



Project Description Example

Broader Impacts Description

We will partner with Centers for Ocean Science Education Excellence Networked Ocean World (COSEE NOW) for the development and implementation of the following broader impacts activities. We will develop three lesson plans about satellite images of sea surface temperature and primary production. Embedded in these lessons will be information about how to interpret satellite images, how to interpret sea surface temperature and chlorophyll-a images, and how scientists use these data in research. Once the lessons are developed, we will prepare and implement a two-day long professional development workshop for 30 teachers at Wiscors University focusing on the use of remote technology to study the ocean. COSEE NOW staff will use existing teacher networks to recruit the teacher participants.

After this event, the 30 teachers will be able to interpret sea surface temperature and chlorophyll-a satellite images and will be prepared to deliver the three lessons in their classrooms. The teachers will be required to implement the lesson plans with their students within two months of the professional development workshop. The teachers will be required to gather and report student feedback on the lessons. Once feedback is collected, appropriate revisions will be made to the lessons. The lessons will then be posted to the COSEE NOW website, disseminated through the COSEE Network, and presented to teachers attending a National Marine Educators Association (NMEA) conference through a conference presentation.

Broader Impacts Tasks

As a result of the broader impacts activities funded in conjunction with the proposed research, the team will:

- Develop three lesson plans about satellite images on sea surface temperature and primary production and how scientists use these data in research.
- Prepare and implement a two-day long professional development workshop for 30 teachers.
- The teachers will implement the lesson plans with their students within two months of the professional development workshop and gather and report student feedback on the lessons.
- The lessons will be revised based on feedback.
- The lessons will be posted to the COSEE NOW website, disseminated through the COSEE Network, and presented to teachers attending a National Marine Educators Association (NMEA) conference through a conference presentation.

Broader Impacts Objectives

During the school year after the teacher professional development workshop, teachers will:

- Implement a single or multi-period lesson plan that teaches their students about satellite images of sea surface temperature and primary production (how to read images, how to interpret temp and production from images, how scientists use them, how important images, temp and/or primary production are to scientists), and apply the information to a real world question or problem.
- Gather student data generated from the lesson implementation.
- Report their results and perceptions from implementing a data focused lesson in their classroom.

Next Steps Example

Goals:

To improve teacher and student awareness of the use of remote technology to study the ocean by:

- developing, testing, and refining lesson plans on the use of remote technology to study the ocean
- developing and implementing professional development opportunities for teachers featuring the lessons on the use of remote technology to study the ocean
- disseminating the completed lessons to wider audiences

Logic Model:

Audience Description: K-12 Teachers

Overall Goal: To improve teacher and student awareness of the use of remote technology to study the ocean.

| Program Objectives | Resources | Activities | Outputs | Short-term Outcomes | Mid- to Long-term Outcomes |
|--|--|---|---|--|--|
| Teachers and students will be able to interpret satellite images of sea surface temperature and primary production and connect this information to real world questions or problems. | <ul style="list-style-type: none">• funds• materials• staff• partners | <ul style="list-style-type: none">• develop lesson plans and workshop• develop teacher support materials | <ul style="list-style-type: none">• three lessons plans• conduct a two day professional development workshop for approximately 30 teachers | <ul style="list-style-type: none">• Increase in knowledge about remote technology and applications | <ul style="list-style-type: none">• Use of knowledge of remote technology to answer real world questions• Teacher use of acquired knowledge to teach students |
| <i>Intent of the program in terms of changes in your audience</i> | <i>Resources YOU have</i> | <i>Activities YOU will do</i> | <i>Programs/ products/ services YOU will deliver & # of people served</i> | <i>How the AUDIENCE will be measurably different shortly after the program</i> | <i>How the AUDIENCE will be measurably different in the long run</i> |

Action Plan

| Goal | Action/Task | Target Date | Status |
|--|--|-------------|---------|
| Develop lesson plans on the use of remote technology to study the ocean | Work with partners to develop three lesson plans about satellite images on sea surface temperature and primary production and how scientists these data in research. | 8/28/12 | Ongoing |
| Develop and implement professional development opportunities for teachers featuring the lessons on the use of remote technology to study the ocean | Develop content for a two day long professional development workshop for 30 teachers at Wizard University | 9/28/12 | Ongoing |
| | Run professional development workshop at Wizard University | 10/20/12 | Ongoing |
| Implement and refine lesson plans on the use of remote technology to study the ocean | Teachers will implement a single or multi-period lesson plans and gather student feedback | 10/24/12 | Ongoing |
| | Lessons will be refined based upon teacher and student feedback | 3/19/13 | Ongoing |
| Disseminate the completed lessons to wider audiences | Post the lessons to the COSEE NOW website and disseminate through the COSEE Network | 4/16/13 | Ongoing |
| | Present to teachers attending a National Marine Educators Association (NMEA) conference through a conference presentation. | 7/7/13 | Ongoing |

Task List

| Action Item | Task | Assigned to | Target Date | Status |
|--|---|---------------------|-------------|---------|
| Work with partners to develop three lesson plans about satellite images on sea surface temperature and primary production and how scientists these data in research. | Meet with COSEE NOW staff to determine learning objectives and lesson structure | Pam | 8/28/12 | Ongoing |
| | Identify relevant data and images and real world problems and questions for use in lesson plans | Liesl | | |
| | Develop a rough draft of lesson plans | Carrie | | |
| | Review rough draft of lesson plans for scientific accuracy and usability | Pam, Liesl & Carrie | | |
| | Create a final draft of lesson plans | Carrie | | |

| | | | | |
|---|---|--|------------------------------|---------|
| Develop content for a two day long professional development workshop for 30 teachers at Wizard University | <p>Prepare packets of lesson plans and materials to support teachers during the workshop and classroom implementation</p> <p>Work with project evaluator to develop teacher and student feedback forms</p> | <p>Liesl</p> <p>Andy & Liesl</p> | 9/28/12 | Ongoing |
| Run professional development workshop at Wizard University | <p>Recruit teachers</p> <p>Reserve room and order equipment needed</p> <p>Place order with food services</p> <p>Gather teacher stipend information, if needed</p> <p>Develop the agenda and identify personnel need to run the workshop</p> <p>Send out maps, parking passes, etc. and create name tags for participants, if needed</p> | <p>Carrie</p> <p>Carrie</p> <p>Carrie</p> <p>Liesl</p> <p>Liesl</p> <p>Liesl</p> | 10/20/12 | Ongoing |
| Teachers will implement a single or multi-period lesson plans and gather student feedback | <p>Teachers will choose when they will implement the project and report back to the coordinators</p> <p>Implement lessons</p> <p>Gather and submit student feedback to coordinators</p> <p>Complete and submit teacher feedback forms to coordinators</p> | <p>Teachers</p> <p>Teachers</p> <p>Teachers</p> <p>Teachers</p> | 10/24/12 | Ongoing |
| Lessons will be refined based upon teacher and student feedback | <p>Compile student and teacher feedback</p> <p>Refine the lessons based upon the feedback</p> | <p>Liesl</p> <p>Carrie</p> | 3/19/13 | Ongoing |
| Disseminate the completed lessons to wider audiences | <p>Post the lessons to the COSEE NOW website and disseminate through the COSEE Network</p> <p>Present to teachers attending a National Marine Educators Association (NMEA) conference through a conference presentation.</p> | <p>Carrie</p> <p>Liesl</p> | <p>4/16/13</p> <p>7/7/13</p> | Ongoing |