**Before You Read**

How might the cells of a plant be like the cells of an animal? How might they be different? Write your ideas in the space below.

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**What is the cell theory?**

The cell theory states three important facts about cells.

1. The cell is the basic unit of all life.
2. All living things are made up of one or more cells.
3. All cells come from other living cells.

**How are prokaryotic cells different from eukaryotic cells?**

There are two main types of cells. Eukaryotic cells are cells with organelles that have a membrane around them. You will find out more about organelles below. Plant cells and animal cells are eukaryotic cells.

Prokaryotic cells are cells that do not have organelles with membranes around them. Bacteria are prokaryotic cells that live just about everywhere on Earth. Some bacteria cause diseases.

It is easy to confuse bacteria with another type of tiny thing that causes disease: viruses. Viruses are non-living things that are able to reproduce. Viruses are not cells. Viruses must be present inside the cell of a living thing in order to reproduce.

**What is inside a cell?**

All cells have organelles that carry out specific tasks that help the cell to survive. Most of the organelles in animal cells are also found in plant cells. However, animal cells do not have a cell wall or chloroplasts.
**Typical Cell Structures**

**cell membrane:** This structure is like a skin that surrounds the whole cell. The cell membrane keeps the inside of the cell separate from what is outside it. The cell membrane also controls what enters and leaves the cell.

**nucleus:** The nucleus of the cell controls all the cell's activities.

**cytoplasm:** This clear, jelly-like fluid holds the organelles of the cell in place.

**mitochondria:** These bean-shaped structures are the energy producers.

**vacuoles:** Vacuoles store materials such as wastes for a short time. Plant cells usually have one large vacuole. Animal cells have many small vacuoles.

**cell wall:** The cell wall surrounds the cell membrane of plant cells. The cell wall gives the plant cell protection and supports its box-like shape.

**chloroplasts:** These green-coloured structures in plant cells trap the Sun's light energy and change it to chemical energy for use by the cell.

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**Reading Check**

2. Name two organelles that are found in plant cells but not in animal cells.

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Parts of cells

Vocabulary

<table>
<thead>
<tr>
<th>cell membrane</th>
<th>vacuole</th>
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<tbody>
<tr>
<td>nucleus</td>
<td>vacuoles</td>
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<tr>
<td>cell wall</td>
<td>cytoplasm</td>
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<tr>
<td>chloroplast</td>
<td>mitochondria</td>
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Use the terms in the box to label the parts of an animal cell and a plant cell. Terms may be used more than once.

A. 

E. 

B. 

C. 

D. 

F. 

G. 

H. 

J. 

K. 

L.
Inside a cell

<table>
<thead>
<tr>
<th>Vocabulary</th>
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<tbody>
<tr>
<td>bacteria</td>
<td>living thing</td>
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<tr>
<td>cell theory</td>
<td>mitochondria</td>
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<tr>
<td>cell membrane</td>
<td>organelle</td>
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<tr>
<td>cell wall</td>
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<td>chloroplasts</td>
<td>nucleus</td>
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<tr>
<td>cytoplasm</td>
<td>vacuoles</td>
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<tr>
<td>eukaryotic</td>
<td>viruses</td>
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</tbody>
</table>

Use the terms in the vocabulary box to fill in the blanks. Each term may be used only once. You will not need to use all the terms.

1. An ___________________________ is a cell structure in which functions are carried out to ensure the cell’s survival.

2. Each cell is surrounded by a ___________________________ that separates the interior of the cell from its surroundings.

3. Within the cell is a jelly-like substance called ___________________________.

4. The ___________________________ is the organelle that controls all the activities within the cell.

5. The ___________________________ are the energy producers in the cell.

6. ___________________________ are temporary storage compartments that sometimes store waste.

7. The ___________________________ is a tough, rigid structure that surrounds the cell membrane and protects the cell.

8. The ___________________________ trap the energy from the Sun and change it into chemical energy.

9. Plant and animal cells are examples of ___________________________ cells.

10. ___________________________ cells are cells that do not have organelles with membranes around them.

11. ___________________________ are examples of prokaryotic cells that can cause disease.

12. ___________________________ are examples of non-living things that are able to reproduce.