## Tanker Implosion Final Model

Name:	 Date:	Period:

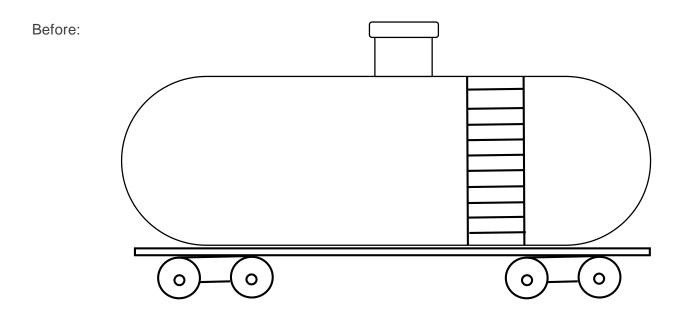
LT: I can explain the tanker phenomenon in terms of molecular movement and pressure.

Reminder of the premise behind the Imploding Tanker Phenomenon –

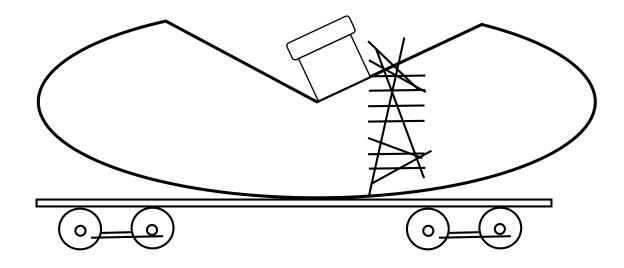
The empty tanker car was pulled into the railyard and steam-cleaned with hot steam (water vapor). It was then sealed and allowed to sit in a rainstorm. (Hint: This means it was not hot outside – think less than 100°C. What happens to water vapor when the temperature falls below 100°C?)

<u>Directions</u>: On the figures below use words and symbols to indicate differences in molecular movements and pressure exerted on the tanker car before and during the implosion.

- Use circles to denote molecules.
- Use arrows to indicate pressure. (Note: The length of the arrows should indicate the relative strength of the pressure. The longer the arrow, the more pressure.)
- Remember to include molecules inside and outside the tanker car and to take in account the gas pressure and atmospheric pressure.



During:



**Thinking and Communicating with Clarity and Precision:** When writing your explanation of the Tanker Implosion, please take the following into account: Language and thinking are closely entwined. When you hear fuzzy language, it is a reflection of fuzzy thinking.

Intelligent people strive to communicate accurately in both written and oral form taking care to use precise language...They strive to avoid over generalizations...Instead they support their statements with explanations, comparisons, quantification, and evidence. Refrain from using statements like, "Because I said so.", "That's the way it is.", "And, stuff." Do not begin any statement with the word "Because" or the word "It".

## Write a paragraph explaining why the tanker imploded.

It will be useful to use the following terms: temperature, motion of molecules, number of molecules, spacing of the molecules, condensation, and air pressure.)

Remember that a good paragraph is 5-7 sentences and will include the following:

- A topic sentence explaining what the paragraph will talk about.
- 3-5 supporting sentences using technical language that explains the phenomenon.

<ul> <li>A concluding sentence that sums what you have written in the paragraph.</li> </ul>
Challenge Application Question: You are an auto mechanic working in a garage in the middle of winter. A customer comes back complaining that you did not inspect his car closely enough and believes that the ires are leaking air. Upon questioning the customer, you find out that the customer had to leave the car with you at your garage for several days, where it was left in a heated bay. The tires appeared fine to the customer when he left, but shortly afterward, the tires appeared to be flatter. You look the tires over and here does not appear to be any holes where air could leak out. What could you tell this customer to put his mind at ease?