

## Activity 5.4: Explaining Combustion of Propane

Read about propane, then answer the questions below.

**1. Explaining how propane burns.** Write a paragraph about how propane burns in the flame of a gas grill. Be sure to answer the four numbered questions on your Three Questions handout.

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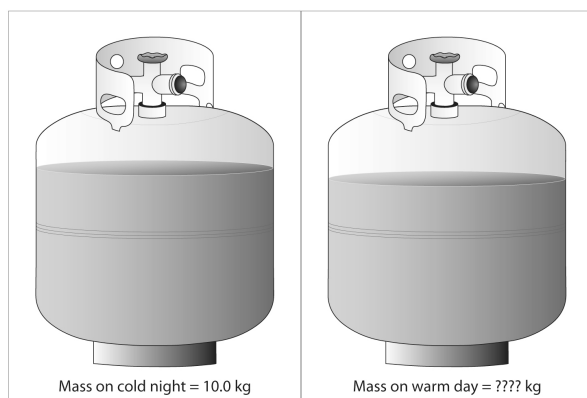
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**2. What happens to the mass?** Think about a propane tank sitting outside with its valve closed, so no molecules can get into or out of the tank. On a cold night, almost all the propane in the tank condenses into a liquid. Its mass on the cold night is exactly 10.000 kg. The next day is warmer, so some of the liquid propane evaporates, but the propane gas stays inside the tank. What will happen to the mass of the tank?



Here are three predictions about what will happen to the mass:

- A student, Samantha, claims: "Some of the heavier liquid propane changed into a lighter gas, so the mass of the tank will be a little bit less than 10.000 kg."  
Circle one: AGREE    DISAGREE
- Another student, Latoya, claims: "No matter entered or left the tank, so the mass will stay exactly the same: 10.000 kg."  
Circle one: AGREE    DISAGREE

- Another student, Maria, claims: “Some heat energy was added to the tank, so the mass during the day will be a little bit more than 10.000 kg.”

Circle one: AGREE    DISAGREE

Explain your reasoning for your choices.

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Choose ONE claim above that you agree with. Explain how this claim could be further tested to offer evidence that better supports the claim.

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**3. Where does the matter from burning propane come from?**

When propane burns, water vapor and carbon dioxide forms. Where does the water vapor and carbon dioxide come from? Select True or False for the following statements:

- T F Some water vapor and carbon dioxide *comes from the air*
- T F Some water vapor and carbon dioxide *is created* by the propane
- T F Some water vapor and carbon dioxide *comes from the propane*
- T F Some water vapor and carbon dioxide *comes from the person* who burns the propane

Explain your choices. Where does the water vapor and carbon dioxide from the propane come from?

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**4. Something interesting about propane**

What is something interesting that you learned about propane?

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