Name: **Date:** **Class:**

Applying Our Learning to a Problem Worksheet

We are ready to take what we've learned and apply it to a problem.

The problem:
In 2019, a nationwide outbreak of lung injuries led to the identification of EVALI, which stands for E-cigarette or vaping product use-associated lung injury. EVALI is a serious—and sometimes fatal—lung condition linked to the use of vaping products, particularly those that are unregulated or altered. The primary cause identified by health experts is vitamin E acetate, a substance that is safe to ingest or apply to the skin but becomes harmful when inhaled. When heated and inhaled, vitamin E acetate disrupts lung function and interferes with surfactants, leading to inflammation and tissue damage. Other toxic chemicals found in vaping products may also contribute to the condition.

Apply your learning to the problem—address the following items in the space below:

Apply your learning
What is the role of surfactants in our lungs?
Draw a model of a lung alveoli containing alveoli fluid with functional lung surfactant. Be sure to include drawings of the different particles involved and the forces present. Remember to label all parts of your drawing.

Turn this sheet over

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The potential problem with vape additives is that they can interfere with lung surfactants. Describe what is meant by the word “interfere.” Include the terms cohesion, surface tension, surfactants, and collapse in your response.
The potential problem with vape additives is that they can interfere with lung surfactants. Explain how the activity we just did could be related to this problem.