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Measuring the Length of a Molecule Demonstration Worksheet

Data

Volume oleic acid in one drop =		
Diamater of oleic acid circle :		
Trial 1 =	Trial 2 =	Trial 3 =
Radius of oleic acid circle:		
Trial 1 =	Trial 2 =	Trial 3 =
Average radius =		

Discussion Questions

1. Using the following formula for the volume of a cylinder, solve for *b*, the height of a cylinder.

- $V = \pi r^2 h$
- V = volume of oleic acid in one drop
- r = average radius of the circle

2. Oleic acid does not dissolve in water, but when it is placed in a polar solvent such as water, it forms a single layer of oleic acid molecules, with a polar "head" that points directly downward and a nonpolar "tail" that sticks straight up. See Figure 1.



This monolayer spreads out in a rough circle across the surface of the water. With this information, why do you think we use the height of a cylinder determine the length of an oleic acid molecule?

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