



Academic Standards for Science

7.3.5 Explain that all cells in multicellular organisms repeatedly divide to make more cells for growth and repair.

7.3.6 Explain that after fertilization, a small cluster of cells divides to form the basic tissues of an embryo which further develops into all the specialized tissues and organs within a multicellular organism.

7.NS.8 Analyze data, and use it to identify patterns and make inferences.



Identify the Main Idea

Reread the paragraph about specialized cells. Then underline the phrases or sentences that describe the main ideas about specialized cells.

How Do Cells Work Together in an Organism?

Plants and animals (including you) are **multicellular**, which means "made of many cells." Single-celled organisms are called **unicellular**. In a multicellular organism, the cells often look quite different from one another. They also perform different functions.

Specialized Cells All cells in a multicellular organism must carry out key functions, such as getting oxygen, to remain alive. However, cells also may be specialized. That is, they perform specific functions that benefit the entire organism. These specialized cells share what can be called a "division of labor." One type of cell does one kind of job, while other types of cells do other jobs. For example, red blood cells carry oxygen to other cells that may be busy digesting your food. Just as specialized cells differ in function, they also differ in structure. **Figure 6** shows specialized cells from plants and animals. Each type of cell has a distinct shape. For example, a nerve cell has thin, fingerlike extensions that reach toward other cells. These structures help nerve cells transmit information from one part of your body to another. The nerve cell's shape wouldn't be helpful to a red blood cell.

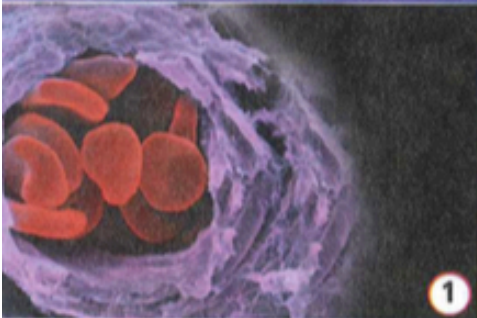
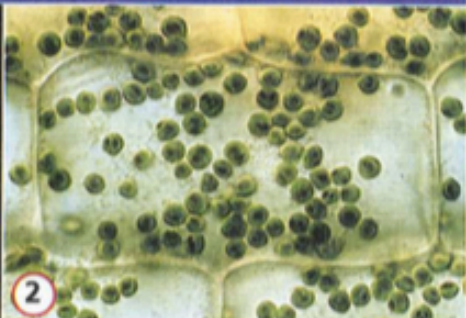


FIGURE 6

INTERACTIVE ART **The Right Cell for the Job**

Many cells in plants and animals carry out specialized functions.

Draw Conclusions Write the number of each kind of cell in the circle of the matching function.

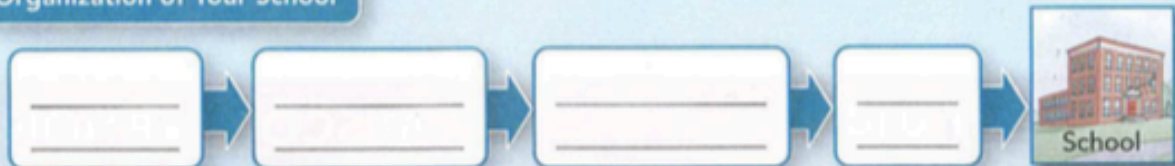
7.NS.8

Specialized Cells		Function
		<input type="radio"/> Animal cells that can bend and squeeze easily through narrow spaces
		<input type="radio"/> Animal cells that can relay information to other cells
		<input type="radio"/> Plant root cells that can absorb water and minerals from the soil
		<input type="radio"/> Plant cells that can make food

Organization of Your Body



Organization of Your School



Cells Working Together A division of labor occurs among specialized cells in an organism. It also occurs at other levels of organization. In multicellular organisms, cells are organized into tissues, organs, and organ systems. A tissue is a group of similar cells that work together to perform a specific function. For example, your brain is made mostly of nerve tissue, which consists of nerve cells that relay information to other parts of your body. An organ, such as your brain, is made of different kinds of tissues that function together. For example, the brain also has blood vessels that carry the blood that supplies oxygen to your brain cells. Your brain is part of your nervous system, which directs body activities and processes. An organ system is a group of organs that work together to perform a major function. As Figure 7 shows, the level of organization in an organism becomes more complex from cell, to tissue, to organ, to organ systems.

FIGURE 7

Levels of Organization

Living things are organized in levels of increasing complexity. Many nonliving things, like a school, have levels of organization, too.

Apply Concepts On the lines above, write the levels of organization of your school building, from the simplest level, such as your desk, to the most complex.



Do the Quick Lab
Tissues, Organs, Systems.

Assess Your Understanding

2a. **Describe** What does the term *division of labor* mean as it is used in this lesson?

b. **Infer** Would a tissue or an organ have more kinds of specialized cells? Explain your answer.

got it?

7.3.3

7.3.6

I get it! Now I know that the levels of organization in a multicellular organism include _____

I need extra help with _____

Go to **my science COACH** online for help with this subject.

7.3.5, 7.3.6