# Benchmarks for Lesson Plan: Cell Comparisons (6-8)

**CENTRAL BENCHMARK**

**5C Cells (6-8)#1**
All living things are composed of cells, from just one to many millions, whose details usually are visible only through a microscope. Different body tissues and organs are made up of different kinds of cells. The cells in similar tissues and organs in other animals are similar to those in human beings but differ somewhat from cells found in plants.

**RELATED BENCHMARKS**

**1A Scientific World View (K-2)#2**
Science investigations generally work the same way in different places.

**1A Scientific World View (3-5)#1**
Results of similar scientific investigations seldom turn out exactly the same. Sometimes this is because of unexpected differences in the things being investigated, sometimes because of unrealized differences in the methods used or in the circumstances in which the investigation is carried out, and sometimes just because of uncertainties in observations. It is not always easy to tell which.

**1B Scientific Inquiry (K-2)#1**
People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens.

**1B Scientific Inquiry (K-2)#2**
Tools such as thermometers, magnifiers, rulers, or balances often give more information about things than can be obtained by just observing things without their help.

**1B Scientific Inquiry (K-2)#3**
Describing things as accurately as possible is important in science because it enables people to compare their observations with those of others.

**1B Scientific Inquiry (3-5)#1**
Scientific investigations may take many different forms, including observing what things are like or what is happening somewhere, collecting specimens for analysis, and doing experiments. Investigations can focus on physical, biological, and social questions.

**1B Scientific Inquiry (3-5)#2**
Results of scientific investigations are seldom exactly the same, but if the differences are large, it is important to try to figure out why. One reason for following directions carefully and for keeping records of one's work is to provide information on what might have caused the differences.

# Cell Comparisons (6-8) *(continued)*

**1B Scientific Inquiry (3-5)#3**
Scientists' explanations about what happened in the world come partly from what they observe, partly from what they think. Sometimes scientists have different explanations for the same set of observations. That usually leads to their making more observations to resolve the differences.

**1C Scientific Enterprise (K-2)#1**
Everybody can do science and invent things and ideas.

**1C Scientific Enterprise (K-2)#2**
In doing science, it is often helpful to work with a team and to share findings with others. All team members should reach their own individual conclusions, however, about what the findings mean.

**1C Scientific Enterprise (K-2)#3**
A lot can be learned about plants and animals by observing them closely, but care must be taken to know the needs of living things and how to provide for them in the classroom.

**1C Scientific Enterprise (3-5)#2**
Clear communication is an essential part of doing science. It enables scientists to inform others about their work, expose their ideas to criticism by other scientists, and stay informed about scientific discoveries around the world.

**3A Technology and Science (K-2)#1**
Tools are used to do things better or more easily and to do some things that could not otherwise be done at all. In technology, tools are used to observe, measure, and make things.

**3A Technology and Science (3-5)#2**
Technology enables scientists and others to observe things that are too small or too far away to be seen without technology and to study the motion of objects that are moving very rapidly or are hardly moving at all.

**4D Structure of Matter (3-5)#3**
Materials may be composed of parts that are too small to be seen without magnification.

**5A Diversity of Life (K-2)#1**
Some animals and plants are alike in the way they look and in the things they do, and others are very different from one another.

**5A Diversity of Life (K-2)#2**
Plants and animals have features that help them live in different environments.

**5A Diversity of Life (6-8)#2**
Animals and plants have a great variety of body plans and internal structures that contribute to their being able to make or find food and reproduce.

**5C Cells (K-2)#1**
Magnifiers help people see things they could not see without them.

# Cell Comparisons (6-8) *(continued)*

**5C Cells (K-2)#2**
Most living things need food, water, and air.

**5C Cells (3-5)#2**
Microscopes make it possible to see that living things are made mostly of cells. Some organisms are made of a collection of similar cells that benefit from cooperating. Some organisms' cells vary greatly in appearance and perform very different roles in the organism.

**5C Cells (6-8)#3**
Within cells, many of the basic functions of organisms—such as extracting energy from food and getting rid of waste—are carried out. The way in which cells function is similar in all living organisms.

**5E Flow of Matter and Energy (K-2)#1**
Plants and animals both need to take in water, and animals need to take in food. In addition, plants need light.

**9E Reasoning (K-2)#1**
People are more likely to believe your ideas if you can give good reasons for them.

**11A Systems (3-5)#1**
In something that consists of many parts, the parts usually influence one another.

**12A Values and Attitudes (K-2)#1**
Raise questions about the world around them and be willing to seek answers to some of them by making careful observations and trying things out.

**12A Values and Attitudes (3-5)#1**
Keep records of their investigations and observations and not change the records later.

**12A Values and Attitudes (3-5)#2**
Offer reasons for their findings and consider reasons suggested by others.

**12A Values and Attitudes (6-8)#1**
Know why it is important in science to keep honest, clear, and accurate records.

**12D Communication Skills (K-2)#2**
Draw pictures that correctly portray at least some features of the thing being described.

**12D Communication Skills (3-5)#2**
Make sketches to aid in explaining procedures or ideas.

**12E Critical Response Skills (3-5)#1**
Buttress their statements with facts found in books, articles, and databases, and identify the sources used and expect others to do the same.