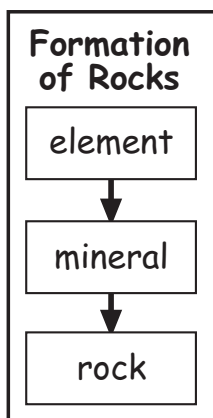


### 30—Earth Materials and Their Uses

**A** <sup>1</sup>The earth is made up of a variety of materials, such as rocks, minerals, and metals. <sup>2</sup>People can use these resources in many ways—but first, they have to get them.

**B** <sup>3</sup>We get many earth materials by digging into the earth’s crust. <sup>4</sup>The **earth’s crust** is a thin layer of solid rock that makes up the earth’s outer layer. <sup>5</sup>It is about 20 miles (32 km) thick.

**C** <sup>6</sup>**Rock** is made of one or more minerals stuck together. <sup>7</sup>**Minerals** are solid, nonliving substances found in the earth’s crust. <sup>8</sup>A mineral is made of elements and compounds. <sup>9</sup>For example, limestone is a mineral made up of calcium, carbon, and oxygen. <sup>10</sup>An **element** is a basic substance made of only one kind of matter.



**D** <sup>11</sup>People use rocks to build things, such as stone walls. <sup>12</sup>Rocks are also used to make other building materials, such as concrete.

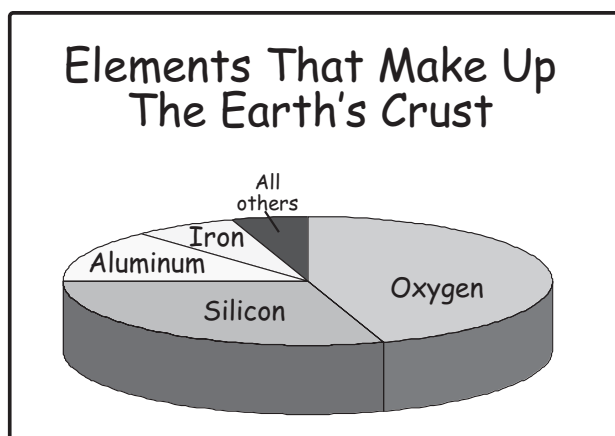
**E** <sup>13</sup>Minerals have many uses. <sup>14</sup>For example, table salt is used to make food taste better. <sup>15</sup>Minerals such as diamonds and gemstones are used to make jewelry. <sup>16</sup>Because they are so hard, diamonds are also used in drills or cutting machines. <sup>17</sup>Coins used to be made from *pure* materials such as gold and silver. <sup>18</sup>Each of these metals is

made of a single element. <sup>19</sup>Can you give two examples of metals used to build things like bridges and automobiles?

**F** <sup>20</sup>People also use the earth as a source of energy. <sup>21</sup>For example, the inside of the earth is so hot that its heat can be used to boil water. <sup>22</sup>Boiling water makes steam. <sup>23</sup>Steam is a force that can be used to produce electricity. <sup>24</sup>The energy in hot water can also be used to heat homes. <sup>25</sup>Some of the earth’s minerals are also used as a source of energy. <sup>26</sup>For example, radioactive elements like uranium are used to produce nuclear energy. <sup>27</sup>Fossil fuels like fuel oil and coal also come from the earth.

**G** <sup>28</sup>The water that covers most of the surface of the earth is another natural resource. <sup>29</sup>We use the oceans in transporting goods and people by boat. <sup>30</sup>If necessary, we can remove the salt to make drinking water. <sup>31</sup>We can even use the motion of ocean waves to produce electricity.

**H** <sup>32</sup>The circle graph below shows the major elements that make up the earth’s crust. <sup>33</sup>About how much of the earth’s crust is made up of oxygen?



1. For each statement, circle T or F for true or false. In each blank, write the number of the SENTENCE that gives the best evidence for your answer.
  - a. Diamonds are used in drills to make them more attractive. T F \_\_\_\_
  - b. An element can be broken down into compounds. T F \_\_\_\_
  - c. The motion of ocean waves produces a force. T F \_\_\_\_
  
2. What is the most likely meaning of *pure* as it is used in sentence 17?
  - a. unmixed
  - b. mixed
  - c. dirty
  - d. valuable
  
3. Sodium chloride is a mineral made up of two elements, sodium and chlorine. Therefore, sodium chloride is
  - a. an element.
  - b. an atom.
  - c. a compound.
  - d. a rock.
  
4. The metal copper is made up of only one kind of matter. Therefore, copper is
  - a. an element.
  - b. an atom.
  - c. a compound.
  - d. a rock.

5. Use the *Elements that Make Up the Earth's Crust* pie chart in the lesson to answer the following questions.
  - a. Which element is there most of in the earth's crust?  
 \_\_\_\_\_  
 How can you tell from the pie chart?  
 \_\_\_\_\_
  - b. Which element is there less of, iron or aluminum?  
 \_\_\_\_\_  
 Why is this difficult to answer?  
 \_\_\_\_\_
  - c. The earth's crust has over 90 elements. Why do you think the pie chart in the lesson shows only a few of these? Use a complete sentence to explain your answer.  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
  
6. Complete the flow chart below to show what makes up a rock, starting with its most complex part to its simplest. Use these terms:  
 mineral  
 compound  
 rock  
 element



**Lesson 30, pp. 64-65**

1. a. F 16, b. F 10, c. T 31

2. a

3. c

4. a

5. a. oxygen

It is the largest piece.

b. iron

The pieces look close to the same size.

c. Some of the pieces would be too small to see.

6.

