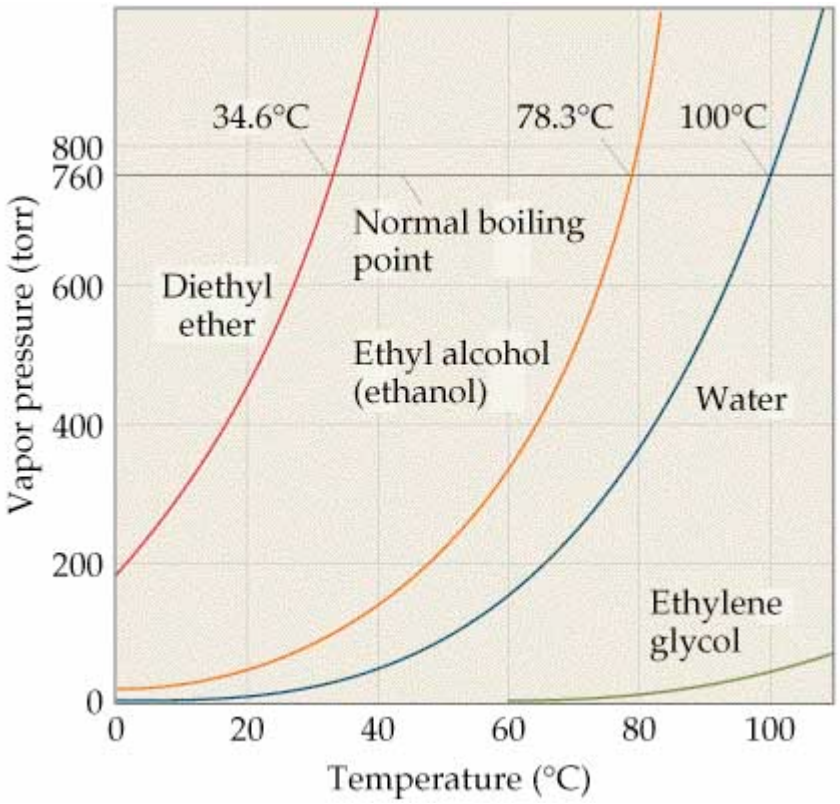
Practice General Chemistry SPEAK Test
(by Peter DeBartolo, Spring 2005)

(Questions from Chapter 11 of the textbook)

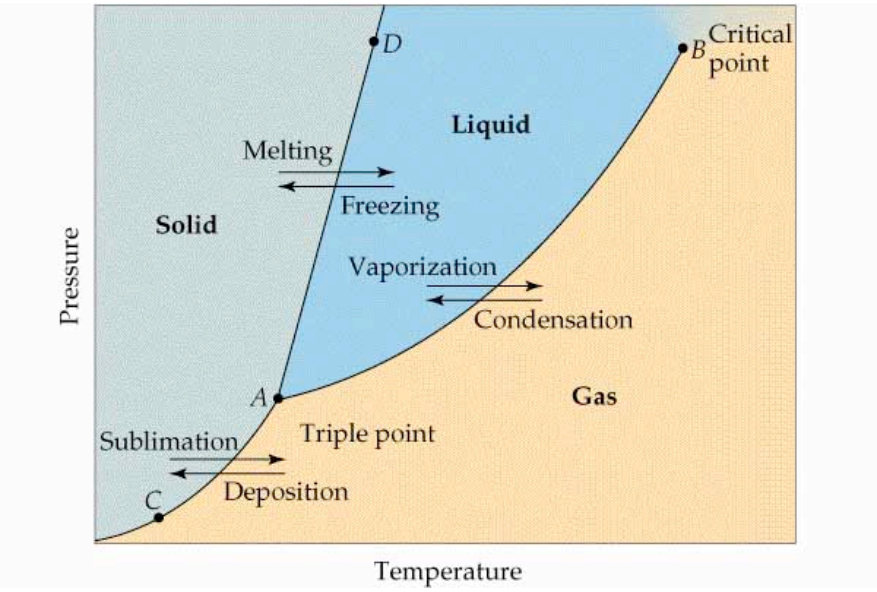


1. Explain how to determine the normal boiling point of a compound using a vapor pressure curve. (30 seconds)

2. A student asks why it takes longer to cook food at higher elevations. Answer the question with reference to the figure above. (30 seconds)

3. A student asks if the graph above has anything to do with volatility. Explain how one can determine the relative volatilities of the four common liquids using the vapor pressure curve above. (60 seconds)

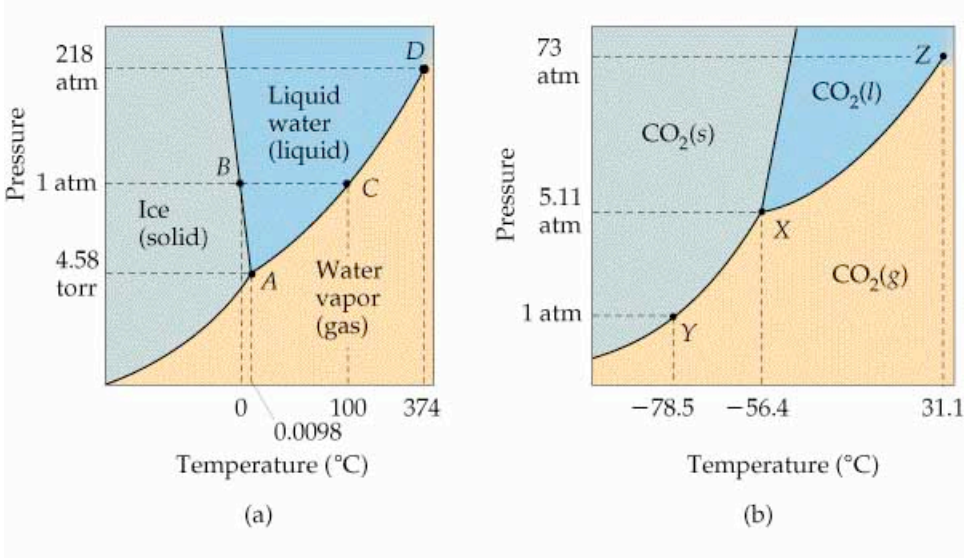
Now please study the general features of the generic phase diagram shown below.



4. Explain the purpose, and what information you can obtain from a phase diagram. (60 seconds)

5. Explain the significance of the line segments CA, AD, and AB. (30 seconds)

6. A student wants to know how increasing pressure affects the melting point of a solid. Use the diagram to explain this effect. (45 seconds)



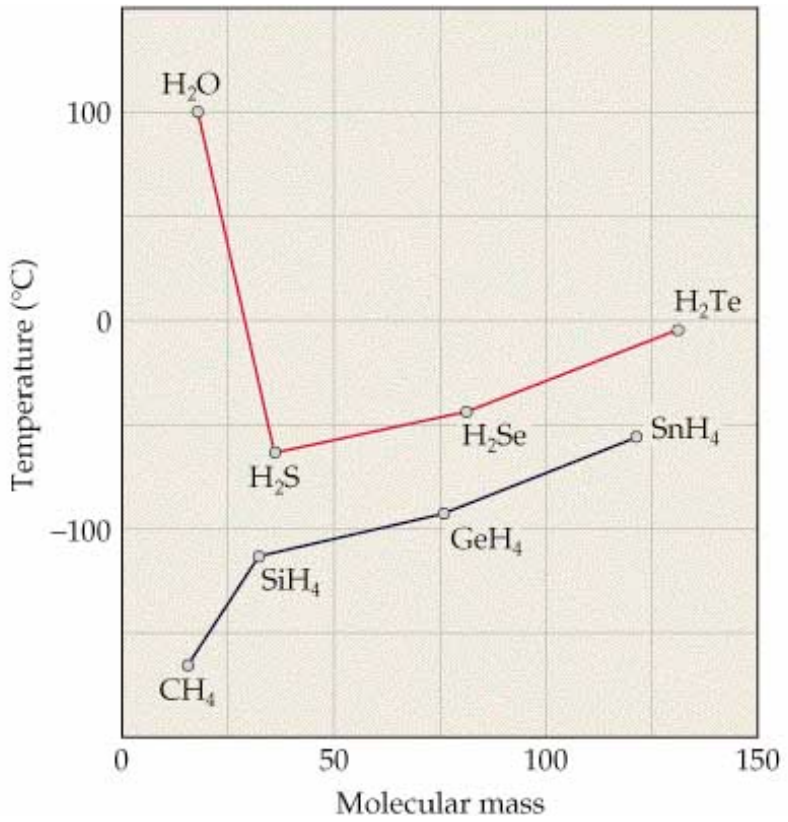
7. The phase diagram for carbon dioxide follows the typical behavior, but the diagram for water does not. Identify and explain this deviation from typical behavior. (60 seconds)

Now I'd like to hear your ideas about several topics. Be sure to say as much as you can in responding to each question.

8. Many students know the differences between dipole-dipole forces, London dispersion forces, and hydrogen bonding forces, but often do not know how to compare the relative strengths of these intermolecular attractions. What can you say to the students to clarify this problem? (60 seconds)

9. As you give your introductory lecture on intermolecular attractions, several of the students start to look bored and distracted. What questions can you think of to keep the students engaged in a lecture on this subject? (60 seconds)

10. The graph below shows the boiling points of the simple hydrogen compounds of group 4A and 6A elements. Please explain the observed trends. (60 seconds)



11. Plumbane, PbH_4 is another hydrogen compound of a 4A element. Based on what you know about this plot, would you expect the boiling point of PbH_4 to be less than or greater than that of GeH_4? Explain why. (45 seconds)

12. Now imagine that you a teaching assistant for a chemistry class. The following changes need to be made to the syllabus. Please announce these changes to your class (60 seconds).

CHM 100 Spring 2005

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Lecture and Homework Schedule

Date	Lecture	Homework
Jan. 19, 21, 24, 26	Chapters 11 and 12	11:1-27, 33, 57 12: 1-31, 35, 41-44
Jan. 28, 31; Feb 2, 4	Chapter 13	13: 1-14, 20, 25, 31
Feb 7, 9, 11, 14	Chapter 18	18: 1-22, 25, 27, 29
Feb 18, 21, 23, 25	Chapter 14	14: 1-35, 37, 39, 40-45
Feb 28; Mar 2, ~~3~~ 4	Chapter 15	15: 1-34, 36-39, 42
Mar 7, 9, 11, 21	Chapter 16	16: 1-24, 26-31, 34
Mar 25, 28, 30; Apr 1	Chapter 17	21: 3- 45, 47
Apr 4, 6, 8	Chapter 21	17: 1-11, 13-27, 43
Apr 11, 13, 15, 18	Chapter 22	22: 1-17, 19-21
Apr 22, 25, 27	Chapter 23	23: 1-34, 35-37, 39
Apr 29; May 2	Chapter 24	24: 1-42, 45

Exam Schedule

February 15	**Exam 1** – Chapters 11-13, 18
March 23	**Exam 2** – Chapters 14-16
April 20	**Exam 3** – Chapters 17, 21-~~23~~ 22
May 9	**Final Exam** – All material covered