AUTHOR GUIDELINES FOR DEVELOPING POGIL CLASSROOM ACTIVITIES

Just as every implementation of POGIL is unique, there is no single template or structure for an effective POGIL activity. However, there are some guidelines that can be useful for authors as they are considering the development or improvement of activities for use in a POGIL classroom. In this document, we outline these general guidelines and characteristics.

Characteristics of POGIL Materials

As described in detail in the separate document "Characteristics and Types of POGIL Activities," there are three key features of POGIL materials:

- they are designed for use with self-managed teams that employ the instructor as a facilitator of learning rather than as a source of information.
- they guide students through an exploration to construct, deepen, refine and/or integrate understanding of relative disciplinary content.
- the application and development of at least one of the targeted process skills is embedded in the structure and/or content of a POGIL activity, and is not solely dependent upon the facilitation of the activity in the classroom or laboratory.

POGIL activities are also designed for use in a classroom setting that uses the Basic POGIL Classroom Implementation structure (see separate document) or slight variations of that structure.

General Types of POGIL Activities

There are two broad categories of POGIL activities:

a. **Learning Cycle Activities:** These activities predominantly guide the student to develop content knowledge through a Learning Cycle structure of Exploration, Concept Invention/Term Introduction, and Application

b. **Application Activities:** These activities deepen, refine, and/or integrate the understanding of one or more previously developed or presented concepts through application of relevant process skills.

Although in general an activity will fall into one of these two categories, in some cases there may be roughly equal emphasis on these two components. Further details, including a brief description of typical structures, may be found in "Characteristics and Types of POGIL Activities."

A Few Guidelines for POGIL Activities

All POGIL activities, both Learning Cycle Application, have the following:
- "Model" can be text, equation, diagram, table, graph, figure, etc.
- One to three content learning objectives
- One to two process skills targeted for development

- Sequence of questions (could also be actions such as filling in a table, manipulating physical objects, etc.) that clearly guide students to desired concept or process skill development.
- At least one application question within the activity for each concept; further application can be within the sequence of guiding questions and/or in additional Exercises/Problems.

Learning Cycle Activities
- Follow the Learning Cycle structure of Exploration – Concept Invention – Application
- The concept or concepts to be developed are not explicitly presented in the Model
- Effective guidance can be prediction based on current understanding followed by presentation of additional (often unexpected) information.
- Terms (or general statements of conclusions developed) are introduced in the Concept Invention phase – not at the beginning of the activity.

Application Activities
- Designed to deepen, refine and/or integrate understanding of concepts that are prior knowledge or are explicitly presented in a Model (or near) the beginning of the activity.
- Guiding questions are sequenced in a way that clearly develops the targeted process skill(s).

There is no single template for the structure of an effective POGIL activity. The description above provides some general guidelines for each of the two broad types of activities, but there is no specific number of exemplars that must be provided in a Model (although a single exemplar is rarely sufficient for students to make appropriate inferences in a **Learning Cycle** activity in which students are expected to discover a trend or find a general pattern), no specific number of exploration questions required for each model, no specific number of guiding questions are required to lead the students to the desired concept, etc. The variety of POGIL materials that have been published (and that are available as exemplars on the POGIL website) demonstrate that there is no single way to build and effective POGIL activity. Some authors, however, are more comfortable with a template as a place to begin; for this reason, the following pages are included for those authors who find a general template to be useful.