



Project Summary (150 words maximum)

Scientific literacy requires conceptual understanding. 'Concept Questions' (CQs) seek to test student understanding of fundamental concepts and principles, rather than factual recall. They are key tools to develop teaching tools that promote active learning. Validated sets of CQs, or 'inventories', provide educators with standardized tools to measure conceptual learning gain, and a means of comparing teaching strategies. While the use of CQ inventories have revolutionized the teaching of physics, astronomy and electrical engineering since the 1990s, only limited progress has been made in biology due to the lack of validated CQs.

This project seeks to adapt well-established methods of CQ development to create sets of validated biology CQ inventories in a variety of sub-disciplines of biology. These have been and will be offered to all instructors in life sciences and beyond. These assessment tools are critical to improving teaching methods across a wide variety of life science courses.