities for collaboration, and helped build a sense of professional identity. Challenges with the cohort model included time commitments and lack of flexibility that could lead to attrition during multi-year programs.

CAS-4 Conclusions

- **The different structure and delivery of professional development utilized by different WRAP programs may have influenced their accessibility.** While both the on-line webinar and cohort models of professional development have benefits and challenges, if creating greater accessibility is the goal, future projects should consider the professional development structure and delivery when designing programs.

CAS-5. To what extent did WRAP-sponsored professional development opportunities increase teachers' perceptions of their ability to provide instruction related to social-emotional learning, trauma informed, culturally responsive, and linguistically inclusive teaching practices within the WRAP courses?

CAS-5 Data Sources

1. High School Science & Computer Science Teacher Survey (n=101)
2. High School Science Teacher Focus Group Interviews (Patterns teachers n=7)
3. High School Computer Science Teacher Focus Group Interviews (n=2)

CAS-5 Background

Each of the WRAP-funded programs attended to equity and inclusion in a variety of ways. Exploring Computer Science (ECS) and Arts, Care, & Connection (AC&C) explicitly addressed these issues throughout all curriculum modules and during professional development. High School Science for All (HSS4A) created professional development sessions called 'Professional Learning Communities' (PLCs)--small, instructor-led sessions designed to help teachers reflect on and improve their inclusive instructional practices.

To evaluate the impact of this professional development, the STEM Research Center (SRC) collected data on teachers' perceptions through: surveys administered in 2025 to high school teachers using Patterns and ECS who had attended relevant professional development and focus group interview to provide deeper context. Although similar survey questions were included for elementary teachers who had attended AC&C professional development and implemented lessons, no respondents met those criteria. As a result, SRC was unable to evaluate this question for AC&C.

Note: Survey response rates for the desired sub-sample (those who attended relevant Patterns and ECS professional development) were low (*Patterns* n=9; *ECS* n=2), and interview sample sizes were small (*Patterns* n=7; *ECS* n=2).

CAS-5 Findings Summary: Patterns Teachers' Perceptions

Social-Emotional Learning: There is little evidence that Patterns professional development increased teachers' perceptions of their ability to provide instruction related to social-emotional learning. Few survey respondents (1 of 9) reported the professional development impacted their teaching socio-emotional teaching practices. Focus group participants were able to list some facets of the Patterns *curriculum* that support socio-emotional learning, like elbow partners, A/B rotations, sentence frames and connections to students' lives. However, only two teachers briefly mentioned that the professional development introduced them to new teaching strategies around student discourse.

Trauma-Informed Practices: There is little evidence that Patterns professional development increased teachers' perceptions of their ability to provide instruction related to trauma informed teaching practices. Few survey respondents (1 of 9) reported the

professional development impacted their trauma-informed teaching practices and according to focus group participants, while Patterns curriculum offers some structural flexibility that can support trauma-informed teaching, it lacks explicit integration of trauma-sensitive strategies. Teachers agreed that trauma-informed teaching was not a central focus of Patterns professional development.

Culturally Responsive Teaching: There is little evidence that Patterns professional development increased teachers' perceptions of their ability to provide instruction related to culturally responsive teaching practices. Few survey respondents reported the professional development impacted their teaching culturally responsive teaching practices, though this category did receive more 'agreement' than the others (4 of 9). Focus group participants did not perceive the Patterns professional development impacted their teaching practice; they mentioned a few examples in *curriculum* the that bring in some cultural context (e.g., tribal history and health disparities), but its impact depends on how well teachers can adapt materials to their students' lived experiences and local contexts.

Linguistically Inclusive Practices: There is little evidence that Patterns professional development increased teachers' perceptions of their ability to provide instruction related to linguistically inclusive teaching practices. Spanish-language resources were appreciated, especially in communities with high number of Spanish speaking English language learning students but focus group participants did not indicate that the professional development impacted their practice around linguistic inclusivity.

CAS-5 Findings Summary: ECS Teachers' Perceptions

Focus group participants who attended ECS professional development and use the curriculum (n=2) discussed the extent to which they perceived ECS professional development as impacting their social-emotional learning, trauma informed, culturally responsive, and linguistically inclusive teaching practices.

There is little evidence that ECS professional development increased teachers' perceptions of their ability to provide instruction related to social-emotional learning, trauma informed, culturally responsive, and linguistically inclusive teaching practices. Both focus group participants agreed that the ECS professional development series was not designed with explicit emphasis on social-emotional learning, trauma-informed, or linguistically inclusive practice. Culturally responsive teaching was acknowledged as a component of the curriculum, though described as not deeply explored in the professional development. One of the two survey respondents found the ECS professional development to support social emotional learning, linguistically inclusive, and culturally responsive teaching practices, describing the value of working in a cohort of computer science teachers to share exemplary teaching strategies. Because this respondent is directly involved in the program as a professional development facilitator, their responses may be influenced by their position which should be considered when interpreting the data.

CAS-5 Conclusions

- **Teachers did not perceive an explicit focus on social-emotional learning, trauma informed, culturally responsive, or linguistically inclusive teaching practices**

within WRAP professional development. While teachers recognized elements of these instructional approaches in both Patterns and ECS curricula, embedding them more intentionally into professional development could increase implementation of these practices.

CAS-6. To what extent did teachers utilize course-sponsored professional development and course materials made available by WRAP and why or why not?

CAS-6 Data Sources

1. AC&C Professional Development Opportunities & Attendance Data
2. Patterns Professional Development Opportunities & Attendance Data
3. ECS Professional Development Opportunities & Attendance Data
4. High School Science & Computer Science Teacher Survey (n=101)
5. 2025 Elementary Arts & Computational Thinking Integration Teacher Survey (n=289)
6. High School Science Teacher Interviews (n=23)
7. High School Computer Science Teacher Interviews (n=14)
8. Elementary Teacher Interviews (n=6)

CAS-6 Background

To evaluate the extent to which teachers utilized course-sponsored professional development and course materials made available by WRAP, the STEM Research Center (SRC) examined enrollment data from Patterns, Exploring Computer Science (ECS), and Arts, Care, & Connection (AC&C) over the timeframe of WRAP. In addition, SRC used findings from surveys and interviews with high school science and computer science teachers, and elementary teachers to better understand how teachers utilized the course materials from the professional development in their classrooms.

CAS-6 Findings Summary—Patterns

- **Participation in Patterns webinars/workshops increased immediately after WRAP activities began, then decreased in the following years of the program (Figure CAS-6.1)**.
    - The total number of participants in Patterns professional development increased by nearly 50% in the first year of WRAP, 2/3 of which were first-time participants, which shows Pattern's reach was still expanding.
    - Although participation then decreased by 21% in the subsequent year, it was still higher than baseline participation numbers, and half were first-time participants.
    - In the final year of WRAP, participation fell to less than ½ of the baseline year and was mostly returning teachers.
    - The stipend cap implemented in January 2024 may have been a factor in the decreased participation of returning teachers in the final year of WRAP.
    - Although the number of professional development opportunities also decreased in 2024-25, this likely did not affect participation as many more teachers could have been accommodated (Figure CAS-6.2)

Figure CAS-6.1. The number of first-time and returning educators participating in Patterns webinars/workshops. Note that “first-time” and “returning” were calculated in relation to the baseline year only and some teachers may have participated in professional development in earlier years. Also, stipend caps were implemented in January 2024. Read the data table for Figure CAS-6.1. in the appendix.

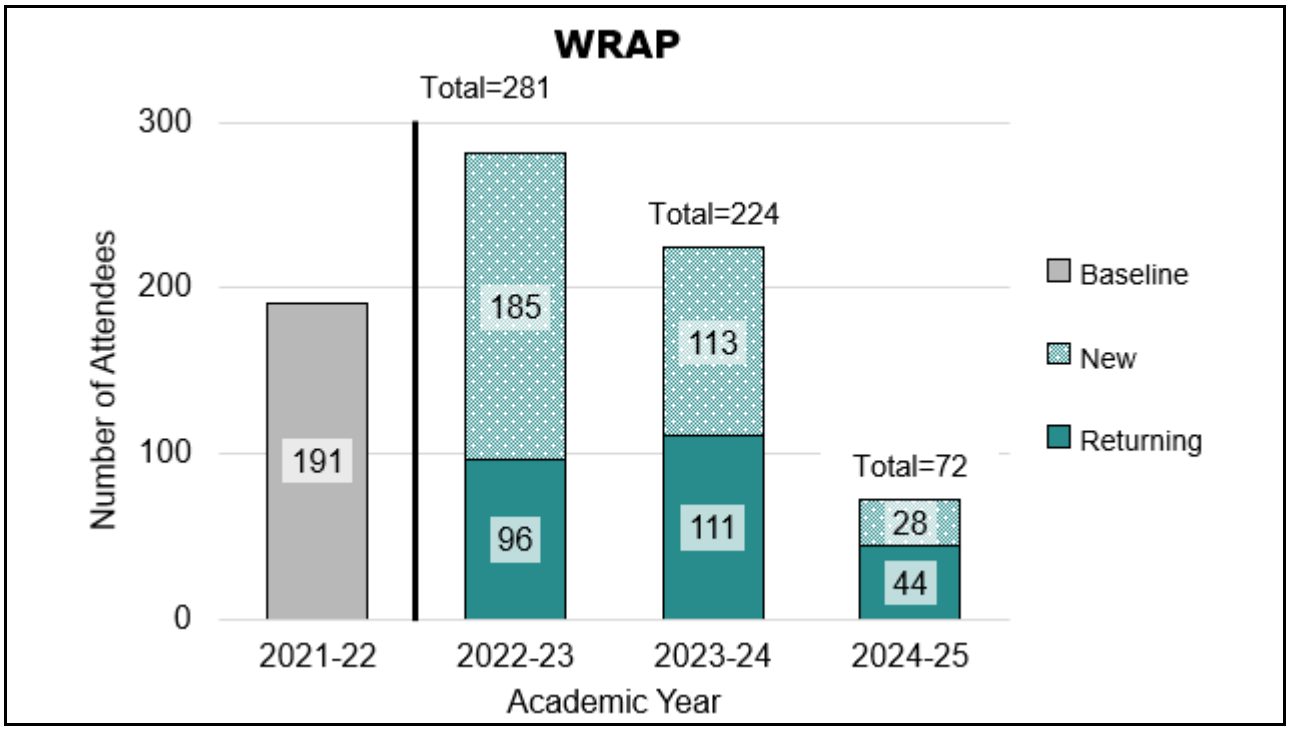
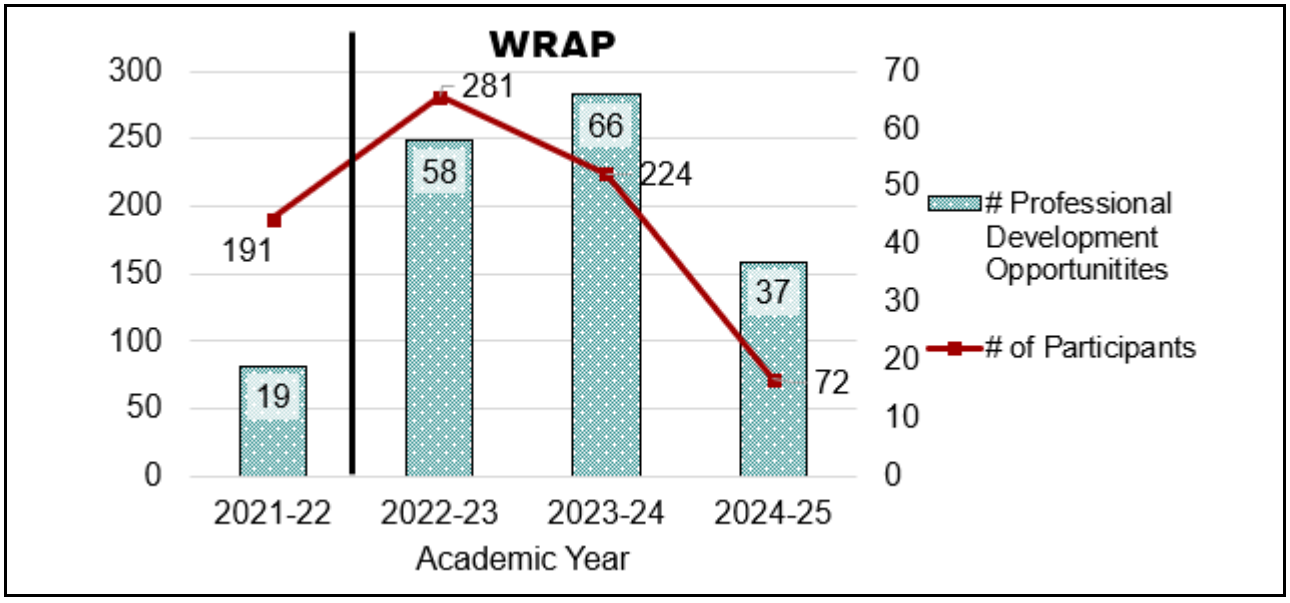


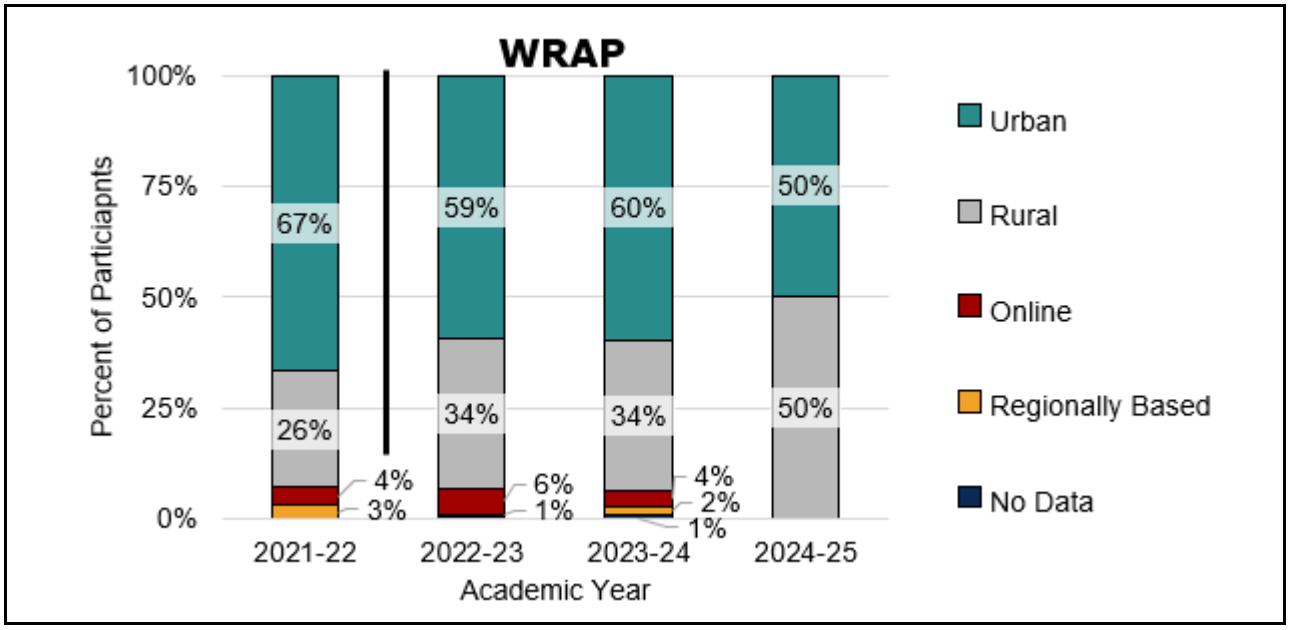
Figure CAS-6.2. Total number of Patterns workshops/webinars available each year and total number of teachers who participated. Read the data table for Figure CAS-6.2. in the appendix.



Participation in Patterns professional development by rural educators increased after WRAP activities began (Figure CAS-6.3).

- The number of rural participants doubled in the first year of WRAP. Although the number of rural participants decreased slightly the following year, it was still higher than baseline participation numbers.
- There was a higher proportion of first-time, rural participants (36%) in the first year of WRAP than in any other year.

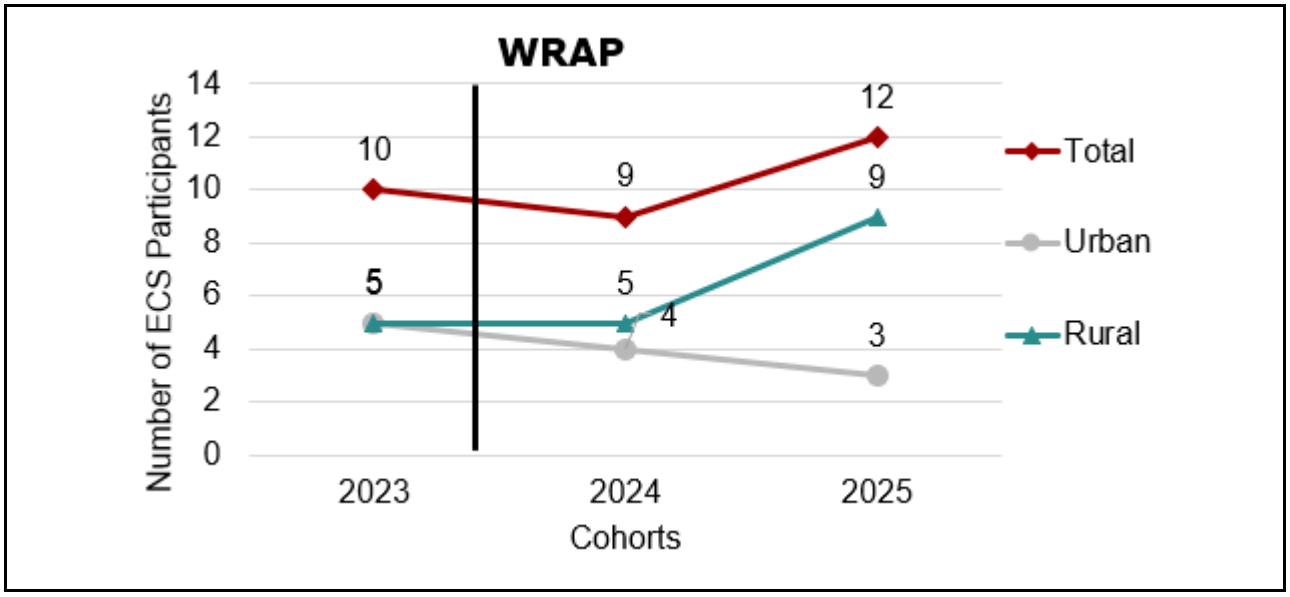
Figure CAS-6.3. Geographic distribution of Patterns professional development participants each year. Read the data table for Figure CAS-6.3. in the appendix.



CAS-6 Findings Summary—ECS

- **The total number of participants in ECS professional development remained constant over time** at around 10-12 teachers per year (Figure CAS-6.4). This was due to the cohort nature of this professional development program which provided continuous training to participating teachers over a 2-year time span.
- **The number of rural participants doubled in 2025** compared to the baseline year.

Figure CAS-6.4. Number of rural and urban teachers enrolled in ECS professional development during the baseline and WRAP-funded years. Read the data table for Figure CAS-6.4. in the appendix.



CAS-6 Findings Summary—Arts education resources

AC&C:

- A total of 45 professional development opportunities were hosted for AC&C from March 2024 through August 2025 (Table CAS-6.1), covering a range of topics from AC&C informational sessions to visual arts, music, and theater strategies.
- AC&C attendance totaled 626 people.
- Two-thirds of AC&C professional development sessions were hosted via in-person workshops and one-third were online webinars. In-person workshops tended to yield a higher number of attendees than online webinars.
- Of the in-person workshops, 50% were hosted in rural areas and 43% in urban areas.

Table CAS-6.1. Number of AC&C professional development offerings and attendance (3/2024-8/2025).

Format	Number of Offerings	Number of Attendees
In-Person Workshops	30	483
Online Webinars	15	143
Total	**45**	**626**

Arts Access Toolkit:

The Arts Access Toolkit is a collection of K-12 Arts education resources organized and disseminated by ODE. The intent of the toolkit is to provide a single location where educators

can learn more about standards-based art instruction, help with program implementation and ultimately increase access to and quality of student arts learning opportunities. From August 2024 to September 2025 the entire Arts Access Toolkit PDF was downloaded 115 times. Individual resources were downloaded 294 times.

CAS-6 Conclusions

- **A substantial number of high school science teachers from both rural and urban districts participated in Patterns professional development over the timeframe of WRAP, including a large number of returning participants**. The relatively low numbers of participating computer science teachers was a result of the cohort model of ECS which could not accommodate additional teachers.
- **Although the AC&C professional development and lesson modules became available late in the project, the preliminary evidence indicates that a substantial number of teachers may be willing to use these resources in the future.**

Communication (COM)

COM-1. To what extent did this program increase community, students, families, and educators' awareness of what STEAM and Arts education are and their benefits?

COM-1 Data Sources

1. High School Science & Computer Science Teacher Survey (n=101)
2. 2025 Elementary Arts & Computational Thinking Integration Teacher Survey (n=289)
3. High School Science Teacher Interviews (n=23)
4. High School Computer Science Teacher Interviews (n=14)
5. Elementary Teacher Interviews (n=6)
6. WRAP Newsletter Subscription Data
7. Arts Education Newsletter Subscription Data

COM-1 Background

Given WRAP's emphasis on supporting teachers through STEAM and Arts-specific professional development and curriculum materials, the STEM Research Center (SRC) first examined how teachers conceptualize and implement these approaches in their classrooms. Then, to understand educators' awareness of STEAM and Arts education, the SRC conducted surveys and interviews with high school and elementary teachers. Because STEAM can be interpreted in varied ways, teachers were first asked to define what STEAM means to them, followed by reflections on its benefits for students and how they integrate STEAM into their instruction (if at all). For Arts education, SRC focused on elementary teachers' perceptions of the value of Arts in the classroom.

The ODE WRAP team distributed a regular WRAP Newsletter and an Arts Education Newsletter via email to promote awareness of what STEAM and Arts are and their benefits, and to provide links to relevant resources (e.g., Arts Access Toolkit, AC&C professional development and lesson modules). The newsletters were opt-in only, meaning that people had to request to subscribe to the newsletters. ODE provided subscription data for the WRAP Newsletter and email delivery data for the Arts Education Newsletter, to show communication reach over time. Note: these data do not include any demographic data or information about the identity of subscribers (e.g., teacher, parent, etc.).

COM-1 Findings Summary

Awareness of STEAM. Overall, there was no indication that teachers' awareness of STEAM or perception of its benefits increased during the course of the WRAP, nor that STEAM is a district priority. However, high school science and computer science teachers, and elementary teachers were generally familiar with the concept of STEAM and considered it a valuable part of teaching.

Conceptualization of STEAM. While the definitions of STEAM differed slightly among teachers, there were certain themes that were mentioned often, across surveys and interviews, for high school and elementary teachers:

- STEAM involves integrating arts into STEM, especially as a tool for students to express
- their understanding or a means of science communication.
- STEAM can be seen as more of an approach (rather than a curriculum) that engages students in project-based learning, critical thinking, and real-world contexts.
- STEAM involves creativity in solving problems such as engineering and design activities.

Benefits of STEAM. Most teachers viewed the concept of STEAM positively and several reported significant benefits of STEAM curriculum for students including:

- Brings joy and fun to class
- Improves engagement and understanding
- Provides alternate entry point to and motivation for engagement
- Provides alternate ways to demonstrate science learning and understanding

Incorporating STEAM.

- Providing students with multiple options to show their knowledge/understanding (e.g., drawing a picture, creating a model)
- Incorporating projects that involve hands-on activities or real-world problems into the classroom
- In science classrooms, some teachers discussed incorporating science communication into project outcomes, as a STEAM practice
- Elementary teachers in interviews specifically discussed approaching STEAM through arts-integration (e.g., combining natural history and art or connecting geometry with art)

WRAP-Funded Programs as STEAM.

- In the 2025 survey, most respondents who currently use Patterns (86%; 12 of 14) considered Patterns to be STEAM curriculum: Patterns integrates engineering, math, and science in meaningful ways, with projects noted as a key strength. However, it is perceived to have weak arts-integration, with some teachers modifying the curriculum to enhance the art and problem-solving elements. This validates the current WRAP approach to making the arts-integration more explicit. In fact, new arts-integrated content was added during the 2024-25 school year but will likely not be downloaded and used by teachers until the 2025-26 school year.
- In the 2025 survey, 2 of the 3 respondents who currently use ECS considered it to be STEAM curriculum: of these, one respondent noted that ECS lessons and activities encourage discussion and are rich with projects.

Awareness and Benefits of Arts. Overall, there was no indication that elementary teachers' awareness of Arts education or perception of its benefits *increased* during the course of WRAP. However, elementary teacher interviews revealed that teachers were already aware of the benefits of Arts education for their students. For example:

1. Arts education promotes creativity which supports student self-expression.
2. Students find Arts activities highly engaging and fun.
3. Arts integration with other topics can facilitate instruction in other academic disciplines. For example, drawing can be used as a tool to improve reading comprehension.

STEAM and Arts Communications Reach

- The Arts Education Newsletters reached more email inboxes over time and open rates increased (Figure Com-1.1). Starting at 182 in January 2022, the Arts Education Newsletter email reached 1,644 inboxes when the letter was sent in September 2025, which is about an 800% increase. Email open rates were high and increased every year: averaging 35% in 2022, 41% in 2023, 62% in 204 and 67% in 2025.
- WRAP Newsletter subscriber numbers increased over time (Figure Com-1.2). The average number of WRAP Newsletter subscribers started at 320 in 2021 and grew to 2,050 by 2025, reflecting a 533% increase over time.

Figure Com-1.1. Arts Education Newsletter email deliveries and email open rates for delivered emails between January 2022 and June 2025. Read a detailed description for Figure Com-1.1. in the appendix.

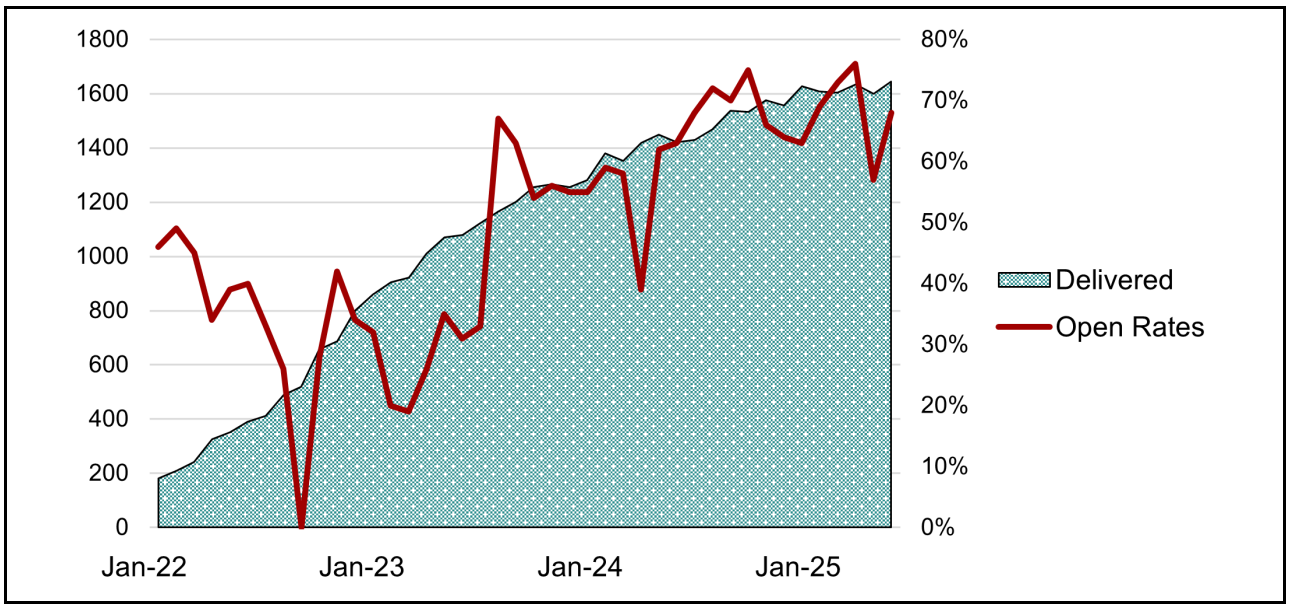
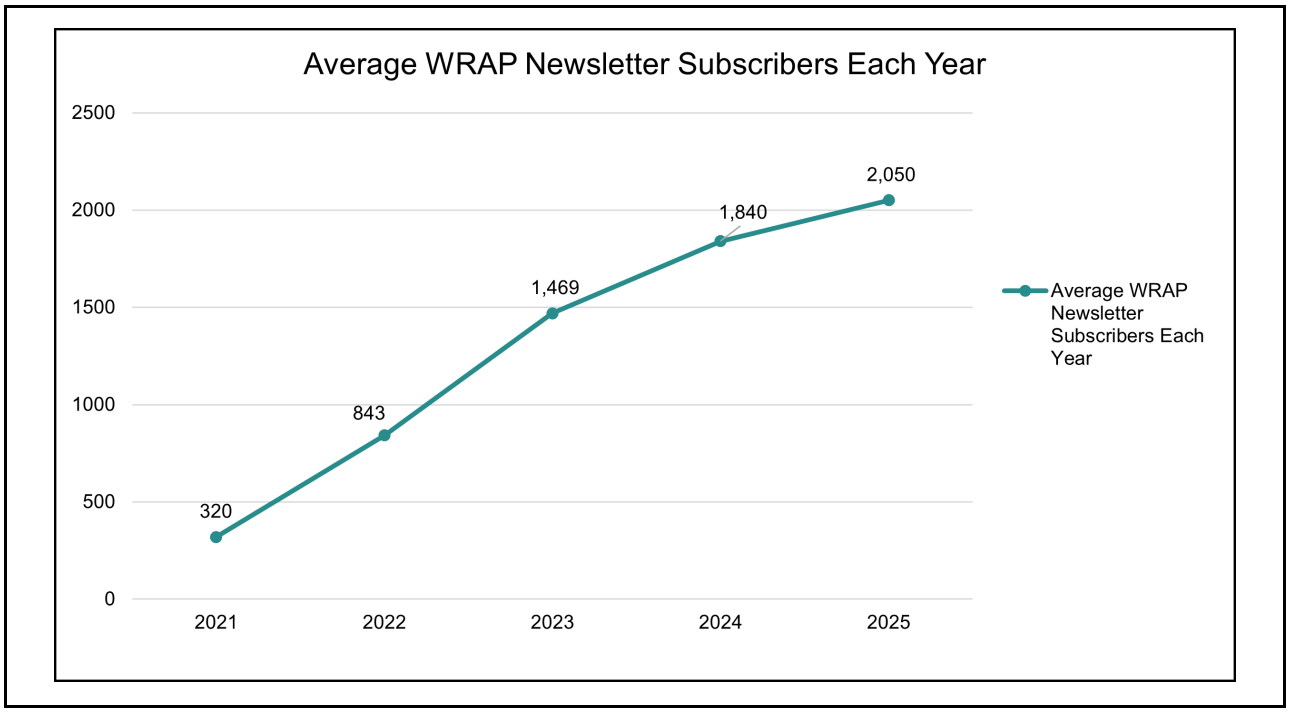


Figure Com-1.2. WRAP Newsletter subscriber numbers between October 2020 and September 2025. Read the data table for Figure Com-1.2. in the appendix.



COM-1 Conclusions

- **Teachers appear to recognize the value of STEAM and Arts education.** However, there was little evidence that either is a strong district priority across Oregon.
- **Evidence from newsletter subscriptions suggests that awareness of and interest in the benefits of well-rounded and Arts education may have increased over the timeframe of WRAP.** The growing interest in both the WRAP and Arts newsletters suggests that there may be opportunities for increasing awareness of the benefits of Arts and well-rounded education through similar communication efforts in the future.

COM-2. To what extent did school administrators understand their funding options for access to well-rounded courses and to what extent were these funding options utilized?

COM-2 Data Sources

1. WRAP Website Data Analytics

COM-2 Background

WRAP conducted a funding webinar for administrators that took place on 10/28/22 and subsequently made the webinar and a funding learning guide available for download on the WRAP website. In the 2023 Baseline Report, the STEM Research Center (SRC) reported that there were few downloads for each item during 2023 and that administrators' awareness of available funding sources was low. Our intent for this report was to use website data analytics to examine the number of downloads in the subsequent years of WRAP. However, since the second year of WRAP, there have been significant changes in funding sources, making the information from the webinar obsolete, and necessitating the removal of the webinar recording from the website. Updated funding information has been added to the Arts Access Toolkit and will be added to the STEAM Toolkit. However, data analytics do not identify who downloaded these items (e.g., administrator, teacher), so it was not possible to evaluate this question with the available data.

COM-2 Findings Summary

The question could not be evaluated with current data.

COM-2 Conclusions

- **Administrators' awareness of funding sources for well-rounded courses was low at the beginning of WRAP and likely did not increase over the timeframe of WRAP.** This appears to be an area where further communication may be beneficial. Future work could examine if the funding information included in the Arts Access and STEAM Toolkits increases administrators' awareness of funding sources.

APPENDICES

Appendix A. Description of datasets and sources used to inform the summative evaluation.

Appendix	Dataset	Source	Date	Focus	Sample size	Participants
N/A	Statewide Arts Course Availability Data	ODE	2018-2024	Arts course availability	-	Oregon elementary schools
B	2023 Elementary Science & Arts Integration Teacher Survey	SRC	2023	K-5 students	270	Elementary classroom and arts teachers
C	2025 Elementary Arts & Computational Thinking Integration Teacher Survey	SRC	2025	Elementary teachers	289	Elementary classroom and arts teachers
N/A	AC&C Professional Development Opportunities & Attendance Data	A4LNW	2024-2025	AC&C professional development	N/A	Elementary classroom and arts teachers
N/A	AC&C Lesson Web Analytics	A4LNW	2025	Arts availability and access	N/A	N/A
D	Elementary Teacher Interviews	SRC	2025	Arts instruction	6	Elementary classroom and arts teachers
E	High School Science & Computer Science Teacher Survey	SRC	2025	STEAM instruction	101	HS science and CS teachers
N/A	Patterns Professional Development Opportunities & Attendance Data	HSS4A	2017-2025	Patterns professional development	N/A	HS science teachers
N/A	ECS Professional Development Opportunities & Attendance Data	ECS	2023-2025	ECS professional development	N/A	HS CS teachers
N/A	WRAP Website Data Analytics	ODE	2024-2025	WRAP resource communication	N/A	Educators, administrators, community partners, general public
F	High School Science Teacher Interviews	SRC	2024	STEAM instruction	23	Patterns and non-Patterns HS science teachers

G	High School Science Teacher Focus Group Interviews	SRC	2025	STEAM instruction	11	Patterns and non-Patterns HS science teachers
H	High School Computer Science Teacher Interviews	SRC	2025	STEAM instruction	15	ECS and non-ECS HS computer science teachers
I	High School Computer Science Teacher Focus Group Interviews	SRC	2025	STEAM instruction	5	ECS and non-ECS HS computer science teachers
N/A	ODE Leadership Interviews	SRC	2025	WRAP sustainability	-	ODE leadership
J	Patterns Student Satisfaction Survey	ODE	2024 & 2025	Patterns student experience	248	HS Students
K	ECS Student Satisfaction Survey	ODE	2025	ECS student experience	9	HS Students
N/A	WRAP Newsletter Subscription Data	ODE		WRAP communication	N/A	Unknown
N/A	Arts Education Newsletter Subscription Data	ODE	2022-2025	Arts communication	N/A	Unknown

Appendix B. Elementary Teacher Science & Arts Teaching Survey

METHODOLOGY

This survey was distributed by the Oregon Department of Education to a listserv that included elementary teachers and administrators. A link and request for participation were also published in the WRAP newsletter and other ODE publications. 311 responses were received. 274 respondents identified their teaching position (88%) and were included in our analysis. The 274 respondents included 16 art teachers (6%), 32 music teachers (12%), 62 “other teachers” (23%), and 164 classroom teachers (60%).

SURVEY QUESTIONS

Introduction

The Oregon State University STEM Research Center has been contracted by the Oregon Department of Education (ODE) to conduct an evaluation of the Well-Rounded Access Program (WRAP). The essential aim of WRAP is to expand the access of STEAM and arts courses across Oregon, especially in communities that have not had these opportunities for their students in the past. Although there are many important content areas that constitute a well-rounded program, ODE would like a better understanding of how science and the arts are taught in elementary school, both topic areas and frequency of instruction. We are asking you to complete this survey to inform future STEM/STEAM and arts education efforts in K-5 grades. In this survey arts include visual arts, music, theater, media arts and dance.

1. What is your current teaching position in your school? Please choose your primary position.
    a. Classroom Teacher
    b. Music Teacher
    c. Arts Teacher
    d. Physical Education Teacher
    e. Other

Please answer the next two questions about science teaching at your school to the best of your ability. We realize that some elementary teachers may not have direct experience related to these two questions.

2. Is science teaching part of your school's recommended teaching schedule?
    a. Yes
    b. No
    c. Not sure
3. Do other professionals come to your school to teach science? For instance, instructors from a STEM Hub or business/industry professionals.
    a. Yes
    b. No
    c. Not sure

CLASSROOM TEACHERS: SCIENCE INSTRUCTION

The next set of questions ask about your teaching of science in the classroom.

4. During your teaching this past year, did you have dedicated time in your schedule for teaching just science topics?
    a. Yes
    b. No
5. When you teach science, what is the frequency of your teaching?
    a. Each day
    b. 2-3 times per week
    c. 1 time per week
    d. Every other week
    e. Other
6. Approximately how much total time do you spend teaching science each week? For example, if you teach 20 minutes three days per week you would choose 30 to 60 minutes.
    a. Less than 30 minutes
    b. 30 to 60 minutes
    c. More that 60 minutes. If more than 60 minutes, please specify the amount of time
7. Do you teach science as part of teaching other subjects? We refer to this as "integrated content".
    a. Yes
    b. No
8. In which other subjects do you cover science topics? Choose all that apply.
    a. Reading
    b. Math
    c. Arts
    d. Social Studies
    e. Health topics
    f. Other (please specify)
9. When you teach science as integrated content, approximately what is the frequency of your teaching?
    a. Each day
    b. 2-3 times per week
    c. 1 time per week
    d. Every other week
    e. Other
10. Approximately how much total time do you spend teaching science as integrated content each week?
    a. Less than 30 minutes
    b. 30 to 60 minutes
    c. More than 60 minutes. If more than 60 minutes, please specify the amount of time
11. When you teach science either as a standalone or integrated content, what science topics do you cover? Choose all that apply.
    a. Astronomy
    b. Biology

c. Chemistry
d. Earth Science
e. Nature/Environmental Topics
f. Engineering
g. Physics
h. Weather and Climate
i. Health
j. Other

12. When you teach science either as a standalone or integrated content, what resources do you use? Choose all that apply.
    a. I use a kit/curriculum from the school or school district
    b. I use a kit/curriculum from the Education Service District
    c. I use a kit/curriculum from a STEM Hub
    d. I develop my own science lessons and curriculum
    e. I use curriculum and lessons that I get from other teachers in my school
    f. I use curriculum and lessons that I get from other teachers outside my school
    g. I use materials from internet sources (e.g., PBS Learning Media, Oregon Open Learning, Mystery Science, etc.)
    h. Other
13. When you teach science either as a standalone or integrated content, how do you choose which science topics to teach? Choose all that apply.
    a. I am guided by national (e.g., NGSS) or state standards
    b. I choose what I think is interesting
    c. I choose what I think will be interesting to my students
    d. I coordinate with other grade teachers on what to teach
    e. I use a given curriculum
    f. Other
14. What are some obstacles that prohibit or impede you from teaching science?
15. In the past year have you participated in science related professional development?
    a. Yes
    b. No

CLASSROOM TEACHERS: ART INSTRUCTION

The next series of questions ask about your experience with standard-based art teaching.

16. Is arts teaching part of your school's recommended teaching schedule for classroom teachers?
    a. Yes
    b. No
17. During your teaching this past year, did you have dedicated time in your schedule for teaching just art topics?
    a. Yes
    b. No
18. When you teach arts as part of your teaching, approximately what is the frequency of your teaching

    a. Each day
    b. 2-3 times per week
    c. 1 time per week
    d. Every other week
    e. Other
19. When you teach arts as part of your teaching, approximately how much total time do you spend teaching arts each week?
    a. Less than 30 minutes
    b. 30 to 60 minutes
    c. More than 60 minutes. If more than 60 minutes, please specify the amount of time
20. In addition, or instead of dedicated time teaching arts, do you also cover art topics as part of teaching other subjects? We refer to this as "integrated content".
    a. Yes
    b. No
21. Into what other subjects do you integrate standards-based art instruction? Choose all that apply.
    a. Reading
    b. Math
    c. Social Studies
    d. Health Topics
    e. Science
22. When you integrate arts as part of your teaching, approximately what is the frequency of your teaching?
    a. Each day
    b. 2-3 times per week
    c. 1 time per week
    d. Every other week
    e. Other
23. When you integrate arts as part of your teaching, approximately how much total time do you spend teaching arts each week?
    a. Less than 30 minutes
    b. 30 to 60 minutes
    c. More than 60 minutes. If more than 60 minutes, please specify the amount of time
24. Which arts disciplines do you teach either as a standalone topic or integrated content? Please choose all that apply.
    a. Visual arts
    b. Media arts
    c. Music
    d. Dance
    e. Theatre
25. In your school, which of the following arts disciplines are taught as pull-out classes when students receive instruction from an arts teacher? Choose all that apply.

a. Visual arts
b. Media arts
c. Music
d. Dance
e. Theatre
f. There are no pull-out arts courses in my school

26. In the past year have you participated in arts related professional development?
    a. Yes
    b. No

ART AND MUSIC TEACHERS

27. Which arts disciplines do you teach? Please choose all that apply.
    a. Visual arts
    b. Music
    c. Dance
    d. Theatre
    e. Media arts
28. In a week, how much time do students at your school receive pull out arts instruction in your art area?
    a. Less than 30 minutes
    b. 30 to 60 minutes
    c. More than 60 minutes. If more than 60 minutes, please specify the amount of time
29. During your teaching this past year, did you integrate science topics with your arts instruction?
    a. Yes
    b. No
30. How often do you integrate science topics in your instruction?
    a. Each day
    b. 2-3 times per week
    c. 1 time per week
    d. Every other week
    e. Other
31. Approximately how much total time do you spend teaching integrated science content each week? (If you teach more than one class of students, answer with an average for just one of your classes.)
    a. Less than 30 minutes
    b. 30 to 60 minutes
    c. More than 60 minutes. If more than 60 minutes, please specify the amount of time
32. What science topics do you cover when you teach integrated science content? Choose all that apply.
    a. Astronomy/Space Science
    b. Biology

    c. Chemistry
    d. Earth Science
    e. Nature/Environmental Topics
    f. Engineering
    g. Physics
    h. Weather and Climate
    i. Health
    j. Other
33. What resources do you use when you teach science? Choose all that apply.
    a. I use kits/curriculum from the school or school district
    b. I use kits/curriculum from the Education Service District
    c. I use a kits/curriculum from a STEM Hub
    d. I develop my own science lessons and curriculum
    e. I use curriculum and lessons that I get from other teachers in my school
    f. I use curriculum and lessons that I get from other teachers outside my school
    g. I use materials from internet sources (e.g., PBS Learning Media, Oregon Open Learning, Mystery Science, etc.)
    h. Other
34. How do you choose which science topics to teach/integrate? Choose all that apply.
    a. I am guided by national (e.g., NGSS) or state standards
    b. I choose what I think is interesting
    c. I choose what I think will be interesting to my students
    d. I coordinate with other grade teachers on what to teach
    e. I use a given curriculum
35. What are some obstacles that prohibit or impede you from integrating science topics into your arts instruction?
36. During your teaching this past year, did you integrate other art topics with your regular art instruction? For instance, music and dance?
    a. Yes
    b. No
37. What other subjects did you integrate into your standard arts instruction? Please choose disciplines that you do not teach as part of your usual instruction.
    a. Visual Arts
    b. Music
    c. Dance
    d. Theatre
    e. Media Arts
38. How often do you integrate other art topics in your arts instruction?
    a. Each day
    b. 2-3 times per week
    c. 1 time per week
    d. Every other week
    e. Other

39. Approximately how much total time do you spend integrating other art topics in your arts instruction each week? (If you teach more than one class of students, answer with an average for just one of your classes.)
    a. Less than 30 minutes
    b. 30 to 60 minutes
    c. More than 60 minutes. If more than 60 minutes, please specify the amount of time
40. In the past year have you participated in arts related professional development?
    a. Yes
    b. No

PHYSICAL EDUCATION TEACHERS: SCIENCE AND ART INTEGRATION

41. During your teaching this past year, did you have dedicated time in your schedule for teaching science topics integrated with your physical education instruction, for instance health topics?
    a. Yes
    b. No
42. How often do you integrate science topics in your instruction?
    a. Each day
    b. 2-3 times per week
    c. 1 time per week
    d. Every other week
    e. Other
43. Approximately how much total time do you spend teaching integrated science content each week? (If you teach more than one class of students, answer with an average for just one of your classes.)
    a. Less than 30 minutes
    b. 30 to 60 minutes
    c. More than 60 minutes. If more than 60 minutes, please specify the amount of time
44. What science topics do you cover when you teach integrated science content? Choose all that apply.
    a. Astronomy/Space Science
    b. Biology
    c. Chemistry
    d. Earth Science
    e. Nature/Environmental Topics
    f. Engineering
    g. Physics
    h. Weather and Climate
    i. Health
    j. Other
45. What resources do you use when you teach science? Choose all that apply.
    a. I use kits/curriculum from the school or school district

    b. I use kits/curriculum from the Education Service District
    c. I use a kits/curriculum from a STEM Hub
    d. I develop my own science lessons and curriculum
    e. I use curriculum and lessons that I get from other teachers in my school
    f. I use curriculum and lessons that I get from other teachers outside my school
    g. I use materials from internet sources (e.g., PBS Learning Media, Oregon Open Learning, Mystery Science, etc.)
    h. Other
46. How do you choose which science topics to integrate? Choose all that apply
    a. I am guided by national (e.g., NGSS) or state standards
    b. I choose what I think is interesting
    c. I choose what I think will be interesting to my students
    d. I coordinate with other grade teachers on what to teach
    e. I use a given curriculum
47. What are some obstacles that prohibit or impede you from integrating science topics in your physical education instruction?
48. During your teaching this past year, did you have dedicated time in your schedule for teaching art topics integrated with your regular physical education instruction, for example dance?
    a. Yes
    b. No
49. What art subjects do you integrate into your physical education instruction? Choose all that apply.
    a. Visual Arts
    b. Music
    c. Dance
    d. Theatre
    e. Media Arts
50. How often do you integrate art topics in your physical education instruction?
    a. Each day
    b. 2-3 times per week
    c. 1 time per week
    d. Every other week
    e. Other
51. Approximately how much total time do you spend integrating other art topics in your physical education instruction each week? (If you teach more than one class of students, answer with an average for just one of your classes.)
    a. Less than 30 minutes
    b. 30 to 60 minutes
52. More than 60 minutes. If more than 60 minutes, please specify the amount of time
53. What are some obstacles that prohibit or impede you from integrating art topics into your physical education instruction?

NON-CLASSROOM TEACHER QUESTIONS

Please tell us your primary teaching responsibility in your school

54. In your primary teaching job, do you have opportunities to integrate science instruction in your work?
    a. Yes
    b. No
55. How often do you integrate science topics in your instruction?
    a. Each day
    b. 2-3 times per week
    c. 1 time per week
    d. Every other week
    e. Other
56. Approximately how much total time do you spend integrating science topics in your instruction? (If you teach more than one class of students, answer with an average for just one of your classes.)
    a. Less than 30 minutes
    b. 30 to 60 minutes
    c. More than 60 minutes. If more than 60 minutes, please specify the amount of time
57. What science topics do you cover when you teach integrated science content? Choose all that apply.
    a. Astronomy/Space Science
    b. Biology
    c. Chemistry
    d. Earth Science
    e. Nature/Environmental Topics
    f. Engineering
    g. Physics
    h. Weather and Climate
    i. Health
    j. Other
58. What resources do you use when you teach science? Choose all that apply.
    a. I use kits/curriculum from the school or school district
    b. I use kits/curriculum from the Education Service District
    c. I use a kits/curriculum from a STEM Hub
    d. I develop my own science lessons and curriculum
    e. I use curriculum and lessons that I get from other teachers in my school
    f. I use curriculum and lessons that I get from other teachers outside my school
    g. I use materials from internet sources (e.g., PBS Learning Media, Oregon Open Learning, Mystery Science, etc.)
    h. Other
59. How do you choose which science topics to teach/integrate? Choose all that apply.
    a. I am guided by national (e.g., NGSS) or state standards
    b. I choose what I think is interesting

    c. I choose what I think will be interesting to my students
    d. I coordinate with other grade teachers on what to teach
    e. I use a given curriculum
60. What are some obstacles that prohibit or impede you from integrating science in your teaching?
61. In your primary teaching job, do you have opportunities to integrate art instruction in your work?
    a. Yes
    b. No
62. What art subjects do you integrate into your instruction? Choose all that apply.
    a. Visual Arts
    b. Music
    c. Dance
    d. Theatre
    e. Media Arts
63. How often do you integrate arts topics in your instruction?
    a. Each day
    b. 2-3 times per week
    c. 1 time per week
    d. Every other week
    e. Other
64. Approximately how much total time do you spend integrating arts topics in your instruction? (If you teach more than one class, answer with an average for just one of your classes.)
    a. Less than 30 minutes
    b. 30 to 60 minutes
    c. More than 60 minutes. If more than 60 minutes, please specify the amount of time
65. What are some obstacles that prohibit or impede you from integrating art into your teaching?

Appendix C. Elementary Teacher Survey 2025

METHODOLOGY

To obtain a representative sample, the Oregon State University STEM Research Center (SRC) selected a proportional, stratified random sample of 200 elementary schools from 5 geographic regions in rural and urban areas of Oregon: Central, Coastal, Eastern, Portland Metro and Willamette Valley, Southern, and Columbia Gorge. From each of those schools, a list of all elementary school (K-6th grades) classroom and arts teachers was compiled, to whom the SRC sent personalized survey links. Overall, 1,780 elementary teachers from 128 schools were contacted; of those contacted, 95% of surveys were successfully delivered (n=1,691). In total, 289 respondents completed the survey, reflecting a 17% response rate. One-hundred and nine schools were represented: 47 rural schools (43%) and 62 urban schools (57%) which nearly matches the statewide proportion of rural and urban elementary schools (46% rural, 54% urban). In total, 251 of respondents were Classroom teachers, 19 respondents were Arts teachers (e.g., visual arts, music, media arts, etc.), and 19 taught Other (e.g., learning specialist, substitute teacher, counselor), including 2 STEAM teachers.

SURVEY QUESTIONS

Introduction

Thank you for taking part in in this survey!
The STEM Research Center at Oregon State University is evaluating the Oregon Department of Education's Well-Rounded Access Program, and this survey is centered on perspectives and experiences of Oregon elementary classroom and arts teachers.
The survey should take 5-10 minutes to complete, and the first 200 of respondents will have the option to receive a $25 digital gift card. Your responses will be kept confidential, and only data summaries will be shared with ODE. Thank you in advance for sharing your experiences.
Please feel free to contact the evaluation lead Nancy Staus if you have any questions.

Background Information

1. Geographically do you consider your school district to be rural? (yes or no)
2. What is your current teaching position in your school? Please choose your primary position.
    a. Classroom teacher
    b. Arts teacher (e.g., visual arts, music, media arts, etc.)
    c. Other: (FILL IN)

Classroom Teachers: Instruction Time for Arts

3. Is arts instruction part of your school's recommended teaching schedule for classroom teachers?
    a. Yes
    b. No
    c. Unsure
4. In your school, are there required pullout arts courses?

    a. Yes
    b. No
    c. Unsure
5. In the past year, have you personally engaged in arts instruction in your classroom?
    a. Yes
    b. No

Classroom Teachers Who Teach Arts

6. What kinds of art(s) do you teach? Choose all that apply.
    a. Music and/or band
    b. Dance
    c. Theater
    d. Visual arts
    e. Media arts
    f. Other: (FILL IN)
7. When you teach arts as part of your teaching, approximately what is the frequency of your teaching?
    a. Each day
    b. 2-3 times per week
    c. 1 time per week
    d. Every other week
    e. Other: (FILL IN)
8. When you teach arts as part of your teaching, approximately how much total time do you spend teaching arts each week?
    a. Less than 30 minutes
    b. 30-60 minutes
    c. More than 60 minutes. If possible, please specify time: (FILL IN)
9. Where do you go to find resources (e.g., curriculum, activities) for teaching art in the classroom? Choose all that apply.
    a. Social media (e.g., Facebook groups)
    b. Other teachers, either at your school or elsewhere
    c. STEM Hubs
    d. Educational websites
    e. Other websites (e.g., YouTube)
    f. Professional organizations
    g. Oregon Department of Education website
    h. Other: (FILL IN)
10. Please rate your level of agreement with the following statement, from Strongly disagree to Strongly agree: There are sufficient instructional/curricular resources available for elementary teachers who wish to incorporate art into the classroom.
    a. Strongly disagree to Strongly agree

Arts Teachers: Arts Instruction time

11. Is arts instruction part of your school's recommended teaching schedule for classroom teachers?

a. Yes
b. No
c. Unsure

12. In your school, are there required pullout arts courses?
    a. Yes
    b. No
    c. Unsure
13. In the past year, the amount of time for arts instruction in your school has:
    a. Stayed the same
    b. Increased
    c. Decreased
    d. Not sure
14. What kinds of art(s) do you teach? Choose all that apply.
    a. Dance
    b. Theater
    c. Visual arts
    d. Media arts
    e. Other: (FILL IN)
15. When you teach arts as part of your teaching, approximately what is the frequency of your teaching?
    a. Each day
    b. 2-3 times per week
    c. 1 time per week
    d. Every other week
    e. Other: (FILL IN)
16. When you teach arts as part of your teaching, approximately how much total time do you spend teaching arts each week?
    a. Less than 30 minutes
    b. 30-60 minutes
    c. More than 60 minutes. If possible, please specify time: (FILL IN)
17. Where do you go to find resources (e.g., curriculum, activities) for teaching art in the classroom? Choose all that apply.
    a. Social media (e.g., Facebook groups)
    b. Other teachers, either at your school or elsewhere
    c. STEM Hubs
    d. Educational websites
    e. Other websites (e.g., YouTube)
    f. Professional organizations
    g. Oregon Department of Education website
    h. Other: (FILL IN)
18. Please rate your level of agreement with the following statement, from Strongly disagree to Strongly agree: There are sufficient instructional/curricular resources available for elementary teachers who wish to incorporate art into the classroom.
    a. Strongly disagree to Strongly agree

Arts Professional Development: AC&C

19. Recently, Arts for Learning Northwest has developed free K-5 arts lessons and associated materials through the Arts, Care & Connections Program. Are you, to any extent, familiar with Arts, Care & Connections materials/resources?
    a. Yes
    b. No
    c. Unsure
20. [If Yes] In the past year, have you taken any professional development (webinars or in-person) through the Arts, Care & Connections Program?
    a. Yes
    b. No
21. [If Yes] Have you used any Arts, Care & Connections lessons in your classroom?
    a. Yes
    b. No
22. [If Yes] Which ones have you used?
23. Do you plan to use any AC&C lessons in the future?
    a. Yes
    b. No
    c. Unsure
24. Please rate your level of agreement with the following statement, from Strongly disagree to Strongly agree: Arts, Care & Connection lessons:
    a. Are engaging for my students
    b. Are cognitively appropriate for most students
    c. Are relevant for most of my students
    d. Are accessible for students with differing needs (e.g., English language learners, those with an IEP)
    e. Support social emotional learning
    f. Are culturally responsive
    g. Are linguistically inclusive
    h. Promote trauma-informed teaching practices
25. Please rate your level of agreement with the following statement, from Strongly disagree to Strongly agree: Arts, Care & Connection lessons help students…
    a. Generate and conceptualize artistic ideas and work
    b. Refine and complete artistic work
    c. Develop and refine artistic techniques and work for presentation
    d. Convey meaning through the presentation of artistic work
    e. Perceive and analyze artistic work
    f. Interpret intent and meaning in artistic work
    g. Relate artistic ideas and works with societal, cultural, and historical context to deepen understanding
26. How likely are you to continue to use the Arts, Care & Connection lessons?
    a. Very unlikely to Very likely
27. Why or why not?

28. To what extent have you felt support for using the AC&C lessons? Not at all to A great deal
    a. From my administration
    b. From other teachers
    c. From AC&C professional development team
    d. Other: (FILL IN)

Computer Science and Computational Thinking

29. In addition to arts instruction, we are interested in learning about the extent to which computer science or computational thinking is taught at the elementary level. Is computer science or computational thinking part of your school's curriculum?
    a. Yes
    b. No
    c. Unsure
30. Do you teach computer science or computational thinking in your classroom as part of your regular teaching schedule?
    a. Yes
    b. No
31. Where do you go to find resources (e.g., curriculum, activities) for teaching computer science or computational thinking in the elementary classroom? Choose all that apply.
    a. Other teachers, either at your school or elsewhere
    b. STEM Hubs
    c. Educational websites
    d. Other websites
    e. Professional organizations
    f. Oregon Department of Education website
    g. Other: (FILL IN)
32. In the past two years, have you attended the “Computational Thinking” workshop that was offered at the Exploring Computer Science summer equity summit in Bend, Oregon?
    a. Yes
    b. No
33. To what extent has your understanding of computational thinking changed after attending the workshop?
    a. Not at all to To a greater extent
34. To what extent has your understanding of how computational thinking can be used in core subjects changed after attending the workshop?
    a. Not at all to To a greater extent
35. To what extent have you incorporated computational thinking into your classroom?
    a. Not at all to To a greater extent
36. Please share an example of how you have incorporated computational thinking in your classroom.

STEAM

There are many different ideas and opinions around what components make up a 'well-rounded' education. Science educators take diverse approaches to fostering a well-rounded education in their classrooms, and there is no single, correct approach. One possible approach is utilizing STEAM activities. STEAM activities integrate Science, Technology, Engineering, Art, and Mathematics. This integrative approach often emphasizes artistic, creative, design-based thinking, or innovative problem-solving approaches to address real-world situations. The following questions relate to STEAM education.

37. Based on your personal understanding of the concept of STEAM education, do you consider the curriculum you currently use to be a STEAM-based curriculum?
    a. Yes
    b. No

i. Why or why not?

38. In your opinion, whether or not you use STEAM-based curriculum, how important is a STEAM-based curriculum for supporting student learning in science disciplines?
    a. Not important to very important

39. What resources or supports have been most useful in incorporating STEAM into your classroom? Select N/A for resources you have not used or were not aware of. *Scale options: 1 - Not at all useful to 5 - Very useful; N/A.*
    a. Artificial Intelligence applications
    b. Educational websites
    c. Oregon Open Learning website
    d. Other teachers, either at your school or elsewhere
    e. Other websites (e.g., YouTube)
    f. Professional organizations (e.g., Oregon Science Teachers Association)
    g. Social media (e.g., Facebook groups, Pinterest)
    h. STEM Hubs
    i. Teachers Pay Teachers
    j. Other: ___

40. Please rate your level of agreement with the following statement, from Strongly disagree to Strongly agree: There are sufficient resources available for elementary teachers who wish to incorporate STEAM-related activities into their classroom.
    a. Strongly disagree to Strongly agree; I don't know
41. Is there anything else you would like to share about the availability and accessibility of science or computer science curricula and resources for teachers in Oregon?

Gift Card

47) If you are among the first 200 respondents and you would like to receive a $25 digital gift card for completing this survey, please provide your name and your preferred email address. Your name will not be connected to your responses, and your email address will only be used for gift card distribution purposes. If you would like to opt-out of receiving a gift card, leave this section blank.
    c) First Name: ____
    c) Last Name: ____
    c) Email Address: ____

42. Thank you so very much for participating in this survey and sharing your thoughts! If you would like to know more about the Well-Rounded Access Program, you can find information at the WRAP Homepage and in the WRAP Summary.

Appendix D. Arts Teacher Interview Protocol

METHODOLOGY

The Oregon State University STEM Research Center (SRC) used a survey to recruit teachers to participate in interviews. The survey was sent to Oregon elementary teachers through an Oregon Department of Education newsletter. They received 26 complete responses to the survey and selected 10 teachers with an equal number of teachers from rural and urban schools across Oregon. Of the 10 teachers, 6 were responded to interview requests—3 teachers from rural areas and 3 from urban areas. Three of the teachers were teachers of record (that is they had their own classrooms), one teacher taught music, and two teachers were art teachers. All six teachers taught full time. All participants were offered a $75 stipend. Interviews were recorded, transcribed, and analyzed using iterative rounds of qualitative coding, centered around WRAP evaluation questions.

PROTOCOL

Version: 4/1/2025

Estimated length: 60 minutes

Thank you for taking the time to talk to us about art education in Oregon. We are education researchers from Oregon State University and we're conducting an evaluation of the Oregon Department of Education's Well-Rounded Access Program. As part of our evaluation, we are trying to learn more about the availability and accessibility of arts and STEAM (science, technology, engineering, arts, and math) education for teachers and students. As part of this effort, we are conducting interviews and focus group discussions with elementary teachers across Oregon to learn more about your experiences and role in teaching art and STEAM. We appreciate you taking time in participating and contributing to our conversation today.

We are audio recording the [interview/focus group discussion} to help with our analysis later and we have a team member joining who will take notes throughout our discussion. We will be conducting many interviews, and we will combine responses and provide a summary to ODE without any individually identifying information.

Do you have any questions before we start? [Start Recording] Do you agree to participate in the interview and for our conversation to be recorded?

Warm-up & introductions: Let's start with a quick round of stating names and what subjects and grades they teach?

Interview questions

- Tell us a little about yourself, where and what do you teach, educational background etc.
    - If they are a classroom teacher, do you teach art as a special class pull-out class? Explain, give some examples
        - If yes, where do you go to find resources for teaching art?
    - If they teach art as a special, perhaps pull-out class - what kind of art do you teach? (e.g., media arts, music, etc.)
        - Where do you go to find curriculum/activity resources for teaching art?

- As we mentioned earlier, we are the evaluators of the Well-Rounded Access Program or WRAP through ODE. Are you aware of this program or have you heard anything about it?
    - If so, how did you learn about it?
    - If so, how has it affected you, your school and/or your teaching?
- The goal of the WRAP is to increase availability and accessibility of well-rounded educational opportunities in Oregon.
    - In your opinion, what are some key elements of a well-rounded education?
    - In your opinion, what barriers exist for participation in well-rounded education? Is it equally accessible for all students in Oregon? Why or why not?
- A major focus of the WRAP is to increase availability of STEAM and arts education (ask if they are familiar with that acronym). How would you describe STEAM education?
    - If they are familiar with STEAM, do you consider yourself a STEAM educator? Why or why not?
        - If yes, how do you integrate arts and STEM instruction/practices in your teaching?
    - In terms of arts education, are there dedicated arts courses at your elementary school? Explain/describe. (They may have already answered this above, if so don't ask again).
    - Overall, how accessible do you think arts curriculum is for elementary teachers in Oregon?
    - Do you think there are sufficient arts resources available for elementary teachers who want to incorporate more art into the classroom? Explain.
- The WRAP Program has been working with Arts for Learning Northwest to develop arts curriculum materials for elementary teachers, called Arts, Care, & Connection.
    - Are you familiar with these materials/resources?
    - If yes, how did you learn about them?
    - Have you attended any AC&C PD sessions (either in –person or webinars)? How have you utilized what you learned in the PD in your classroom?
- If they use Arts, Care & Connection:
    - How long have you been using it? Which modules do you use?
        - To what extent do you feel supported in using AC&C? (e.g., by administrators, other teachers, the PD team)
        - Where do you seek support if you have questions about AC&C curriculum elements?
    - What are the benefits to students in using AC&C in terms of learning and engagement?
    - To what extent did ACC PD increase implementation of social emotional learning, trauma informed, culturally responsive, and linguistically inclusive teaching practices?
- If they don’t use AC&C and teach art:
    - What arts curriculum or materials do you use and why?
    - Can you describe the curriculum?

    - How does it support a well-rounded education?
    - Where do you go to find resources when you need arts curriculum or lesson ideas?
- Computational thinking questions for classroom teachers, not art teachers (?)
    - In addition to art in elementary schools, WRAP is also interested in understanding if and how elementary teachers incorporate computer science education in the classroom.
    - Do you currently teach computer science in your classroom?
        - ♣ If yes, explain and give some examples
            - Where do you go to find curriculum, activities to use?
            - Is there a particular curriculum that you use?
            - What are some benefits of teaching CS at the elementary level?
        - ♣ If yes, did you attend the “Computational Thinking” workshop at the Exploring Computer Science summer equity summit in the past two years?
            - If yes, can you tell us about your experience and how it has influenced your teaching?
        - ♣ If no, are you familiar with the term “computational thinking”?
            - If yes, can you provide your definition and talk a little about if and how you implement computational thinking in your teaching.
                - Have you heard of or attended the “Computational Thinking” workshop at the ECS summer equity summit in the past 2 years?
                    - ♣ If yes, can you tell us about your experience and how it has influenced your teaching?
            - If no, aspects of K-5 computational thinking include breaking problems into smaller parts, pattern recognition, abstraction, and algorithmic thinking. Are these skills that you explore with your students?

Appendix E. High School Science and Computer Science Teacher Survey

METHODOLOGY

To obtain a representative sample, the Oregon State University STEM Research Center (SRC) selected a proportional, stratified random sample of 100 high schools from 5 geographic regions in rural and urban areas of Oregon: Central, Coastal, Eastern, Portland Metro and Willamette Valley, Southern, and Columbia Gorge. From those schools, SRC compiled a list of all high school STEM teachers, to whom SRC sent personalized survey links. Overall, 722 high school STEM teachers from 106 different schools were contacted; of those contacted, 79% of surveys were successfully delivered (n=573). In total, SRC received responses from 101 teachers from 64 schools: 64% rural schools (n=41) and 36% urban schools (n=23) (Figure 1), which nearly matches the statewide proportion of rural (66%) and urban (34%) high schools.

SURVEY QUESTIONS

Introduction

Thank you for taking part in in this survey!

The STEM Research Center at Oregon State University is evaluating the Oregon Department of Education's Well-Rounded Access Program, and this survey is centered on perspectives and experiences of Oregon high school science and computer science teachers.

The survey should take 5-10 minutes to complete, and you will have the option to receive a $25 digital gift card by providing your email address at the end of the survey. Your responses will be kept confidential, and only data summaries will be shared with ODE.

Thank you in advance for sharing your experiences. Please feel free to contact the evaluation lead Nancy Staus if you have any questions.

STEM Teachers

1. Geographically, do you consider your school district to be rural?
    a. Yes
    b. No
2. Of the following STEM subjects, which do you currently teach? Choose one.
    a. Biology, chemistry, and/or physics; Note: at least one must NOT be AP/IB/dual credit
    b. Computer science
    c. Both science AND computer science subjects
    d. None of the above (please list): ___

Science Teachers [if 2a]

3. What subjects do you currently teach? Choose all that apply. (Please do NOT include AP/IB/dual credit subjects that you teach)
    a) Biology
    b) Chemistry
    c) Physics
4. This set of questions is related to [name of subject] curriculum you currently use. What [name of subject] curriculum do you currently, primarily use? Choose one.

a) I developed my own curriculum
b) Accelerate Learning (e.g. STEMscopes)
c) Big Ideas Learning (e.g., Oregon Math)
d) HMH (e.g. Science Dimensions)
e) McGraw Hill
f) OpenSciEd
g) Patterns
h) SAVVAS Learning Company (e.g., Miller & Levine Biology)
i) Other: _____

Science Teachers – Non-Patterns Curriculum Users [If NOT 4g]

5. Approximately how many years have you used the [name of subject] curriculum you currently use?
    a) 1 to 3 years
    b) 4 years or more
6. Why are you using this [name of subject] curriculum?
    a) District adopted
    b) School / department adopted
    c) I personally found it and it matches the needs of my course
    d) Other: ___
        i. [If a or b]: Would you continue to use this [name of subject] curriculum if it was not required by your school or district?
            1) Yes
            2) No
                a. Please explain.
7. Have you ever heard of Patterns curriculum?
    a) Yes
    b) No
        i. [If Yes]: Thinking about the last four academic years, how often and in what ways have you used Patterns lessons or curriculum materials, if at all? *Scale options: I used Patterns exclusively; I used Patterns in combination with other curricula; I did not use Patterns; I am not sure/I don't remember.*
            1) 2021-2022 academic year
            2) 2022-2023 academic year
            3) 2023-2024 academic year
            4) 2024-2025 academic year
                a. [If 'I used patterns exclusively' and/or 'I used Patterns in combination with other curricula]: When you use Patterns lessons/curriculum, how do you usually teach it?
                    i. I use the lessons exactly as they are written
                    ii. I modify the lessons to some extent. Please describe: ____
8. STEAM Questions
9. Gift Card Questions

Science Teachers –Current Patterns Users [If 4g]

10. Approximately how many years have you used Patterns?
    a) 1 to 3 years
    b) 4 years or more
11. Why are you using this [name of subject] curriculum?
    a) District adopted
    b) School / department adopted
    c) I personally found it and it matches the needs of my course
    d) Other: ___
        i. [If a or b]: Would you continue to use this [name of subject] curriculum if it was not required by your school or district?
            1. Yes
            2. No
                a. Please explain.
12. Thinking about the last four academic years, how often and in what ways have you used Patterns lessons or curriculum materials, if at all? *Scale options: I used Patterns exclusively; I used Patterns in combination with other curricula; I did not use Patterns; I am not sure/I don't remember.*
    a) 2021-2022 academic year
    b) 2022-2023 academic year
    c) 2023-2024 academic year
    d) 2024-2025 academic year
        i. [If 'I used patterns exclusively' and/or 'I used Patterns in combination with other curricula]: When you use Patterns lessons/curriculum, how do you usually teach it?
            1) I use the lessons exactly as they are written
            2) I modify the lessons to some extent.
                a. Please describe or share an example of how you modify the lessons.
13. To what extent have you felt support using Patterns lessons or curriculum? *Scale options: 1 – None at all to 5 - A great deal*
    a) My administration
    b) Other teachers
    c) The Patterns professional development team
    d) Other: _____
        i. Is there any explanation you would like to add to your responses above?
14. How likely are you to continue using Patterns lessons or curriculum in the future?
    a) Very unlikely
    b) Unlikely
    c) Neither likely nor unlikely
    d) Likely
    e) Very likely

        i. Why or why not?

15. Please rate your level of agreement with the following statements about Patterns, using a scale from (1) Strongly disagree to (5) Strongly agree. Patterns:
    a) Teaches critical thinking skills
    b) Promotes data literacy (e.g., how to create and understand graphs)
    c) Is well-paced for most students
    d) Is cognitively appropriate for most students
    e) Is accessible for students with differing needs (e.g., those with an Individualized Education Program or those who are English Language Learners)
    f) Effectively conveys science concepts
    g) Uses phenomena that are relevant for my students
    h) Is engaging for my students
        i. [If strongly disagree or strongly agree]: It seems you have some strong feelings about one or more of the above items. Can you please share your thoughts?
16. In the last 3 years (since January, 2022), how many of the following Patterns professional development sessions did you attend? *Scale options: None; 1 to 5; More than 5; I'm not sure*
    a) Physics
    b) Chemistry
    c) Biology
    d) Desmos
    e) Professional Learning Community (PLC)
17. STEAM questions
18. Gift card questions

Science Teachers –Current Patterns Users and PD Attendees [If 16 is 1 to 5 or More than 5]

19. What factors influenced your decision to attend Patterns professional development? Choose all that apply.
    a) Required by school or district
    b) Personal interest
    c) Recommended by a peer
    d) Availability of a stipend
    e) Other: ____
20. If you received a stipend for participation, how important was the stipend in your decision to attend Patterns professional development?
    a) It was nice, but I would have attended anyway
    b) I would likely not have attended without it
    c) N/A (I did not receive a stipend)
    d) Other: ____
21. To what extent did participating in Patterns professional development increase your implementation of: *Scale options: 1 Not at all to 5 A great deal*
    a) social emotional learning
    b) trauma informed teaching practices
    c) culturally responsive teaching practices
    d) linguistically inclusive teaching practices

i. [If ‘A lot’]: Please share an example of how participating in Patterns professional development increased your implementation of one or more of the above concepts.

22. STEAM questions
23. Gift cared questions

Computer Science Teachers [If 1 b or c]

24. What high school computer science subject(s) do you teach? Choose all that apply.
    a) Foundations of computer science
    b) Web design
    c) Coding
    d) Computer programming
    e) Robotics
    f) Engineering design
    g) Cybersecurity
    h) App development
    i) Other: ___
25. What high school computer science curriculum/curricula do you currently use for your high school grade levels? Choose all that apply.
    a) I developed my own curriculum
    b) Exploring Computer Science
    c) Code.org
    d) Codeacademy
    e) Amazon Future Engineers
    f) CodeHS
    g) Kahn Academy – Computing
    h) Other: ___

COMPUTER SCIENCE TEACHERS – Other CS Curriculum [If not 25 b]

26. How did you learn about this curriculum/these curricula that you use? Choose all that apply
    a) Online search
    b) From other teachers
    c) From the school district
    d) From the curriculum developers
    e) Other: __
27. Please rate your level of agreement with the following statement, from Strongly disagree to Strongly agree: There are sufficient computer science resources (e.g., curriculum, lessons, activities) available for high school computer science teachers.
    a) Strongly disagree
    b) Disagree
    c) Neither agree nor disagree
    d) Agree
    e) Strongly agree
28. STEAM questions
29. Gift card questions

COMPUTER SCIENCE TEACHERS – ECS Users [If 25 b]

30. Please rate your level of agreement with the following statement, from Strongly disagree to Strongly agree: There are sufficient computer science resources (e.g., curriculum, lessons, activities) available for high school computer science teachers.
    a) Strongly disagree
    b) Disagree
    c) Neither agree nor disagree
    d) Agree
    e) Strongly agree

This set of questions is related to Exploring Computer Science curriculum.

31. Approximately how many years have you used Exploring Computer Science curriculum?
    a) 1 to 3 years
    b) 4 years or more
32. In the last academic year, how often have you used Exploring Computer Science lessons/curriculum?
    a) I used Exploring Computer Science exclusively
    b) I used Exploring Computer Science in combination with other curricula
    c) I did not use Exploring Computer Science in the last year
    d) I am not sure
        i. If a or b: When you use Exploring Computer Science lessons/curriculum, how do you usually teach it?
            1) I use the lessons exactly as they are written
            2) I modify the lessons to some extent.
                a. Please describe or share examples of how you modify the lessons:
33. In the last academic year, to what extent have you felt support for using the Exploring Computer Science curriculum? *Scale options: 1 No support; 5 A great deal of support.*
    a) From my administration
    b) From other teachers
    c) From the Exploring Computer Science professional development team
    d) Other: ___
        i. Is there any explanation you would like to add to your responses above?
34. How likely are you to continue using the Exploring Computer Science curriculum in the future?
    a) Very unlikely
    b) Unlikely
    c) Neither likely nor unlikely
    d) Likely
    e) Very likely
        i. Why or why not?
35. Please rate your level of agreement with the following statements, using a scale from (1) Strongly disagree to (5) Strongly agree. The Exploring Computer Science curriculum:
    a) Provides students with a foundational understanding of computers and computer science

b) Is interesting/accessible for students who have been historically excluded from computer science based on gender or ethnic/racial identity
c) Promotes equity and inclusion in computer science
d) Is well-paced for my students
e) Is easily accessible for students with diverse needs (e.g., those with an Individualized Education Program or those who are English Language Learners)
f) Is cognitively appropriate for my students
g) Is relevant to my students' lives
    i. [If 'Strongly Disagree' or 'Strongly Agree']: It seems you have some strong feelings about one or more of the above items. Can you please share your thoughts?

36. In 2024, did you attend the Exploring Computer Science summer institute?
    a) Yes
    b) No
37. STEAM questions
38. Gift card questions

COMPUTER SCIENCE TEACHERS – ECS Users and PD Attendees [If 36 a]

39. To what extent did participating in Exploring Computer Science professional development increase your implementation of: *Scale option (1) Not at all to (5) A great deal*
    a) Social emotional learning
    b) Trauma informed teaching practices
    c) Culturally responsive teaching practices
    d) Linguistically inclusive teaching practices
        i. [If 'A lot']: Please share an example of how participating in Exploring Computer Science professional development increased your implementation of one or more of the above concepts.
40. STEAM questions
41. Gift card questions

STEAM

There are many different ideas and opinions around what components make up a "well-rounded" education. Science educators take diverse approaches to fostering a well-rounded education in their classrooms, and there is no single, correct approach. One possible approach is utilizing STEAM activities. STEAM activities integrate Science, Technology, Engineering, Art, and Mathematics. This integrative approach often emphasizes artistic creative, design-based thinking or innovative problem-solving approaches to address real-world situations. The following questions relate to STEAM education.

42. Based on your personal understanding of the concept of STEAM education, do you consider the curriculum you currently use to be a STEAM-based curriculum?
    a) Yes
    b) No
        i. Why or why not?

43. In your opinion, whether or not you use STEAM-based curriculum, how important is a STEAM-based curriculum for supporting student learning in science or computer science disciplines?
    a) Not important
    b) Slightly important
    c) Moderately important
    d) Important
    e) Very important
44. What resources or support have been most helpful in incorporating STEAM into your classroom? Select N/A for resources you have not used or were not aware of. *Scale options: 1 - Not at all useful to 5 - Very useful; N/A.*
    a) Artificial Intelligence applications
    b) Educational websites
    c) Oregon Open Learning website
    d) Other teachers, either at your school or elsewhere
    e) Other websites (e.g., YouTube)
    f) Professional organizations (e.g., Oregon Science Teachers Association)
    g) Social media (e.g., Facebook groups, Pinterest)
    h) STEM Hubs
    i) Teachers Pay Teachers
    j) Other: ___
45. Please rate your level of agreement with the following statement, from Strongly disagree to Strongly agree: There are sufficient resources available for teachers who wish to incorporate STEAM into their classroom.
    a) Strongly disagree
    b) Disagree
    c) Neither agree nor disagree
    d) Agree
    e) Strongly agree
    f) I don't know
46. Is there anything else you would like to share about the availability and accessibility of science or computer science curricula and resources for teachers in Oregon?

Gift Card

47. If you would like to receive a $25 digital gift card for completing this survey, please provide your name and your preferred email address. Your name will not be connected to your responses, and your email address will only be used for gift card distribution purposes. If you would like to *opt-out* of receiving a gift card, leave this section blank.
    a) First Name: ____
    b) Last Name: ____
    c) Email Address: ____

End of Survey

Thank you so very much for participating in this survey and sharing your thoughts! If you would like to know more about the Well-Rounded Access Program, you can find information at the WRAP Homepage and in the WRAP Summary.

Appendix F. High School Science Teacher Interview Protocol

Methodology

The Oregon State University STEM Research Center (SRC) used a survey to recruit high school science teachers to participate in interviews. The survey was sent to Oregon high school science teachers (n=160) on a statewide science teacher leader listserv and teachers who had attended Patterns professional development in the last two years (n=271). The SRC received 104 full responses to the survey and purposefully selected 24 teachers with an equal number of teachers from rural and urban schools across Oregon; twice as many Patterns teachers as non-Patterns teachers were selected. In total, 23 teachers responded to requests for interviews. All participants were offered a $75 stipend. Interviews were recorded, transcribed, and analyzed using iterative rounds of qualitative coding, centered around WRAP evaluation questions.

PROTOCOL
Version: 7/23/2024
Estimated length: 60 minutes
Thank you for taking the time to talk to us about high school science education in Oregon. We are education researchers from Oregon State University and we're conducting an evaluation of the Oregon Department of Education's Well-Rounded Access Program. As part of our evaluation, we are trying to learn more about the availability and accessibility of STEM (science, technology, engineering, and math) and STEAM (science, technology, engineering, arts, and math) education for teachers and students. As part of this effort, we are conducting interviews and focus group discussions with HS science teachers across Oregon to learn more about your experiences and role in teaching high school science. We appreciate you taking time in participating and contributing to our conversation today.
We are audio recording the [interview/focus group discussion} to help with our analysis later and we have a team member joining who will take notes throughout our discussion. We will be conducting many interviews, and we will combine responses and provide a summary to ODE without any individually identifying information.
Do you have any questions before we start? [Start Recording] Do you agree to participate in the interview and for our conversation to be recorded?
Warm-up & introductions: Let's start with a quick round of stating names and what subjects and grades they teach?
Optional advance organizer: We ultimately want to understand to what extent WRAP is reaching its main goals of making well-rounded STEAM courses more available and accessible. That being said, you don't need to know of WRAP or any of its associated programs to be a valuable contributor to the conversation—we will start with some broad questions to help us learn more about your perspectives about "well-rounded education" and then we will get into some more specific questions related to your experiences accessing STEAM education support and resources.
Interview questions

- Tell us a little about yourself and where you currently teach science.

- As we mentioned earlier, we are the evaluators of the Well-Rounded Access Program or WRAP through ODE. Are you aware of this program or have you heard anything about it?
    - If so, how did you learn about it?
    - If so, how has it affected you, your school and/or your teaching?
- The goal of the WRAP is to increase availability and accessibility of well-rounded educational opportunities in Oregon.
    - In your opinion, what are some key elements of a well-rounded education?
    - In your opinion, what barriers exist for participation in well-rounded education? Is it equally accessible for all students in Oregon? Why or why not?
- A major focus of the WRAP is to increase availability of STEAM education (ask if they are familiar with that acronym). How would you describe STEAM education?
    - How does it differ from STEM or science?
    - Do you consider yourself a STEAM educator? Why or why not?
        - If yes, how do you integrate arts instruction/practices in your STEM content?
    - Are there dedicated STEAM courses at your HS?
    - Overall, how accessible do you think STEAM-based curriculum is for teachers in Oregon?
    - What do you think are the most important characteristics (e.g., content, pedagogy) of a STEAM course?
- If they use Patterns:
    - How did you learn about the Patterns curriculum?
    - How long have you been using it? Which modules do you use?
        - To what extent do you feel supported in using Patterns (e.g., by administrators, other teachers, the PD team)
        - Where do you seek support if you have questions about Patterns curriculum elements?
    - What are the benefits to students in using Patterns?
    - How does Patterns support a well-rounded education?
    - In the last 2 years, how many Patterns PD sessions did you attend?
        - What was your experience with Patterns PD? (e.g., satisfaction, usefulness)
- If they don't use Patterns:
    - Are you familiar with HSS4A or Patterns?
    - What curriculum do you use and why?
    - Can you describe the curriculum?
    - How does it support a well-rounded education?
    - What resources do you use to find new curriculum or lesson ideas?

Appendix G. High School Science Teacher Focus Group Protocol

METHODOLOGY

The Oregon State University STEM Research Center (SRC) used a survey to recruit high school science teachers to participate in interviews. The survey was sent to Oregon high school science teachers (n=160) on a statewide science teacher leader listserv and teachers who had attended Patterns professional development in the last two years (n=271). The SRC received 104 full responses to the survey and purposefully selected 24 teachers with an equal number of teachers from rural and urban schools across Oregon; twice as many Patterns teachers as non-Patterns teachers were selected. Of those 24, 23 participated in interviews in fall 2024; in early 2025, 11 of those 23 responded for a request to convene as part of a focus group. Four non-Patterns teachers convened for a focus group interview; and 7 Patterns teachers convened in two focus groups. All participants were offered a $75 stipend. Interviews were recorded, transcribed, and analyzed using iterative rounds of qualitative coding, centered around WRAP evaluation questions.

PROTOCOL

Patterns teachers:

Name, school, subject(s) you teach, type of school (small/large/rural/urban/online)

- As you can see, you all have a few things in common! You all teach high school science in Oregon.
- Another thing you have in common is that you use Patterns curriculum.

- Go around again and share how long you have used Patterns and a key driver for why you use it?
- How would you describe the students' experience when using Patterns in terms of interest, engagement, and learning? How do you know this? What do you look for as evidence? If you have previously used a different science curriculum, how does Patterns compare in terms of effectiveness and student outcomes? Explain. How does Patterns support student's confidence in building their science skills/knowledge? Can you give some examples? How do you know, what do you look for?
- Relevance of the phenomena within Patterns lessons. I know that many of you revised the lessons to ensure that the phenomena were relevant to your students' location and interests. Did you feel like this strategy was effective and that your students find the content relevant to their lives and interests? How do you know? What do you look for?
- How do you feel about the overall effectiveness of the curriculum? Are there students for whom Patterns works well and others for whom does it not go well? Can you explain? How could Patterns be improved to be more effective in the future?
- How (if at all) does Patterns PD provide training in implementing social emotional learning practices in the classroom? E.g., Techniques to help students recognize and manage their emotions and relationships with others.
- Is this emphasized in the lessons? If so, give an example.
- How do you implement socio-emotional learning in your science classroom? Culturally responsive teaching practices? Did Patterns PD emphasize these practices and, if so, how? Do you feel that the Patterns curriculum helps make your lessons more inclusive and relatable to students from different cultural backgrounds? Explain. Is Patterns

linguistically inclusive with a focus on supporting students who are still learning English? Explain.

- Trauma informed teaching practices. Is this something that was emphasized in the Patterns PD? Does the Patterns curriculum include strategies to create a safer, more supportive environment for students who have experience trauma or who are going through a tough time? Explain. Are any of these teaching practices encouraged by your school or district? Do they provide training in these practices?

Non-Patterns Teachers

- Name, school, subject(s) you teach, type of school (small/large/rural/urban/online)
- As you have seen, you all have something in common: you all teach high school science in Oregon!
- Go around again and share a bit about what curriculum you use. And briefly, top reason why you use it?
- How would you describe the students' experience when using your curriculum in terms of interest, engagement, and learning? How do you know this? What do you look for as evidence? How does your curriculum support student's confidence in building their science skills/knowledge? Can you give some examples? How do you know, what do you look for?
- What are your strategies for making the content relevant to their lives and interests? Do you make adaptations to make it more relevant? Or what would it take to make it more relevant? How can you tell when students think content is relevant?
- How do you feel about the overall effectiveness of the curriculum? Are there students for whom it works well and others for whom does it not go well? Can you explain?
- Social emotional learning. Are you all familiar with this? How (if at all) do you implement social emotional learning in the science classroom? Can you give some examples?
- Another area of interest to ODE is the use of culturally responsive teaching practices that help make science more relatable to students from different cultural backgrounds. Does your curriculum, or any related training, emphasize these practices and, if so, how? Is your curriculum linguistically inclusive with a focus on supporting students who are still learning English? Explain.
- Trauma informed teaching practices. Is this something that is emphasized in your curriculum or in any related training? If so, what are some strategies that you use? Do you have access to professional development related to any of these teaching practices if you are interested in learning more about them?
- Are any of these teaching practices encouraged by your school or district?

Appendix H. Computer Science Teacher Interview Protocol

METHODOLOGY

The Oregon State University STEM Research Center (SRC) used a survey to recruit high school computer science teachers to participate in interviews. The survey was sent to a list of Oregon high school computer science teachers supplied by ODE (n=235) and teachers who had attended ECS professional development in the last five years (n=72). The SRC received 50 complete responses to the survey and selected 15 teachers to interview—7 teachers from rural schools and 8 from urban schools; and 7 of whom use ECS. All participants were offered a $75 stipend. Interviews were recorded, transcribed, and analyzed using iterative rounds of qualitative coding, centered around WRAP evaluation questions.

PROTOCOL

Version: 1/13/2025

Estimated length: 60 minutes

Thank you for taking the time to talk to us about high school science education in Oregon. We are education researchers from Oregon State University and we're conducting an evaluation of the Oregon Department of Education's Well-Rounded Access Program (W-R-A-P). As part of our evaluation, we are trying to learn more about the availability and accessibility of STEM (science, technology, engineering, and math) and STEAM (science, technology, engineering, arts, and math) education for teachers and students. As part of this effort, we are conducting interviews and focus group discussions with HS computer science teachers across Oregon to learn more about your experiences and role in teaching high school computer science. We appreciate you taking time in participating and contributing to our conversation today.

We are audio recording the interview to help with our analysis later and we have a team member joining who will take notes throughout our discussion. We will be conducting many interviews and we will combine responses and provide a summary to ODE without any individually identifying information.

Do you have any questions before we start? [Start Recording] Do you agree to participate in the interview and for our conversation to be recorded?

Warm-up & introductions: Let's start with a quick round of stating names and what subjects and grades they teach?

Optional advance organizer: We ultimately want to understand to what extent WRAP is reaching its main goals of making well-rounded STEAM courses more available and accessible. That being said, you don't need to know of WRAP or any of its associated programs to be a valuable contributor to the conversation—we will start with some broad questions to help us learn more about your perspectives about "well-rounded education" and then we will get into some more specific questions related to your experiences accessing STEAM education support and resources.

Interview questions

- Tell us a little about yourself and where you currently teach computer science.
    - What subjects do you teach?
    - How big is your class and how many classes do you teach?
    - How many other computer science teachers are at your school?

    - What is your educational/disciplinary background?
- As we mentioned earlier, we are the evaluators of the Well-Rounded Access Program or WRAP through ODE. Are you aware of this program or have you heard anything about it?
    - If so, how did you learn about it?
    - If so, how has it affected you, your school and/or your teaching?
- The goal of the WRAP is to increase availability and accessibility of well-rounded educational opportunities in Oregon. We are interested in teachers' perspectives of well-rounded education.
    - In your opinion, what are some key elements of a well-rounded education?
        - How does CS support a well-rounded education?
    - In your opinion, what barriers exist for participation in well-rounded education?
    - Is it equally accessible for all students in Oregon? Why or why not?

- A major focus of the WRAP is to increase availability of STEAM education (ask if they are familiar with that acronym). How would you describe STEAM education?
    - How does it differ from STEM or science?
    - Do you consider yourself a STEAM educator? Why or why not?
        - If yes, how do you integrate arts elements/practices in your STEM content?
        - Do students enjoy the STEAM elements or do you find students are engaged with STEAM?
    - Are there dedicated STEAM courses at your HS?
    - Overall, how accessible do you think STEAM-based curriculum is for teachers in Oregon?
- If they use ECS:
    - How did you learn about the Exploring Computer Science (ECS) curriculum?
    - How long have you been using it?
        - Do you plan on continuing to use it in the future?
        - To what extent do you feel supported in using ECS (e.g., by administrators, other teachers, the PD team)
        - Where do you seek support if you have questions about ECS curriculum elements?
    - What are the benefits to students in using ECS? What do students get out of it?
    - How does ECS support a well-rounded education?
    - Outside of ECS, where do you go to find resources (e.g., activities, curriculum) when you need to?
        - Are you familiar with Oregon Open Learning?
- If they don't use ECS:
    - What curriculum do you use and why?
    - Can you describe the curriculum?
    - How does it support a well-rounded education?
    - What resources do you use to find new curriculum or lesson ideas?

        - Are you familiar with Oregon Open Learning?
    - Are you familiar with Exploring Computer Science (ECS)?

Appendix I. Computer Science Teacher Focus Group Protocol

METHODOLOGY

The Oregon State University STEM Research Center (SRC) used a survey to recruit high school computer science teachers to participate in interviews. The survey was sent to a list of Oregon high school computer science teachers supplied by ODE (n=235) and teachers who had attended ECS professional development in the last five years (n=72). The SRC received 50 complete responses to the survey and selected 15 teachers to interview—7 teachers from rural schools and 8 from urban schools; and 7 of whom use ECS. During the spring 2025 SRC sent invitations to all interested computer science teachers who had participated in interviews and convened two focus group interview sessions totaling 5 participants: one session that included three ECS teachers; one that included two non-ECS teachers. All participants were offered a $75 stipend. Interviews were recorded, transcribed, and analyzed using iterative rounds of qualitative coding, centered around WRAP evaluation questions.

PROTOCOL

ECS Teachers

- Name, school, subject(s) you teach, type of school (small/large/rural/urban/online)
- How long you have used ECS and a key driver for why you use it?
- How would you describe the students' experience when using ECS in terms of interest, engagement, and learning? How do you know this? What do you look for as evidence? If you have previously used a different computer science curriculum, how does ECS compare in terms of effectiveness and student outcomes? Explain.
- How does ECS support student's confidence in building their computer science skills/knowledge? Can you give some examples? How do you know, what do you look for?
- Did you feel like the ECS curriculum is relevant to students' lives and interest? How do you know? What do you look for?
- How do you feel about the overall effectiveness of the curriculum? Are there students for whom ECS works well and others for whom does it not go well? Can you explain? How could ECS be improved to be more effective in the future?
- Social emotional learning. How (if at all) does ECS PD provide training in implementing social emotional learning practices in the classroom? E.g., Techniques to help students recognize and manage their emotions and relationships with others. Is this emphasized in the lessons? If so, give an example. How do you implement socio-emotional learning in your computer science classroom?
- Culturally responsive teaching practices. Did ECS PD emphasize these practices and, if so, how? Do you feel that the ECS curriculum helps make your lessons more inclusive and relatable to students from different cultural backgrounds? Explain. Is ECS linguistically inclusive with a focus on supporting students who are still learning English? Explain.
- Trauma informed teaching practices. Is this something that was emphasized in the ECS PD? Does the ECS curriculum include strategies to create a safer, more supportive environment for students who have experience trauma or who are going through a tough time? Explain. Are any of these teaching practices encouraged by your school or district? Do they provide training in these practices?

CS Teachers Using Other Curriculum (not ECS)

- Name, school, subject(s) you teach, type of school (small/large/rural/urban/online)
- Please share a bit about what curriculum you use. And briefly, top reason why you use it?
- How would you describe the students' experience when using your curriculum in terms of interest, engagement, and learning? How do you know this? What do you look for as evidence? How does your curriculum support student's confidence in building their computer science skills/knowledge? Can you give some examples? How do you know, what do you look for?
- What are your strategies for making the content relevant to their lives and interests? Do you make adaptations to make it more relevant? Or what would it take to make it more relevant? How can you tell when students think content is relevant?
- How do you feel about the overall effectiveness of the curriculum? Are there students for whom it works well and others for whom does it not go well? Can you explain?
- Social emotional learning. Are you all familiar with this? How (if at all) do you implement social emotional learning in the computer science classroom? (E.g., Techniques to help students recognize and manage their emotions and relationships with others.) Can you give some examples?
- Culturally responsive teaching practices that help make computer science more relatable to students from different cultural backgrounds. Does your curriculum, or any related training, emphasize these practices and, if so, how? Is your curriculum linguistically inclusive with a focus on supporting students who are still learning English? Explain.
- Trauma informed teaching practices. Is this something that is emphasized in your curriculum or in any related training? If so, what are some strategies that you use? Does your computer science curriculum include strategies to create a safer, more supportive environment for students who have experienced trauma or who are going through a tough time? Do you have access to professional development related to any of these teaching practices if you are interested in learning more about them? Are any of these teaching practices encouraged by your school or district?

Appendix J. Patterns Student Satisfaction Survey

METHODOLOGY

Student surveys were distributed to fulfill a U.S. Department of Education grant performance measure requiring assessment of student satisfaction with course offerings, specifically regarding variety, accessibility, and quality. Near the end of the 2023-24 and 2024-25 school years, WRAP staff emailed teachers who had participated in professional development during the school year, requesting that they distribute surveys to their students and the students' parents.

To increase response rates in the 2024-25 school year, the WRAP team offered incentives to Patterns teachers to help distribute the student satisfaction survey. Patterns teachers were offered Patterns Science classroom posters.

Table 1 The number of teachers that were contacted and the number of students those contacted teachers taught.

School Year	Patterns Teachers Contacted	Patterns Students
2023-24	33	11,281
2024-25	43	4,836

Table 2. The number of student survey responses received for each course in each school year that surveys were distributed.

School Year	Patterns Student Responses
2023-24	43
2024-25	205*

*Of the 211 completed surveys, 6 responses were excluded from analysis because respondents either indicated uncertainty about which science class they were enrolled in or reported not taking any science class.

PATTERNS STUDENT SURVEY PROTOCOL

In 2020, Oregon won a competitive grant from the U.S. Department of Education known as the Expanding Access to Well-Rounded Courses (Course Access) grant. The goal of the Course Access grant program is to make a broad range of courses widely available for all students in Oregon. With these funds, Oregon elected to expand access to courses using the Patterns Science curriculum, which you took this school year. You received this survey to gather your perspective as a student who participated in a course provided by funds from this grant.

It should take no more than 10 minutes to complete the survey. Your feedback is essential to improve the course experience for students taking this course in the future. This survey is voluntary, answering any individual question is optional, and you may stop at any point in the survey. Your feedback will remain anonymous (that is, we won’t know who you are), and all responses will be presented at the group level. So feel free to share with us your open and honest perspective!

1. The grade level I am in is:

    a. 9th Grade
    b. 10th Grade
    c. 11th Grade
    d. 12th Grade
2. This school year, I took the following year-long science course:
    a. Physics
    b. Chemistry
    c. Biology
    d. None of These [end of survey]
    e. Unsure [end of survey]
3. The reason(s) I took this science class include:
    a. This is a required class
    b. A friend encouraged me to take this class
    c. A teacher encouraged me to take this class
    d. A counselor encouraged me to take this class
    e. Taking this class is necessary for my future college/career goals
    f. Unsure
    g. Other [specify]
4. Fitting this science class into my schedule was challenging.
    a. Agree
    b. Disagree
    c. Unsure
5. (if answered Agree to Question 4) What were the challenges you had fitting this class into your schedule?
    a. [Open ended]
6. I was able to access and use all of the technology, equipment and materials required to fully participate in this course.
    a. Yes
    b. No
    c. Unsure
7. State how frequently you had the class experiences/opportunities described in the following statements:
    a. I had opportunities to share my opinions and experiences about class topics.
        i. Never
        ii. Rarely
        iii. Sometimes
        iv. Often
        v. Always
        vi. Unsure
    b. I felt comfortable sharing my opinions and experiences about class topics.
        i. Never
        ii. Rarely
        iii. Sometimes
        iv. Often

v. Always
vi. Unsure

c. I had opportunities to decide what I learned about in class based on my own interests.
    i. Never
    ii. Rarely
    iii. Sometimes
    iv. Often
    v. Always
    vi. Unsure
d. I had opportunities to share what I learned with my classmates or teacher during class.
    i. Never
    ii. Rarely
    iii. Sometimes
    iv. Often
    v. Always
    vi. Unsure
e. I could relate to the topics covered in this class to my own life.
    i. Never
    ii. Rarely
    iii. Sometimes
    iv. Often
    v. Always
    vi. Unsure
f. I felt like my personal experiences, culture, identities and ways of being were valued in this class.
    i. Never
    ii. Rarely
    iii. Sometimes
    iv. Often
    v. Always
    vi. Unsure
g. I looked forward to going to this class.
    i. Never
    ii. Rarely
    iii. Sometimes
    iv. Often
    v. Always
    vi. Unsure

8. State your level of agreement with each of the following statements:
    a. I believe the things I learned in this class will be useful to achieve my future college, career, and/or life goals.
        i. Highly Disagree

        ii. Disagree
        iii. Agree
        iv. Highly Agree
        v. Unsure
    b. I would recommend taking this class to my friends.
        i. Highly Disagree
        ii. Disagree
        iii. Agree
        iv. Highly Agree
        v. Unsure
    c. I was satisfied with the variety of topics covered in this class.
        i. Highly Disagree
        ii. Disagree
        iii. Agree
        iv. Highly Agree
        v. Unsure
9. I consider myself someone who is good at science.
    a. Yes, before taking this class I considered myself someone who is good at science
    b. Yes, after taking this class I now consider myself as someone who is good at science
    c. No, I do not consider myself as someone who is good at science
    d. I am usure if I consider myself as someone who is good at science
10. Thinking about how challenging the class was, I found the class to be:
    a. Too easy
    b. Too hard
    c. Neither too easy or too hard
    d. Unsure
11. I am interested in the following topics related to [Biology, Chemistry, Physics] that were not covered in the class:
    a. Open-ended
12. Additional Science or science-related classes I would like to see offered at my school include:
    a. Open-ended
13. The one thing I liked most about this science class is:
    a. Open-ended
14. The one thing I would change about this class to improve it for the next group of students taking it is:
    a. Open-ended
15. Is there anything else about your science class you would like to share with us?
    a. Open-ended

Appendix K. Exploring Computer Science Student Satisfaction Survey

METHODOLOGY

Student surveys were distributed to fulfill a U.S. Department of Education grant performance measure requiring assessment of student satisfaction with course offerings, specifically regarding variety, accessibility, and quality. Near the end of the 2023-24 and 2024-25 school years, WRAP staff emailed teachers who had participated in professional development during the school year, requesting that they distribute surveys to their students.

To increase response rates in the 2024-25 school year, the WRAP team offered incentives to ECS teachers to help distribute the student satisfaction survey. ECS teachers were offered an Edison Robot.

Table 1. shows the number of teachers that were contacted and the number of students those contacted teachers taught.

School Year	ECS Teachers Contacted	ECS Students
2023-24	5	321
2024-25	6	107

Table 2. The number of student survey responses received for each course in each school year that surveys were distributed.

School Year	ECS Student Responses
2023-24	0
2024-25	9

EXPLORING COMPUTER SCIENCE STUDENT SURVEY PROTOCOL

In 2020, Oregon received a competitive grant from the U.S. Department of Education known as the Expanding Access to Well-Rounded Courses (Course Access) grant. The goal of the Course Access grant program is to make a broad range of courses widely available for all students in Oregon. As part of the program, Oregon is expanding access to Exploring Computer Science courses. You participated in a course provided by funds from this grant and we would love to get your feedback through this online survey.

It should take no more than 10 minutes to complete the survey. Your feedback is essential to improve the course experience for students taking this course in the future. This survey is voluntary, answering any individual question is optional, and you may stop at any point in the survey. Your feedback will remain anonymous (that is, we won't know who you are), and all responses will be presented at the group level. So feel free to share with us your open and honest perspective!

1. My grade level is:
    a. 9th Grade
    b. 10th Grade

    c. 11th Grade
    d. 12th Grade
2. This is my first computer science course:
    a. Yes
    b. No
    c. Unsure
3. (If Yes on question 2) Briefly list and describe other computer science course(s) you have taken.
    a. Open-ended
4. The reason(s) I took Exploring Computer Science include:
    a. This is a required class
    b. A friend encouraged me to take this class
    c. A teacher encouraged me to take this class
    d. A counselor encouraged me to take this class
    e. Taking this class is necessary for my future college/career goals
    f. Unsure
    g. Other [specify]
5. Fitting Exploring Computer Science into my class schedule was challenging.
    a. Agree
    b. Disagree
    c. Unsure
6. (if Yes on question 5) What were the challenges you had fitting this class into your schedule?
    a. Open-ended
7. I was able to access and use all of the technology, equipment, and materials required to fully participate in this class.
    a. Yes
    b. No
    c. Unsure
8. State how frequently you had the class experiences/opportunities described in the following statements:
    a. I had opportunities to share my opinions and experiences about class topics.
        i. Never
        ii. Rarely
        iii. Sometimes
        iv. Often
        v. Always
        vi. Unsure
    b. I felt comfortable sharing my opinions and experiences about class topics.
        i. Never
        ii. Rarely
        iii. Sometimes
        iv. Often
        v. Always

vi. Unsure

c. I had opportunities to decide what I learned about in class based on my own interests.
    i. Never
    ii. Rarely
    iii. Sometimes
    iv. Often
    v. Always
    vi. Unsure
d. I had opportunities to share what I learned with my classmates or teacher during class.
    i. Never
    ii. Rarely
    iii. Sometimes
    iv. Often
    v. Always
    vi. Unsure
e. I could relate to the topics covered in this class to my own life.
    i. Never
    ii. Rarely
    iii. Sometimes
    iv. Often
    v. Always
    vi. Unsure
f. I felt like my personal experiences, culture, identities and ways of being were valued in this class.
    i. Never
    ii. Rarely
    iii. Sometimes
    iv. Often
    v. Always
    vi. Unsure
g. I looked forward to going to this class.
    i. Never
    ii. Rarely
    iii. Sometimes
    iv. Often
    v. Always
    vi. Unsure

9. State your level of agreement with each of the following Statements:
    a. BEFORE taking this class I considered myself as someone who is good at computer science.
        i. Highly Disagree
        ii. Disagree

iii. Agree
iv. Highly Agree
v. Unsure

b. AFTER taking this class I consider myself as someone who is good at computer science.
   i. Highly Disagree
   ii. Disagree
   iii. Agree
   iv. Highly Agree
   v. Unsure

c. BEFORE taking this class I was Interested in computer science and related topics
   i. Highly Disagree
   ii. Disagree
   iii. Agree
   iv. Highly Agree
   v. Unsure

d. AFTER taking this class I was interested in computer science and related topics.
   i. Highly Disagree
   ii. Disagree
   iii. Agree
   iv. Highly Agree
   v. Unsure

10. State your level of agreement with each of the following statements:
    a. I believe the things I learned in this class will be useful to achieve my future college, career, and/or life goals.
       i. Highly Disagree
       ii. Disagree
       iii. Agree
       iv. Highly Agree
       v. Unsure
    b. I would recommend taking this class to my friends.
       i. Highly Disagree
       ii. Disagree
       iii. Agree
       iv. Highly Agree
       v. Unsure
    c. I was satisfied with the variety of topics covered in this class.
       i. Highly Disagree
       ii. Disagree
       iii. Agree
       iv. Highly Agree
       v. Unsure
11. I plan on taking another computer science class in high school.

    a. Yes
    b. No
    c. Unsure
12. (if No on Question 11) Why do you not plan on taking another computer science class in high school?
    a. Open-ended
13. Thinking about how challenging the class was, I found the class to be:
    a. Too easy
    b. Easy
    c. Neither too easy or Too hard
    d. Hard
    e. Too hard
    f. Unsure
14. The one thing I liked the most about Exploring Computer Science is:
    a. Open-ended
15. The one thing I would change about Exploring Computer Science to improve it for the next group of students taking it is:
    a. Open-ended
16. Is there anything else about your Exploring Computer Science class you would like to share with us?
    a. Open-ended

Appendix L. Alternative Long Text and Data Tables

Long Text for Figure Intro-1.1.

Timeline showing the timing of WRAP program planning and implementation. WRAP occurred from April 2022 through September 2025. High School Science for All was implemented in January 2023; Exploring Computer Science planning phase was between January 2023-June 2024 and implementation started June 2024; Arts, Care & Connections planning phase was between June 2023 and September 2024 and implementation started September 2024. The Oregon State University STEM Research Center developed the evaluation plan April-June 2022; collected and analyzed baseline data between July 2022-December 2023; wrote the Baseline report from January-June 2024; collected program data between July 2024-March 2025; analyzed data and wrote summative report between April-September 2025.

Data table for Figure CD-1.1.

Percentage of rural and urban elementary schools in Oregon that offer at least one Arts course each academic year from 2018 through 2024.	2018/19	2019/20	2020/21 (WRAP is funded)	2021/22	2022/23	2023/24
Rural	62%	61%	51%	58%	63%	69%
Urban	78%	81%	59%	69%	63%	68%

Data Table for Figure CD-2.2.

When you teach arts as part of your teaching, what is the frequency of your teaching?	Weekly	1-2 times per month	Less than 1 time per month	Other
2023 (n=103)	62%	61%	51%	58%
2025 (n=223)	78%	81%	59%	69%

Data Table for Figure CD-2.3.

When you teach arts as part of your teaching, approximately how much total time do you spend teaching arts each week?	Less than 30 minutes	30-60 minutes	More than 60 minutes
2023 (n=101)	40%	50%	11%
2025 (n=224)	51%	46%	2%

Data Table for Figure CD-2.4.

When you teach arts as part of your teaching, approximately how much total time do you spend teaching arts each week?	Weekly	1-2 times per month	Less than 1 time per month	Other
Rural (n=88)	43%	44%	3%	9%
Urban (n=135)	40%	53%	4%	3%

Data Table for Figure CD-3.1.

Perceived utility of STEAM resources used by high school science and computer science teachers from the 2025 survey (n=101).	Have not heard of or used resource	Not useful at all	Slightly useful	Useful
Other Teachers	9%	2%	19%	70%
Educational Websites	6%	0%	28%	66%
Other Websites	8%	0%	28%	64%
Professional Organizations	21%	7%	35%	38%
AI Tools	27%	8%	31%	35%
Teachers Pay Teachers	23%	19%	31%	28%
STEM Hubs	37%	11%	31%	22%
Social Media	33%	23%	33%	12%
Oregon Open Learning	56%	11%	17%	16%

Data Table for Figure CD-3.2.

Extent to which high school science and computer science teachers (2025, n=101) agreed to the statement: “There are sufficient STEAM resources for high school teachers.”	Disagree	Neither agree nor disagree	Agree	I don’t know
Rural (n=61)	20%	33%	43%	5%
Urban (n=40)	33%	28%	38%	3%

Data Table for Figure CD-3.3.

Extent to which elementary teachers (2025, n=276) agreed to the statement: “There are sufficient STEAM resources for elementary teachers.”	Disagree	Neither agree nor disagree	Agree	I don’t know
Rural (n=103)	37%	21%	30%	12%
Urban (n=173)	50%	18%	24%	8%

Data Table for Figure CD-3.4.

The number of Patterns online webinars and in-person workshops offered by HSS4A each summer and the subsequent academic year before and during WRAP.	Academic Year	Summer	Total
2021-22 (before WRAP)	16	3	19
2022-23 (during WRAP)	52	6	58
2023-24 (during WRAP)	61	5	66
2024-25 (during WRAP)	31	6	37

Data table for Figure CD-3.5.

The number of Patterns webinars/workshops by topic for the baseline year (2021/22) and the three years of WRAP (2022-23 – 2024-25).	Biology	Physics	Chemistry	Rural Teachers	Other
2021-22 (before WRAP)	5	6	5	0	3
2022-23 (during WRAP)	8	21	9	0	20
2023-24 (during WRAP)	7	18	9	5	27
2024-25 (during WRAP)	9	10	10	8	0

Data Table for CD-3.6.

Percentage of elementary classroom and arts teachers (2025; n=243) who utilize each resource to locate Arts-specific curricular materials.	%
Educational websites	65%
Other teachers	65%
Social media	63%
Other websites	60%
Professional organizations	10%
STEM Hubs	8%
Oregon Department of Education website	1%
Other	13%

Data table for CD-3.7.

Extent to which elementary teachers (2025, n=276) agreed to the statement: “There are sufficient arts resources for elementary teachers.”	Disagree	Neither agree nor disagree	Agree
Rural (n=95)	61%	23%	16%
Urban (n=148)	68%	20%	13%

Long text for Figure CD-5.1.

The figure is comprised of two adjacent maps of Oregon: The year before WRAP, 191 teachers attended Patterns professional development, with high concentration of attendees in the Willamette Valley and additional attendees scattered across the state, except in the south-eastern quadrant of Oregon. In the years during WRAP, 326 teachers attended Patterns

professional development with even greater concentration of attendees in the Willamette Valley than pre-WRAP, and more attendees from the region along the Columbia Gorge and south-eastern Oregon.

Long text for Figure CD-5.2.

The figure is comprised of two adjacent maps of Oregon: The year before WRAP, 10 teachers attended Exploring Computer Science Professional development, including 5 rural teachers geographically scattered between the Willamette Valley and eastern Oregon, and 5 urban teachers located along the Willamette Valley. The two years during WRAP, 21 teachers attended ECS professional development, with twice as many rural attendees (n=14) as urban (n=7) and a geographic spread of attendees across the state.

Data table for Figure CD-5.4.

Number of Exploring Computer Science professional development attendees each year.	Urban	Rural	Total
2023 (before WRAP)	5	5	10
2024 (during WRAP)	4	5	9
2025 (during WRAP)	3	9	12

Long text for Figure CD-5.5.

A map of Oregon showing the geographic distribution of Arts, Care, & Connection website users who downloaded at least one AC&C lesson, in the first seven months of the content launch (n=90). The highest density of users was located along the Willamette Valley between Portland and Eugene, though there were users along the coast, in southern, and central Oregon and a few in northeastern Oregon. There appears to be no user located in south-eastern Oregon.

Data table for Figure CAS-1.1.

Percentage of Patterns students (n=247) responding to “I consider myself as someone who is good at science.”	%
I didn’t before the course, but I do now	28%
I did before the course and I do after	19%
I do not	26%
I am unsure	27%

Data table for Figure CAS-1.4.

Current Patterns teachers in the 2025 survey sample (n=14) rated the following Patterns elements on a scale from Disagree to Agree.	Disagree	Neither agree or disagree	Agree
Teaches critical thinking skills	14%	7%	79%
Promotes data literacy	7%	21%	71%
Cognitively appropriate	14%	14%	71%
Relevant phenomena	14%	14%	71%
Effectively conveys science concepts	21%	14%	64%
Engaging for my students	14%	43%	43%
Accessible for differing needs	29%	29%	43%

Data Table Figure CAS-6.1.

The number of first-time and returning Patterns professional development attendees over time (before WRAP and during WRAP).	Baseline	New	Returning	Total
2021-22 (before WRAP)	191	N/A	N/A	191
2022-23 (during WRAP)	N/A	185	96	281
2023-24 (during WRAP)	N/A	113	111	224
2024-25 (during WRAP)	N/A	28	44	72

Data table for Figure CAS-6.2.

Total number of Patterns workshops/webinars available each year and total number of teachers who participated.	# of Patterns Professional Development Opportunities	# of Participants
2021-22 (before WRAP)	19	191
2022-23 (during WRAP)	58	281
2023-24 (during WRAP)	66	224
2024-25 (during WRAP)	37	72

Data table for Figure CAS-6.3.

Geographic distribution of Patterns professional development participants each year.	Urban	Rural	Online	Regionally Based	No Data
2021-22	67%	26%	4%	3%	0%
2022-23	59%	34%	6%	1%	0%
2023-24	60%	34%	4%	2%	1%
2024-25	50%	50%	0%	0%	0%

Data table for Figure CAS-6.4.

Number of rural and urban teachers enrolled in ECS professional development during the baseline and WRAP-funded years.	Urban	Rural	Total
2023 (before WRAP)	5	5	10
2024 (during WRAP)	4	5	9
2025 (during WRAP)	3	9	12

Long text for Figure Com-1.1.

The area chart shows that the number of delivered Arts Education Newsletter emails started at 182 in January 2022; 860 in January 2023; 1,281 in January 2024, 1,556 in January 2025, and 1,644 in September 2025. The overlayed line graph shows the email open rates fluctuate but increase over time, yielding an average 49% open rate.

Data table for Figure Com-1.2.

Year	Average WRAP Newsletter Subscribers
2021	320
2022	843
2023	1,469
2024	1,840
2025	2,050