The POGIL Workshop – Welcome!

- Please sit in groups of three or four, with people you do NOT know.
- Please make the groups as heterogeneous as possible.

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The POGIL Project
PIs and Senior Personnel

NSF CCLI DUE – 0618746, 0618758, 0618800

Rick Moog, Franklin & Marshall College, Lancaster PA
Jennifer Lewis, University of South Florida, Tampa, FL
Diane Bunce, The Catholic University of America, Washington, DC

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Frank Gregan, Washington College, Chester, MD
David Hanson, Stony Brook University, Stony Brook, NY
Jim Spencer, Franklin & Marshall College, Lancaster, PA
Andrei Straumanis, College of Charleston / University of Washington, Seattle, WA
Troy Wolfskill, Stony Brook University, Stony Brook, NY

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Assign Group Roles

- Read the “Description of Roles”
- Determine who at your table will take each role.

A POGIL Classroom Experience

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Student Response Question

Assume that in Model 2 the Pension Fund purchases insurance for 2 Billion / year from Bank B. In this case, how much profit or loss will the pension fund have made at the end of five years, assuming that Bank A fulfills its obligation?

1. $10 billion profit
2. $5 billion profit
3. $2.5 billion profit
4. $0 profit
5. $10 billion loss
Whole Class Discussion

Ways to incorporate reporting out of answers in a POGIL classroom.

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Reflector’s Report

Reflectors - report to your group:

* One strength of the group and why that is an important characteristic for an effective group to have

* One area of improvement for the group and a suggestion of how that improvement can be made

(2 minutes total)

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Reflector’s Report Sharing

Any volunteers to share your Reflector’s Report with the workshop participants?

Student Outcomes

- Other than content knowledge, what might your students gain from this type of learning environment?
  - Individually – 1 minute
  - Group – 3 minutes
  - Presenters report out
Take a Break

Reconvene at 2:35

What is POGIL?

Process Oriented Guided Inquiry Learning

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What is POGIL?

Process Oriented
(Cooperative Learning)
Conscious commitment
to development of
important process skills

Process Oriented
Guided
Inquiry
Learning

Process Skills

- Information Processing
- Critical Thinking
- Problem Solving
- Communication
- Teamwork
- Management
- Assessment
What is POGIL?

Learning Cycle Activities

1. Exploration
2. Concept Invention
3. Application
What is POGIL?

Process Oriented (Cooperative Learning)
Conscious commitment to development of important process skills

Guided Inquiry (Constructivism)
Learning Cycle Activities

Process Oriented
Guided Inquiry
Learning

Information Processing Model

Events Observations Instructions

Instructor

Perception
Filter

Working Memory

Storing
Retrieving

Long Term Memory
Students

previous knowledge biases
preferences likes
misconceptions dislikes


### Constructivist Model of Learning

- “Learning is not the transfer of material from the head of the teacher to the head of the learner intact, (but) the reconstruction of material in the mind of the learner.”

- “It is an idiosyncratic reconstruction of what the learner...thinks she understands, tempered by existing knowledge, beliefs, biases, and misunderstandings.”


Teaching and learning are correlative or corresponding processes, as much so as selling and buying. One might as well say he has sold when no one has bought, as to say that he has taught when no one has learned.

John Dewey, How we think, 1910

*Botany is the study of plants, not the study of books.*

Charles E. Bessey, The essentials of botany, 1889
New Paradigm

- Knowledge results only through active participation in its construction.
- Students teach each other and they teach the instructor by revealing their understanding of the subject.
- Teachers learn by this process...by steadily accumulating a body of knowledge about the practice of teaching.

**TEACHING IS ENABLING.**

**KNOWLEDGE IS UNDERSTANDING.**

**LEARNING IS ACTIVE CONSTRUCTION OF SUBJECT MATTER.**


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Exploring the Structure of a POGIL Activity

<table>
<thead>
<tr>
<th>Watershed activity</th>
<th>Explore Activity: 5 min</th>
<th>Report out: CTQ F, G (2min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 2: 5 min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 3: 3 min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 4: 8 min</td>
<td></td>
<td>Report out: CTQ 7b</td>
</tr>
</tbody>
</table>

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Guided Inquiry Approach

- Students work in groups
- Students construct knowledge
- Activities use Learning Cycle paradigm
- Students teach/discuss/learn from students
- Instructors facilitate learning

Learning Cycle
(Karplus, Piaget)

inductive          deductive
E       I       A
Exploration     Concept Invention (Term Introduction)  Application

- Parallels the “scientific method”
- Provides context for introduction of new terms
- Explicitly provides opportunities for critical thinking


Questions?

• Take one minute to write down any questions that you have, then think about which question is most important to you.

• As a group, take three minutes to discuss your questions and come up with a list of up to three questions you would like to ask, in rank order of importance.