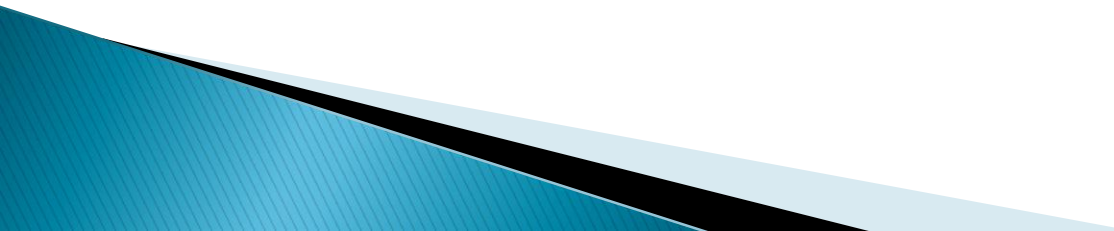


Integrating NASA Digital Educational Assets (IDEA)

Summative Evaluation Report

EDVANTIA

NSTA IDEA Project Overview

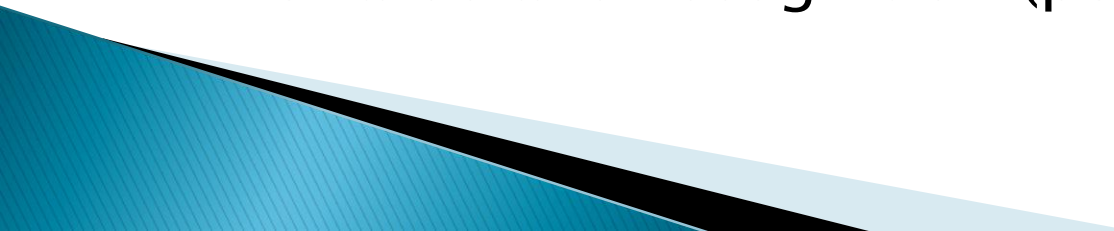
- ▶ Funded by NASA (K–12 CGO)
 - ▶ Synchronous and asynchronous e–PD approach
 - ▶ Collaboration with OSU
 - ▶ Supported by relationship with GE Foundation and NASA Explorer Schools
 - ▶ September 2009 – August 2011
 - ▶ ~370 teachers (200 short course + 170 LC access)
 - ▶ Outside evaluators (Edvantia)
- 

NSTA IDEA Project Activities

Year 1

- ▶ Select and align NASA resources
- ▶ Metatagging selected resources
- ▶ Short courses (four 4–5 week online short courses...with SciPacks)
- ▶ Archived podcasts (~40)

Year 2

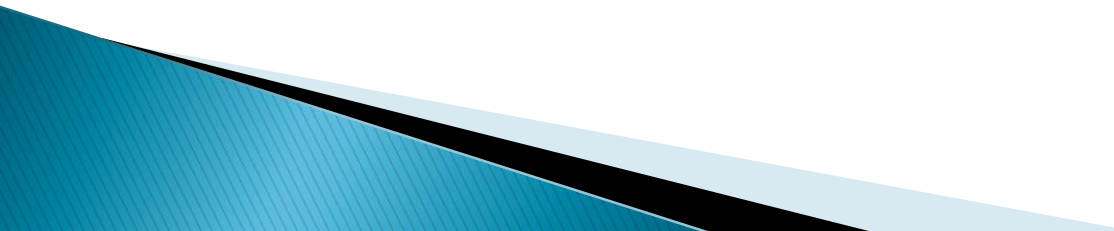
- ▶ 12 live web seminars
 - ▶ Professional Learning Community support
 - ▶ Online advisors
 - ▶ Rewards and recognition (points and badges)
- 

NSTA IDEA Project Goal 1

Align selected materials with both state standards and district curricula.



NASA Resource Selection

- ▶ 3-Day Curriculum Resource Review Workshop
 - ▶ 42 participants
 - ▶ 200 approved NASA resources
 - ▶ Earth, Sun and Moon; The Solar System; Gravity and Orbits; and The Universe were the top four content-area choices
 - ▶ All resources metatagged
 - ▶ Aligned to all 50 states' science standards by Higher Benchmarks
 - ▶ Workshop survey results very positive
- 



External
Resource

External Resource: What Are We Made Of? The Sun, the Earth, and You



Grade Level: Middle School



Go to external
web site



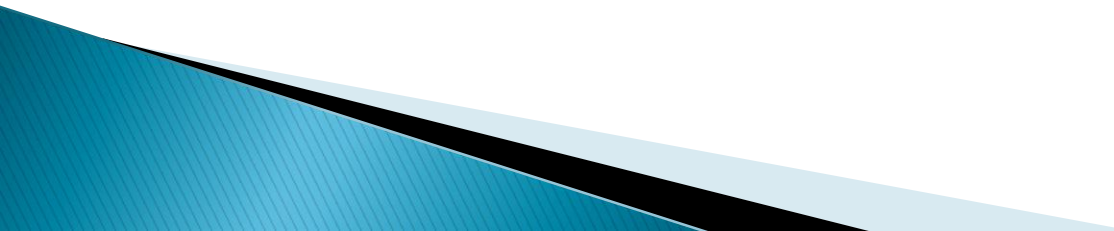
Add to PD Plan

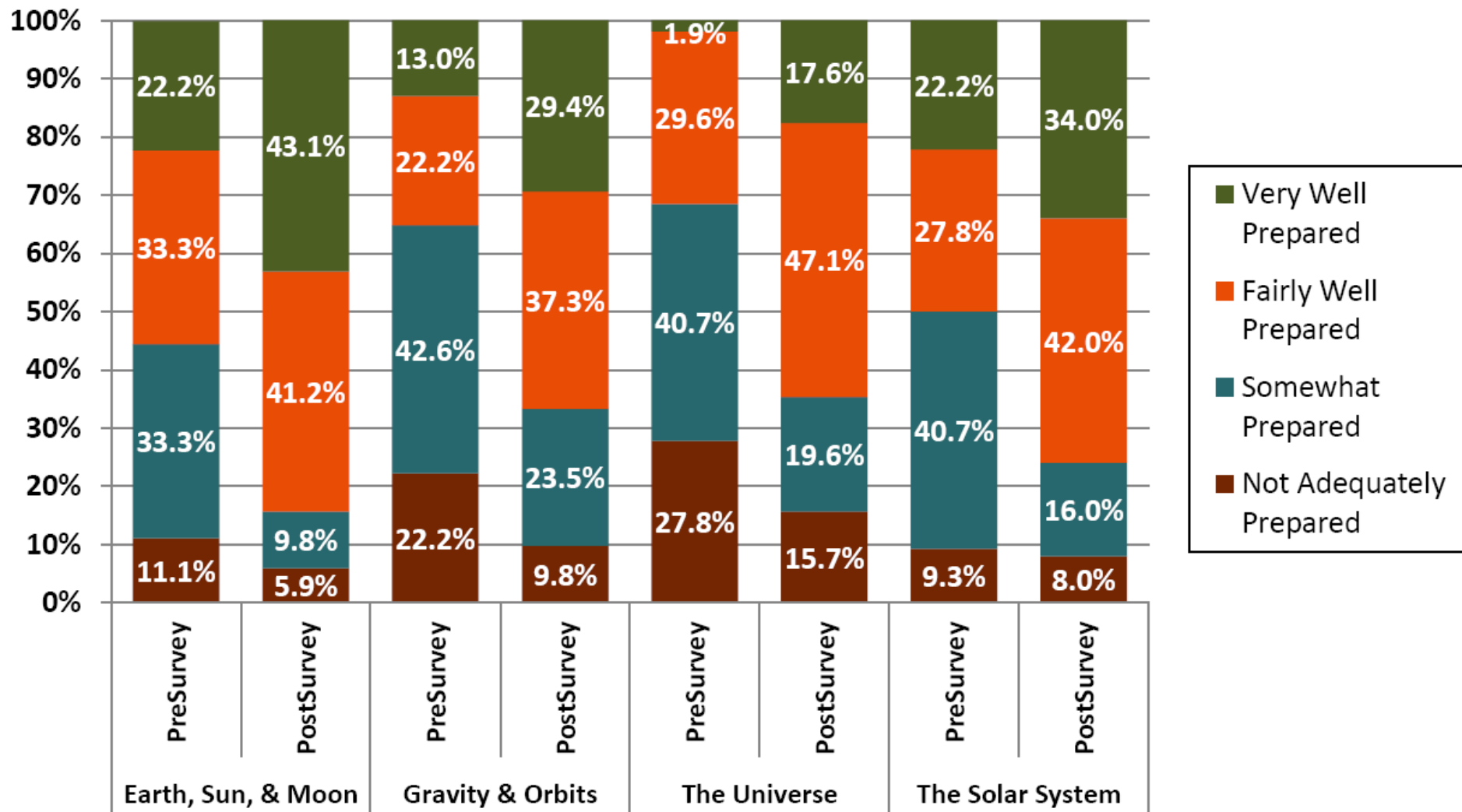
Students will understand that elements are the basic building blocks of all things found on Earth and in space including water, the human body, and the Earth, the Sun, and the planets. By counting elements extracted from a simulated sample, students will learn how the extraction of atoms from the Genesis samples help scientists have a better understanding of the abundances of elements from the solar wind. The hands-on experience helps students to... [\[view full summary\]](#)

Member Price: Free Nonmember Price: Free

NSTA IDEA Project Goal 2

Increase teacher content knowledge and pedagogical effectiveness in helping students learn SKA associated with selected topics:

- Universe
 - Earth, sun, and moon
 - Gravity and orbits
 - Solar system
- 



District	n	Pretest		Posttest		Change		n	Final Assessment	
		M	SD	M	SD	M	SD		M	SD
Alexandria	4	50.25	17.37	65.50	23.95	15.25	13.70	3	77.30	7.11
Arlington	5	65.80	17.46	84.20	3.70	18.40	14.67	5	84.36	4.93
Atlanta	7	52.00	11.82	74.43	16.53	22.43	8.36	6	83.28	6.19
Chicago	9	51.89	22.44	74.56	13.42	22.67	16.39	9	82.61	8.19
Erie	8	44.13	5.94	73.63	12.29	29.50	14.57	9	79.83	7.29
Fairfax County	9	62.33	11.52	77.44	8.59	15.11	16.02	9	83.11	8.84
Jefferson County	10	56.50	17.77	73.40	15.28	16.90	16.93	11	84.18	6.51
Montgomery County	7	62.00	23.42	79.29	19.18	17.29	14.17	7	89.59	5.89
New York	3	39.33	15.54	63.00	7.00	23.67	21.08	2	71.45	1.48
Prince George's County	9	41.89	14.74	60.00	20.19	18.11	23.10	8	81.15	7.97
St. Paul	5	40.80	17.88	57.60	13.89	16.80	22.26	5	83.00	3.20
Stamford	4	35.75	11.00	65.75	14.55	30.00	6.78	4	75.08	4.34
TOTAL	81	51.28	17.63	71.79	15.88	20.51	16.27	79	82.48	7.41

Note. *M* = mean, *SD* = standard deviation.

Instructional Practices

Practice	Pre-Short Course*	Post-Short Course*
Help students see connections between science and other disciplines.	69%	85%
Facilitate student discussion.	72%	83%
Encourage students to consider alternative explanations.	67%	85%
Have students work on models or simulations.	52%	70%
Have students use mathematics as a tool in problem-solving.	52%	70%

N = 54 *"Often" or "Almost Always"

Teaching Science Self-Efficacy

Practice	Pre-Short Course*	Post-Short Course*
I know the steps necessary to teach earth/space science concepts effectively.	3.22	3.94
I feel comfortable improvising during earth/space science lab experiments.	3.43	3.94
I understand earth/space science well enough to teach it effectively.	3.67	4.12
I wish I had a better understanding of the earth/space science concepts I teach.	3.73	2.55
I feel anxious when teaching earth/space science content that I have not taught before.	2.67	2.14

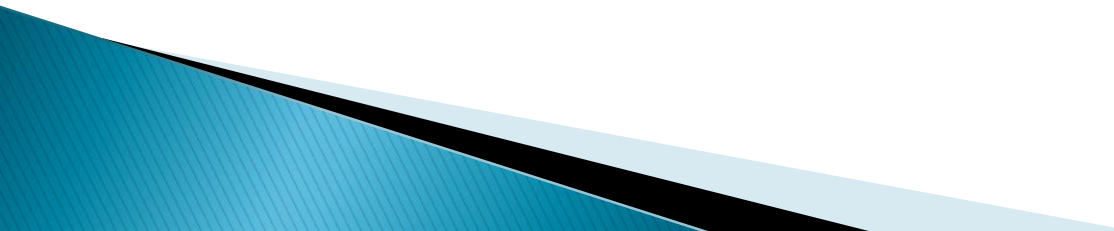
*5=Strongly Agree, 1=Strongly Disagree

NSTA IDEA Project Goal 3

Evaluate effectiveness of a blended e-PD delivery model that addresses scale and sustainability, and pilots cohort communities of practice (CoP).



Blended PD Accomplishments & Evaluation

- ▶ 4,062 resources added, 321 shared resource collections, 176 SciPacks completed, 405 posts, 195 reviewed and rated resources, 86 attended live web seminars, 175 PD plans with personal goals
 - ▶ Teachers satisfied with short course instruction, feedback & support
 - ▶ Web seminar content was valuable, interactive & relevant
 - ▶ Valued the online community and points/badges/rewards system
- 

Rewards & Recognition

Aggregator: Add a personal resource to your LC library

10 Activity Points (AP)

[Upload a personal resource](#)



Onyx Aggregator - Add 5 personal resources to your library



Sapphire Aggregator - Add 30 personal resources to your library



Pearl Aggregator - Add 10 personal resources to your library



Diamond Aggregator - Add 40 personal resources to your library



Ruby Aggregator - Add 15 personal resources to your library



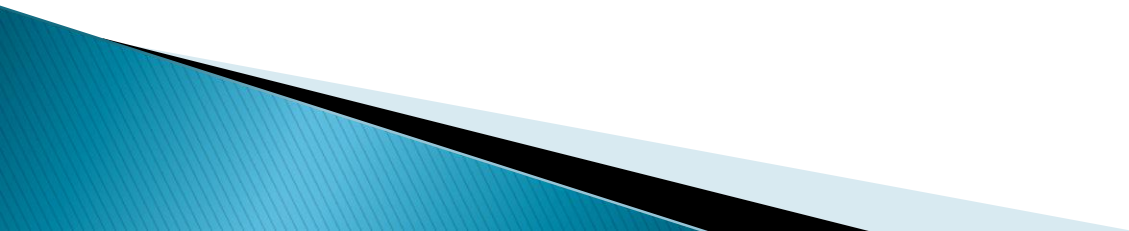
Platinum Aggregator - Add 50 personal resources to your library



Emerald Aggregator - Add 20 personal resources to your library

NSTA IDEA Project Goal 4

Increase student interest in earth/space science and STEM career opportunities in these content areas.



Student STEM Interest

Students participating in web seminar reported:

- ▶ less anxiety toward learning science
- ▶ more positive perceptions of their science teacher
- ▶ greater value of science in society
- ▶ better self-concept of science learner
- ▶ greater desire to take extra science, engineering, or math courses in high school
- ▶ greater desire to take science, engineering, or math courses in college

Teachers reported increase in student interest and motivation when engaged in using NASA resources.



Overall...

- ▶ Participating teachers and administrators reported very high degree of satisfaction with opportunities
 - ▶ Teachers improved science content knowledge in earth and space science & became more confident teaching earth and space topics
 - ▶ NASA resources were highly valued by participants
 - ▶ Participants truly appreciated NSTA support throughout the program
 - ▶ Student involvement = improved attitudes about STEM studies
- 