NOAA–21ST CENTURY COMMUNITY LEARNING CENTERS

Watershed STEM
Education Partnership Grants

Request For Proposals
1. Welcome

The North American Association for Environmental Education (NAAEE) is pleased to offer an opportunity for your organization to apply for a NOAA–21ST CCLC Watershed STEM (science, technology, engineering and mathematics) Education Partnership grant.

Through the Watershed STEM Education Partnership grant program, NAAEE is supporting the mutual STEM education goals of the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Department of Education (U.S. ED). These grants will provide 21ST Century Community Learning Centers (21ST CCLC) with access to authentic STEM experiences that use NOAA’s unique education mission as a context for engagement.

U.S. ED’s 21ST CCLC program provides academic enrichment opportunities during non-school hours for students, particularly those who attend high-poverty and low-performing schools. The program helps students meet state and local learning standards in core academic subjects, such as reading and STEM; offers students a broad array of enrichment activities that can complement their regular academic programs; and provides literacy support and other educational services to the families of participating children.

The NOAA-21ST CCLC Watershed STEM Education Partnership grants will support access to academic enrichment experiences for program participants at 21ST CCLC program sites. The total portfolio of funded projects is anticipated to reach a minimum of 60 21ST CCLC sites each year, primarily in geographic areas served by the NOAA Bay Watershed Education and Training (B-WET) program [see Appendix 1]. Grant activities will focus on delivering essential elements of NOAA B-WET’s Meaningful Watershed Educational Experiences, or MWEEs, to the audiences served by the 21ST CCLC program. The MWEE is the core B-WET program experience, based on research, evaluation results, and lessons learned from over a decade of program implementation. See details on the following page.
In managing a grant program focused on building partnerships, NAAEE is pleased to work with partners at the NOAA Office of Education and U.S. ED to support a wide range of opportunities in outreach and education through the Watershed STEM Education Partnership grants program. NAAEE is interested in leveraging NOAA and 21ST CCLC resources to increase participants’ understanding and stewardship of local watersheds and related ecosystems. NAAEE is also interested in forging lasting collaborations between environmental education providers and 21ST CCLC sites to achieve greater impacts at several levels by:

- bringing environmental education programming to 21ST CCLC students during non-school hours,
- building the capacity of environmental education providers to offer high quality programming in out-of-school settings, and
- helping 21ST CCLC sites build a culture that values investigation, exploration, and authentic place-based learning as a context for improving student learning and achievement.

Funds will support organizations with experience working on NOAA-related education projects or implementing projects that draw on NOAA assets such as data, resources, expertise, or places. Applicants should demonstrate experience implementing STEM-based environmental education using NOAA resources in partnership with NOAA in their proposal. The intention of this opportunity is to foster new out-of-school partnerships between 21ST CCLC sites and environmental education providers based on existing NOAA-related programming and expertise.

2. About The Watershed STEM Education Partnership Grants

Through Watershed STEM Education Partnership grants, grantees will work with 21ST CCLC site partners to incorporate essential elements of NOAA B-WET’s “Meaningful Watershed Educational Experiences” (MWEEs) into out-of-school time programming.

A. Meaningful Watershed Educational Experiences (MWEEs)

Meaningful Watershed Educational Experiences (MWEEs) are learner-centered experiences that focus on investigations into local environmental issues that lead to informed action and civic engagement. They are composed of multi-stage activities that include learning in and out of the classroom, and aim to increase the environmental literacy of all participants. MWEEs help increase student understanding of basic watershed concepts as well as the interaction between natural systems and social systems, highlighting the connection between human activity and environmental conditions.

In Appendix 3, guidelines are provided for MWEE implementation in an out-of-school setting at 21ST CCLC sites. Applicants should review these guidelines and the additional resources available online in detail. Applications should include details about how projects will support MWEE implementation, based on these guidelines.
B. NOAA–21ST CCLC Watershed STEM Education Partnership Grant Projects

Applicants for a Watershed STEM Education Partnership grant should adapt components of the B-WET MWEE model for implementation in non-school hours, using NOAA science, sites, and/or expertise and aligning with 21ST CCLC site curriculum. Activities should emphasize STEM skills, engage students and staff in hands-on environmental education opportunities that take place both outdoors and indoors, and provide opportunities for students to interact with NOAA and other subject matter experts. Applicants should coordinate with 21ST CCLC site partners to ensure the projects help meet their program objectives and student learning and staff capacity building needs. Projects may be funded for all audiences and age ranges served by the 21ST CCLC program, including elementary, middle, and high school levels, and should be designed to be age appropriate for the specific project audience.

Program models may vary based on after-school versus summer programming and in response to partner site needs, but a typical engagement is expected to be a minimum of 1-2 hours per week at each site over a 6 to 10 week period, each year of project implementation.

All funded activities must serve 21ST CCLCs, and 21ST CCLC site partners must be actively funded by the 21ST CCLC program for the duration of their involvement in the project. Note that a single 21ST CCLC program may include multiple different 21ST CCLC sites. Information about eligible 21ST CCLC site partners can be found at state 21ST CCLC program web sites or by contacting the You for Youth NOAA support team: Y4YNOAA@seiservices.com. Potential applicants are encouraged to begin recruiting and working with 21ST CCLC site partners early in the application process. When developing collaborations, applicants should ensure that they have support from the 21ST CCLC program director(s) as well as the specific partner site/center coordinator(s). Partner 21ST CCLC programs should also confirm that their participation is supported by their state 21ST CCLC program management. A letter of collaboration from 21ST CCLC program/site partner(s) is a required part of the application package and should make clear that they have support to participate from their program and state, understand their role, and are committed to participating for the duration of the project. Priority will be given to applicants proposing to work with 21ST CCLC sites that are not currently offering STEM based MWEE environmental education using NOAA resources or participating in another U.S. ED STEM partnership activity.

NOAA-21st CCLC Watershed STEM Education Partnership grant projects:
- are implemented as academic enrichment during non-school hours;
- use best practices for STEM education focusing on the environment as a core element of STEM investigations;
- address specific 21ST CCLC site program objectives (such as increasing student engagement and achievement, supporting college and career readiness, responding to family members’ needs);
- emphasize project based learning, maximize youth voice and empowerment, and include opportunities for student reflection and meaning-making;
- draw on NOAA scientific information and resources and MWEE best practices;
- engage students in hands-on environmental education opportunities that take place both outdoors and indoors;
- meet the student learning and staff capacity building needs of 21ST CCLC program sites;
- include opportunities for mutual sharing of expertise between environmental education providers and 21ST CCLC site staff;
- ensure 21ST CCLC site staff support students’ participation in the environmental education program; and
- promote student interest in STEM careers.
As part of the proposed project, applicants should provide opportunities for collaboration and professional development with participating 21<sup>ST</sup> CCLC program staff that will support the development of out-of-school programming and provide 21<sup>ST</sup> CCLC educators with the opportunity to learn more about NOAA resources and environmental education focused around STEM. Applicants should plan to collaborate with 21<sup>ST</sup> CCLC staff on integration of MWEE components into the 21<sup>ST</sup> CCLC curriculum and designing programming that will be successful in afterschool/summer setting. Applicants should provide ongoing technical and watershed science content support for 21<sup>ST</sup> CCLC staff. Professional development activities should be grounded in research-based, effective practices to ensure successful implementation of student experiences. Projects that focus on training and capacity building of 21<sup>ST</sup> CCLC educators may apply, but the applicant should have significant previous experience working in out-of-school settings and must show how subsequent implementation at sites will also be supported as part of the project.

Applicants should also provide participating 21<sup>ST</sup> CCLC program sites with multiple formats and opportunities to connect with NOAA and related subject matter experts (scientists, educators, evaluation specialist, and others) to discuss watershed and environmental education content in-person or virtually, such as chat, streaming video, or collaborative software (a minimum of one interaction per site). Scientists and subject matter experts should be recruited from NOAA when possible (NOAA employees are encouraged to participate in STEM-related education and outreach activities in NOAA Administrative Order 216-106A). Subject matter experts should have experience in youth engagement or be provided with training on how to interact with students and the program sites. Applicants must document how they will partner with NOAA and use NOAA science, sites, resources, and/or expertise in implementation of the project. Letters of collaboration from NOAA partners are encouraged as part of the application. Priority will be given to organizations that can demonstrate prior experience working with NOAA on education programming and/or implementing MWWEs.

Recipients will also be required to coordinate with NAAEE, NOAA, U.S. ED and their partners, and 21<sup>ST</sup> CCLC program site staff as necessary to plan program implementation schedules and content delivery methods. Recipients will be asked to identify 21<sup>ST</sup> CCLC site partner needs for technical assistance, and provide photos or video of project activities as well as curriculum products and other resources for inclusion on the You for Youth professional learning portal (y4y.ed.gov). You for Youth may provide some assistance with scheduling, planning, and online content delivery and other technical assistance. It is also anticipated that NOAA, NAAEE, and U.S. ED will offer opportunities for grantee and 21<sup>ST</sup> CCLC site capacity building related to MWEEs and related education best practices at various times during the project implementation timeline.

C. Project Evaluation

Project evaluation is required. For this funding opportunity, project evaluation is defined as the systematic collection and documentation of information about your project to improve the project’s effectiveness, document successes toward meeting project objectives, and inform decisions about future programming. It informs those who design, manage, and implement the project to make refinements and introduce improvements into future efforts. Project evaluation should result in not only data, but interpretations of the data. A portion of project funding may be dedicated to the evaluation activity, but it should be reasonable and well justified.
Proposals should provide a project-level evaluation plan appropriate for the size and type of project proposed. Data collection may be quantitative and/or qualitative and may include, for example, evaluation tools and surveys or observation. For this funding opportunity the evaluation plan should include:

- What you hope to learn from the evaluation (e.g., do you want to gather information about how the project met your program goals? Do you want to use the evaluation, to improve the project’s effectiveness? Or, something else?) What will be evaluated (e.g. changes in participants’ knowledge or attitudes related to watersheds)
- The type(s) of evaluation that is planned (e.g., needs assessment, formative evaluation, process evaluation, outcome evaluation, etc.)
- The methods for implementing the evaluation (e.g., what will be measured, how it will be measured, when will evaluation data be gathered, and how the results will be analyzed and delivered)

Applicants will need to be aware of and adhere to any pertinent rules and policies regarding data collection for their state and/or district and/or 21ST CCLC site and be prepared to address this in the evaluation design proposed. Proposals should also include details on 21ST CCLC site partner evaluation plans and metrics, where available. Evaluation results will be reported to NAAEE and may be included in NOAA and U.S. ED’s evaluation work. In addition to project evaluation, grantees may also be asked to participate in NOAA’s program evaluation and/or an evaluation study led by U.S. ED, and to provide general demographic data about project participants.

Projects funded under this grant should align with the following anticipated program outcomes. While grantees are not expected to report on each of these as part of their evaluations, aligning project evaluation data collection with these outcomes is encouraged.

**21ST CCLC students will:**

- improve STEM skills.
- gain awareness of applications and relevance of STEM to their own lives and communities.
- be more engaged and enthusiastic about learning.
- gain the knowledge, skills, attitudes, and motivations to protect and restore watersheds.
- be exposed to new people and places in their communities.
- have opportunities to spend time learning outside.
- gain self-esteem and confidence to address community issues.

**21ST CCLC site staff will:**

- learn more about watershed conservation and the importance of environmental education in advancing environmental literacy.
- have skills and confidence to incorporate environmental education into out-of-school programming (e.g., confidence to teach outdoors).
- be aware of relevant NOAA resources to enhance student experiences.
- increase skills and capacity to form and maintain effective partnerships with environmental education providers and other local partners.

**Environmental education providers will:**

- understand the goals and objectives of the 21ST CCLC program.
- know how to design and implement out-of-school programs appropriate for partnerships with 21ST CCLCs.
- increase skills and capacity to form and maintain effective partnerships with 21ST CCLCs.
3. Grant Information

NAAEE anticipates reaching 60 or more 21ST CCLC sites per year through approximately 30 competitively awarded Watershed STEM Education Partnership grants.

A. Project Timeline

Projects should be planned for two years of implementation in 2020 and 2021, as described below.

**Project Year 1: Spring - Fall 2020**

In Project Year 1 NAAEE anticipates funds will be available by April 15, 2020. Grantees may plan for some capacity building, planning, and partnership building activities in the first year of the project. Examples include working with site partners to refine project plans, and participation in training and professional development offered by NOAA, NAAEE, and You For Youth. Year 1 (2020) activities may occur in the spring, summer, fall, or some combination of these. Project evaluation in Year 1 should provide feedback to help grantees improve project implementation in Year 2.

**Project Year 2: Spring - Fall 2021**

Applicants should describe in their proposal how the second year of implementation will complement or build on the first year of implementation, in terms of program duration, content, or type of activities. Year 2 (2021) activities may occur in the spring, summer, fall, or some combination of these. All project activities should conclude by the end of calendar year 2021 to allow for final reporting and evaluation activities to conclude in early 2022.

Year 2 funding is contingent on satisfactory performance in Year 1. Satisfactory performance will be determined based on the grantee’s documented progress toward meeting project milestones, continued partnership with 21ST CCLC site partners and the grantee’s ability to meet all grant reporting and communication requirements identified by NAAEE.

B. Funding Amount

Applicants may apply for a total request of $40,000-$100,000 ($20,000-$50,000 per year of implementation.) $20,000 per year of implementation is the minimum that may be requested for partnerships with a single 21ST CCLC site. Higher funding requests should reach multiple sites and/or demonstrate greater contact time or duration of program implementation at each site. Funding requested should be appropriate for the number of sites to be served with the proposed program model, and applicants should provide a justification for the scale of program implementation in their proposals. NAAEE anticipates funding projects that serve single 21ST CCLC sites and projects that serve multiple sites through this opportunity, and aims to reach at least 60 21ST CCLC sites each year through the portfolio of funded projects.

C. Other Grant Information

All funded activities must serve 21ST CCLCs, and 21ST CCLC site partners must be actively funded by the 21ST CCLC program for the duration of their involvement in the project. Priority will be given to sites that are not currently offering STEM based environmental education utilizing NOAA resources or participating in another U.S. ED STEM partnership activity. Information about eligible 21ST CCLC site partners can be found at state 21ST CCLC program websites. For additional assistance identifying potential 21ST CCLC site partners, please contact the You for Youth NOAA support team at Y4YNAA@seiservices.com. A letter of collaboration from 21ST CCLC program/site partner(s) is a required part of the application package and should make clear that they have support to participate from their program and state, understand their role, and are committed to participating for the duration of the project.
D. Eligibility
Prospective applicants are eligible to submit a proposal if:

- The applicant is a K-12 public or independent school or school system, institution of higher education, nonprofit organization, state or local government agency, interstate agency, or Indian tribal government.
- The applicant is not a federal government agency, foreign entity, or individual.
- Project work is conducted by a U.S. organization in the United States or territories that can provide a valid DUNS number (https://fedgov.dnb.com/webform).
- The applicant plans to work with sites in the states and/or counties identified in Appendix 1.
- The applicant intends to partner with at least one 21ST CCLC and 21ST CCLCs are the audience for all planned programming.
- If an applicant is a current 21ST CCLC grantee, the site(s) they propose to partner with for this project must not be the site(s) that they are currently funded by the 21ST CCLC program to operate.
- The applicant is not on the federal government’s debarred list.

Proposals that fail to meet the eligibility requirements outlined in this opportunity will be rejected without further review.

E. Grantee Responsibilities
Final awardees must submit an interim and final performance report to NAAEE each year of project implementation. The final project report will be due upon project completion, no later than January 31, 2022 or 30 days following the award end date, whichever is sooner. Financial reports will also be required. Progress reports and the final grant report must include photos and/or videos of project activities as well as curriculum products and other resources for inclusion on U.S. Department of Education (U.S. ED) You for Youth professional learning portal (y4y.ed.gov). Additional guidance on reporting and curriculum products and resources to be submitted will be provided to grantees in Year 1 of the project.

4. Application Process

A. Competition Timeline
December 6, 2019 – Request for proposals announced
December 19, 2019 & January 16, 2020 – Webinars for potential applicants (See section 5 for details.)
February 6, 2020 – Request for proposals closes
February 7 - March 7, 2020 – Review and selection
March 31, 2020 – Funding decisions announced (anticipated)
April 15, 2020 – Year 1 project funds available, earliest project start date

B. Submitting Your Proposal
Proposals must be submitted by Midnight EST, February 6, 2020, through Survey Monkey Apply only.

The proposal package must include:

- a detailed description of your project activities, specifically addressing how you will include STEM based environmental education incorporating Meaningful Watershed Educational Experiences and support the priorities of your 21ST CCLC site partners;
- a detailed description of project goals, deliverables, and how they will be accomplished, including a timeline and/or milestone chart;
- a full budget and budget narrative;
- a plan for project evaluation;
- a list of of planned 21ST CCLC site partners; and
- letters of collaboration from 21ST CCLC partner program directors and/or center/site coordinator(s).
Letters of collaboration from NOAA programs(s) and other major project partners are encouraged. Additional materials such as curriculum or other documents may be submitted but may not be reviewed.

C. Review and Selection Process

A panel of qualified reviewers will score proposals based on how well they fulfill the criteria provided in Appendix 2 of this announcement. The additional selection factors provided in Appendix 2 may be used to ensure a diverse cohort of funded projects (looking at geography, partners, audience, and more). State 21ST CCLC program staff will have an opportunity to review and approve 21ST CCLC program/site participation as part of the review process.

All organizations that submit a proposal will receive notification whether or not your project is selected for funding by March 31, 2020.

5. For More Information

- Read the information and FAQs online at https://naaee.org/our-work/programs/eeblue/21CCLC
- Register for an informational webinar for potential applicants.
  - December 19, 2019, 2pm ET: Registration URL: https://seiservices.zoom.us/meeting/register/tJEqdOmprzMi3mprr-5lzZ0qLHY0bG9ZQA
  - January 16, 2020, 2pm ET: Registration URL: https://seiservices.zoom.us/meeting/register/v5Uvfu6rqDspJTrhVPtB_fry_NmEK9Hkg
- For questions that cannot be answered through this announcement, the applicant webinar, or the FAQs, please contact:
  T’Noya Thompson, NAAEE: tnoya@naaee.org, 281-785-0995
  Bronwen Rice, NOAA Office of Education: bronwen.rice@noaa.gov, 202-482-6797
  You for Youth NOAA support team: Y4YNOAA@seiservices.com

A. About the NOAA B-WET Program

The NOAA B-WET program funds locally relevant, authentic experiential STEM learning for K-12 audiences through multi-stage Meaningful Watershed Educational Experiences (MWEE) that include learning both outdoors and in the classroom. The activities are driven by rigorous academic learning standards and aim to increase participants’ understanding and stewardship of watersheds and related ocean, coastal, riverine, estuarine, and Great Lakes ecosystems. The B-WET program currently serves seven geographic areas of the country: California, Chesapeake Bay, Great Lakes, Gulf of Mexico, Hawaii, New England, and the Pacific Northwest. Regional implementation allows B-WET programs to support grantee capacity building and to connect grantees to local NOAA assets and relevant STEM expertise, while being responsive to local education and environmental priorities.

http://www.noaa.gov/office-education/bwet

B. About the U.S. Department of Education 21ST CCLC Program

The 21ST Century Community Learning Center program supports the creation of community learning centers that provide academic enrichment opportunities during non-school hours for children, particularly students who attend high-poverty and low-performing schools. The program helps students meet state and local student standards in core academic subjects, such as reading and math; offers students a broad array of enrichment activities that can complement their regular academic programs; and offers literacy and other educational services to the families of participating children.

http://www2.ed.gov/programs/21stcclc/index.html
C. About the North American Association for Environmental Education

For more than four decades, the North American Association for Environmental Education (NAAEE) has served as the professional association, champion, and backbone organization for the field of environmental education (EE), working with a diverse group of EE professionals in the United States, Canada, and Mexico to advance environmental literacy and civic engagement. NAAEE is the only national membership organization dedicated to strengthening EE and increasing the visibility and effectiveness of the field. With more than 20,000 members and supporters, including affiliations with 56 state and provincial EE organizations and members in more than 30 countries, NAAEE reaches more than a million people through programs aimed at providing the field with professional development, access to learning networks and collaborative partnerships, tools and resources to promote effective practice, and leadership and capacity building. NAAEE is also involved in a number of field-building activities and signature programs, including the Natural Start Alliance to advance environmental education in early childhood, an international E-STEM initiative to link environmental education and STEM learning, and the Global Environmental Education Partnership—a global network dedicated to building capacity at the country level (see thegeep.org).
Appendix 1: Geographic areas where projects must be implemented

Program geography is structured around the NOAA B-WET program watershed regions. Applicants should identify the watershed area of focus for their project in the proposal.

**California:**
21ST CCLC sites served must be located in Sacramento County, CA.

**Chesapeake Bay:**
21ST CCLC sites served must be located in states that indicated support for the “Student Goal” (Meaningful Watershed Educational Experiences - MWEEs) as a part of the Chesapeake Bay Agreement. This includes all school districts (not only those in the Chesapeake Bay Watershed) in Pennsylvania, Maryland, District of Columbia, Delaware, and Virginia.

**Great Lakes:**
21ST CCLC sites served must be located in the states of New York, Pennsylvania, Ohio, Michigan, Indiana, Illinois, Minnesota, and Wisconsin.

**Gulf of Mexico:**

**Hawaii:**
21ST CCLC sites served must be located in the state of Hawaii.

**New England:**
21ST CCLC sites served must be located in the states of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, or Vermont.

**Pacific Northwest:**
21ST CCLC sites served must be located in the states of Oregon, Washington, or Alaska.
Appendix 2: Review Criteria and Selection Factors

Review Criteria
Proposed projects will be reviewed and scored based on the criteria below:

Importance/relevance and applicability of proposal to the program goals (30 points)

- Do the proposed activities emphasize STEM skills and promote student interest in careers in STEM?
- Does the proposed project support individuals’ knowledge, skills, attitudes, and motivations to protect and restore watersheds?
- Does the applicant address 21ST CCLC program and site objectives?
- Does the applicant explain the need for implementing the program at the 21ST CCLC site(s) to be reached?
- Does the proposed project include using NOAA resources to achieve project goals?
- Does the proposed project include opportunities for participants to interact with NOAA or other STEM subject matter expert(s)?
- Are the project activities likely to create lasting collaborations between partners?

Technical merit (30 points)

- Does the applicant demonstrate how the proposed activities address the elements of the NOAA B-WET Meaningful Watershed Educational Experience?
- Do the proposed activities engage 21ST CCLC students and staff in hands-on environmental education opportunities that take place both outdoors and indoors?
- Does the proposed project include best practices (such as project-based learning, support for youth voice and empowerment, and opportunities for student reflection)?
- Does the proposal clearly describe how the project will be executed logistically and include details sufficient to determine that it can reasonably be completed in the proposed time frame?
- Does the proposed project include collaboration with 21ST CCLC partners in the design and development of programming?
- Will the proposed project build staff capacity for participating 21ST CCLC program partner sites?
- Does this project increase the likelihood of ongoing inclusion of STEM and environmental education programming at participating 21ST CCLC sites?
- Does the applicant provide an effective project-level evaluation plan, appropriate for the size and type of project proposed?
- Does the applicant describe how the second year of implementation will complement or build on the first year?

Qualifications of applicants (20 points)

- Does the applicant demonstrate experience and success implementing STEM based environmental education?
- Does the applicant demonstrate experience and success implementing STEM education in out-of-school time?
- Does the applicant demonstrate experience partnering with NOAA?
- Does the applicant have a commitment to and experience with reaching underserved youth?
- Are letters of collaboration from 21ST CCLC partner site(s) and other project partners included?

Project costs (15 points)

- Is the proposed budget request reasonable and justified?

Outreach (5 points)

- Does the applicant commit to collaborate with NAAEE and NOAA to produce content that will be posted on U.S. ED’s You for Youth professional learning portal (y4y.ed.gov)?
Additional Selection Factors

In order to ensure a diverse cohort of funded projects, NAAEE, in collaboration with NOAA and U.S. ED, may select a proposal out of review rank order if justified based upon the following factors:

A. Availability of funding
B. Balance/distribution of funds
   a. Geographically (to include urban/rural designation)
   b. By type of institutions
   c. By type of partners
   d. By project types
   e. By audience types
C. Duplication of other projects funded or considered for funding by NOAA, NAAEE, or U.S. ED
D. Applicant’s prior award performance
E. Partnerships with/participation of targeted groups
F. State Education Agency input on proposed 21st CCLC site partner participation
Appendix 3: Resources

Meaningful Watershed Educational Experiences (MWEEs)

Meaningful Watershed Educational Experiences (MWEEs) are learner-centered experiences that focus on investigations into local environmental issues that lead to informed action and civic engagement. They are composed of multi-stage activities that include learning both indoors and outdoors, and aim to increase the environmental literacy of all participants. MWEEs help increase student understanding of basic watershed concepts as well as the interaction between natural systems and social systems, highlighting the connection between human activity and environmental conditions.

MWEEs include four essential elements for student experiences and five supporting practices that educators engage in to support students during a MWEE. The full MWEE definition can be found at: https://www.noaa.gov/education/explainers/noaa-meaningful-watershed-educational-experience. The MWEE definition designed for formal classroom implementation has been adapted here to emphasize critical components to be implemented in an out-of-school setting at 21ST CCLCs as part of the Watershed STEM Education partnership grants.

1. MWEE Essential Elements for Students

1.1 Issue Definition and Background Research

The entire MWEE for students should focus on a specific, local environmental question, phenomenon, problem, or issue ("driving question") requiring background research and investigation. The driving question should be specific and focused so that students develop a deeper understanding about a single watershed issue rather than a more basic understanding about a broad set of relevant watershed concepts. The driving question should be articulated and/or referred to across all MWEE stages.

During issue definition students should be actively involved in planning and conducting background research and investigations focused on understanding the driving question (e.g., collecting data and/or observations, conducting experiments, talking to experts, reviewing credible resources, and using tools).

1.2 Outdoor Field Experiences

For this funding opportunity, MWEEs should include multiple place-based outdoor field experiences that are related to the driving question. Students should be actively involved in conducting the outdoor field investigations, including background research and developing investigative questions to explore in the field (see above, 1.1 Issue Definition and Background Research). Outdoor field experiences allow students to interact with their local environment and should not include activities that can be done as authentically indoors. Outdoor field experiences can take place on school grounds or at locations in close proximity to schools, such as streams or city parks. They can also take place at offsite locations such as state parks, wildlife refuges, or education centers.

1.3 Stewardship Action Projects

Students participate in an age appropriate stewardship action project related to the driving question. Stewardship Action projects are more than teaching students environmentally responsible behaviors. These projects allow students to take action to address environmental issues at the personal or societal level. Students should drive the decision-making, planning, and implementation of the action wherever possible. Categories of stewardship actions include:

- **Watershed Restoration or Protection**: actions that assist in the recovery or protection of a watershed (e.g., creating schoolyard habitat, planting trees or grasses, invasive species removal, community cleanup, stormwater management)

- **Everyday Choices**: actions that reduce resource inputs and emissions per unit of output through technological change and consumer purchasing, use, and disposal behaviors (e.g., reduce/reuse/recycle/upcycle, composting, energy conservation, water conservation)
• **Community Engagement**: actions that inform others in an effort to convince them to take action to address community-level environmental issues (e.g., presentations, social media, event-organizing, messaging at community events/fairs/festivals, mentoring, PSAs, flyers, posters)

• **Civic Action**: actions that inform public or organizational policy decisions that can improve environmental outcomes for many people or organizations at once (e.g., town meetings, writing or meeting with elected officials/decision makers)

If the action project falls within the “Watershed Restoration or Protection” category above, it can also be considered as an outdoor field experience. Please note that monitoring activities alone do not constitute a stewardship activity. If monitoring data informs decision-making or management of natural resources then it may be considered part of an action project.

### 1.4 Synthesis and Conclusions

Students should have dedicated project time to reflect on project activities, analyze collected data and/or observations, and apply evidence to form conclusions repeatedly throughout the MWEE. This information should be used during the development of stewardship actions. Students should also have opportunities to share their conclusions with each other and external audiences, such as other classrooms, schools, parents, or the community.

### 2. Practices that Support MWEEs with Students

#### 2.1 Teacher participation

MWEEs depend on teachers facilitating and supporting student learning. For this funding opportunity, MWEE projects should include opportunities for collaboration between watershed grantees and 21ST CCLC site partner staff during program planning and design. This collaboration will ensure that programming is appropriate for an out-of-school setting and provide 21ST CCLC educators the opportunity to learn more about NOAA science and watershed STEM content.

#### 2.2 Integration with curriculum

Experiences should provide authentic, age appropriate, engaging content to address 21ST CCLC site academic goals for learning and student achievement. In addition, out-of-school activities may complement and enrich traditional classroom curriculum. Elements of science and social studies standards related to questioning and investigation, evidence-based analysis and interpretation, model and theory building, knowledge of environmental processes and systems, skills for understanding and addressing environmental issues, and personal and civic responsibility align well with MWEEs. Where appropriate, connections to formal classroom learning objectives should be made.

#### 2.3 Use of the local context for learning

The local community and environment is the primary resource for student MWEEs. All activities support students in building understanding that is directly relevant to a local driving question. Activities leverage local resources, such as partners, expertise, and field sites, and create and/or implement locally-tailored experiences. By leveraging local, place-based resources, connections are made between the students, local environment, and community. Students should also have the opportunity to explore how individual and collective actions can impact their local environment and community.

#### 2.4 Experiences are a set of activities over time

MWEEs are multi-stage experiences, with different stages placing greater emphasis on different essential elements. Different stages of a MWEE will focus on issue definition, outdoor field experiences, or synthesis, for example. However, while a single project day may focus more heavily on one essential element, it does not stand in isolation from the others. Each builds upon and reinforces the others, particularly as the program progresses. Thus, the driving question should be articulated across all program stages for a cumulative benefit. Students should still benefit if they only experience one or some program stage(s). Each part of the MWEE should involve a significant investment of time and include opportunities for students to reflect on project activities.
2.5 Includes NOAA assets, including personnel and resources

NOAA MWEEs use NOAA assets, such as data, resources, expertise, or places. NOAA has a wealth of applicable products, data, and services as well as a cadre of scientific and professional experts who can enhance student experiences both in the classroom and in the field. Watershed STEM MWEE projects should incorporate NOAA assets, including the opportunity for students to interact with at least one scientific or professional expert. Subject matter experts can facilitate field experiences, discuss watershed and environmental education content, and/or showcase NOAA and STEM-related careers, and may do so in person or through a virtual interaction. For more on NOAA assets for education please see: https://www.noaa.gov/office-education/grants/noaa-assets, NOAA in your state (https://www.legislative.noaa.gov/NIYS/), and NOAA in your backyard (https://www.noaa.gov/education/noaa-in-your-backyard).

Additional MWEE Resources

- http://baybackpack.com/mwee/what-is-a-mwee (Includes case study videos of MWEE essential elements and tools for developing and implementing a MWEE.)
- NOAA MWEE definition: https://www.noaa.gov/education/explainers/noaa-meaningful-watershed-educational-experience
- NOAA B-WET program: https://www.noaa.gov/office-education/bwet
- 2017 pilot program highlight video: https://youtu.be/aMS8Frzmf10
- The MWEE Audit Tool in the Chesapeake Bay MWEE Planning Toolbox: http://baybackpack.com/assets/img/mwee/planning-toolbox.pdf The Audit Tool may be used to determine if your project meets the full definition of the MWEE and to identify areas that could be strengthened.

Additional Resources For STEM In Out Of School Time

- You for Youth partnership page: https://y4y.ed.gov/stemchallenge/noaa