Learning Outcome | Assessment Methodology
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Fundamental Concepts of Life Science | Exams
Apply the Scientific method | Exams and simulations in lab
Tools of a Scientific discipline | Simulations
Gather analyse data | Simulations, class discussions, quizzes
Research Ethics | Class discussions, readings from popular literature and quizzes in lab

Sample questions and answers from exams relevant to Assessment

**Outcome 1 Develop and utilize critical reasoning skills**

Julie has a genetic disorder. Julie and her husband, Shane, have three children, none of which have the genetic disorder. How is this disorder most likely inherited?

A. autosomal dominant  
B. autosomal recessive  
C. heterozygous dominant  
D. The environment influences the trait instead of the genetics  
E. 100% inheritance from the father since the children are not affected

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**Outcome 2 Scientific method**

A controlled study when neither the patient nor the examiner is aware of whether the patient is receiving a treatment is called a/an

A. statistical study  
B. double-blind study  
C. variable study  
D. adaptive study  
E. blind study

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**Outcome 3: Human anatomy and physiology: Students have no preconceived notion of answer**

Liver donations can be made by living people, but heart donations come only from the dead. Why?

A. The heart has its own electrical system, but the liver does not  
B. the pancreas assists in liver donation  
C. Liver tissue regenerates, so that if someone gives of piece of his or her tissue to someone else, both donor and recipient grow complete livers  
D. The alcohol that is detoxified in the liver aids in liver transplants  
E. The liver has its own metabolic pathways, but the heart does not.

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**Outcome 3: Human anatomy and physiology: Students have preconceived notion of answer**

Pregnancy begins when

A. the sperm and the egg combine
B the fertilized egg implants in the ovary
C the developing embryo implants itself in the endometrium
D sperm are in the vagina
E. sperm are in the uterus

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**Outcome 5: Explore practical and ethical issues**
Scientists who have a financial stake in a company are now required to state that when they do research. This is an example of
A ethics in science
B financial planning
C a new business model
D a biotechnology revolution
E statistical significance.

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**Assessment Summary & Closing the loop**
Bio 10004 is generally meeting its goals in terms of Critical thinking, the Scientific Method and exploring Ethical issues. Student feedback also indicates that we are making progress in giving them the confidence to ask their medical professionals questions.

Where we are having the most difficulty is in getting the students to reject some of their incorrect preconceived ideas regarding their bodies. Issues relating to sex and reproduction are particularly difficult. Please see the answers to the pregnancy question above. One approach that might work is using clickers in class and scoring answers in real time.