

# Pedigree Charts

Pedigree charts are very important to many different fields of science. One reason they are important is because they help scientists understand the genetic patterns of diseases. It is important to be able to interpret pedigree charts in order to learn the pattern of a disease or condition. Specifically, using a pedigree chart, you can tell if the disease or condition is autosomal, X-linked, dominant, or recessive.

Procedure:

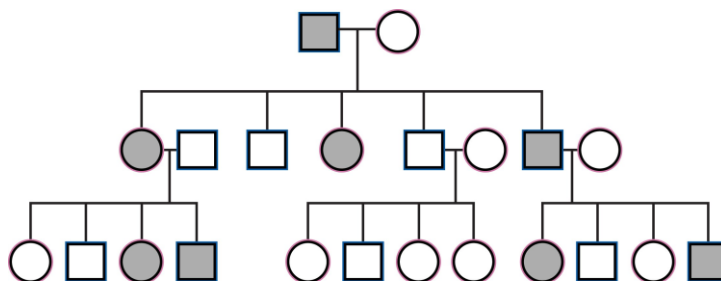
A. Review: In your lab notebook mark the symbol for each of the following:

1. Unaffected male
2. Affected male
3. Carrier male
4. Unaffected female
5. Affected female
6. Carrier female

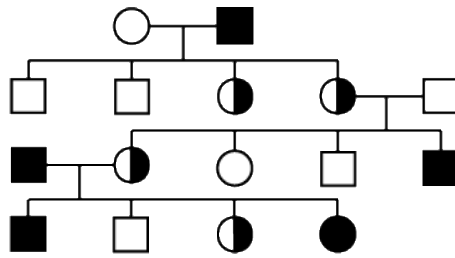
B. Complete the following examples in your lab notebook.

1. How can you tell if a couple is married on a pedigree? Write a one sentence description and draw an example.
2. How can you tell if the couple who is married had children? Write a one sentence description and draw an example.
3. Draw a pedigree that represents Mary married to Greg and with 2 sons (Scott and Tyler) and 1 daughter (Karen). Please label the pedigree with the names of the people.
4. Draw a pedigree that represents Mary married to Greg, with 2 sons and 1 daughter. Their son, Scott, married April and had Sutton (a boy) and Kendall (a girl). Their daughter, Karen, married Harry and had Eliq (a son) and Tariq (a son). Please label the pedigree with the names of the people.
5. Draw a pedigree that represents Julie married to Jeff, with one daughter, Josephine. Josephine married Joseph and had Jason and Joe. Joe married Julia and had Shannon and fraternal twin boys, Mark and Alex. Mark married Alison and had Ray and Scarlet. Please label the pedigree with the names of the people.

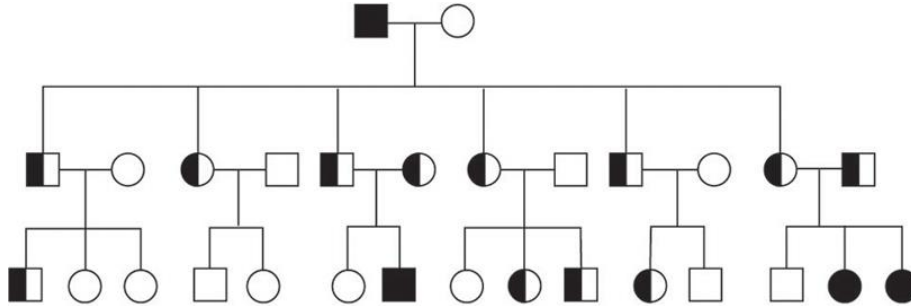
C. Identify the following pedigree charts as autosomal, X-linked, recessive, and dominant.



1. Is the following autosomal or X-linked? Is it dominant or recessive? Please explain.



2. Is the following autosomal or X-linked? Is it dominant or recessive? Please explain.



3. Is the following autosomal or X-linked? Is it dominant or recessive? Please explain.

D. Now you must make a pedigree chart from the descriptions given. Tell whether it is autosomal or X-linked and whether it is dominant or recessive. Label the pedigree with the names of the individuals.

1. Chad and Veronica got married and had Brittany, Kristin, and Harry. It was discovered that Harry had muscular dystrophy and Brittany is a carrier. Brittany married Larry and had Stephan and Stephanie. Stephan also had muscular dystrophy. Larry's brother Barry also had muscular dystrophy but neither of their parents had the disorder although his mother was a carrier.

Draw a pedigree:

- Is Veronica or Chad a carrier? Defend your answer using examples from the pedigree.
- Autosomal or X-linked? Defend your answer using examples from the pedigree.
- Dominant or recessive? Defend your answer using examples from the pedigree.

2. Lisa and Ashton got married and had three girls, Cari, Mary, and Terry. It was discovered that Lisa had muscular dystrophy, and Ashton is a carrier. Terry married Perry and had two boys, Pike and Tike. It was discovered that Terry and Pike had muscular dystrophy. Cari, Mary, Perry and Tike are all carriers.

Draw a pedigree:

- Autosomal or X-linked? Defend your answer using examples from the pedigree.
- Dominant or recessive? Defend your answer using examples from the pedigree.

3. Debbie married David and had three children, Darren, Dawn, and Derek. David, Darren and Derek discovered they have muscular dystrophy. Derek married Didi and had two children, Denise and Destiny. Denise also has muscular dystrophy and married Dirk. They had two children, Dee and Deven. Dee has muscular dystrophy.

Draw a pedigree:

- Autosomal or X-linked? Defend your answer using examples from the pedigree.
- Dominant or recessive? Defend your answer using examples from the pedigree.