



Developing Your Lab/Activity...

STEP 1: Lab/Activity Outline!

Due: Saturday, July 26, 2008

During the Forum week, we have set aside time for you to develop a detailed outline of the lesson/activity you will write and field test this fall. The Forum is a great opportunity to brainstorm ideas for your lesson/activity with your fellow RTs, Mentors, Physiologists-in-Residence, and APS staff.

Read the Requirements

Seize the day! If you have not already done so, take time **early** in the week to read the “Requirements for Developing Your Lesson/Activity.” It’s a lot, but most of your questions will be answered in those pages.


What You Will Submit on Saturday

You will submit, in writing, the draft components of your lesson/activity.

Note: The outline DOES NOT have to be typed. A legible handwritten copy is fine – we will copy it and return the original to you.

On Saturday, you will *submit* the following:

1. Draft Activity Cover Sheet
2. Purpose
3. Objective
4. Materials
5. Brief description of the lesson
6. Draft assessment ideas
7. Draft Six Star & NSES checklists
8. Draft References & Resources



Note: Please turn in your outline on one-sided paper. And use paper clips...no staples!

What You Will Present on Saturday

Each RT will briefly present his/her draft outline. After your presentation, your fellow RTs and Mentors will offer ideas and suggestions to enhance your lesson. Your Mentor will take notes for you during this feedback session so you get all the ideas on paper. When you present, remember the following:

- **You have a maximum of six (6) minutes for your presentation.** Don’t give a lot of background. Just tell about the lesson, focusing on #2-7 above. After your talk, the feedback session will go for 2-3 minutes.
- **Use a poster board or transparencies to facilitate your presentation.** Please limit it to 1-3 overheads...there really isn’t time for more.

When You Go Home

Work on finishing your first draft right away while it’s fresh!! Don’t set it aside!

The FIRST DRAFT of your complete Lesson/Activity is due to your Mentor/Instructor on

Monday, August 11!

**DRAFT
VERSION**

**The American Physiological Society
Frontiers in Physiology/Explorations in Biomedicine
Professional Development Fellowship**

Activity Cover Sheet

Title of Activity			
Grade Level(s)		Inquiry Level	
One paragraph description			
Key Words			
Teacher's Name			
Teacher's School			
School City, State			
Research Host			
Institution			
Institution City, State			
Fellowship Year	2008		

Pedagogy Employed in This Lesson – Draft version

Based on your Lesson Outline, jot down some ideas of how your lesson/activity will relate to the APS Six Star Science criteria. For example, under Authentic Assessment you might note “lab report and class presentation,” or for Valuing Diversity you might have “invite a role model scientist to speak.”

Six Star Science	Draft Ideas
★ Student-centered Instruction	
★ Technology	
★ Up-to-date Content	
★ Valuing Diversity	
★ Authentic Assessment	
★ Reflecting on Teaching & Learning	

Check off the Teaching Strategies you plan to utilize:

Student-centered

- Data analysis, collection, interpretation
- Problem-based learning
- Field laboratory experience/Field trips
- Laboratory experiment
- Learning cycles
- Hypothesis testing
- Hypothesis development
- Active learning/discovery learning
- Cooperative learning/small group instruction
- Critical analysis/Critical thinking
- Hands-on learning
- Inquiry-based learning
- Tutorial or self-directed instruction
- Peer teaching
- Problem sets/word problems
- Learning centers

Teacher-centered

- Data analysis, collection, interpretation
- Problem-based learning
- Field laboratory experience/Field trips
- Laboratory experiment
- Learning cycles
- Hypothesis testing
- Lecture
- Large-group instruction
- Class/group discussion
- Demonstrations

Other:

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Draft assessment ideas:

- Peer evaluation
- Performance-based assessment (e.g. lab reports or presentations)
- Portfolios
- Self-evaluation
- Computer-assisted testing
- Essay tests
- Group testing
- Multiple-choice/true-false test
- Open book tests
- Standardized tests
- Verbal tests

National Science Education Standards Addressed in this Lesson

Draft Version

K-12 Unifying Concepts and Processes:

- Systems, order, and organization
- Evidence, models, and explanation
- Change, constancy, and measurement
- Evolution and equilibrium
- Form and function

Grades 5-8

Science as Inquiry:

- Abilities necessary to do scientific inquiry
- Understandings about scientific inquiry

Physical Science:

- Properties and changes of properties in matter
- Motions and forces
- Transfer of energy

Life Science:

- Structure and function in living systems
- Reproduction and heredity
- Regulation and behavior
- Populations and ecosystems
- Diversity and adaptations of organisms

Earth and Space Science:

- Structure of the earth system
- Earth's history
- Earth in the solar system

Science and Technology:

- Abilities of technological design
- Understanding about science and technology

Science in Personal and Social Perspectives:

- Personal health
- Populations, resources, and environments
- Natural hazards
- Risks and benefits
- Science and technology in society

History and Nature of Science:

- Science as a human endeavor
- Nature of science
- History of science

Grades 9-12

Science as Inquiry:

- Abilities necessary to do scientific inquiry
- Understandings about scientific inquiry

Physical Science:

- Structure of atoms
- Structure and properties of matter
- Chemical reactions
- Motions and forces
- Conservation of energy and increase in disorder
- Interactions of energy and matter

Life Science:

- The cell
- Molecular basis of heredity
- Biological evolution
- Interdependence of organisms
- Matter, energy, and organization in living systems
- Behavior of organisms

Earth and Space Science:

- Energy in the earth system
- Geochemical cycles
- Origin and evolution of the earth system
- Origin and evolution of the universe

Science and Technology:

- Abilities of technological design
- Understanding about science and technology

Science in Personal and Social Perspectives:

- Personal and community health
- Population growth
- Natural resources
- Environmental quality
- Natural and human-induced hazards
- Sci. & tech. in local, natl. & global challenges

History and Nature of Science:

- Science as a human endeavor
- Nature of scientific knowledge
- Historical perspective