**Activity 17: Hydrocarbons and Fatty Acids**

***Learning Objectives***

*Part 1 Establish a trend for the boiling points of alkanes*

*Part 2 Gain familiarity with the characteristics of free fatty acids*

*Recognize the functional group carboxylic acid*

*Draw a free fatty acid in skeletal structure given the number of carbons,*

*unsaturations, and omega number*

**Estimated Completion Time** 45 Minutes

**Instructor Information**

Some textbooks use the -numbers, whereas others use the IUPAC () numbering for fatty acids (Part 3). The omega numbers are in more common use.

**ANSWERS TO QUESTIONS**

**Part 1. Straight-Chain Alkanes**

1. Yes there is a pattern. CnH2n+2 where n is the number of carbon atoms.

2. Yes. –ane

3. The boiling points for straight-chain increase with increasing carbon number.

4.



**Part 2. Free Fatty Acids Are Mainly Hydrocarbon**

1. alkane, carboxylic acid (COOH)

2. Carbons 9 and 10

3. [Number of carbons: number of double bonds]

4.



5.



6.



7. The nonpolar portions are the hydrocarbon portions.

**Activity 17: Skill Development—Free Fatty Acids Are Mainly Hydrocarbon**

1.



2.



3.

