Plants are pretty to look at. We decorate our homes with them. We work hard to grow gardens and thick lawns. Sometimes, we give flowers to loved ones.

Plants give us pleasure, but they are even more important. Without plants, there could be no life on Earth!

Plants give us oxygen. They also give us food. In fact, all of the food we eat comes from plants--either directly or indirectly.

You probably recognize a plant when you see one. However, as you have learned, some algae look like plants. How can you tell if an organism is a plant? All plants have these characteristics:

1. Plants have many cells.
2. The cells of a plant form tissues and organs.
3. Plant cells are surrounded by a rigid cell wall. This cell wall is made up of a nonliving substance called cellulose. The cell wall helps give a plant its stiffness.
4. Plants make their own food. The cells of green plants contain structures called chloroplasts. Chloroplasts contain the green substance, chlorophyll. Chlorophyll is needed for a plant to make its own food. Most food-making takes place in the leaves of green plants. This is where most of the chlorophyll is found. The leaf of the plant can be thought of as the plant’s "food-factory."

PLANT DIVISIONS

The plant kingdom is divided into two large groups called divisions--the vascular plants and the nonvascular plants.

VASCULAR PLANTS belong to the division Tracheophyta. Vascular plants have stems, roots and leaves. All of the plants in this division also have a vascular system. A vascular system is a system of connecting tubes. These tubes carry water and dissolved nutrients to all parts of the plant.

The vascular plants are the most complex plants. Most of the plants you know belong to this group of plants. The vascular plants include ferns, trees, roses and other flowering plants.

NONVASCULAR PLANTS belong to the division Bryophyta. The plants in this division are very simple. Nonvascular plants do not have true roots, stems or leaves.

Figure A shows some common plants. Study the diagrams. Then answer the questions that follow.
1. a) The plants shown in figure A are ____________________ plants.
   b) They ___________________ have a tube system to transport water
       do, do not and dissolved nutrients.

2. These plants belong to the division _____________________.
   Bryophyta, Tracheophyta

3. Do tracheophyta have true roots, stems and leaves? ____________

4. Tracheophyta are ___________________ plants.
   simple, complex

5. The plants shown in Figure B are __________________ plants.
   vascular, nonvascular

6 These plants belong to the division _____________________.
   Bryophyta, Tracheophyta

7. Do bryophytes have true roots, stems and leaves? ____________
   yes, no

8. Bryophytes are ___________________ plants.
   simple, complex

9. Mosses and liverworts are examples of _____________________.
   bryophytes, tracheophytes

MATCHING

Match each term in Column A with its description in Column B. Write the
correct letter in the space provided.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. chlorophyll</td>
<td>a. made up of cellulose</td>
</tr>
<tr>
<td>2. vascular plants</td>
<td>b. grow in moist, shaded areas</td>
</tr>
<tr>
<td>3. plant kingdom</td>
<td>c. have stems, roots and leaves</td>
</tr>
<tr>
<td>4. mosses</td>
<td>d. green substance</td>
</tr>
<tr>
<td>5. cell wall</td>
<td>e. divided into two large groups</td>
</tr>
</tbody>
</table>
COMPLETE THE CHART

Some of the characteristics listed in the chart below are true of tracheophytes only. Some are true only of bryophytes. Some of the characteristics are found in tracheophytes and bryophytes.

Answer the questions by putting a “YES” or “NO” in the space provided.

<table>
<thead>
<tr>
<th>DIVISION</th>
<th>Tracheophyta</th>
<th>Bryophyta</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Are they vascular plants?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Do their cells have cell walls?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Are they nonvascular plants?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Do they have a system of connecting tubes?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Do their cells contain chloroplasts?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Are they made up of many cells?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Do they have true roots, stems and leaves?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Can they make their own food?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Do mosses belong to this group?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Do trees belong to this group?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Are they very simple plants?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Are they complex plants?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Do liverworts belong to this group?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Do roses belong to this group?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Do ferns belong to this group?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SEEDS

Some plants reproduce by spores. For example, ferns are common spore plants.

Most plants, however, reproduce by seeds. A seed is a reproductive structure. All seed plants are vascular plants.

Biologists classify seed plants into two groups. One group has uncovered seeds. This group is called gymnosperms [JIM-nuh-spurms]. The other group’s seeds have tough outer coverings. This group is called angiosperms [AN-jee-uh-spurms].

The most common and best known of the gymnosperms are the evergreens. Evergreens produce cones. Their seeds are in the cones. Evergreens also have special leaves called needs. The needles stay green throughout the year. Pines, cedars and spruces are gymnosperms.

Angiosperms are the flowering plants. Most of the common plants you see everyday are angiosperms. In some angiosperms, such as roses and tulips, the flowers are very noticeable. In others, the flowers are very small. Grasses, oak trees and corn are angiosperms. Have you ever seen their flower?

GYMNOSPERM OR ANGIOSPERM?
Classify each of the plants below as a gymnosperm or an angiosperm. Then write whether each has an uncovered seed or a covered seed.

1. A corn plant is a ___________________.
   Gymnosperm/Angiosperm
   It has __________________ seeds.
   uncovered, covered

2. A pine tree is a ___________________.
   Gymnosperm/Angiosperm
   It has __________________ seeds.
   uncovered, covered

3. A spruce tree is a ___________________.
   Gymnosperm/Angiosperm
   It has __________________ seeds.
   uncovered, covered

4. A tulip is a ___________________.
   Gymnosperm/Angiosperm
   It has __________________ seeds.
   uncovered, covered

5. The most common gymnosperms are the _________________________________.
   evergreens, grasses

6. Most plants reproduce by ___________________.
   spores, seeds

7. Angiosperms are ___________________.
   cones, flowers

8. Evergreens have special leaves called _____________________.
   needles, flowers
FILL IN THE BLANK

Complete each statement using a term or terms from the list below. Write your answers in the spaces provided. Some words may be used more than once.

dissolved nutrients divisions do not
bryophytes leaves food
roots complex stems
oxygen cellulose vascular
cell wall water chloroplasts
many

1. There can be no life without plants. Plants give us _______________ and _______________.

2. The plant kingdom is divided into two large groups called _______________.

3. Plants make their own _______________.

4. Plant cells are surrounded by a rigid _______________.

5. Plant cells contain structures called _______________, which contain chlorophyll.

6. A _______________ system is a system of connecting tubes.

7. In some plants, _______________ and _______________ are carried throughout the plant by a vascular system.

8. Vascular plants are more _______________ than nonvascular plants.

9. Vascular plants have true _______________, _______________, and _______________.

10. Nonvascular plants _______________ have true roots, stems and leaves.

11. Most food-making takes place in the _______________ of green plants.

12. Plants have _______________ cells.

13. Mosses, liverworts and hornworts are _______________.

14. Chlorophyll is needed for a plant to make its own _______________.

15. The cell wall is made up of _______________.