Elements of a Typical POGIL Classroom Activity

1. **Title**
   The title is clear and communicates a sense of what the students will be learning.

2. **Why?**
   This section puts the activity in context for the students. It serves to engage, motivate, or interest the students in the activity (e.g., focus question, video clip). The goal is to motivate the students and tell them how this activity relates to concepts that they have learned or will soon be learning. In many cases, this is left to the individual instructor to provide at the beginning of class, and is not specifically written into this activity, especially if it is to be used in a variety of contexts or classrooms. Though this may be the case, these written statements are required in the teacher materials.

3. **Prerequisites**
   These statements are included in the teacher materials, but added to the student activity at the author's discretion. Include in this section:
   a. Prior knowledge and prior skills/tools that are needed for success in this activity. (This is important for modular materials, but may not be needed for full course materials.)
   b. Assignment(s) in chosen textbook for reading before and/or after activity implementation. For Learning Cycle Activities, relevant reading in the textbook should typically be done after the activity is used to introduce the topic.

4. **Learning Objectives**
   These statements are included in the teacher materials, but added to the student activity at the author's discretion. These statements provide information that can be used by students and faculty to measure whether success has been achieved. Include process skills goals here as separate learning objectives. See "Writing Content Learning Objectives for POGIL Activities" and "Writing Process Skills Goals for POGIL Activities" for further information.

5. **The Model**
   An effective model:
   a. Is appropriate for the stated learning objectives (i.e., it leads the student to develop or better understand the learning objective).
   b. Is readily interpretable by the targeted students.
   c. May contain a focus question, or a "guide to the model" that places the material in a context for students.
   d. Typically uses standard representations, terminology, symbols, etc.

e. Is engaging and motivating.
f. Uses language that is clear and concise.
g. Is visually appealing.
h. Is accurate, contains information relevant to the stated learning objectives, and generally does not contain distracting information.
i. Contains key characteristics that are typically explored by the initial questions.

6. Guided Inquiry Questions: Exploration and Concept Invention

An effective set of guided inquiry questions is typically characterized by the following:

a. There are roughly 3 to 10 questions per model.
b. The first few questions are directed questions, followed by a progression of convergent questions leading to the development (or deepening of understanding) of the concept.
c. In Learning Cycle activities, there is at least one guided inquiry question that requires application of the target concept after it has been developed.
d. Any divergent question(s) is at the end of the activity, or at the end of a section of the activity.
e. The level of difficulty of the questions increases appropriately

7. Exercises

An effective set of exercises is typically characterized by the following:

a. There are at least 2 exercises per content objective in the activity; in some cases as many as 10 exercises for each content objective are appropriate if students would benefit from extended practice with the concept.
b. The exercises use language that is clear and concise.
c. The exercises are straightforward applications of the important concepts that have been developed within the activity. In many cases, these may be variations of some of the guided inquiry questions, particularly the application questions, which have been presented within the activity.
d. After completing the activity, the students should know directly how to answer the exercise questions.

8. Problems

A problem is defined as a situation in which the solver does not immediately know what to do to achieve a solution. (If you know exactly what to do, you have an Exercise, not a Problem!) That is, the student does not have an algorithm or previous experience that would lead the solver directly to the answer with a high degree of certainty. Generally, problems require higher-level thinking skills such as analysis and synthesis. To address these higher-level skills, problems may have some of the following characteristics:

a. The question may be divided into multiple parts.

b. Several concepts or skills may be integrated into the problem.
c. The question may be framed in a new or very different context.
d. The problem may be written in a real world context, particularly if that is very different than the original presentation of the relevant concepts.
e. The problem may include or require assumptions, and justification of those assumptions.

9. **Closure**
   Self-assessment and reflection is presented in a meaningful and interesting manner consistent with the learning objectives. This is optional and can be provided through classroom facilitation.