



Teaching Biology Through Inquiry

INVESTIGATING YEAST

In this chapter, we will examine a 10th-grade biology class carrying out laboratory investigations involving yeast. The investigations in this case study lead students from teacher-initiated inquiries into student-initiated inquiries. In addition, the case study will further our understanding of how teachers can use a constructivist lesson format, the 5E Learning Cycle, to sequence instruction.

This lesson correlates to the *National Science Education Standards* (NRC, 1996) for both inquiry and content standards, which are quoted below.

Science as Inquiry Standard

Students will

- Identify questions and concepts that guide a scientific investigation. (p. 175)
- Design and conduct a scientific investigation. (p. 175)
- Formulate scientific explanations and models using logic and evidence. (p. 175)
- Recognize and analyze alternative explanations and models. (p. 175)
- Communicate and defend a scientific argument. (p. 176)

Life Science Content Standard

As a result of their activities in grades 9–12, all students should develop (an) understanding that

- Cells have particular structures that underline their functions. Every cell is surrounded by a membrane that separates it from the outside world. Inside the cell is a concentrated mixture of thousands of molecules which form a variety of specialized structures that carry out such cell functions as energy production, transport of molecules, waste disposal, synthesis of new molecules, and storage of genetic material. (p. 184)

