

Name:

Date:

Class:

Relating a Phenomenon to Our Everyday Lives - Part 2 Worksheet **Answer Key**

Now that we've learned about the roles of lung surfactant and surface tension on breathing and shared our perceptions on smoking, let's see what the scientific community knows about smoking.

Notes about smoking

While we watch the [Vaping Is Too Good To Be True - Kurzgesagt – In a Nutshell](#) video together, take notes on the items listed below. Use words and drawings in your notes.

How does the harm of smoking cigarettes compare to the harm of vaping?

Smoking cigarettes is much more harmful than vaping.

According to a survey, what percentage of U.S. students are vaping regularly? And how many of those students are vaping daily?

8%, 1 out of 4.

How do the chemicals in a vape get into the bloodstream?

Through the alveoli in the lungs when inhaled.

How much does the scientific community know about the effects of vaping on the human body? Explain.

Not much; it's only been around for about 10 years, so the scientific community doesn't have long-term data to use.

Take a moment and look back at your revised models for a drop of pure water (from the "Understanding a Phenomenon - Part 1" sheet) and a drop of soapy water (from the "Understanding a Phenomenon - Part 2" sheet), and respond to the prompt below:

Comparing your two revised drop models

Look at your revised models for a drop of pure water and a drop of soapy water. Which drop has a higher level of surface tensions between the particles? Explain how you can tell by just looking at the drop.

Pure water. Pure water has more of a spherical look to it when compared to soapy water. That spherical, dome look lets us know there's a higher level of surface tension.

Turn this sheet over

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The scientific community is currently studying the effects of vaping additives on lung surfactants and breathing. How might we, in this classroom, carry out an investigation to address the question, “How much additive does it take to noticeably affect the surface tension of a fluid?” Write down your initial ideas on the space below:

Individual ideas for the “How much additive does it take to noticeably affect the surface tension of a fluid?” investigation

Consider the following while you brainstorm ideas for the investigation: We have access to pure water (which is a major part of alveolar fluid) and soap (which can simulate a vaping additive). How might you determine whether something was impacting the surface tension of the alveolar fluid by just looking at the fluid itself?

Use words and/or drawings.

Answers will vary.

When your teacher tells you to do so, share your individual idea for the investigation with your group members. Look and listen for common ideas as each group member shares. Record any common ideas in the space below.

Common ideas for the investigation

Use words and/or drawings.

Answers will vary.

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