Complete the network tree about genetic disorders. These terms may be used more than once: albinism, a dominant gene, Down syndrome, Huntington’s disease, nondisjunction, too many, Turner’s syndrome.

The cause of a genetic disorder can be

1. two copies of a recessive gene
   which can cause
   3.
   4.

2. two copies of a dominant gene
   which can cause
   5. __________ of a type of chromosome
      which can cause
      6.

causing either

too few of a type of chromosome
which can cause
7.
In your textbook, read about basic patterns of human inheritance.

Use the terms below to complete the passage. These terms may be used more than once.

<table>
<thead>
<tr>
<th>albinism</th>
<th>alleles</th>
<th>cystic fibrosis</th>
<th>dominant</th>
</tr>
</thead>
<tbody>
<tr>
<td>heterozygous</td>
<td>homozygous</td>
<td>pedigree</td>
<td>recessive</td>
</tr>
</tbody>
</table>

A (1) __________________________ shows the inheritance of a particular trait over several generations. An organism with two of the same (2) __________________________ for a particular trait is said to be (3) __________________________ for that trait. An organism with two different (4) __________________________ for a particular trait is heterozygous for that trait. When alleles are present in the (5) __________________________ state, the (6) __________________________ trait will be observable. An individual who is heterozygous for a (7) __________________________ disorder is called a carrier. Examples of recessive genetic disorders in humans are (8) __________________________ and (9) __________________________.

In your textbook, read about recessive and dominant genetic disorders.

Complete the table by writing the disease name for each description.

<table>
<thead>
<tr>
<th>Disease Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>caused by altered genes; results in lack of skin pigment</td>
</tr>
<tr>
<td>recessive genetic disorder; characterized by body's inability to tolerate galactose</td>
</tr>
<tr>
<td>recessive genetic disorder; gene found on chromosome 15; characterized by lack of enzyme that breaks down fatty acids</td>
</tr>
<tr>
<td>recessive genetic disorder; affects mucous-producing glands, digestive enzymes, sweat glands</td>
</tr>
<tr>
<td>dominant genetic disorder; affects the nervous system</td>
</tr>
<tr>
<td>autosomal dominant genetic condition; affects height and body size</td>
</tr>
</tbody>
</table>
Study Guide, Section 1: Basic Patterns of Human Inheritance  continued

In your textbook, read about patterns of inheritance.  
For each statement below, write true or false.

16. A scientist uses a pedigree to study family history.  
17. A pedigree traces the inheritance of a particular trait through only two generations.  
18. In a pedigree, one who does not express the trait is represented by a darkened square or circle.  
19. In a pedigree, a horizontal line between two symbols shows that these individuals are the parents of the offspring.  
20. Individual II1, as shown below, is in generation II.

Refer to the pedigree above. Respond to each statement.

21. Recall if the trait is recessive or dominant based on the following information:  
In the pedigree, individuals I1 and I2 are unaffected but have an affected child.  

22. Specify if parents II1 and II2, who have an affected child, are carriers of the trait.  

23. Tell whether there is a dominant gene in the genotype of II4.
CHAPTER 11
Section 2: Complex Patterns of Inheritance

In your textbook, read about incomplete dominance.

Complete the table by checking the correct column(s) for each description.

Reminder: \( R \) is dominant (normal red blood cells).
\( R' \) is recessive (sickle-shaped red blood cells).

<table>
<thead>
<tr>
<th></th>
<th>![Normal Red Blood Cells]</th>
<th>![Sickle-Shaped Red Blood Cells]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ( R'R' )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. ( RR' )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. ( RR )</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In your textbook, read about sex-linked traits.

Refer to the Punnett square. Respond to each statement.

Reminder: A female has 2 \( X \) chromosomes.
A male has an \( X \) and a \( Y \) chromosome.
\( B \) is dominant (normal color vision).
\( b \) is recessive (color blindness).

4. Tell if the father has color blindness.

5. Specify if the father has a recessive allele.

6. State whether the only child that could have color blindness is male or female.
In your textbook, read about chromosomes and human heredity.

Match the definition in Column A with the term in Column B.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. micrograph of chromosomes</td>
<td>A. karyotype</td>
</tr>
<tr>
<td>2. abnormal number of chromosomes</td>
<td>B. Down syndrome</td>
</tr>
<tr>
<td>3. withdrawal of tissue from the placenta</td>
<td>C. telomere</td>
</tr>
<tr>
<td>4. extra chromosome 21</td>
<td>D. nondisjunction</td>
</tr>
<tr>
<td>5. protective cap at the end of a chromosome</td>
<td>E. chorionic villus sampling</td>
</tr>
</tbody>
</table>

In your textbook, read about Down syndrome.

Draw the indicated parts of a karyotype of a child born with Down syndrome and respond to each statement.

6. Chromosome 20
7. Chromosome 21
8. Chromosome 22

9. **Tell** why this karyotype is called “trisomy.”

10. **Recall** the term for the sister chromosomes failing to separate during cell division.

11. **State** whether the risk of having a child with Down syndrome is higher in mothers who are younger or older.