



Washington Office of Superintendent of **PUBLIC INSTRUCTION**

Mobius Science Center

1. **Purpose:**

The purpose of the [Mobius Discovery Center](#) Outreach Project is to expand science, technology, engineering, and mathematics (STEM) education to underrepresented student populations in rural, tribal, and low-income communities. The project provides STEM outreach, field trip opportunities, builds general awareness of STEM and NGSS science initiatives in the local schools and communities, and builds capacity for STEM teaching and learning in the region.

2. **Description of services provided:**

- Educational programs include classroom workshops, virtual classroom presentations, and STEM kits for synchronous and asynchronous classrooms. STEM-integrated workshops are designed to fit into existing, grade appropriate learning goals at each school with input from teacher lesson plans. Many of the past programs are likely to resume in the fall of 2021 (e.g. planetarium shows and in-person) in accordance with changes to health recommendations in the state.
- Community engagement at evening and weekend programs are a collaborative effort with local organizations (e.g. STEM Night, Science Saturday), and are hosted at an elementary school or public space in the area. Mobius educators bring hands-on STEM activities or science models to engage students and their families. These events both inspire students to investigate new STEM concepts and raise community awareness about the Discovery Center in downtown Spokane.
- Field trip visits to Mobius Discovery Center engage students with the same workshops that are provided in the classroom, as well as extending hands-on learning time in the exhibits. For the only field trip this spring, Mobius was able to partner with a new charter school in downtown Spokane, Lumen High School, that serves teen parents and their young children. Mobius staff combined high-school level programs with engaging early learners in our Discovery Center space.
- As the pandemic continued through the 2020-2021 school year, Mobius staff shifted efforts to visiting classrooms virtually. They improved at-home STEM "kits", providing video guides on YouTube to follow along with the activity guide. The kits were also delivered to classroom groups where teachers could lead the activities virtually, providing opportunities for hands-on STEM learning. These virtual presentations leveraged the expertise of Mobius staff to teach about local wildlife biology, space etc., while engaging and interacting with students. Educators utilized Mobius resources to

present dissections. This year, programs were evaluated through a teacher feedback survey and results are summarized below.

3. **Criteria for receiving services and/or grants:**

Those receiving fully-funded services from Mobius Discovery Center are from underrepresented populations in northeast Washington school districts. The criteria used for school partnerships include Title I, rural and tribal schools. Free/reduced-priced meal rates are also used to identify underrepresented populations, with served schools range from 47-91%, according to 2020 OSPI data.

Beneficiaries in 2020-21 School Year:

Number of School Districts: 5
Number of Schools: 11
Number of Students: 2605
Number of Educators: 76
Other: Family Members 258 attended Community Events, 745

students received free admission passes.

Number of OSPI staff associated with this funding (FTEs): 0 FTE

Number of contractors/other staff associated with this funding: 1.7

FY21 Funding: State Appropriation: \$100,000
Federal Appropriation: \$0
Other fund sources: \$0
TOTAL (FY21) \$100,000

4. **Are federal or other funds contingent on state funding?**

No

Yes, please explain.

5. **State funding history:**

Fiscal Year	Amount Funded	Actual Expenditures
FY21	\$100,000	\$100,000
FY20	\$100,000	\$99,931
FY19	\$100,000	\$100,000
FY18	\$100,000	\$100,000
FY17	\$100,000	\$100,000
FY16	\$100,000	\$89,600
FY15	\$100,000	\$99,997

6. **Number of beneficiaries (e.g., school districts, schools, students, educators, other) history:**

Fiscal Year	Number of School Districts	Number of Schools	Number of Students	Number of Educators	Number of Other
FY21	5	11	2605	76	258 Family Members
FY20	8	18	2823	42	600 Family Members

7. **Programmatic changes since inception (if any):**

After the success of delivering at-home STEM kits in the spring of 2020, Mobius improved and expanded the kit content offered for the 2020-21 school year. Topics included space science, engineering, flower dissections, and a special-event kit for the MARS 2020 rover landing event. Teachers were given sets of materials and support to implement the activities in their classrooms (both virtually and in-person). With regular, virtual meetings and in-person learning, teachers were able to facilitate these activities with all students, which was a significant advantage for their programming goals.

All resources and materials were supplied to teachers and students, to ensure that the activities ran as intended. In-person visits were not approved by any of their partner schools throughout the school year, and Mobius Discovery Center was also closed to the public until mid-April. Mobius developed live, virtual program presentations to deliver in a classroom setting. Programs were delivered to an all-virtual synchronous classroom, while other virtual presentations were delivered to a physical classroom of students.

Mobius has hosted community events in the past and attended STEM Nights at local elementary schools. This spring, Mobius collaborated with ESD 101 and local partners in the ClimeTime grant to present an evening Speaker Series and Science Saturday programming. Science Saturday events were hosted at an open-air community space near Mobius Discovery Center, including 6-8 community partners at each event. Each Saturday event provided families the opportunity to explore hands-on activities about local impacts of climate change. These programs increased awareness about initiatives in the community and general impacts of climate change across our region. Additionally, Mobius participated in the development of curriculum for pilot testing next school year with elementary, middle and high school teachers. These activities highlight local community partners and drive scientific inquiry to engage with climate science.

8. **Evaluations of program/major findings:**

Mobius established a contract with Eastern Washington University to evaluate educational programs, engagement with the content, physical and digital materials, and teacher support. Dr. Bo Idsardi designed an online survey to collect data from 15 of the 76 teachers served during the 2020-21 school year. Teachers strongly agreed that Mobius programs had

a strong impact on their students' learning and felt that it supported teaching and learning in their classrooms. The results of the survey emphasize the work done by Mobius staff to align to the curriculum goals of each school and to also deliver standards-aligned activities. Teachers reported strong connections to learning goals and content in their classrooms. Some suggestions for improvement included stronger connections to STEM careers, project extensions and detailed video guides.

Teachers expressed that students were engaged in science and engineering practices throughout the activities with one teacher reporting that students "felt like scientists" This evaluation highlights the limitations that teachers found with engagement during distance learning, and teachers indicated that Mobius programs provided opportunities for meaningful engagement. Teachers also indicated that they were able to directly facilitate STEM kits with their students to ensure correct implementation of the activities. This is a strong improvement from the spring of 2020 when students received kits directly with limited support. Mobius programs supported both synchronous and asynchronous learning during the school year, fulfilling the goal of engaging students in hands-on, authentic STEM activities.

9. **Major challenges faced by the program:**

As noted in the mid-year report, Mobius was forced to close all facilities and reduce staff due to the pandemic. The long-term closure resulted in the consolidation of the organization to Mobius Discovery Center. This change in their facilities and organization presented challenges to some operations; nevertheless, the grant-funding allowed Mobius education staff to continue programming. With no in-person programming in local school districts, Mobius used grant funds to adapt and develop new content to meet the needs of distance learning. Mobius Discovery Center re-opened in April and continues to operate with limited capacity in accordance with Washington state health regulations.

Local school districts implemented a wide-array of plans for in-person learning and virtual options. Many of the districts that began the year virtually, had prolonged transitions to in-person learning. This prevented Mobius from returning to in-person instruction, as buildings were monitoring outside exposures and the fluctuation of community spread. Without options for in-person instruction, there were a limited number of programs that could be offered to teacher. This also diverted significant staff time to materials preparation and delivery of STEM kits.

Mobius coordinates with some schools through grade-level teachers, and others through science specialists. Many of these specialists experienced significant changes to their workload or were even forced to change their position due to enrollment. The turnover of staff and administrators at schools throughout our region led to significant lapses in communication. For those teachers still in a science specialist role, their workload was increased to allow grade-level teachers additional prep hours. State-wide, teachers experienced an increase of job duties, allowing less time for programs like Mobius to fit in the schedule.

10. **Future opportunities:**

One of the local districts that expanded distance- and alternative-learning options, was Central Valley (Spokane Valley, WA). Central Valley Virtual Learning began operating at the beginning of the school year as a virtual elementary school of around 900 students. Staff that transitioned to these virtual teaching positions included teachers that had benefitted from Mobius programming in the past. Mobius was able to facilitate programs and deliver STEM kits for these online classrooms much easier than other districts in distance learning. Teachers familiar with the programs were also more willing to invite Mobius to their virtual classrooms for STEM presentations and workshops. Central Valley is planning to continue some level of virtual options for K-5 in the coming year, and Mobius plans to partner on virtual and in-person programs to enhance the STEM programming.

11. **Statutory and/or budget language:**

ESSB 5092, Sec. 1518 (12)(g) \$100,000 of the general fund—state appropriation for fiscal year 2020 and \$100,000 of the general fund—state appropriation for fiscal year 2021 are provided solely for the Mobius science center to expand mobile outreach of science, technology, engineering, and mathematics (STEM) education to students in rural, tribal, and low-income communities.

12. **Other relevant information:**

Lumen High School is a brand new, charter school opened in Spokane this year. Lumen opened its doors during the pandemic, which presented unique challenges, as the school serves teen parents and their young children with wrap-around services to support students and families. Mobius was eager to find ways to partner with Lumen, support high school STEM programming and become a place that teen parents can develop essential parenting skills and engage with their children. This year's programming included a scientific inquiry lab testing the performance of various diapers, and a sheep brain study to highlight brain development and early childhood learning. Mobius plans to grow this relationship in the coming years, benefiting from the close proximity of the school in downtown Spokane.

13. **Schools/districts receiving assistance:**

See [OSPI's Grantee List](#)

14. **Program Contact Information:**

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