

## Questions for Writing IBL Activities

### BIGGER PICTURE:

#### **What kind of IBL do I want to use?**

#### **What is special about my Audience?**

- Are my students interested in the mathematics that I love or do they actually prefer a plug-and-chuck mathematics version from high school?
- Have they ever thought about proofs and what mathematics really is about?
- Are my students already confident, curious, motivated, persistent, willing to make mistakes, share their thinking, and change their thinking?
- Have my students worked in groups before?
- What exactly are my meta goals for this class? How do I prioritize them?
- How much time and effort am I willing to spend on working towards these meta-goals?
- Do I want to tailor my tasks and assessments such that students will also consciously work on the above meta-goals?

#### **Differentiated Instruction:**

- What is the minimal knowledge I expect all my students to achieve?
- Do I want the stronger students to get much farther and deeper than my weaker students? How much effort am I willing to spend on creating valuable extension questions?
- How difficult can I make the tasks so that most of my students are working at their learning edge (being neither bored nor too frustrated)? How much do my students know already and how fast do they learn?

## WRITING TASKS

### Questions Before the Writing Phase:

- 1) What is the mathematical idea that I would like students to understand? What are the skills, methods and concepts necessary for or developed as part of this mathematical idea? What representations are there available for this mathematical idea?
- 2) What do my students not understand when I currently teach this topic? What are the subtle points that I would like them to understand but that they might miss?
- 3) What do students currently know that can be a gateway to this idea/concept? What can motivate this concept and give it some concrete meaning for the students?

### Questions during the writing phase:

- 1) Can I create a need or a conflict that lets the students want to discover the answer and find a resolution?
- 2) Am I assigning the students tasks that are “just right” to build up to the overall concept? Are my questions flexible enough so that mistakes do occur (yes we want mistakes!) but the students won’t give up? Can a student possibly answer the questions or do they need to know what I am thinking?
- 3) Could I ask this task using a different representation? Have I developed this concept using at least two representations?

### Questions after the writing phase:

- 1) Have I done the task myself?
- 2) What are the skills that students need to recall or develop in this activity? Are they prompted to do that appropriately?
- 3) Is there anything in this activity that I expect students will be able to repeat in a similar setting – a method they are developing to approach a particular type of problem? If so am I providing practice opportunities for them so that they recognize this as a method? Am I highlighting this to them?
- 4) Did the students make mistakes?
- 5) Did I have to give a lot of hints? Did the students get frustrated?
- 6) Did the tasks connect well with my meta-goals?
- 7) What have assessment and evaluation told me about my activities?