



S T E M **INSPIRE - ENGAGE - EDUCATE - EMPLOY**
The Next Generation of Explorers



**US Department of Education/NASA
STEM Design Challenge Collaboration
Phase IV**

State and Site Planning Call
April 2019

Introductions



- **U.S. Department of Education**
 - Daryn Hedlund, Contracting Officer's Representative
 - Miriam Lund, 21st CCLC Team Lead
- **NASA**
 - Rob Lasalvia, NASA Glenn Education Director
 - Maria Arredondo, NASA Project Manager
 - Lori Scott, Implementation Lead
 - Tracey Canale, Training Lead
 - Rick Gilmore, Evaluation Lead
- **Y4Y NASA Team**
 - Chelsea Heffernan, Project Lead
 - Sarah Whitehead, Communication
 - David Mazza, Technology

Agenda



- Leadership Welcome
- Project Overview
- Timeline Review
- Communications and Responsibilities for States and Sites
- Face-to-Face Professional Development Information
- Evaluation
- Next Steps



2019-2020 ED/NASA 21st CCLC STEM Design Challenge Project Overview

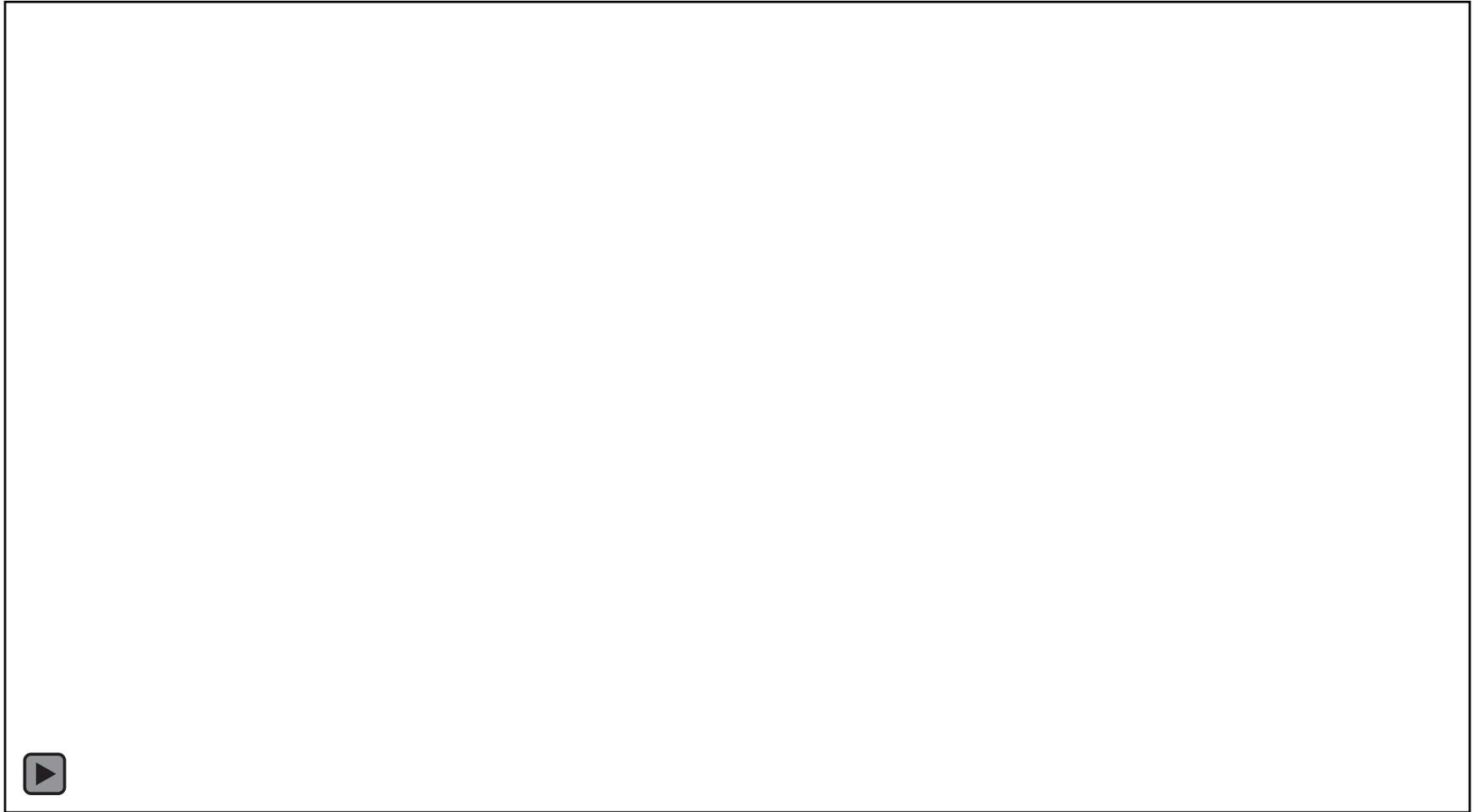
STEM Design Challenge Background



What	A partnership between NASA and the US Department of Education's 21st Century Community Learning Centers
Who	Sites execute a series of engineering design challenges in 3 rd – 8 th grades, enabling them to develop solutions to real world science and engineering problems faced by NASA scientists, engineers and astronauts today
Where	The collaboration will support an expansion of STEM opportunities for students across the country in up to 25 states
When	Fall 2019 – Spring 2021 Two sessions available: <u>2019-2020</u> School Year and <u>2020-2021</u> School Year



Project Overview





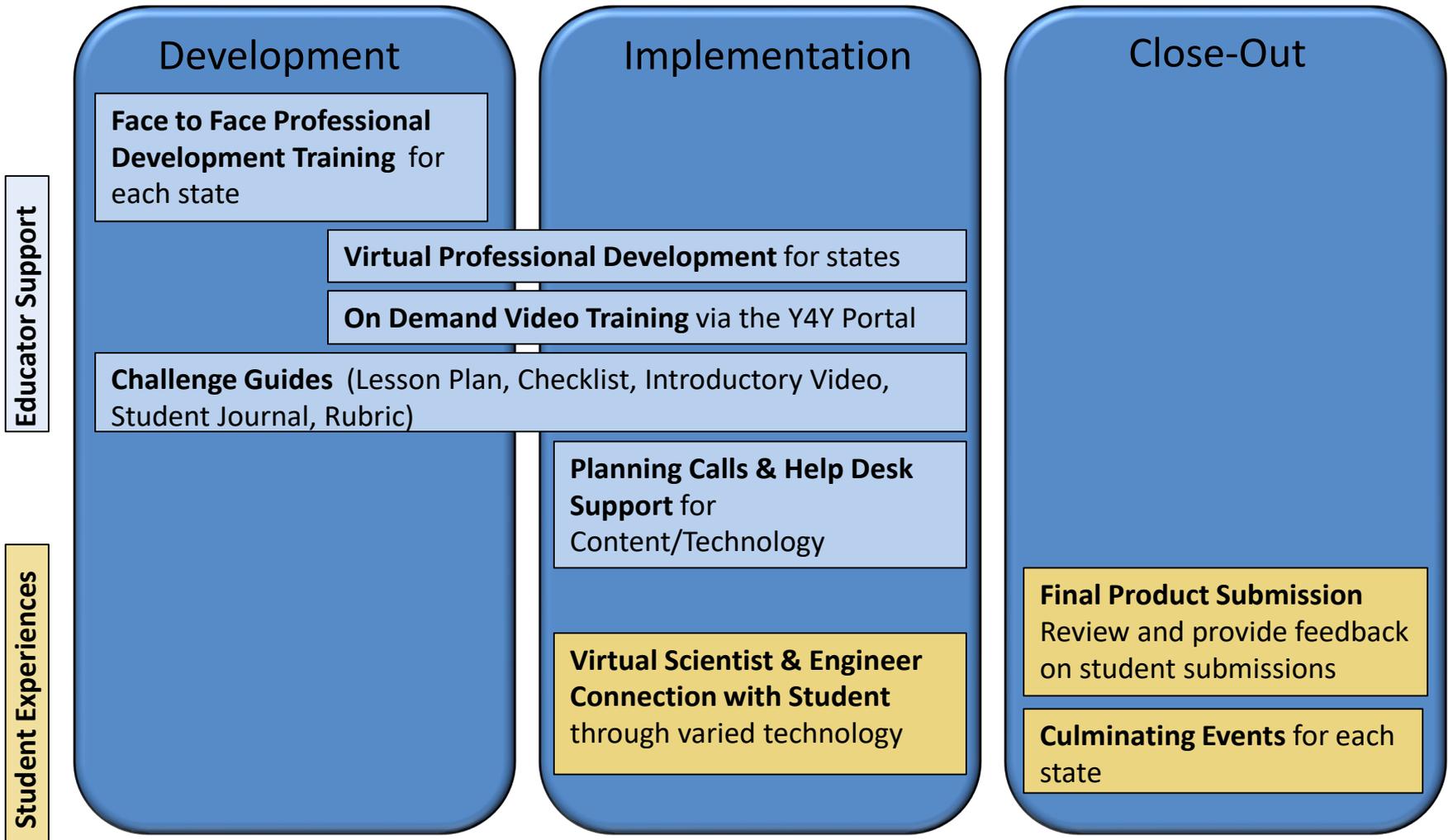
Scalability of Partnership

Phase IV SY 2019-2020: Participating States					
	Florida		Nebraska		Rhode Island
	Idaho		New Mexico		Texas
	Iowa		New York		Virginia
	Kentucky		North Carolina		Washington
	Massachusetts		Oklahoma		West Virginia
	Michigan		Ohio		Wisconsin
	Minnesota		Oregon		Wyoming
	Montana		Pennsylvania		

Phase	States	Sites
I (FY 14)	3	21
II (FY 15)	10	70
III (FY 16/17)	15	140
IV (FY 19-20)	23	310



Implementation Training and Support Plan



Engineering Design Challenge Menu (19-20 SY)

6th – 8th

Grade Options



Parachuting onto Mars

Develop a drag device to slow a spacecraft for entry, descent, and landing.



Spacecraft Safety

Help design NASA's next generation spacecraft!



Why Pressure Suits?

Develop a containment system to protect astronauts from the vacuum of space.



Packing up for the Moon

Develop a plant growth system to help sustain astronauts on a lunar surface.



Let it Glide

Build a shoebox glider to produce the greatest glide slope.

3rd – 5th

Grade Options



Safe Travels

Develop safety devices for astronauts traveling to the Moon or Mars.



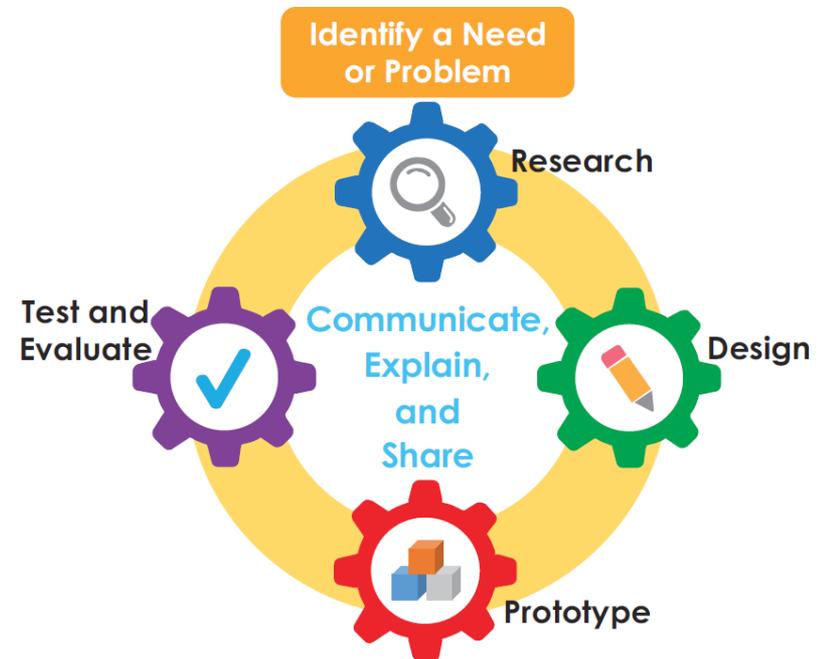
Mission to Mars

Develop a device to slow down spacecraft landing on Mars.

Challenge Structure



- Students use an Engineering Design Process (EDP) to develop solutions to problems based upon NASA real world research.
- Through the process students connect with scientists and engineers to refine ideas.
- Final student products explaining solutions and associated data are submitted to NASA and ED for review.



Challenge Guide Structure



Each challenge will include the following information:

- Lesson Plan
- Challenge Checklist for Instructors
- Introduction Video
- Classroom Presentation
 - (Suggested “script” included)
- Student Journal
- Rubric
- Final Product Submission Instructions
- Supporting Extension Links

**CHALLENGE 1:
PARACHUTING ONTO MARS**

Students will work in a team to design, build, and test a drag device. Teams may only use materials provided, and must connect to a team-built cargo bay that is assembled using the template provided. The overall mass cannot exceed 50 grams. The drag device must have at least five separate angled edges (rounded edges are allowed, but one big circle is not allowed). The drag device must protect the weighted cargo bay when it is dropped from a height of 1, 2, and 3 meters. Final Product: Student teams will produce and submit a video featuring the steps of the engineering design process they followed to create their team drag device to slow the descent of a space craft or probe.

Objective: Students design and build a drag device to slow a spacecraft entry onto the Martian surface.

Grade Level: 5-8

Time Required: Approximately 20 – 35 Hours

Plan Your Challenge

- Facilitators Guide [English] [Español]
- Educator Information [English] [Español]
- Challenge Checklist [English] [Español]
- Materials for Challenge [English] [Español]

Deliver Your Challenge

- Presentation Slides [English] [Español]
- Student Journal [English] [Español]
- Video Production [English] [Español]
- Challenge Rubric [English] [Español]

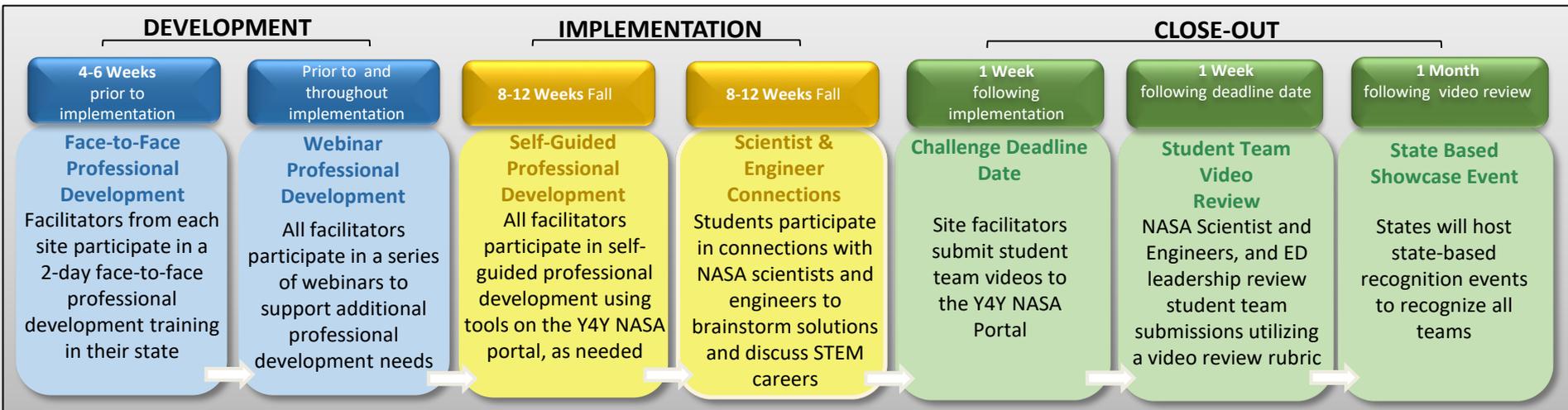
You for Youth Web Portal

<https://y4y.ed.gov/stemchallenge/nasa>



Timeline Review

Guidelines for Site Implementation (Notional)



Project Dates (19-20 SY)



Activity	Date
State Application Released	Dec. 14, 2018
State Informational Briefing	Feb. 6, 2019
State Application Due to U.S. Department of Education	Feb. 12, 2019
States Selected	Feb. 15, 2019
Site Application Released	Feb. 21, 2019
Site Application Due	March 12, 2019
Sites Selected	March 15, 2019
State & Site Virtual Planning Meetings	March 25 – April 29, 2019
Site Profile Form Deadline	May 17, 2019
Face-to-Face Professional Development Workshops	June 1 – Sept. 30, 2019
Virtual Connections With NASA Experts and Students	Aug. 19, 2019 – Jan. 24, 2020
Deadline for Student Video Submissions	Jan. 31, 2020
State Culminating Event	Feb. 3- March 31, 2020



Communication and Responsibilities

States and Sites

Communications with Site POC



- Who is the Site Primary Point of Contact (POC)?
 - Working daily with students and/or facilitators of NASA project.
 - Responsible for all communications and project information.

- Need to update Site Primary POC?
 - Please email Y4YNASA@seiservices.com

Site POC Responsibilities



- Register and Attend Face-to-Face Professional Development Training
- Complete Required Site Forms (Site Profile, Student Release Form, evaluation, etc.)
- Coordination for virtual Scientist and Engineer connections (technology, logistics, student attendance, etc.)
- Participate in Site Implementation Calls
 - Monthly calls between October '19 – January '20
- Support students in final video creation; Submit final student products on Y4Y.
- Evaluation Coordination (attend webinars/calls, submit forms, etc.)

Site Profile Form



- Provides NASA with important information.
 - Point of contact and facilitators
 - Number of participating students
 - Project implementation times
 - Technology
 - Evaluation
- Release date: week of April 15th
- Submit by **May 17th**

Site Implementation Calls



Virtually bringing NASA support to you!



SEA Responsibilities



- ✓ Complete state application
- ✓ Attend state information call
- Coordinate Face-to-Face PD training logistics
- Attend Face-to-Face PD Training
- Plan State-based Culminating Event



- State- and Local-level media materials are being developed.
 - Customizable communications products (e.g., press releases, fact sheets, sample social media posts)
- Guidance on product usage
- Will be available on Y4Y once completed.
 - States and sites will be alerted.



Face-to-Face (F2F) Professional Development Information

Face-to-Face Professional Development

Agenda Topics

- Welcome
- NASA Missions Overview
- Engineering Design Process
- Experiencing the Engineering Design Challenge
- Virtual Scientist and Engineer Connections with students
- Final Product Review
- Evaluation



F2F PD Planning



- Occurring: June – September 2019
- Emails provided to SEA coordinators
- Google form for logistics (SEA)
 - Room set-up
 - Logistics
 - Due April 26, 2019
- Google form for Site Registration
 - Available: May 1, 2019
 - Due: May 10, 2019



State Plans



New York

Face-to-Face Training Date:	July 8th – 9th and July 11th – 12th
Face-to-Face Location:	Syracuse, New York
Implementation Start Date:	10/4/2019
Video Submission Date:	1/24/2020
Potential State Culminating Event Date:	3/27/2020
State Coordinator:	Elizabeth Whipple

State Plans



North Carolina

Face-to-Face Training Date:	August 19th – 20th
Face-to-Face Location:	Asheboro, North Carolina
Implementation Start Date:	10/7/2019
Video Submission Date:	2/12/2020
Potential State Culminating Event Date:	3/31/2020
State Coordinator:	Susan Brigman

State Plans



Wisconsin

Face-to-Face Training Date:	TBD
Face-to-Face Location:	Madison, Wisconsin
Implementation Start Date:	10/7/2019
Video Submission Date:	1/24/2020
Potential State Culminating Event Date:	3/31/2020
State Coordinator:	Alison Wineberg



Evaluation

Evaluation Objectives



The objectives of the program evaluation are to:

- **Document and assess project implementation** (e.g., schedules, program types, activities, challenges, and successes)
- **Determine program outcomes** (e.g., Student STEM engagement, interest & motivation; understanding and application of Engineering Design Process; STEM career options & pathways; Site Instructor/Coordinator comfort & confidence in delivering STEM-related content, etc.)

Evaluation Overview



- Evaluation of the NASA and 21CCLC Collaboration Phase IV activities will be led by Peerless Technologies (*Evaluation Contractor*)
- Data collection activities affecting sites:
 - Parent/Caregiver: Passive Consent Notice and Survey
 - Students: Short Survey and/or Feedback Form, and STEM Challenge Student Videos
 - Site Instructors/Coordinators: Short Surveys and/or Feedback Form, and Attendance

Questions



For any further questions after today's presentation, please email Y4YNASA@seiservices.com

