**Lipids Guided Notes**

1. Lipids are made mostly from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. They are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and don’t dissolve in water (insoluble). Lipids are composed of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ monomers. The most common lipids are \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2. There are two types of lipids: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The difference between saturated and unsaturated fats is that saturated fatty acids contain no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bonds between the carbon atoms. Saturated fats get their name because they contain the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ number of hydrogen atoms (***saturated*** with hydrogen). Unsaturated fatty acids have \_\_\_\_\_\_\_\_\_\_\_\_\_\_ bonds existing between carbon atoms.

3. Saturated fats are found in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ products like \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, whole \_\_\_\_\_\_\_\_, ice creams, and fatty meats. They exist as a \_\_\_\_\_\_\_\_\_\_\_\_\_ at room temperature. Saturated fats also tend to increase the amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in your body, which also increases your risk for heart attack and stroke by clogging \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

4. Unsaturated fats are found in \_\_\_\_\_\_\_\_\_\_\_\_ products like canola oil, avocados, & nuts. They tend to be a \_\_\_\_\_\_\_\_\_\_\_\_ at room temperature, and unsaturated fats raise the level of good \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in your body.

5. Different types of lipids have different functions. Fats/Oils provide \_\_\_\_\_\_\_\_ term energy storage, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Phospholipids function to make cell \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ make hormones (which are chemical messengers), and waxes provide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

6. Fats & Oils (also called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) provide \_\_\_\_\_\_\_ term energy storage, because fat has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the calories of carbohydrates. One gram of fat = \_\_\_\_\_\_ cal, whereas one gram of sugar= 4 cal. The enormous energy is found within the hydrocarbon tails of the fatty acids.

7. Body fat functions to store \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and helps insulate and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the organs. Excess \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ not burned/used up is converted to fat. Sea mammals rely on fat to keep them \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

8. Lipids also function to form cell membranes. Glycerol contains only \_\_\_\_\_ fatty acids (not 3 like fats and oils). The thirdfatty acid is replaced by a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ molecule.

9. The resulting molecule is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The phosphate molecule forms a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (water loving) head, while fatty acid molecules make up \_\_\_\_\_\_\_\_\_\_\_\_\_\_ tails.

10. These phospholipids create the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of cell membranes. There are two layers of phospholipids. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ face out to interact with water, while the \_\_\_\_\_\_\_\_\_\_\_\_\_ tails make up a middle layer that repels water. Phospholipids separate the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the cell from its surrounding environment.

11. Cholesterol is a lipid made of four fused (connected) rings of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and is a component of the cell membrane that increases the integrity (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) of the membrane.

12. Steroids are lipids that act like hormones. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is used to make steroids. Hormones are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ messengers that are produced in one part of the body and then travel to and cause changes in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ part of the body. Hormones control: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, development, \_\_\_\_\_\_\_\_\_\_\_\_ function, sexual function, the way our bodies use food, the reaction of our bodies to emergencies, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Examples of hormones include \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

13. Waxes are lipids that act to repel \_\_\_\_\_\_\_\_\_\_\_. A waxy layer is often found on the surface of leaves…why? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Waxes are also found on animal hair to keep it \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (bendable), and are found on the feathers of water birds to prevent them from becoming \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (waterproofing).

14. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ spot test is done to test for the presence of lipids. A substance is placed on a brown paper bag. The residue from the substance is allowed to dry, and if a lipid is present a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ spot will be left behind.