

# Lipids Review Worksheet

Name: \_\_\_\_\_

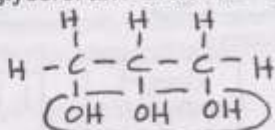
1. What elements do lipids contain?

C, H, O (sometimes P)

2. How can you tell a lipid from a carbohydrate from its molecular formula?

ratio of H:O is NOT 2:1 (usually way less O)

3. Draw a molecule of glycerol and circle the -OH (hydroxyl) groups.



4. List three differences between saturated fatty acids and unsaturated fatty acids.

no C=C	1 or more C=C
usually solid at room temp	usually liquid at room temp
usually animal source	usually plant source

5. How are triglycerides and phospholipids similar? Different?

both form through condensation rxn between fatty acids and glycerol. Triglycerides have 3 fatty acids; phospholipids have 2 plus a phosphate group.

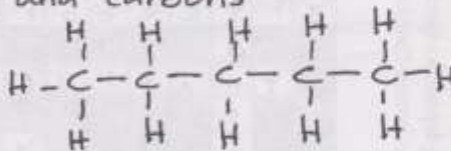
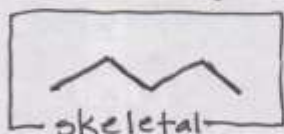
6. Name two examples of steroids.

cholesterol; estrogen, testosterone

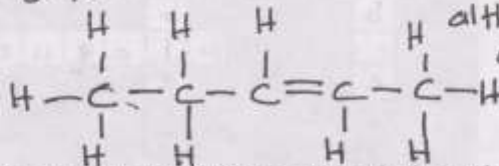
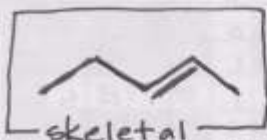
7. Complete the equations: 3 fatty acids + 1 glycerol → 1 triglyceride + 3 water

8. Sketch a hydrocarbon molecule that is a straight chain, containing five carbon atoms and twelve hydrogen atoms, molecular formula C<sub>5</sub>H<sub>12</sub>.

↳ no double bonds  
↳ just hydrogens and carbons



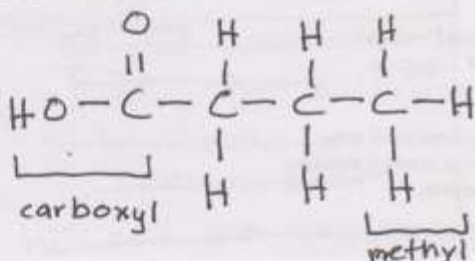
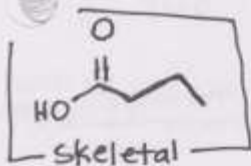
9. Sketch another five-carbon hydrocarbon, but this time include one double bond. What is the molecular formula of this molecule? C<sub>5</sub>H<sub>10</sub>



↳ could be anywhere, although usually not at end of molecule

\*this is trans. It's ok to draw cis.

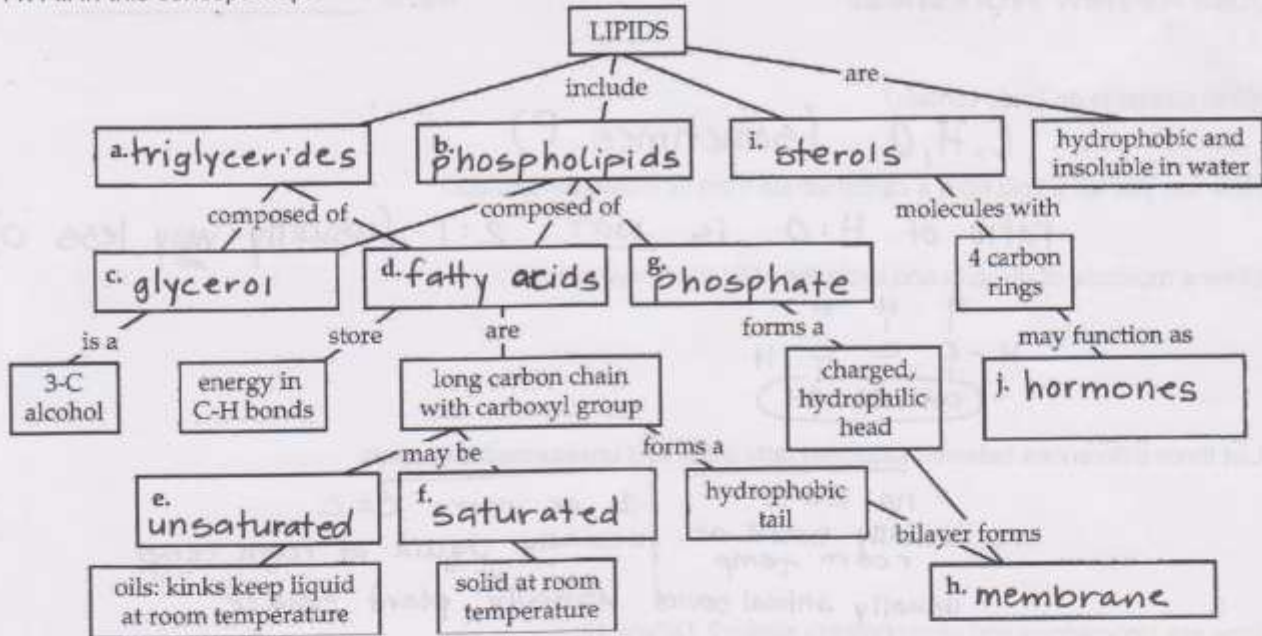
10. Sketch a fatty acid chain with only four carbon atoms. What is the molecular formula of this molecule? C<sub>4</sub>H<sub>8</sub>O<sub>2</sub>



- OK to flip  
- mine is saturated.

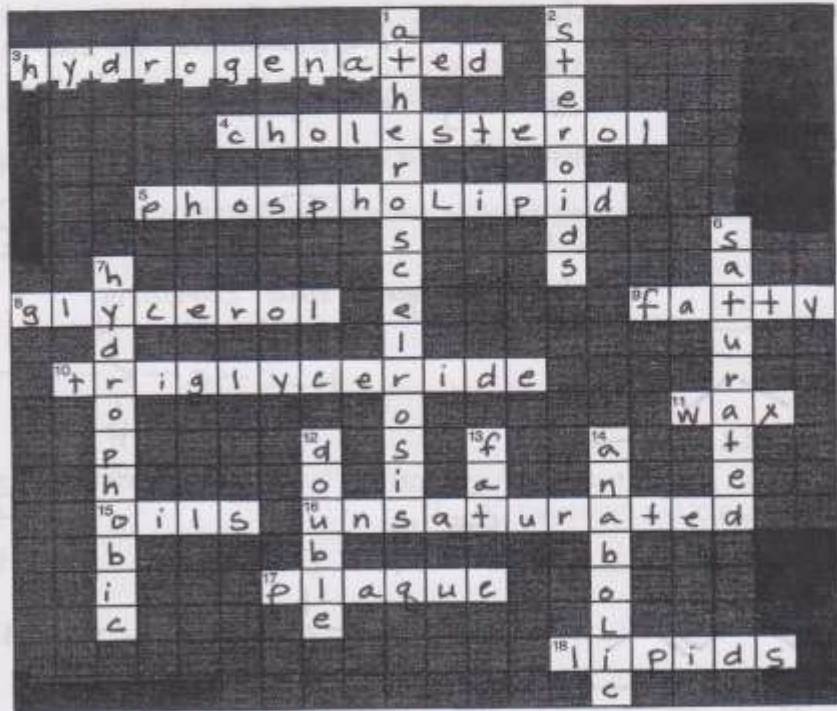
C<sub>4</sub>H<sub>8</sub>O<sub>2</sub>

11. Fill in this concept map.



12. Review the structures and functions of lipids by completing the following crossword puzzle. You may not know every term, but do your best!

- Across**
- 3. \_\_\_\_\_ means that hydrogen has been added to unsaturated fats.
  - 4. \_\_\_\_\_ is a steroid common in cell membranes.
  - 5. A \_\_\_\_\_ is similar to a fat, found in cell membranes.
  - 6. A fat molecule is composed of \_\_\_\_\_ and 3 fatty acids.
  - 7. Glycerol and 3 \_\_\_\_\_ acids make a triglyceride.
  - 8. \_\_\_\_\_ is another name for "fat."
  - 9. A \_\_\_\_\_ forms a waterproof coat that keeps a fruit or insect from drying out.
  - 10. Olive and corn \_\_\_\_\_ are examples of unsaturated fats.
  - 11. Fats with double bonds are said to be \_\_\_\_\_.
  - 12. \_\_\_\_\_ is a lipid-containing deposit in a blood vessel.
  - 13. \_\_\_\_\_ are grouped together because they do not dissolve in water.



**Down**

- 1. \_\_\_\_\_ is when lipid-containing deposits block blood vessels.
- 2. Female and male sex hormones are examples of \_\_\_\_\_.
- 3. Animal fats are said to be \_\_\_\_\_.
- 4. Lipids are water-avoiding, or \_\_\_\_\_ substances.
- 5. Unsaturated fats contain more \_\_\_\_\_ bonds than saturated fats.
- 6. A \_\_\_\_\_ is a large molecule whose main function is energy storage.
- 7. \_\_\_\_\_ steroids are dangerous variants of testosterone.

