

# ACC Science 8- "Changes" Quiz: Chemical, Physical, Phase Changes

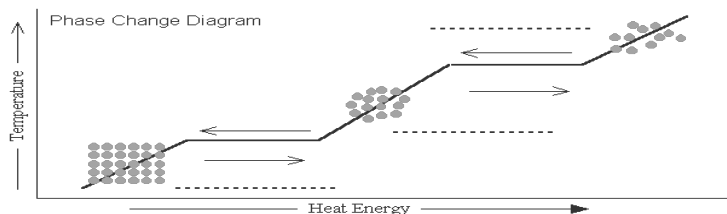
Mark (A) on your scantron for a physical change. Mark (B) for a chemical change:

- 151. Mixing lemonade powder into water
- 152. Burning a piece of paper
- 153. Cutting a piece of paper
- 154. Glass breaking
- 155. Cooking an egg

- 156. Melting butter
- 157. Freezing chocolate covered bananas
- 158. Fireworks exploding
- 159. A rusting car
- 160. Rotting banana peel

**\*Use the following multiple choice options for the following questions: (161, 164, 167, 170)**

- A. Evaporation
- B. Freezing
- C. Melting
- D. Condensation



## SOLID to LIQUID

- 161. When a substance transforms from a **solid to a liquid**, the transition phase is called \*
- 162. When a substance transforms from a **solid to a liquid**, the molecules become
  - A. More organized
  - B. Randomized
- 163. A substance transforms from a **solid to a liquid** when energy is
  - A. Released
  - B. Absorbed

## GAS to LIQUID

- 164. When a substance transforms from a **gas to a liquid**, the transition phase is called \*
- 165. When a substance transforms from a **gas to a liquid**, the molecules become
  - A. More organized
  - B. Randomized
- 166. A substance transforms from a **gas to a liquid** when energy is
  - A. Released
  - B. Absorbed

## LIQUID to GAS

- 167. When a substance transforms from a **liquid to a gas**, the transition phase is called \*
- 168. When a substance transforms from a **liquid to a gas**, the molecules become
  - A. More organized
  - B. Randomized
- 169. A substance transforms from a **liquid to a gas** when energy is
  - A. Released
  - B. Absorbed

## LIQUID to SOLID

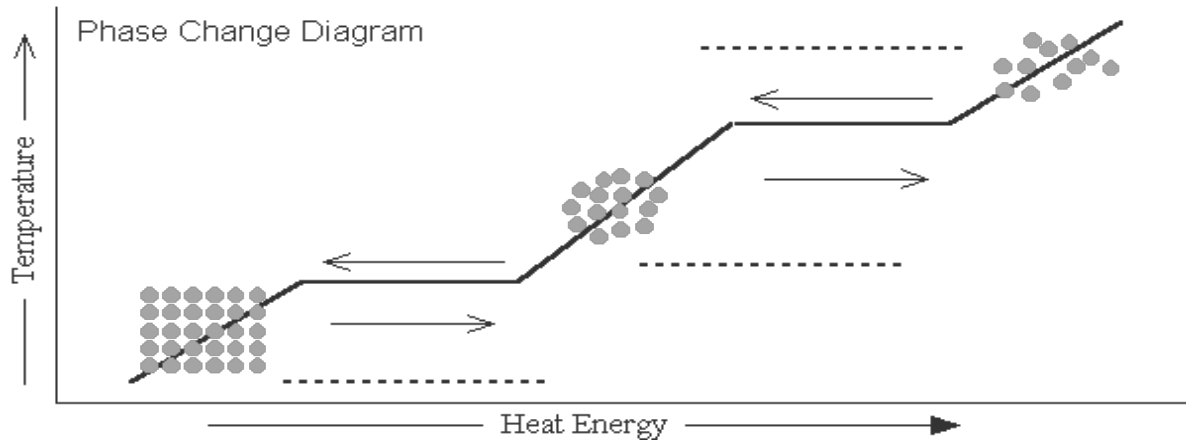
- 170. When a substance transforms from a **liquid to a solid**, the transition phase is called \*
- 171. When a substance transforms from a **liquid to a solid**, the molecules become
  - A. More organized
  - B. Randomized
- 172. A substance transforms from a **liquid to a solid** when energy is
  - A. Released
  - B. Absorbed
- 173. Salt causes ice to melt because
  - A. The salt releases heat when it chemically reacts with water
  - B. Adding salt decreases the freezing point of water
  - C. The salt added absorbs water
- 174. On a molecular level, what happens when salt is combined with ice?
  - A. Na<sup>+</sup> ions bond with OH<sup>-</sup> ions and H<sup>+</sup> ions bond with Cl<sup>-</sup> ions, to form new compounds that have different physical properties than the original compounds
  - B. Na<sup>+</sup> and Cl<sup>-</sup> ions from the salt get in the way of the water molecules, making it harder for them to become re-arranged into crystals
  - C. H<sub>2</sub>O molecules vibrate more rapidly due to the increase in heat and energy provided by the addition of NaCl molecules
- 175. When you cook pasta, you add salt to the water because:
  - A. Because it lowers the boiling point of the water so I can add the pasta sooner.
  - B. Because it raises the boiling point of the water, so that it will be hotter when it boils and the pasta will cook faster.
  - C. Only because it tastes good. There is no effect on the way it cooks.

# Science 8- "Changes" Quiz: Chemical, Physical, Phase Changes

Mark (A) on your scantron for a physical change. Mark (B) for a chemical change:

- 151. Mixing lemonade powder into water
- 152. Burning a piece of paper
- 153. Cutting a piece of paper
- 154. Glass breaking
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- 156. Melting butter
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- 158. Fireworks exploding
- 159. A rusting car
- 160. Rotting banana peel



\*Use the following multiple choice options for the following questions: (161, 164, 167, 170)

- A. Evaporation
- B. Freezing
- C. Melting
- D. Condensation

## SOLID to LIQUID

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## GAS to LIQUID

- 164. When a substance transforms from a **gas to a liquid**, the transition phase is called \*
- 165. When a substance transforms from a **gas to a liquid**, the molecules become
  - A. More organized
  - B. Randomized
- 166. A substance transforms from a **gas to a liquid** when energy is
  - A. Released
  - B. Absorbed

## LIQUID to GAS

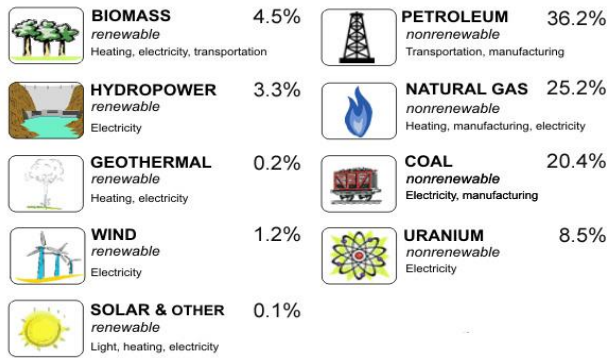
- 167. When a substance transforms from a **liquid to a gas**, the transition phase is called \*
- 168. When a substance transforms from a **liquid to a gas**, the molecules become
  - A. More organized
  - B. Randomized
- 169. A substance transforms from a **liquid to a gas** when energy is
  - A. Released
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## LIQUID to SOLID

- 170. When a substance transforms from a **liquid to a solid**, the transition phase is called \*
- 171. When a substance transforms from a **liquid to a solid**, the molecules become
  - A. More organized
  - B. Randomized
- 172. A substance transforms from a **liquid to a solid** when energy is
  - A. Released
  - B. Absorbed
- 173. Salt causes ice to melt because
  - A. The salt releases heat when it chemically reacts with water
  - B. Adding salt decreases the freezing point of water
  - C. The salt added absorbs water

174. How much of the US energy use is supplied by renewable forms of energy?

**U.S. Energy Consumption by Source, 2011**



- A. 1.3%
- B. 4.4%
- C. 9.3%
- D. 12.8%

175. Which type of energy is expected make up the largest portion of the US energy supply in the year 2035?

Figure 7. Energy consumption by fuel, 1980-2035

Primary energy consumption (quadrillion Btu per year)

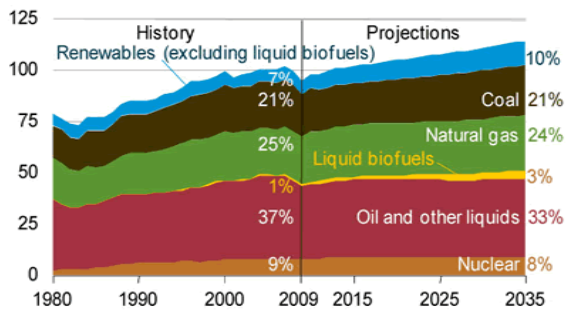
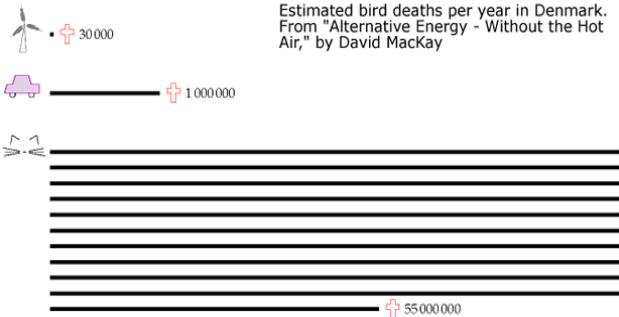


Image and data from the US Energy Information Agency, Annual Energy Outlook, 2011

- A. renewable energy
- B. coal
- C. natural gas
- D. oil and other liquid fuels
- E. nuclear energy

176. True/False. Every year, wind turbines kill more birds than domestic cats do.

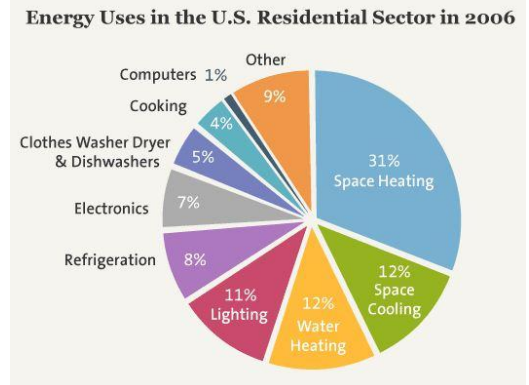


177. Which nation uses the most gasoline per person?

Country	Gallons of gasoline used per person, per year
United States	428
Canada	316
Saudi Arabia	185
Japan	119
United Kingdom	105
Germany	93
Netherlands	85
Russian Federation	61

- A. Canada
- B. Germany
- C. Netherlands
- D. Saudi Arabia
- E. United States

178. The biggest use of energy in the typical US home is:



- A. Home electronics
- B. Water heating (for hot showers or laundry)
- C. Space heating (heating the house itself)
- D. Lighting
- E. Cooking



Mark (A) on your scantron for a physical change. Mark (B) for a chemical change:

151. Sprinkling sugar on your cereal
152. Cutting a piece of paper
153. Burning a piece of paper
154. Glass breaking
155. A rusting car
156. Melting butter
157. Rotting banana peel
158. Mixing lemonade powder into water
159. Fireworks exploding
160. Cooking an egg
161. Freezing chocolate covered bananas



A. Absorbed

B. Released

SAUNDERS- ACC Science 8

Name \_\_\_\_\_

"Changes" Quiz- Chemical, Physical, Phase

Period \_\_\_\_\_ Date \_\_\_\_\_

Check the box to indicate whether the following are chemical or physical changes:

	Physical Change	Chemical Change
1. Mixing lemonade powder into water		
2. Burning a piece of paper		
3. Cutting a piece of paper		
4. Glass breaking		
5. Cooking an egg		
6. Melting butter		
7. Freezing chocolate covered bananas		
8. Sprinkling sugar on your cereal		
9. Fireworks exploding		
10. A rusting car		
11. Rotting banana peel		

Carefully read the following multiple choice questions and choose the best answer.

12. \_\_\_\_\_ Salt causes ice to melt because

- A. The salt releases heat when it chemically reacts with water
- B. The salt added absorbs water
- C. Adding salt decreases the freezing point of water

13. \_\_\_\_\_ On a molecular level, what happens when salt is combined with ice?

- A. Na<sup>+</sup> ions bond with OH<sup>-</sup> ions and H<sup>+</sup> ions bond with Cl<sup>-</sup> ions, to form new compounds that have different physical properties than the original compounds
- B. H<sub>2</sub>O molecules vibrate more rapidly due to the increase in heat and energy provided by the addition of NaCl molecules
- C. Na<sup>+</sup> and Cl<sup>-</sup> ions from the salt get in the way of the water molecules, making it harder for them to become re-arranged into crystals

BONUS: \_\_\_\_\_ When you cook pasta, you add salt to the water because:

- A. Because it lowers the boiling point of the water so I can add the pasta sooner.
- B. Because it raises the boiling point of the water, so that it will be hotter when it boils and the pasta will cook faster.
- C. Only because it tastes good. There is no effect on the way it cooks.

Check the box to indicate whether the following are chemical or physical changes:

	Physical Change	Chemical Change
1. Sprinkling sugar on your cereal		
2. Cutting a piece of paper		
3. Burning a piece of paper		
4. Glass breaking		
5. A rusting car		
6. Melting butter		
7. Rotting banana peel		
8. Mixing lemonade powder into water		
9. Fireworks exploding		
10. Cooking an egg		
11. Freezing chocolate covered bananas		

Carefully read the following multiple choice questions and choose the best answer.

12. \_\_\_\_\_ Salt causes ice to melt because

- D. The salt releases heat when it chemically reacts with water
- E. Adding salt decreases the freezing point of water
- F. The salt added absorbs water

13. \_\_\_\_\_ On a molecular level, what happens when salt is combined with ice?

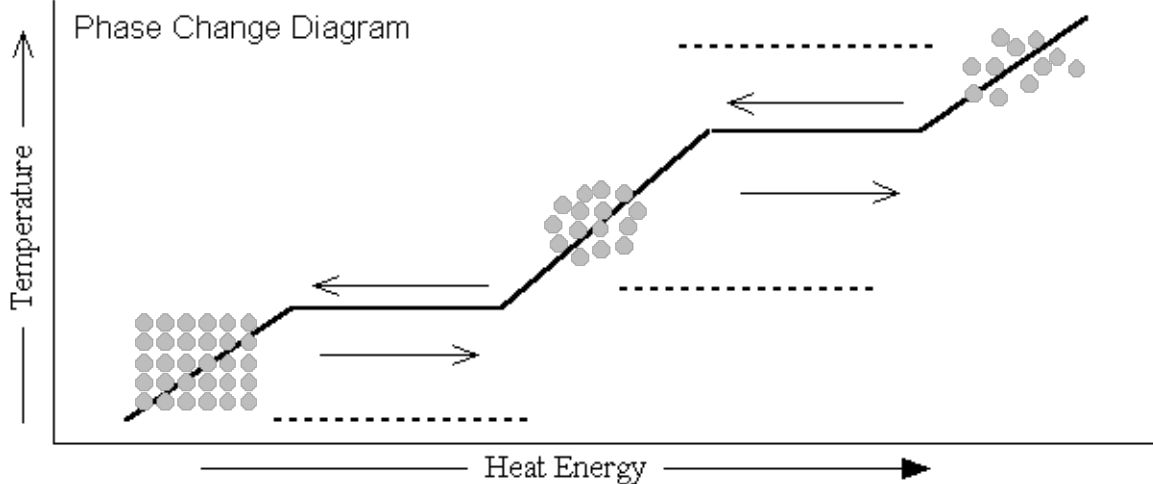
- D. Na<sup>+</sup> ions bond with OH<sup>-</sup> ions and H<sup>+</sup> ions bond with Cl<sup>-</sup> ions, to form new compounds that have different physical properties than the original compounds
- E. Na<sup>+</sup> and Cl<sup>-</sup> ions from the salt get in the way of the water molecules, making it harder for them to become re-arranged into crystals
- F. H<sub>2</sub>O molecules vibrate more rapidly due to the increase in heat and energy provided by the addition of NaCl molecules

BONUS: \_\_\_\_\_ When you cook pasta, you add salt to the water because:

- D. Because it lowers the boiling point of the water so I can add the pasta sooner.
- E. Because it raises the boiling point of the water, so that it will be hotter when it boils and the pasta will cook faster.
- F. Only because it tastes good. There is no effect on the way it cooks.



14. Complete this phase change diagram. Write the names of the phases/states of matter on the dashed lines, and write the phase transitions on the arrows.



**SOLID to LIQUID**

15. \_\_\_\_\_ When a substance transforms from a **solid to a liquid**, the transition phase is called
- |                        |                 |
|------------------------|-----------------|
| A. Evaporation/Boiling | C. Freezing     |
| B. Melting             | D. Condensation |
16. \_\_\_\_\_ When a substance transforms from a **solid to a liquid**, the molecules become
- |                   |               |
|-------------------|---------------|
| A. More organized | B. Randomized |
|-------------------|---------------|
17. \_\_\_\_\_ A substance transforms from a **solid to a liquid** when energy is
- |             |             |
|-------------|-------------|
| A. Released | B. Absorbed |
|-------------|-------------|

**GAS to LIQUID**

18. \_\_\_\_\_ When a substance transforms from a **gas to a liquid**, the transition phase is called
- |                        |                 |
|------------------------|-----------------|
| A. Evaporation/Boiling | C. Freezing     |
| B. Melting             | D. Condensation |
19. \_\_\_\_\_ When a substance transforms from a **gas to a liquid**, the molecules become
- |                   |               |
|-------------------|---------------|
| A. More organized | B. Randomized |
|-------------------|---------------|
20. \_\_\_\_\_ A substance transforms from a **gas to a liquid** when energy is
- |             |             |
|-------------|-------------|
| A. Released | B. Absorbed |
|-------------|-------------|

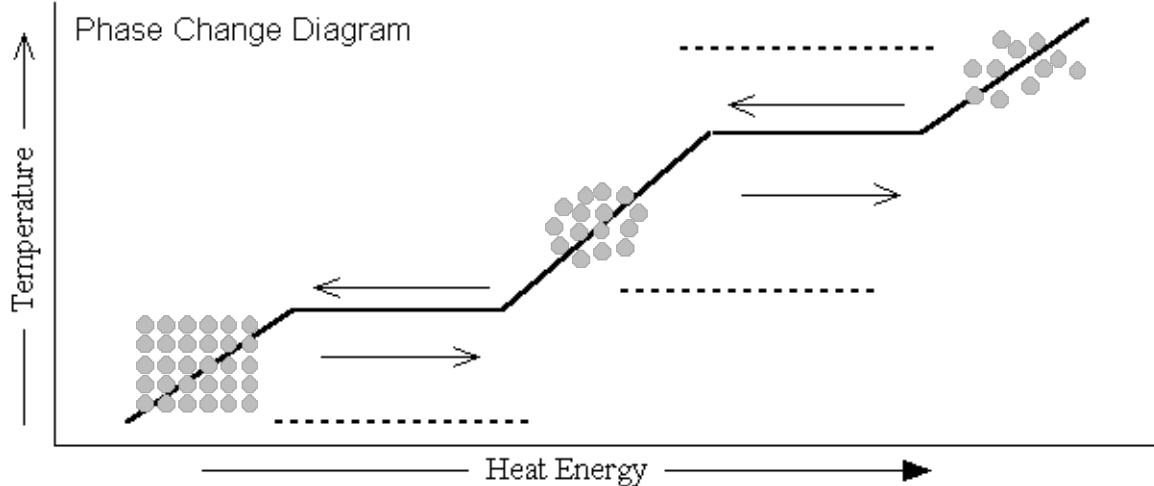
**LIQUID to GAS**

21. \_\_\_\_\_ When a substance transforms from a **liquid to a gas**, the transition phase is called
- |                        |                 |
|------------------------|-----------------|
| A. Evaporation/Boiling | C. Freezing     |
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22. \_\_\_\_\_ When a substance transforms from a **liquid to a gas**, the molecules become
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|-------------------|---------------|
| A. More organized | B. Randomized |
|-------------------|---------------|
23. \_\_\_\_\_ A substance transforms from a **liquid to a gas** when energy is
- |             |             |
|-------------|-------------|
| A. Released | B. Absorbed |
|-------------|-------------|

**LIQUID to SOLID**

24. \_\_\_\_\_ When a substance transforms from a **liquid to a solid**, the transition phase is called
- |                        |                 |
|------------------------|-----------------|
| A. Evaporation/Boiling | C. Freezing     |
| B. Melting             | D. Condensation |
25. \_\_\_\_\_ When a substance transforms from a **liquid to a solid**, the molecules become
- |                   |               |
|-------------------|---------------|
| A. More organized | B. Randomized |
|-------------------|---------------|
26. \_\_\_\_\_ A substance transforms from a **liquid to a solid** when energy is
- |             |             |
|-------------|-------------|
| A. Released | B. Absorbed |
|-------------|-------------|

14. Complete this phase change diagram. Write the names of the phases/states of matter on the dashed lines, and write the phase transitions on the arrows.



**SOLID to LIQUID**

15. \_\_\_\_\_ When a substance transforms from a **solid to a liquid**, the transition phase is called
- |                 |                        |
|-----------------|------------------------|
| A. Freezing     | C. Evaporation/Boiling |
| B. Condensation | D. Melting             |
16. \_\_\_\_\_ When a substance transforms from a **solid to a liquid**, the molecules become
- |               |                   |
|---------------|-------------------|
| A. Randomized | B. More organized |
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17. \_\_\_\_\_ A substance transforms from a **solid to a liquid** when energy is
- |             |             |
|-------------|-------------|
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|-------------|-------------|

**GAS to LIQUID**

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- |                 |                        |
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| A. Freezing     | C. Evaporation/Boiling |
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19. \_\_\_\_\_ When a substance transforms from a **gas to a liquid**, the molecules become
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**LIQUID to GAS**

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- |                 |                        |
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**LIQUID to SOLID**

24. \_\_\_\_\_ When a substance transforms from a **liquid to a solid**, the transition phase is called
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