

**ANSWER KEY for BOTH texts "Chicago History" and "Chicago"**

- 1 D
- 2 B
- 3 B
- 4 A
- 5 D
- 6 C

Directions: Read the poem entitled "Fog" by Carl Sandburg and read the NOAA technical summary of the "Types of Fog," then answer the questions that follow.

"Fog" by Carl Sandburg

- 1 The fog comes  
on little cat feet.

- It sits looking  
over harbor and city
- 5 on silent haunches  
and then moves on.

## Types of Fog

### Radiation Fog



This type of fog forms at night under clear skies with calm winds when heat absorbed by the earth's surface during the day is radiated into space. As the earth's surface continues to cool, provided a deep enough layer of moist air is present near the ground, the humidity will reach 100% and fog will form. Radiation fog varies in depth from 3 feet to about 1,000 feet and is always found at ground level and usually remains stationary. This type of fog can reduce visibility to near zero at times and make driving very hazardous.

Valley fog is a type of radiation fog that is very common in the mountains of eastern Kentucky. When air along ridgetops and the upper slopes of mountains begins to cool after sunset, the air becomes dense and heavy and begins to drain down into the valley floors below. As the air in the valley floor continues to cool due to radiational cooling, the air becomes saturated and fog forms. Valley fog can be very dense at times and make driving very hazardous due to reduced visibility. This type of fog tends to dissipate very quickly once the sun comes up and starts to evaporate the fog layer.

### Advection Fog



Advection fog often looks like radiation fog and is also the result of condensation. However, the condensation in this case is caused not by a reduction in surface temperature, but rather by the horizontal movement of warm moist air over a cold surface. This means that advection fog can sometimes be distinguished from radiation fog by its horizontal motion along the ground.

Sea fogs are always advection fogs, because the oceans don't radiate heat in the same way as land and so never cool sufficiently to produce radiation fog. Fog forms at sea when warm air associated with a warm current drifts over a cold current and condensation takes place. Sometimes such fogs are drawn inland by low pressure, as often occurs on the Pacific coast of North America.

Advection fog may also form when moist maritime, or ocean, air drifts over a cold inland area. This usually happens at night when the temperature of the land drops due to radiational cooling.

### Upslope Fog



Upslope fog forms when light winds push moist air up a hillside or mountainside to a level where the air becomes saturated and condensation occurs. This type of fog usually forms a good distance from the peak of the hill or mountain and covers a large area. Upslope fog occurs in all mountain ranges in North America. This usually occurs during the winter months, when cold air behind a cold front drifts westward and encounters the eastward facing slopes of the Rocky Mountains. As the cold, moist air rises up the slopes of the mountains, condensation occurs and extensive areas of fog form on the lower slopes of the mountains.

### Ice Fog



This type of fog forms when the air temperature is well below freezing and is composed entirely of tiny ice crystals that are suspended in the air. Ice fog will only be witnessed in cold Arctic / Polar air. Generally the temperature will be 14 F or colder in order for ice fog to occur.

### Freezing Fog



Freezing fog occurs when the water droplets that the fog is composed of are "supercooled". Supercooled water droplets remain in the liquid state until they come into contact with a surface upon which they can freeze. As a result, any object the freezing fog comes into contact with will become coated with ice. The same thing happens with freezing rain or drizzle.

### Evaporation or Mixing Fog



This type of fog forms when sufficient water vapor is added to the air by evaporation and the moist air mixes with cooler, relatively drier air. The two common types are steam fog and frontal fog. Steam fog forms when cold air moves over warm water. When the cool air mixes with the warm moist air over the water, the moist air cools until its humidity reaches 100% and fog forms. This type of fog takes on the appearance of wisps of smoke rising off the surface of the water.

The other type of evaporation fog is known as frontal fog. This type of fog forms when warm raindrops evaporate into a cooler drier layer of air near the ground. Once enough rain has evaporated into the layer of cool surface, the humidity of this air reaches 100% and fog forms.



Remember, whenever you drive into dense fog ALWAYS slow down. This will allow you to increase the distance between your car and any cars in front of you that you may not be able to see due to the thickness of the fog. It is also important to switch your headlights to low beams. When you drive through fog with your headlights on high beams, a large amount of the light from your cars' headlights will be scattered off the fog droplets and back into your eyes, which will reduce visibility even more and make it that much more difficult to see the objects in the road in front of your car and along the side of the road!

### **Reference**

National Weather Service. (2007, April 18). Radiation Fog. Retrieved March 6, 2013, from National Weather Service Weather Forecast Office website: [http://www.crh.noaa.gov/jkl/?n=fog\\_types](http://www.crh.noaa.gov/jkl/?n=fog_types)

**Answer the following questions using the poem entitled "Fog"**

1. Sandburg's poem's opening stanza uses a \_\_\_\_\_ to describe the fog.
  - A. Simile
  - B. Metaphor
  - C. Symbol
  - D. Allusion
  - E. Hyperbole
  
2. The line "It sits looking over harbor and city on silent haunches and then moves on" compares the fog to a:
  - A. Tiger
  - B. Harbor
  - C. City
  - D. Cat
  - E. Haunches
  
3. The fog being described as "over harbor and city" means that the setting of the poem is near:
  - A. Farmland
  - B. Highways
  - C. Foggy Places
  - D. Sand
  - E. Water
  
4. According to the poem, the fog:
  - A. Is very thick
  - B. Is very thin
  - C. Lasts all day long
  - D. Leaves after a while
  - E. Is not real
  
5. The word haunches in line 5 most likely means:
  - A. A hunch
  - B. A hindquarter of an animal
  - C. A chair
  - D. A building
  - E. A cushion on a couch

Answer the following questions using the text entitled "Types of Fog".

1. According to the National Oceanic and Atmospheric Administration, there are \_\_\_\_ main types of fog:
  - A. Four
  - B. Five
  - C. Six
  - D. Nine
  - E. Ten
  
2. According to the National Oceanic and Atmospheric Administration, there are \_\_\_\_ sub types of fog:
  - A. Four
  - B. Five
  - C. Six
  - D. Nine
  - E. Ten
  
3. Valley fog is a type of:
  - A. Mixing fog
  - B. Upslope fog
  - C. Freezing fog
  - D. Radiation fog
  - E. Advection fog
  
4. The main difference between ice fog and freezing fog is:
  - A. Ice fog is composed entirely of tiny ice crystals, while freezing fog is composed of droplets of liquid that freeze when they come into contact with a surface.
  - B. Freezing fog is composed entirely of tiny ice crystals, while ice fog is composed of droplets of liquid that freeze when they come into contact with a surface.
  - C. Ice fog occurs at 14F or lower, while freezing fog needs a temperature of 0F.
  - D. Freezing fog occurs at 14F or lower, while ice fog needs a temperature of 0F.  
There is no difference between the two.

5. In the sentence "Remember, whenever you drive into dense fog ALWAYS slow down", the word dense most likely means:
- A. Freezing
  - B. Thick
  - C. Thin
  - D. Gray
  - E. Upslope
6. When driving, which main type of fog is the most dangerous?
- A. Radiation Fog
  - B. Advection Fog
  - C. Upslope Fog
  - D. Evaporation Fog
  - E. Mixing Fog
7. When driving during the winter season, which main type of fog is the most dangerous?
- A. Advection Fog
  - B. Upslope Fog
  - C. Freezing Fog
  - D. Evaporation Fog
  - E. Mixing Fog

**Comparison of "Fog" poem and NOAA Technical Summary "Types of Fog"**

**Answer the following questions comparing both passages.**

1. Which type of fog could Carl Sandburg have been describing in his poem?
- A. Frontal Fog
  - B. Ice Fog
  - C. Upslope Fog
  - D. Freezing Fog
  - E. Valley Fog



2. Which detail from the NOAA text confirms the answer to #1?
- A. "This type of fog forms at night under clear skies with calm winds..."
  - B. "Sea fogs are always advection fogs, because oceans don't radiate heat in the same way as land..."
  - C. "This type of fog forms when warm raindrops evaporate into a cooler drier layer of air near the ground."
  - D. "This type of fog tends to dissipate very quickly once the sun comes up and starts to evaporate the fog layer."
  - E. "The two common types are steam fog and frontal fog."
3. Which other type of fog could Carl Sandburg have been describing in his poem?
- A. Advection Fog
  - B. Ice Fog
  - C. Upslope Fog
  - D. Freezing Fog
  - E. Frontal Fog
4. Which detail from the NOAA text confirms the answer to #3?
- A. "...is always found at ground level and usually remains stationary."
  - B. "...advection fog can sometimes be distinguished from radiation fog by its horizontal motion along the ground...and may also form when moist maritime, or ocean, air drifts over a cold inland area."
  - C. "This type of fog forms when warm raindrops evaporate into a cooler drier layer of air near the ground."
  - D. "...is composed of 'supercooled' water droplets."
  - E. "The two common types are steam fog and frontal fog."
5. Sandburg's poem and NOAA's description of steam fog both use this literary device:
- A. Allusion
  - B. Hyperbole
  - C. Paradox
  - D. Imagery
  - E. Simile

6. NOAA's description of freezing fog being "supercooled" could be considered a/an:
- A. Allusion
  - B. Hyperbole
  - C. Paradox
  - D. Imagery
  - E. Simile
7. Sandburg's use of "fog comes on" and NOAA's use of "off the fog droplets" are both examples of:
- A. Alliteration
  - B. Assonance
  - C. Consonance
  - D. Onomatopoeia
  - E. Hyperbole
8. Sandburg's use of "comes on little cat" and NOAA's use of "headlights on highbeams" are both examples of:
- A. Alliteration
  - B. Assonance
  - C. Consonance
  - D. Onomatopoeia
  - E. Hyperbole
9. Sandburg's use of "little cat feet" and NOAA's use of "cooler drier layer" are both examples of:
- A. Alliteration
  - B. Assonance
  - C. Consonance
  - D. Onomatopoeia
  - E. Hyperbole
10. If you were driving in the fog of the setting of Sandburg's poem, you should take all of the following precautions EXCEPT:
- A. Slow down
  - B. Increase the distance between your car and any cars in front of you
  - C. Switch your headlights to high beams
  - D. Switch your headlights to low beams
  - E. Proceed with caution