

Examining Your Students' Understandings

What you need to do

1. Identify a concept for which you would like to investigate your students' understanding. (You may choose any concept in a class that you are now teaching.)
2. Provide a thorough description of what is involved in understanding that concept.
3. Create a **model-eliciting” or “thought-revealing” activity** for this concept. A thought revealing activity is a task that is designed to both inform you about your students' understanding of a concept and promote a deeper understanding of this concept in your students—the act of writing and producing a unique product causes students to make the concept their own. This type of activity generally includes
 - A problem to be solved that is grounded in real life
 - A writing component that affords the teacher a view of the student's thinking about the mathematics involved.
4. Implement the activity in your class before the 12th week of class
5. Analyze your students' thinking relative to the learning goals stated in (2) above. You may find it helpful to create a rubric.
6. Write a brief (not more than 1 page) summary of what you learned about your student's understanding of the concept from this activity
7. Prepare a short (10 min.) presentation of your activity and results for one of remaining class sessions. For this presentation, you will need:
 - Copies of the activity to share with the class
 - 4-6 overheads for your presentation. The overheads should include
 - A description /characterization of what is involved in learning the concept
 - The modeling-eliciting activity and rationale for your design
 - Your strategy for analyzing your students' thinking relative to the concept and your description in item 2 above
 - What you learned—how well did your students understand the concept?
8. Write a brief (~1/2 page) reflection on the effectiveness of the activity for producing the desired information about student thinking and how you would improve it for the next time.
9. Revise the activity as part of your final project

In Addition

- It is suggested that you collaborate with someone in the class (or with your learning community) in the design of your activity, but each person will turn in their own report.
- Time will be provided in class to ask questions and receive assistance with your activity design.
- There are MANY resources available and you are encouraged to look, but please offer credit (i.e. a citation) when you borrow others work.
- You may do a PowerPoint presentation, but please notify me ahead of time so I can bring the proper equipment.
- Of course, you can email or call the instructors at any time for help.

What you need to submit

- 1. A description of what is involved in understanding the concept**
- 2. Your original and revised thought-revealing activity (items 3 and 9 above).**
- 3. A description of how you analyzed your students' thinking along with some samples of student work and brief (~1 page) summary of what you learned (items 5 and 6 above)**
- 4. A copy of your overheads from your presentation (item 7)**
- 5. Your reflection of the activity's effectiveness (item 8) relative to your learning goals—e.g., what is involved in learning the concept.**

Rubric for Final Project

Task	High Quality	Satisfactory	Poor Quality*
A description of what is involved in understanding the concept 10 pts	Illustrates essential elements of understanding this concept, is clearly articulated and is well written. 10 Points	In between High and Poor quality 7-8 points	Not carefully conceived. Incomplete Poorly written 5 points
Original Activity 10 pts	Is designed to promote and evaluate the learning goals for the concept. Is mathematically rich and thought revealing 10 Points	In between High and Poor quality 7-8 points	Does not reflect the learning goals. Is not thought revealing Is not mathematically rich 5 points
Description of analysis and results 10 pts	Analysis is clear, interpretation is based on activity effectiveness relative to the learning goals, and reader can follow how the results were derived. 10 Points	In between High and Poor quality 7-8 points	Analysis is sloppy or results do not follow from analysis 5 points
Revised Activity 5 points	Revisions follow from results and improve the activity 5 points	In between High and Poor quality 4 points	Inadequate revision or revision does not follow from results 3 points
A copy of your overheads from your presentation (item 7) 10 pts	Overheads and presentation are interesting, illustrate deep reflection of student understanding, and follow the format provided 10 Points	In between High and Poor quality 7-8 points	Poor preparation. Doesn't follow format. Hard to follow Too long or too short 5 points
Your reflection of the activity's effectiveness (item 8) relative to your learning goals 5 points	Thoughtful, includes evaluative remarks relative to the learning goals, well written reflection. 5 points	In between High and Poor quality 4 points	Poorly thought out or poorly written 3 points

50 points total

* Missing components result in zero points.