



Lesson 5E 3: Workplan Example 3

Overview. The ABC Organization (ABC), in partnership with the Vixon Space Grant Collab (VSGC), proposes to establish a multi-component project that will inspire students, train educators and build the capacity of institutions to deliver NASA-related STEM curriculum.

2. Technical Plan

2A Goals, objectives, outcomes, approaches, target audience, NASA resources

2A-1 Target audience

To date IELs from across the nation, including members of the Museum Alliance, ASTC and non-affiliated science centers, have expressed an interest in participating in this project. We expect interest to grow as we formalize the program.

2A-2 Outcomes

Our **primary outcome measures are as follows:** to determine (1) the level of preparedness of partnering informal educators to conduct educational activities as a result of participation in program professional development workshops and video tutorials; (2) if program participants (informal educators, students and IEI visitors) acquire knowledge and information about topics addressed by *Back to the Moon and Forward to Mars* venues; (3) if these learning outcomes and experiences that they would not have obtained elsewhere; (4) if they have an increased desire to apply the knowledge and skills they have gained.

WORKPLAN

2A-3 Goal, Objectives and Approach

The **overall goal of this project** is to inspire 200,000 students and their families by providing interactive activities on a national level to contribute to NASA's mission using innovative tools and platforms. This will be achieved through our interactive exhibit at ABC and our proposed traveling exhibit which will crisscross the nation. The objectives and approaches are detailed below by component.

Component 1: Floor exhibit at ABC

Objective 1.1. Develop a permanent, interactive 1,500-sq ft exhibit that complements ABC's existing Apollo exhibit and aligns with/utilizes LaRC's missions/materials and fosters problem-solving and critical thinking (completed by the end of Year 2). Objective 1.2. Directly

engage over 50,000 students in grades 4-8 during their visit to ABC over the second and third years of the project.

Objective 1.3. Promote the floor exhibit with existing (i.e. leveraged funds) resources via existing media and advertising partners and co-marketing opportunities.

Approach (floor exhibit). ABC will form a project team, led by the Project Director, to oversee every component from planning to implementation. From this team a floor exhibit sub-team will be formed. This sub-team will include ABC staff, subject matter experts from NASA LaRc, VSGC, PGAV Destinations, VA Tech Agricultural and Research Center and formal educators from the COUNTY NAME area with direct experience in exhibit design and curriculum development. Using curriculum framework provided by NASA, which aligns with STATENAME's Standards of Learning (SOL), the Common Core State Standards (CCSS), and the Next Generation Science Standards (NGSS), along with ABC's methodology and best practices, our team will create a scalable content with a focus for students in 4-8 grade. The exhibit will include two interactive simulators (a lunar rover and a lunar lander) and two interactive touch screens answering the following questions (1) *why* are we going back to the Moon and Forward to Mars, (2) *how* and *when* are we getting there. The lunar rover and lunar lander are both full motion platform experiences to complement the virtual mission.

Component 2: Traveling exhibit available to 30 IEIs nationwide

Objective 2.1. Develop a curriculum and learning competencies that align with National STEM Standards and leverage existing NASA materials to accompany the traveling exhibit; to be completed by the end of Year 1. Exhibit design will include authentic, hands-on opportunities to learn about STEM topics which foster problem-solving and critical thinking.

Objective 2.2. Develop procedures and policies for use of the traveling exhibit, on which IEIs will sign-off as part of the MOU; to be completed by the end of Year 1.

Objective 2.3. At least 30 IEIs from 10 or more US States exhibit *Back to the Moon and Forward to Mars* for 90 days.

Approach (traveling exhibit). A Traveling Exhibit Sub Team will be formed to oversee the development. As part of the process we plan to reach out to school divisions and IEI partners to elicit feedback that will inform the exhibit's design and supporting materials. The same will be done with NASA staff at LaRC. A key role of the sub-team will be to create policies and a logistics plan, to ensure that the exhibits are durable for traveling and user-friendly. A total of five identical exhibits will be created, to enable maximum dissemination (and minimum wait times) to participating IEIs. Using curriculum framework provided by NASA and aligned with STATENAME's SOL, the CCSS, and the NGSS, along with ABC's methodology and best practices, we will create scalable content for students in 4-8 grade and learners of all ages. The traveling exhibit will have two interactive touch screens and, most importantly, will answer the following questions: *why* are we going back to the Moon and forward to Mars, *how* are we getting there, and *when*. ABC intends on showcasing the traveling exhibit at the ASTC annual conference.

Objective 3.1. Develop/compile a set of thematic educational materials in both digital and print form that align with the curriculum and competencies (VSGC role); to be completed by the end of Year 1.

Objective 3.2. Engage LaRC, ASTCs, IEI's from across the nation and Museum Alliance partners in the development process to help ensure the final products are relevant to all institutions and learners.

Objective 3.3. Develop a 30-45-minute instructional video to assist IEI educators in effectively utilizing the traveling exhibit within their institutions.

Approach (educational materials). The materials will be used by the IEI educators to supplement curricula they normally deliver during field trips, summer camps, after-school and, in some-cases, in-school programming. Content will be sourced from resources such as NASA's Beginning Engineering, Science and Technology (BEST), NASA EXPRESS and NASA's past and future missions. The lessons will introduce the principles of engineering through hands-on, NASA-themed activities that apply the engineering design process (EDP) to solve problems. IEI educators will have the option of selecting from a menu of activities based on *eight relevant themes*, outlined below.