

POGIL Summary

Process-Oriented Guided Inquiry Learning (POGIL) is a pedagogical technique where students work in small teams to learn through active, guided exploration. Its core principles include the following:

- There is strong evidence that active inquiry is more effective and engaging than watching a lecture. A POGIL instructor serves as a facilitator or “guide on the side” rather than a “sage on the stage”.
- Students learn better in teams. Working as part of a team is also a skill highly valued by employers — often even above specific technical skills.
- Learning takes place in a cycle of exploration, concept invention, and application. Student teams are guided through this cycle by carefully-designed POGIL activities, which provide critical thinking questions that lead students to discover content for themselves rather than trying to passively absorb it from a lecture.
- Emphasis is placed on the process of problem solving rather than on “getting the right answer”. Some questions have many valid answers. Teams are encouraged to reflect on and improve their process.

Process Skills

POGIL emphasizes process as much as content. Seven specific process skills are addressed:

Teamwork

- Treating all team members with respect
- Managing conflict
- Participating in discussions
- Including all team members
- Building shared consensus

Communication

- Verbally expressing ideas to team members and others
- Active listening
- Expressing concepts, definitions, and explanations in precise and grammatically correct written sentences
- Producing graphs, diagrams, and presentations

Management

- Managing time
- Staying on task
- Utilizing resources (people, materials, tools, etc.) effectively

Information processing

- Skimming, reading, and closely reading text
- Interpreting graphs and diagrams

Critical thinking

- Identifying similarities and differences
- Building models and analogies
- Summarizing
- Drawing conclusions

Problem solving

- Persisting and taking risks
- Identifying key issues
- Identifying assumptions
- Applying prior knowledge
- Understanding context

Assessment

- Accepting feedback
- Learning from mistakes or misunderstandings
- Reflecting on own level of understanding and confidence

POGIL Roles

Within each activity, each team member is assigned a role. Role duties are in addition to every team member's responsibility to participate in all work and help teammates learn. The descriptions below include tasks and things a person in that role might say.

Manager

- Makes sure the team starts quickly and stays on task
- Allocates tasks to team members or subteams
- Keeps an eye on the clock
- Makes sure all voices on the team are heard
- *"I think we have everything. Are we ready to begin?"*
- *"We have _____ minutes before we need to be ready to discuss this section. Let's focus on _____ now."*
- *"<person> and <person>, why don't you list cases where the current program does and doesn't work while <person> and I try to install the new software."*

Recorder

- Verifies that the team has reached a decision and what that decision is
- Records team decisions and conclusions
- Takes notes on things the team has learned
- *"Do we all agree that _____ is our answer for question number _____?"*
- *"Could you please rephrase what you just said?"*
- *"Would that response make sense to someone from another team?"*
- *"It sounds like <person> is saying _____, but <person> is saying _____. How can we reconcile these?"*

Presenter

- Communicates on behalf of the team with the facilitator (instructor) and with other teams
- Presents the team's results to the class
- *"Our team is confused about how _____ relates to _____."*
- *"Our team reached consensus that the answer to number _____ is _____."*
- *"We concluded _____ because _____."*

Analyst

- Observes team dynamics and problem-solving process
- Reports to the team or to the class on the team's process and its effectiveness
- *"Let's wait for <person> to catch up before we move on."*
- *"<person>, I like how you _____. That was good <process skill>."*
- *"We seem to be having a lot of trouble with _____. Would it be more effective to _____ instead?"*