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**MYSTERIOUS ILLNESS OUTBREAK BACKGROUND ACTIVITY CONTENT FINAL**

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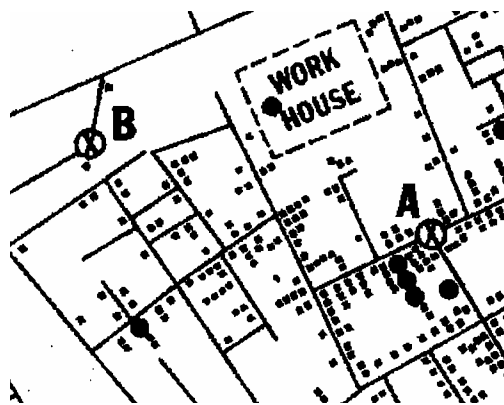
Now that you have completed the background activities, we would like you to answer a few questions about what you did and what you learned.

- Use a #2 pencil to mark in the letter of your answer on the Scantron sheet. BE CERTAIN TO MARK THE CORRECT NUMBER ON THE SCANTRON.
- If your class did NOT do one of the background activities, mark "E" on the scantron which means "Class did not do this activity". Your teacher will tell you which questions require an "E".
- Calculators and rulers are permitted.

42. Epidemiology is the study of (Activity #1)

- A. Toxic organisms
- B. Patterns of disease in a population
- C. Skin diseases
- D. History of disease in the 18<sup>th</sup> century
- E. Class did not do this activity

43. What evidence from the John Snow's spot map would support his theory that cholera is caused by drinking contaminated water? (Remember that people got their drinking water from local pumps.) (Activity #1)



- A. People living in low elevations get cholera
- B. Poor people eat foods washed in bad water
- C. More sick people live near Pump A than Pump B
- D. People who aren't sick drank beer
- E. Class did not do this activity

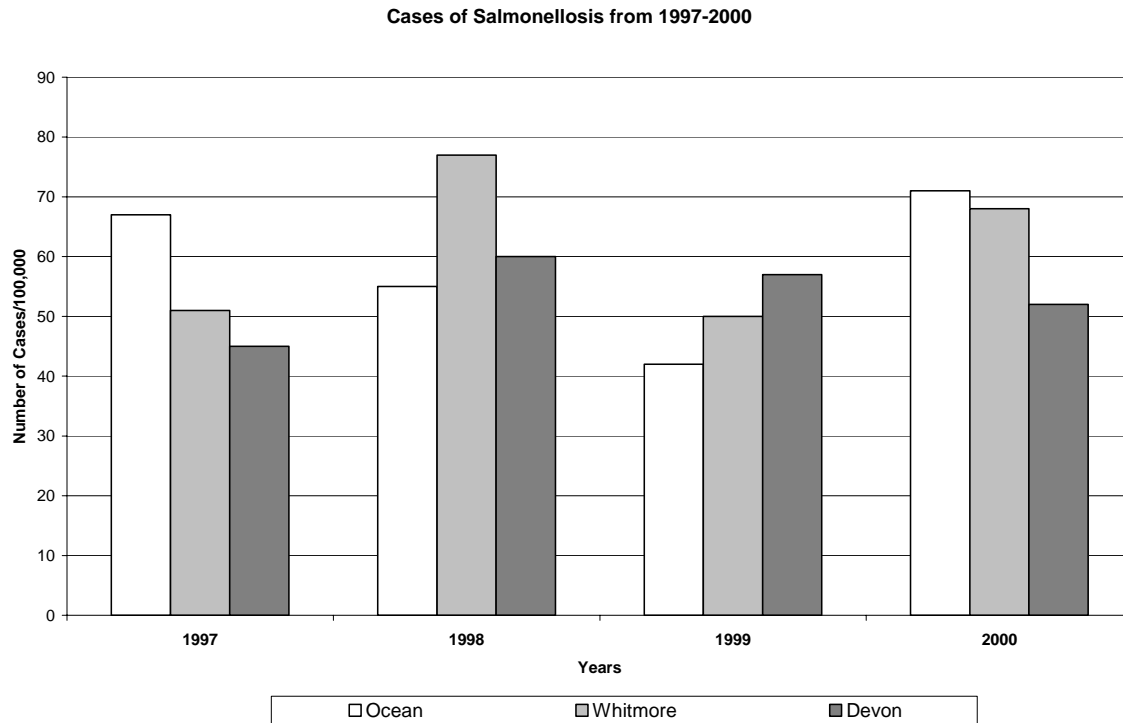
44. Which is considered a route of exposure for a chemical or microorganism? (Activity #2)

- A. Inhalation
- B. Absorption
- C. Ingestion
- D. All of the above
- E. Class did not do this activity

45. How does a physician **confirm** a diagnosis of a specific illness? (Activity #2)

- A. Interview the patient
- B. Verify signs and symptoms
- C. Order laboratory diagnostic tests, such as blood tests, stool samples, etc.
- D. Examine the patient
- E. Class did not do this activity

Use the information provided on the following graph to answer questions 46-48.



46. Which county had the highest number of cases in 2000?

(Activities #3/3A)

- A. Ocean County
- B. Whitmore County
- C. Devon County
- D. Not enough information provided
- E. Class did not do this activity

47. Which county had the highest total number of salmonellosis cases over all four years from 1997 to 2000?

(Activities #3/3A)

- A. Ocean County
- B. Whitmore County
- C. Devon County
- D. Not enough information provided
- E. Class did not do this activity

48. Health statistics can be compared between these three counties because they are reported as

(Activities #3/3A)

- A. Number of cases /city
- B. Number of cases/county
- C. Total number of cases in the state
- D. Number of cases/100,000
- E. Class did not do this activity

49. What specific characteristics are used to identify blood cell types?

(Activity #4)

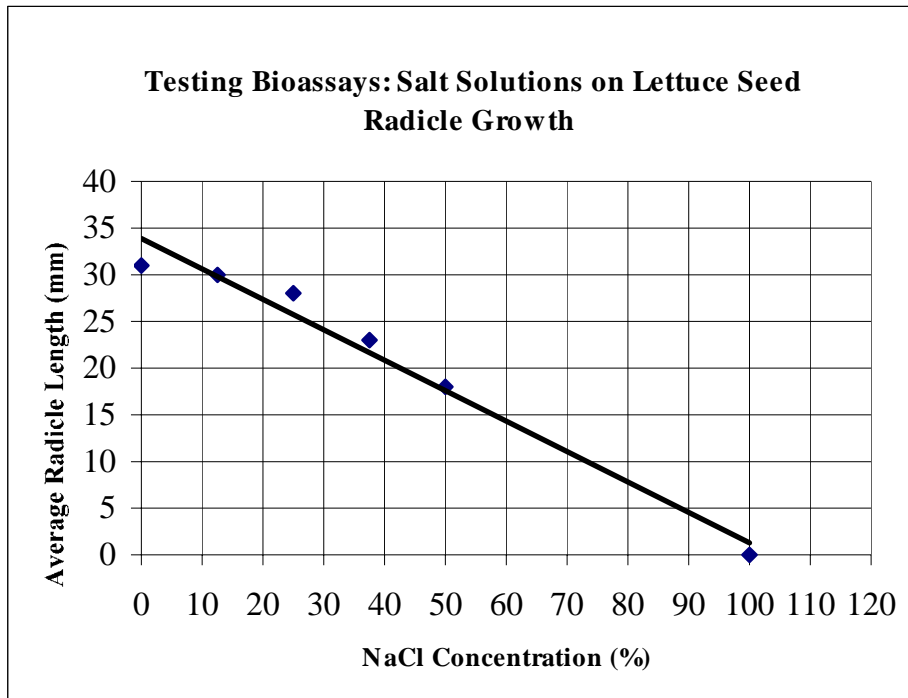
- A. Granules present
- B. Nucleus present
- C. Shape of nucleus
- D. All of the above
- E. Class did not do this activity

50. How does a physician know if a person has a bacterial infection?

(Activity #4)

- A. White blood cell count is elevated
- B. White blood cell count is depressed
- C. Red blood cell count is elevated
- D. Person shows signs of anemia
- E. Class did not do this activity

Use the information provided on the following graph to answer questions 51 - 55.



51. Using the graph, determine the average length of the lettuce seed radicle if a 30% NaCl solution was tested.

(Activity #5)

- A. 8 mm
- B. 12 mm
- C. 24 mm
- D. Not enough data provided
- E. Class did not do this activity

52. Using the information on the graph, determine the concentration of NaCl that would produce an average radicle length of 10 mm.

(Activity #5)

- A. 20%
- B. 31%
- C. 41%
- D. 73%
- E. Class did not do this activity

53. What is the slope ( $m$ ) of the line?

(Activity #5)

- A. -0.03
- B. -0.3
- C. 0.6
- D. 3.3
- E. Class did not do this activity

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

54. Using the information on the graph, state your conclusion about the effect of salt solutions concentrations on lettuce seed radicle growth.

(Activity #5)

- A. As dose increases, radicle length increases
- B. As dose increases, radicle length decreases
- C. As dose increases, radicle length did not change
- D. As dose decreases, radicle length decreases
- E. Class did not do this activity

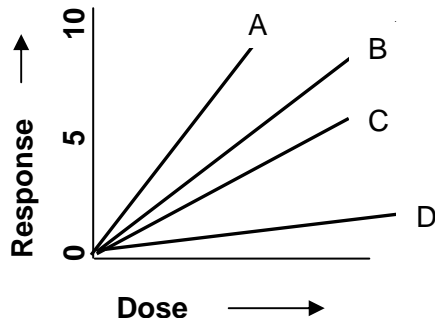
55. In what order are scientific experiments and laboratory reports conducted and written?

(Activity #5)

- A. State problem or purpose, Results, Hypothesis, Conclusion, Data collection/experimental method
- B. Data collection/experimental method, State problem or purpose, Hypothesis, Results, Conclusion
- C. State problem or purpose, Hypothesis, Results, Data collection/experimental method, Conclusion
- D. State problem or purpose, Hypothesis, Data collection/experimental method, Results, Conclusion
- E. Class did not do this activity

56. A study was conducted to test for the most effective product to kill rats. Which product requires the lowest dose to kill five rats?

(Activity #5)



- A. Product A
- B. Product B
- C. Product C
- D. Product D
- E. Class did not do this activity

57. Order the following signal words found on labels of chemicals from the **most** toxic to the **least** toxic.

(Activity #6)

- A. Caution, Warning, Danger, Poison
- B. Poison, Caution, Danger, Warning
- C. Danger, Poison, Warning, Caution
- D. Danger, Poison, Caution, Warning
- E. Class did not do this activity

58. Your sister lost her favorite bracelet on the playground in an area measuring 10 m x 10 m. You want to help her do a systematic search and so you draw out a 10 m x 10 m grid. Between the two of you, you have time to search 40 squares on the grid. What are your chances of finding the bracelet?

(Activity #7)

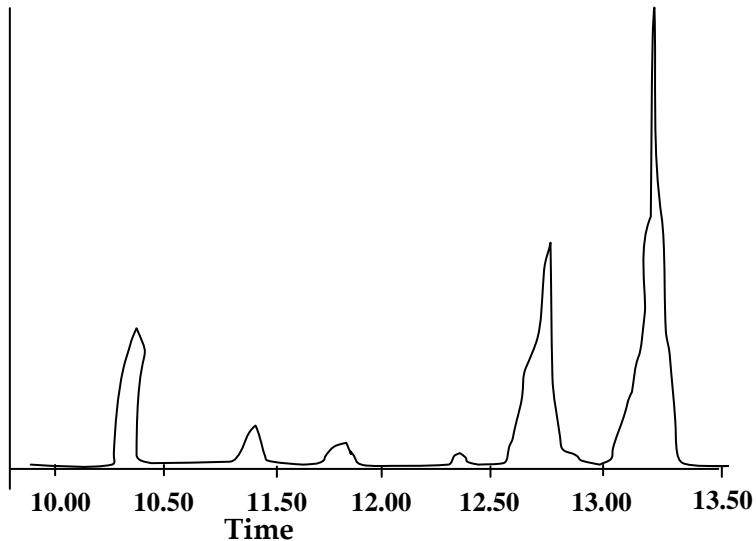
- A. 4%
- B. 20%
- C. 40%
- D. 80%
- E. Class did not do this activity

59. You have been asked to come into an art classroom and sample it to see if the room has been contaminated with a chemical that is causing students to cough, sneeze, and have itchy eyes. What is an example of NOT following lab protocol when sampling?

(Activity #7)

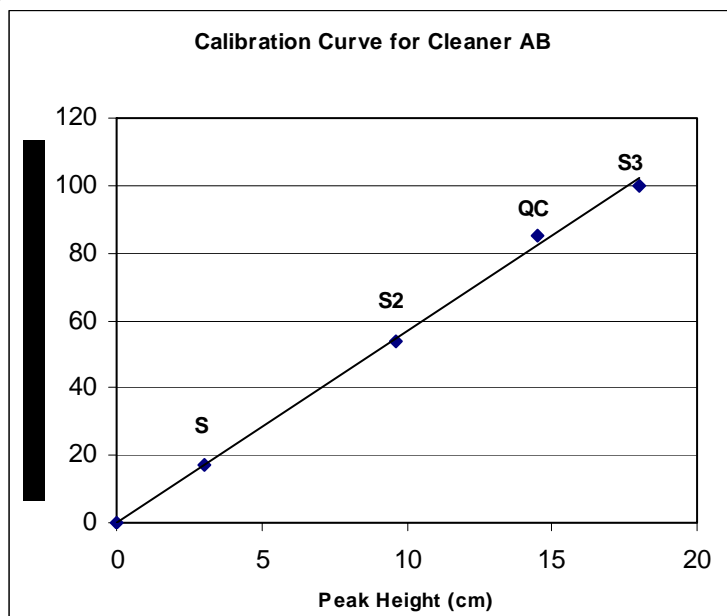
- A. Keep a logbook giving details of the sampling investigation
- B. Prepare a sampling plan after you sample
- C. Take control samples (blanks) of water, foil, swabs, etc.
- D. Wear clean, rubber or neoprene gloves and dispose of after use
- E. Class did not do this activity

60. The peak for Chemical AB comes off the chromatograph at 12.1 minutes. What is its peak height in centimeters? (Activity #8)



- A. 0 cm  
 B. 1.8 cm  
 C. 3.0 cm  
 D. 29 cm  
 E. Class did not do this activity

61. Use the following calibration curve to determine the concentration of Cleaner AB in a sample if the peak height is 13 cm. (Activity #8)



- A. 7 ppm  
 B. 10 ppm  
 C. 42 ppm  
 D. 70 ppm  
 E. Class did not do this activity

62. Enzymes are the body's (Activity #9)

- A. Catalysts  
 B. Carbohydrates  
 C. Lipids  
 D. Genes  
 E. Class did not do this activity

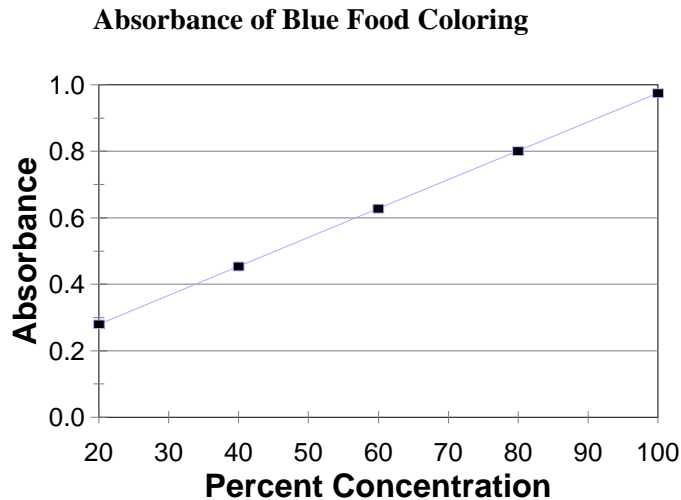
63. Amylase breaks down starch into what substance? (Activity #9)

- A. Protein  
 B. Lipid  
 C. Sugar  
 D. Enzyme  
 E. Class did not do this activity

64. Why was iodine used in the amylase experiment? (Activity #9)

- A. To start the chemical reaction
- B. To stop the chemical reaction
- C. To indicate the enzyme digested sugar
- D. To indicate the enzyme digested starch
- E. Class did not do this activity

Questions 65 and 66 refer to the following graph.



65. This absorbance graph tells you

(Activities #10/10A)

- A. As concentration of blue food coloring increases, absorbance increases
- B. As concentration of blue food coloring increases, absorbance decreases
- C. As concentration of blue food coloring decreases, absorbance increases
- D. As concentration of blue food coloring decreases, absorbance does not change
- E. Class did not do this activity

66. If a sample of blue food coloring has an absorbance of 0.7, what is the concentration of food coloring in the sample?

(Activities #10/10A)

- A. 24%
- B. 32%
- C. 56%
- D. 69%
- E. Class did not do this activity

Questions 67 - 69 deal with the Steps in an Outbreak Investigation

67. As a health department epidemiologist, you have been called in to investigate a number of reported cases of respiratory illness. What would be your first step in the investigation? (Activity #11)

- A. Develop a case definition
- B. Establish the existence of an outbreak
- C. Develop a working hypothesis
- D. Implement control measures
- E. Class did not do this activity

68. After you have collected patient information, verified the diagnosis, and established a case definition, what is the next step in an outbreak investigation? (Activity #11)

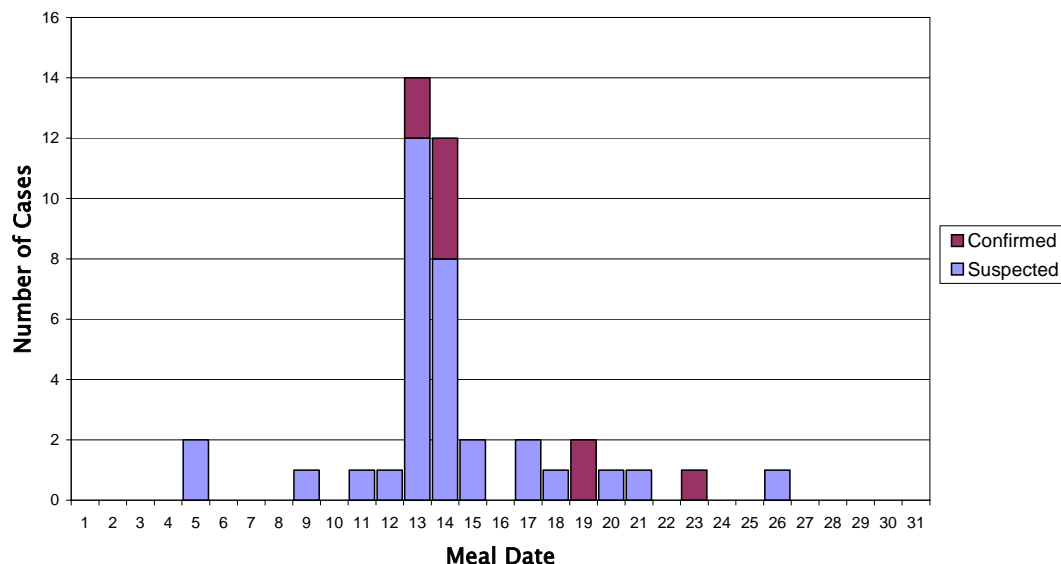
- A. Develop a working hypothesis
- B. Communicate findings to public and press
- C. Implement control measures
- D. Verify the diagnosis
- E. Class did not do this activity

69. What is the last step of the investigation of an outbreak? (Activity #11)

- A. Develop a case definition
- B. Develop a working hypothesis
- C. Communicate findings to public and press
- D. Verify the diagnosis
- E. Class did not do this activity

Use the following epidemic curve to answer questions 70 & 71.

**0157 Case Patients by Date of Visit to Chain ZZ  
Restaurant 1, Grants Pass, OR, March 1993**



70. How many confirmed *E. coli* cases ate at restaurant 1 on the 14th? (Activity #11)

- A. 8
- B. 4
- C. 2
- D. Not enough information given on the graph
- E. Class did not do this activity

71. What working hypothesis would you draw from this epidemic curve? (Activity #11)

- A. People show different sensitivity to *E. coli*
- B. More people ate at restaurant 1 on the 13th than the 14th
- C. Some food served on the 13th and 14th contained *E. coli*
- D. All food served between the dates 5<sup>th</sup> – 26<sup>th</sup> contained *E. coli*
- E. Class did not do this activity

**Questions 72-73 deal with your use of the Hydroville Learning Log.**

72. How much writing did you do in your Hydroville Learning Log about the background activities?  
(mark only one answer)

- A. Quite a bit (a page or more for each activity)
- B. Some writing (about a half page for each activity)
- C. A little bit (a few lines for each activity)
- D. I didn't do any writing
- E. We did not use the Learning Logs

73. If you DID NOT do any writing in your Hydroville Learning Log about the background activities, what are your reasons? (mark all answers that apply)

- A. I didn't start a Hydroville Learning Log
- B. I didn't have time
- C. I didn't know what to write about
- D. I'm not a good enough writer
- E. Other

**Part of the background activities involved working with other students in a team. In working on these activities, how difficult did you find each of the teamwork elements listed below?**

74. Expressing my ideas verbally to others.

- A. Not difficult
- B. Slightly difficult
- C. Somewhat difficult
- D. Very difficult
- E. Too difficult for me to do

75. Listening to others.

- A. Not difficult
- B. Slightly difficult
- C. Somewhat difficult
- D. Very difficult
- E. Too difficult for me to do

76. Receiving criticism from other team members.

- A. Not difficult
- B. Slightly difficult
- C. Somewhat difficult
- D. Very difficult
- E. Too difficult for me to do

77. Using my time efficiently.

- A. Not difficult
- B. Slightly difficult
- C. Somewhat difficult
- D. Very difficult
- E. Too difficult for me to do

78. Overall, how would you rate your experience of teamwork on the background activities?

- A. Very positive
- B. Positive
- C. Neither positive nor negative
- D. Negative
- E. Very negative

