Enhance and Extend Your PD with the NSTA Learning Center

Presented by: Flavio Mendez

February 28, 2012
Agenda

• National Education Technology Plan
• PD resources that you can use
• Tools to manage your PD
• Join the community in the forums

http://learningcenter.nsta.org
Through online learning systems, teachers may enhance their learning through blending the best of onsite PD with online PD that provides immediacy, convenience, self-direction, and collaboration with other colleagues and experts via professional learning communities.

For teachers to effectively facilitate using interactive resources, learning systems, and connectedness to online communities, teachers need to experience it firsthand—as part of their own learning and professional development.

What types of onsite PD are you doing?

<table>
<thead>
<tr>
<th>Activity</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Pursuing a science degree at local university and/or community college</td>
<td></td>
</tr>
<tr>
<td>6-to-8 week university/community college short course</td>
<td></td>
</tr>
<tr>
<td>2-week intensive course at local university, government program, or district office</td>
<td></td>
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<tr>
<td>Professional conferences/out-of-state programs</td>
<td></td>
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<tr>
<td>Local weekend workshops at university or other research facility</td>
<td></td>
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<tr>
<td>After school PD sponsored by school/district</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>
How can you enhance and extend your onsite professional learning?
- Over 2,800 free PD resources

- Practical tools for teachers to organize, personalize & document their growth over time

- A community of teachers to share ideas, questions, experiences
What’s free in the NLC?

- NLC account *(you DO NOT need to be a member of NSTA to create one!)*
- Over 2,800 resources
  - Science Objects
  - Web Seminars (live, archives, and podcasts)
  - Journal Articles (~1,000)
  - e-Book chapters (~200)
  - Symposia Archives
  - External Resources (NASA)
- All PD tools
- All public collections
- All public community forums
Free, self-paced, learning experiences
Take about 2 hours to complete
Based on science education standards
Eighty-seven (87) currently available
Have you used a science object?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Maybe I will after today</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Those who have used science objects, why did you use them?

A. To review a concept I knew, but had forgotten
B. To learn a concept for the first time
C. As a tool to teach my students in the classroom
D. Other *(please share your answers in the chat window)*
Why did you use a science object?

A. To review a concept I knew, but had forgotten
B. To learn a concept for the first time
C. As a tool to teach my students in the classroom
D. Other (please share your answers in the chat window)
Elements of a Science Object: 2-hour learning experience

- Videos
- Slide shows
- Images
- Hands-on activities
- Preconceptions boxes
- Simulations
- Assessment
Science Simulations and Animations
Science Objects are available in these topics

<table>
<thead>
<tr>
<th>Earth and Space</th>
<th>Physical</th>
<th>Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Earth, Sun &amp; Moon</td>
<td>- Force &amp; Motion</td>
<td>- Cell Structure &amp; Function</td>
</tr>
<tr>
<td>- Gravity &amp; Orbits</td>
<td>- Energy</td>
<td>- Coral Reef</td>
</tr>
<tr>
<td>- The Solar System</td>
<td>- Nature of Light</td>
<td>- Ecosystems</td>
</tr>
<tr>
<td>- The Universe</td>
<td>- Chemical Reactions</td>
<td>- Science of Food</td>
</tr>
<tr>
<td>- Weather &amp; Climate</td>
<td>- Electric and Magnetic Forces</td>
<td>- Safety</td>
</tr>
<tr>
<td>- Rock Cycle</td>
<td>- Atomic Structure</td>
<td>- Resources &amp; Human Impact</td>
</tr>
<tr>
<td>- Rock Cycle</td>
<td>- Explaining Matter with Elements, Atoms &amp; Molecules</td>
<td>- Nutrition</td>
</tr>
<tr>
<td>- Earth’s Changing Surface</td>
<td></td>
<td>- Cell Division &amp; Differentiation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Cells &amp; Chemical Reactions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Flow of Matter and Energy in Ecosystems</td>
</tr>
</tbody>
</table>
Using Science Objects
Imagine…

You need to teach the phases of the Moon for the first time or for the first time in a long time
Science Object: Motion of the Moon

This science object provides an understanding of the moon’s orbit around Earth and the phases of the moon as experienced from Earth’s surface.
Science Object: Motion of the Moon

The animation below combines two perspectives of the Moon as it orbits Earth: one from above the Earth-Moon plane and one from the surface of Earth. Click the interactive icon below to view the animation.

Figure 3.5. Lunar Phases B.
For those unable to engage with the interactive component, select this link for a long text description: [Text Description]
Lunar Phases

2nd - 6th days
Waxing crescent

Jump To
- New Moon
- Waxing Crescent
- First Quarter
- Waxing Gibbous
- Full Moon
- Waning Gibbous
- Third Quarter
- Waning Crescent

What you see from Earth

Run Simulation
A third quarter moon occurs after the Moon has traveled in its orbit for ______ days.

- 7 - 8
- 15
- 22 - 23
- 29.5

Check

Tries Remaining: 3

There is only one waxing crescent moon.

- True
- False

Check

Tries Remaining: 1

During a quarter moon phase, the angle between the Sun-Earth-Moon is ___________. Check all that apply.

- 0 degrees
- 90 degrees
- 180 degrees
- 270 degrees

Check

Tries Remaining: 1

The previous animation is followed immediately by questions to test your understanding of the concepts – instant formative assessment.
For a hands-on activity/self-assessment related to modeling the phases of the Moon, [click here.](#)

### Modeling the Phases of the Moon

1. Use the Internet to find out when the moon is visible during the day.
2. When the Moon is visible during the day and weather and clouds permit, choose an object to be a model moon—an orange or tennis ball will work well.
3. Locate the Moon. With the Moon model in your hand, extend your arm and place your model next to the real moon in the sky.
4. Assuming the role of an observer from Earth, determine the amount of the moon model that is illuminated by the Sun.
5. What is the phase of your model Moon?
6. What is the phase of the Moon in the sky?
7. Place your model Moon between your eyes and the Sun but be careful not to look directly at the Sun. This alignment represents a new Moon phase in your model.
8. Move your model Moon counterclockwise and model the waxing and waning phases of the Moon described above in Fig. 3.3.
Add free Science Objects to your “Library”
Welcome to Your Personalized Learning Center

Flavio, you've already earned 7705 Activity Points.

You've recently earned:
- Pearl Disseminator
- Diamond Comment
- Share LC Collections
- Post 20 more comments

Welcome, Flavio

With these resources you can build your professional development plan, track your activities and assess your progress. You can start at "Explore Learning Opportunities" below or by creating your game plan with the PD Plan and Portfolio tool. You may also review an archived Web Seminar or a multimedia overview of the Learning Center.
See All Science Objects
or
Display Science Objects by Subject Area
Add a Science Object to Library
Access to Experts
- Interact with leading scientists, engineers, education specialists and colleagues from around the world *(Mon-Thu, evenings)*

- Learn on-demand via 350+ web seminar archives, 800+ podcasts
Add free Web Seminar Archives and Podcasts to your “Library”
Welcome to Your Personalized Learning Center

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- Diamond Commenter
- Share LC Collections

You're close to earning:
- Diamond Commenter
- Share LC Collections

Update Your Profile

With these resources you can build your professional development plan, track your activities and assess your progress. You can start at "Explore Learning Opportunities" below or by creating your game plan with the PD Plan and Portfolio tool. You may also review an archived Web Seminar or a multimedia overview of the Learning Center.
Lesson plans
Journal Articles:
- Science and Children
- Science Scope
- The Science Teacher
- Journal of College Science Teaching

Which journal are you interested in exploring?
Add free Journal Articles to your “Library”
Welcome to Your Personalized Learning Center

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Ask an Online Advisor or use the Advanced Search to find the resources
Learning Center’s PD tools
My PD Indexer

- Diagnose Gaps in Content Knowledge Understanding
- View Resources and Opportunities for Consideration
My PD Plan and Portfolio

Category: My Content Knowledge
Goal: Review/Improve Physical Science Understanding
My Tasks: Define Evidence, Edit Goal, Delete Goal

Identified Professional Development Resources
- PD Resource to Address Goal: Perspectives: Action Research, Inquiring Into Science Teaching and Learning
- Note: NSTA Learning Center Resource

Expected Date of Goal Completion:
6/30/2008

Goal Statement:
I plan to improve my understanding and comprehension of major physical science concepts by participating in online courses and experiences relating to force and motion.

Why I chose this goal, and where I am now:
- Empty - Add information

Standards:
Standards for Professional Development for Teachers of Science: Knowledge and Understanding of Science Understand the fundamental facts and concepts in major science
My Library

Welcome to your collection of professional development resources. Select from the links and tabs below to access your NSTA resources, your uploaded items, organize them into collections, and then share your collections with others.

My NSTA Resources

- Do-it-Yourself Learning
  - SciGuides (37 items)
  - SciPacks (20 items)
  - Science Objects (57 items)
  - Podcasts (35 items)
  - Web Seminar Archives (22 items)
  - Symposia Archives (2 items)

- Live Online Seminars & Classes
  - Web Seminars (1 item)

Books & Articles

- Book Chapters (26 items)
- Journal Articles (46 items)

In Person Experiences

- No Items

Search for resources to add
Learning Center
Community

Join the conversation
Welcome to Your Personalized Learning Web Space!

Flavio, you've already earned 6970 Activity Points!

You've recently earned:
- Emerald Aggregator
  Add Personal Resources
- Diamond Commenter
  Post 21 more comment/questions

You're close to earning:
- Your Activity Matters!
  It Donates Produce!

Activity Progress Bar

With these resources you can build your professional development plan, track your activities and assess your progress. You can start at “Explore Learning Opportunities” below or by creating your game plan with the PD Plan and Portfolio tool. You may also review an archived Web Seminar or a multimedia overview of the Learning Center.
## Community Forums (asynchronous)

<table>
<thead>
<tr>
<th>Forum</th>
<th>Last Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary Science</td>
<td>by Margaret Hunter</td>
</tr>
<tr>
<td></td>
<td>Today, 1:06 AM, Literary text to Support Science Instruction</td>
</tr>
<tr>
<td>Life Science</td>
<td>by Carolyn Mohr</td>
</tr>
<tr>
<td></td>
<td>Yesterday, 10:23 PM, The human appendix: maybe we need that bacteria bag</td>
</tr>
<tr>
<td>Physical Science</td>
<td>by Tina Harris</td>
</tr>
<tr>
<td></td>
<td>Today, 12:21 PM, Tidal Energy: Researches and Actual Existing Technology</td>
</tr>
<tr>
<td>Earth and Space Science</td>
<td>by Carolyn Mohr</td>
</tr>
<tr>
<td></td>
<td>Fri Jan 06, 2012, 1:55 PM, How Objects Move In Space</td>
</tr>
<tr>
<td>General Science and Teaching</td>
<td>by Tina Harris</td>
</tr>
<tr>
<td></td>
<td>Today, 11:07 AM, Team Project and Projects</td>
</tr>
<tr>
<td>Professional Development</td>
<td>by Daiz Vasquez</td>
</tr>
<tr>
<td></td>
<td>Yesterday, 9:37 PM, 2012 NSTA Conference-Indy Here We Come!</td>
</tr>
<tr>
<td>Evaluation and Assessment</td>
<td>by Tina Harris</td>
</tr>
<tr>
<td></td>
<td>Today, 11:41 AM, Implementing Assessments for Culturally and Linguistically Diverse Scholars</td>
</tr>
<tr>
<td>Research in Science Education</td>
<td>by Carolyn Mohr</td>
</tr>
<tr>
<td></td>
<td>Yesterday, 10:06 PM, Teachers as Researchers</td>
</tr>
<tr>
<td>Chemistry</td>
<td>by Tina Harris</td>
</tr>
<tr>
<td></td>
<td>Today, 11:58 AM, Low Cost Chemistry Labs</td>
</tr>
<tr>
<td>STEM</td>
<td>by Patricia McGinnis</td>
</tr>
<tr>
<td></td>
<td>Fri Jan 06, 2012, 3:38 PM, Engineering and the Environment</td>
</tr>
<tr>
<td>Topic</td>
<td>Last Post</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>How states handle PD</td>
<td>by Carolyn Mohr</td>
</tr>
<tr>
<td>Classroom management</td>
<td>by Mary Hannig</td>
</tr>
<tr>
<td>background in Science</td>
<td>by Tammi Kreckel</td>
</tr>
<tr>
<td>by Obi Lawrence &gt; Fri Nov 25, 2011 8:32 AM</td>
<td>Mon Dec 05, 2011 2:53 PM</td>
</tr>
<tr>
<td>WOW! And it is Free!!!</td>
<td>by Lorrie Armfield</td>
</tr>
<tr>
<td>by Adah Stock &gt; Fri Feb 11, 2011 3:29 PM</td>
<td>Fri Dec 02, 2011 9:30 PM</td>
</tr>
<tr>
<td>Learning and Growing as Teachers</td>
<td>by Carolyn Mohr</td>
</tr>
<tr>
<td>by Maria Stickley &gt; Mon Oct 17, 2011 2:50 PM</td>
<td>Fri Dec 02, 2011 2:30 PM</td>
</tr>
<tr>
<td>When you leave your students in the hands of a substitute teacher, what advice do you have? What are your “pet peeves?” What do you appreciate the most as a professional?</td>
<td>by Tammi Kreckel</td>
</tr>
<tr>
<td>by Elizabeth Jacobs &gt; Tue Sep 06, 2011 8:04 PM</td>
<td>Thu Dec 01, 2011 10:11 PM</td>
</tr>
<tr>
<td>Free NSTA Webseminars</td>
<td>by Alyce Dalzell</td>
</tr>
<tr>
<td>On-Line Professional Development Resources</td>
<td>by Carolyn Mohr</td>
</tr>
</tbody>
</table>
While looking for something else I came across a great Podcast (7 minutes long) which provided insight on being a scientist and using the scientific method. It is a must for a teacher and students to hear. I suggest your listen to this scientist describe his involvement with the scientific method and then share your thoughts on this as well.

---

What an awesome discussion. I have spent time reading, researching and reflecting on this thread. There is part of the discussion that I think I disagree with:

"the scientific method is great for young children who have not developed a strong cognitive ability to think. It the same as you have to learn to walk before you can run. The scientific method is a way for them to gain an understanding of the process. However, as they grow older and have more experiences and make more decisions they should be weaned off this and introduced to scientific inquiry."

I believe all children, even very young children can think scientifically and therefore engage in the inquiry process. I am attaching an article which talks about young children doing science inquiry and a graphic from one of my favorite authors, Karen Worth.
About Me: I love to read. For fun I work in polymer clay, metal clay, beading, metalsmithing and glass fusing. I am a docent at the San Antonio Zoo. I am now working with teachers as a mentor and I really enjoy that. I love to learn new things as well. I have taught science for 29 years in middle and high school.

Location: San Antonio, Texas
### NLC Activities you can do to earn Points

<table>
<thead>
<tr>
<th>Task 1</th>
<th>Task 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add NSTA resource to library</td>
<td>Post on discussion forum</td>
</tr>
<tr>
<td>Complete a PD Indexer</td>
<td>Create a collection of resources</td>
</tr>
<tr>
<td>Add events to your calendar</td>
<td>Share a collection with others</td>
</tr>
<tr>
<td>Add personal resource to library</td>
<td>Make collection public</td>
</tr>
<tr>
<td>Attend NSTA web seminar</td>
<td>Create a PD portfolio</td>
</tr>
<tr>
<td>Complete/pass SciPack</td>
<td>Create a PD portfolio goal</td>
</tr>
<tr>
<td>Review/rank a resource</td>
<td>Upload evidence to portfolio</td>
</tr>
<tr>
<td>Recommend a resource to others (email to colleague)</td>
<td>Write a goal reflection</td>
</tr>
<tr>
<td>Generate a PD report from your portfolio</td>
<td></td>
</tr>
</tbody>
</table>
Welcome to Your Personalized Learning Web Space!

Use these learning resources and community to design your own long-term growth plan, collaborate with others, and document your growth!

Alyssa, you've already earned 100 Activity Points!

You've recently earned:
- NSTA Resource Optimizer
- Add NSTA Resources

You're close to earning:
- Onyx Commenter
- Post 5 more comment/questions

A Message to DCPS Teachers!

Through your participation in this program you have access to a rich collection of science resources in the NSTA Learning Center at no charge to you. Try the [advanced search](#) and begin adding resources to your library.

We also encourage you to join others in asynchronous [discussion in the community forums](#), to review and rate resources in your library, [make and share collections](#), and [upload your own resources](#). See [all the activities](#) that earn you points and badges!

Check the [Web Seminars schedule often and register](#) to attend exciting programs. Don't worry if you can't make it - all programs are archived for your convenience.

Available Assessments

- Force and Motion Pre-Assessment
Follow your top colleagues' online activity and contributions

Building a worthwhile learning community provides opportunities for you to recognize those leaders that share their ideas, lessons and resources.

January 2012

<table>
<thead>
<tr>
<th>Pos</th>
<th>Name</th>
<th>Total Activity Points Earned</th>
<th>Recent Donations/Badges</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lorrie Armfield</td>
<td>14,400</td>
<td></td>
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<tr>
<td>2</td>
<td>Ronaldo Relador</td>
<td>14,175</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Katherine Jezidija-Kendall</td>
<td>11,215</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>LeRoy Attles</td>
<td>5,970</td>
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</tr>
<tr>
<td>5</td>
<td>Kelly Amendola</td>
<td>4,510</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Duane Little</td>
<td>4,475</td>
<td></td>
</tr>
</tbody>
</table>
- Over 2,800 free PD resources
- Practical tools for teachers to organize, personalize & document their growth over time
- A community of teachers to share ideas, questions, experiences
Collaborators
Don’t forget the web seminar evaluation and to choose your FREE SciPack
10-Hour, self-pace, learning experience

3-5 Science Objects

SciPack

Content Mentor Email Support

Assessment and Certification

Pedagogical Implications
Thank You

- Flavio Mendez
  Email: fmendez@nsta.org
Thank you to the sponsor of tonight's Web Seminar:

This web seminar contains information about programs, products, and services offered by third parties, as well as links to third-party websites. The presence of a listing or such information does not constitute an endorsement by NSTA of a particular company or organization, or its programs, products, or services.
Welcome to Your Personalized Learning Web Space!

Paul, you've already earned **1335 Activity Points**!

You've recently earned:
- **Ruby Aggregator**
- **Add Personal Resources**

You're close to earning:
- **Ruby Commenter**
- **Post 9 more comment/questions**

With these resources you can build your professional development plan, track your activities and assess your progress. You can start at "Explore Learning Opportunities" below or by creating your game plan with the PD Plan and Portfolio tool. You may also review an archived Web Seminar or a multimedia overview of the Learning Center.

**Explore Learning Opportunities**
- **Advanced Search**
- **By Subject**
- **By Grade Level**
- **By State Standards**

**See all FREE Lesson Plans**
- **See all FREE Resources**

LIVE SUPPORT ONLINE
Hours of Operation
Growing in the Right Direction!

http://learningcenter.nsta.org
National Science Teachers Association

Dr. Francis Q. Eberle, Executive Director
Zipporah Miller, Associate Executive Director
Conferences and Programs

Al Byers, Assistant Executive Director e-Learning

NSTA Web Seminars

Paul Tingler, Director
Jeff Layman, Technical Coordinator
Brynn Slate, Program Coordinator

LIVE INTERACTIVE LEARNING @ YOUR DESKTOP