Refining assessments of student learning in an introductory EOS lab course (EOSC 111) (Sara Harris & Brett Gilley)
ASSESSMENT DEVELOPMENT: We began developing a pre-post lab assessment in Fall 2007. Since then, questions have been modified, scrapped, and added. Modifications have been based on student validation interviews, open-ended student responses to the assessment questions and expert opinions.

IMPLEMENTATION:
Students write a 23 question test on the first day of lab (pre-). During the term, after each subsequent lab, they complete a survey about the lab, including the assessment questions relevant to that lab (post-).
EXAMPLE: Biodiversity

Learning goal: Devise your own method to quantify biodiversity.

Learning Activity: Put 4 “samples” in order from least to most diverse. Create an index to quantify biodiversity (that works for your samples). Apply your index to a new sample.

Assessment Question:
Which of the following samples (A, B, C, or D) is the most diverse?
Pre-Post results from assessment question:

**Student Answer**

- **A** (Pre-test: 45, Post-test: 20)
- **B** (Pre-test: 20, Post-test: 45)
- **C** (Pre-test: 10, Post-test: 30)
- **D** (Pre-test: 5, Post-test: 20)

**Plankton Q1**

- wrong/right: 15%
- right/right: 55%
- wrong/wrong: 20%
- right/wrong: 10%
NORMALIZED LEARNING GAIN:
The average normalized learning gain for Spring Term 2009 was 0.59, for students who completed all 23 questions for both pre- and post- (n=35).
PROBLEMS and FUTURE PLANS:

• Post-assessment is currently not in a “controlled” situation (on-line). Consider completing the whole post-test during the last lab period.

• Revisit alignment of learning goals, lab activities and assessment questions, guided partially by student responses.