STUDENT PROBLEM SOLVING POST TEST – SECTION I

Imagine that the State Health Department announced today that the small town of Mayville (an imaginary town!) has 10% more cases of serious illness (illnesses requiring medical attention) than other towns of a similar size in your state. As a citizen of Mayville, you are concerned about this statistic. Assume that you have the opportunity to participate in a student citizens' committee to examine this finding and to determine what, if anything, is different about Mayville.

Listed below are TEN different explanations of why Mayville might have more cases of serious illness than other similar-sized towns. For each explanation, decide how well it explains why Mayville has more cases of serious illness than other towns and what might be the causes of the differences.

74. Differences in the use of household chemicals (e.g., household cleaning products, pesticides) between Mayville and other towns.

    A. Not a Good Explanation
    B. Slightly Good Explanation
    C. Moderately Good Explanation
    D. Very Good Explanation
    E. Don't Know

75. Differences in the use of agricultural chemicals (e.g., herbicides, fertilizers) between Mayville and other towns.

    A. Not a Good Explanation
    B. Slightly Good Explanation
    C. Moderately Good Explanation
    D. Very Good Explanation
    E. Don't Know

76. Differences in the lifestyles (e.g., diet, exercise) of the people who live in Mayville and the people who live in other towns.

    A. Not a Good Explanation
    B. Slightly Good Explanation
    C. Moderately Good Explanation
    D. Very Good Explanation
    E. Don't Know

77. Differences in the drinking water quality in Mayville compared to other towns.

    A. Not a Good Explanation
    B. Slightly Good Explanation
    C. Moderately Good Explanation
    D. Very Good Explanation
    E. Don't Know

78. Differences in the types of businesses and industries in Mayville compared to other towns.

    A. Not a Good Explanation
    B. Slightly Good Explanation
    C. Moderately Good Explanation
    D. Very Good Explanation
    E. Don't Know

79. Differences in the natural environment (e.g. soils, water, air) of Mayville and the natural environment of other towns.

    A. Not a Good Explanation
    B. Slightly Good Explanation
    C. Moderately Good Explanation
    D. Very Good Explanation
    E. Don't Know

80. Differences in how well the scientific study was done to determine the number of cases of serious illness in Mayville compared to studies done in other towns.

    A. Not a Good Explanation
    B. Slightly Good Explanation
    C. Moderately Good Explanation
    D. Very Good Explanation
    E. Don't Know

81. Differences in how people in Mayville perceive environmental health risks in their town compared to people in other towns.

    A. Not a Good Explanation
    B. Slightly Good Explanation
    C. Moderately Good Explanation
    D. Very Good Explanation
    E. Don't Know

82. Differences in the geographic location of Mayville compared to other towns.

    A. Not a Good Explanation
    B. Slightly Good Explanation
    C. Moderately Good Explanation
    D. Very Good Explanation
    E. Don't Know

83. There is no real difference between Mayville and other towns. A 10% difference is so small that it is probably just a matter of chance.

    A. Not a Good Explanation
    B. Slightly Good Explanation
    C. Moderately Good Explanation
    D. Very Good Explanation
    E. Don't Know

Suppose that your committee wanted to do your own investigation to determine what could be the cause of peoples' illnesses in Mayville. Listed below are a number of things that your committee can do to investigate the cause of illnesses in Mayville. Read each one carefully and then indicate how useful it would be in helping solve the problem of why there are more serious illness cases in Mayville than other towns.

84. Interview local residents who have been ill in the past year and find out where they work.

    A. Not useful for helping solve the problem
    B. Slightly useful
    C. Somewhat useful
    D. Very useful for helping solve the problem

85. Have a soil test done to determine what chemicals may be in the soil.

    A. Not useful for helping solve the problem
    B. Slightly useful
    C. Somewhat useful
    D. Very useful for helping solve the problem

86. Check the local library for newspaper reports about environmental problems in Mayville.

    A. Not useful for helping solve the problem
    B. Slightly useful
    C. Somewhat useful
    D. Very useful for helping solve the problem

87. Test the water from drinking fountains in public buildings.

    A. Not useful for helping solve the problem
    B. Slightly useful
    C. Somewhat useful
    D. Very useful for helping solve the problem

88. Check Mayville's drinking water reports to see if the town's drinking water has elevated levels of water contaminants.

    A. Not useful for helping solve the problem
    B. Slightly useful
    C. Somewhat useful
    D. Very useful for helping solve the problem

89. Check the internet for information about causes of serious illness.

    A. Not useful for helping solve the problem
    B. Slightly useful
    C. Somewhat useful
    D. Very useful for helping solve the problem

90. Determine where Mayville gets its water supply.

    A. Not useful for helping solve the problem
    B. Slightly useful
    C. Somewhat useful
    D. Very useful for helping solve the problem

91. Visit the homes of people who were ill, and test the water from their faucets for contaminants.

    A. Not useful for helping solve the problem
    B. Slightly useful
    C. Somewhat useful
    D. Very useful for helping solve the problem

Your committee has additional money to hire experts to help find a solution to the cause of peoples' illnesses in Mayville. Listed below are a number of experts. For each list, pick ONE expert that you think would help you the most in your investigation to determine the cause of illness in Mayville. The committee thinks the cause of the problem may be in the drinking water.

92. Pick ONE expert from the list below that you think will help you the most in your investigation of peoples' illness in Mayville.

    A. Public Health Nurse
    B. Building Engineer
    C. Toxicologist
    D. Hydrogeologist
    E. Mycologist

93. Pick ONE expert from the list below that you think will help you the most in your investigation of peoples' illness in Mayville.

    A. Occupational Physician
    B. Heating, Ventilation and Air Conditioning Specialist
    C. Epidemiologist
    D. Environmental Engineer
    E. County Building Inspector

94. Pick ONE expert from the list below that you think will help you the most in your investigation of peoples' illness in Mayville.

    A. Emergency Room Physician
    B. Industrial Hygienist
    C. Drinking Water Specialist
    D. Environmental Chemist
    E. High School Science Teacher

As part of the student citizens' committee studying the problem in Mayville, you have the opportunity to volunteer for certain jobs on the committee. For each of the following things you can volunteer to do on the committee, indicate how qualified and capable you think you are:

95. Working with others to determine the problem.

    A. Not Qualified and Capable
    B. Slightly Qualified and Capable
    C. Moderately Qualified and Capable
    D. Very Qualified and Capable

96. Talking with other community members about the problem.

    A. Not Qualified and Capable
    B. Slightly Qualified and Capable
    C. Moderately Qualified and Capable
    D. Very Qualified and Capable

97. Helping to design a scientific investigation of the community.

    A. Not Qualified and Capable
    B. Slightly Qualified and Capable
    C. Moderately Qualified and Capable
    D. Very Qualified and Capable

98. Preparing a written report of the committee's findings.

    A. Not Qualified and Capable
    B. Slightly Qualified and Capable
    C. Moderately Qualified and Capable
    D. Very Qualified and Capable

99. Presenting an oral report of the committee's findings to a large audience of community members.

    A. Not Qualified and Capable
    B. Slightly Qualified and Capable
    C. Moderately Qualified and Capable
    D. Very Qualified and Capable

100. Interviewing a scientist who has specialized knowledge of the problem.

    A. Not Qualified and Capable
    B. Slightly Qualified and Capable
    C. Moderately Qualified and Capable
    D. Very Qualified and Capable

STUDENT PROBLEM SOLVING POST TEST – SECTION II

Chemical Pesticides in the Environment

A simple definition of a chemical is any substance that is made up of molecules. Therefore, all forms of matter on the earth, including all of the things around us are made up of chemicals. Chemicals can occur in nature or can be made by humans. In this survey, when we talk about chemicals we mean industrial chemicals that have been produced for use in commerce, agriculture and various consumer products. These synthetic chemicals include products like plastics, gasoline, pharmaceutical drugs, food additives, cosmetics, plastics, fuel, and household cleaning products. Pesticides that are used in agriculture or homes are also chemical products.

The next questions are about your attitudes and perceptions of chemicals in the environment. There are no correct answers, only your individual conclusions and personal opinions are important. Read each of the items carefully and give us the best answer you can, given what you know or believe. (Mark one answer for each statement)

101. If a chemical is released into the environment, then everyone in that environment is exposed to the chemical.

    A. Strongly Disagree
    B. Disagree
    C. Agree
    D. Strongly Agree
    E. Don't Know

102. If a person is exposed to a chemical that can cause cancer in humans, then that person will probably get cancer someday.

    A. Strongly Disagree
    B. Disagree
    C. Agree
    D. Strongly Agree
    E. Don't Know

103. Risks from chemicals usually seem greater to people who don't understand very much about science.

    A. Strongly Disagree
    B. Disagree
    C. Agree
    D. Strongly Agree
    E. Don't Know

104. Making good decisions about things that affect my health and safety, such as avoiding chemicals in the environment. Basically, understanding what might harm me.

    A. Strongly Disagree
    B. Disagree
    C. Agree
    D. Strongly Agree
    E. Don't Know

105. In general, if a person is not exposed to a hazard, then they are not at risk.

    A. Strongly Disagree
    B. Disagree
    C. Agree
    D. Strongly Agree
    E. Don't Know

106. If a person is exposed to a hazard, then they will always experience some degree of harm.

    A. Strongly Disagree
    B. Disagree
    C. Agree
    D. Strongly Agree
    E. Don't Know

107. When it comes to managing risks that affect all of us, such as chemicals in the environment, we should leave the decisions to the experts.

    A. Strongly Disagree
    B. Disagree
    C. Agree
    D. Strongly Agree
    E. Don't Know

108. For most of the chemicals I am exposed to in daily life, I feel I know how to protect my health and safety.

    A. Strongly Disagree
    B. Disagree
    C. Agree
    D. Strongly Agree
    E. Don't Know

109. For most of the chemicals in the environment, I feel I know how to protect my health and safety.

    A. Strongly Disagree
    B. Disagree
    C. Agree
    D. Strongly Agree
    E. Don't Know

110. I have read and can understand most of the warning labels on chemical in my home.

    A. Strongly Disagree
    B. Disagree
    C. Agree
    D. Strongly Agree
    E. Don't Know

STUDENT PROBLEM SOLVING POST TEST – SECTION III

Health Risks and Personal Behavior

In this part of the survey, we would like you to tell us some things about how you and your family deal with possible health and safety risks in your home. Indicate how important you think it is for you or your family to do each of the following things.

111. Wash fresh fruit and vegetables before eating.

A. Never important to me or my family
B. Seldom important
C. Occasionally Important - once in a while
D. Frequently Important - most of the time
E. Always important to me or my family

112. Read the directions for using household consumer products.

A. Never important to me or my family
B. Seldom important
C. Occasionally Important - once in a while
D. Frequently Important - most of the time
E. Always important to me or my family

113. Read and understand my city's drinking water reports.

A. Never important to me or my family
B. Seldom important
C. Occasionally Important - once in a while
D. Frequently Important - most of the time
E. Always important to me or my family

114. Read product ingredient labels and warning labels for household chemical products.

A. Never important to me or my family
B. Seldom important
C. Occasionally Important - once in a while
D. Frequently Important - most of the time
E. Always important to me or my family

115. Test smoke detectors and replace batteries regularly.

A. Never important to me or my family
B. Seldom important
C. Occasionally Important - once in a while
D. Frequently Important - most of the time
E. Always important to me or my family

116. Replace filters on home heating systems, such as furnaces.

    A. Never important to me or my family
    B. Seldom important
    C. Occasionally Important - once in a while
    D. Frequently Important - most of the time
    E. Always important to me or my family

117. Use protective equipment such as safety glasses or gloves when recommended.

    A. Never important to me or my family
    B. Seldom important
    C. Occasionally Important - once in a while
    D. Frequently Important - most of the time
    E. Always important to me or my family

118. Discuss safe use of products with other members of my family.

    A. Never important to me or my family
    B. Seldom important
    C. Occasionally Important - once in a while
    D. Frequently Important - most of the time
    E. Always important to me or my family

119. Provide adequate ventilation when using chemical products indoors.

    A. Never important to me or my family
    B. Seldom important
    C. Occasionally Important - once in a while
    D. Frequently Important - most of the time
    E. Always important to me or my family

120. Have my drinking water tested for contaminants.

    A. Never important to me or my family
    B. Seldom important
    C. Occasionally Important - once in a while
    D. Frequently Important - most of the time
    E. Always important to me or my family

STUDENT PROBLEM SOLVING POST TEST – SECTION IV

Science and Daily Life

In this part of the survey we are interested in your opinions about science and daily life. Please read each item carefully and indicate whether you agree or disagree.

121. I feel I know how to use environmental health science to help make decisions that protect my health and safety.

    A. Strongly Disagree
    B. Disagree
    C. Agree
    D. Strongly Agree
    E. Don't Know

122. Most topics in science are relatively easy for me to learn.

    A. Strongly Disagree
    B. Disagree
    C. Agree
    D. Strongly Agree
    E. Don't Know

123. I feel confident talking with environmental scientists about their work.

    A. Strongly Disagree
    B. Disagree
    C. Agree
    D. Strongly Agree
    E. Don't Know

124. I am comfortable talking about science with other people like me.

    A. Strongly Disagree
    B. Disagree
    C. Agree
    D. Strongly Agree
    E. Don't Know

125. I am generally interested in new developments in environmental science.

    A. Strongly Disagree
    B. Disagree
    C. Agree
    D. Strongly Agree
    E. Don't Know

126. I feel that I know how to use science to determine when my exposure to chemicals is safe or not.

    A. Strongly Disagree
    B. Disagree
    C. Agree
    D. Strongly Agree
    E. Don't Know

127. Whether or not I get a good job in the future has very little to do with how well I do in my science classes.

    A. Strongly Disagree
    B. Disagree
    C. Agree
    D. Strongly Agree
    E. Don't Know

STUDENT PROBLEM SOLVING POST TEST – SECTION V

Perception of Health and Safety Risks

Listed below are a number of hazards that could affect people's health and safety. For each hazard, decide how much of risk it poses to your and your family.

128. Automobiles: Driving, riding or as a pedestrian.

    A. No Risk
    B. Slight Risk
    C. Moderate Risk
    D. High Risk
    E. Don't Know

129. Indoor Air Pollutants: Biological or chemical pollutants found in indoor air of homes or schools.

    A. No Risk
    B. Slight Risk
    C. Moderate Risk
    D. High Risk
    E. Don't Know

130. Household Cleaning Products: Chemical products used in the home or workplace for cleaning.

    A. No Risk
    B. Slight Risk
    C. Moderate Risk
    D. High Risk
    E. Don't Know

131. Second-hand (other people's) cigarette smoke

    A. No Risk
    B. Slight Risk
    C. Moderate Risk
    D. High Risk
    E. Don't Know

132. Radiation from the environment

    A. No Risk
    B. Slight Risk
    C. Moderate Risk
    D. High Risk
    E. Don't Know

133. Water Contaminants: Naturally occurring or synthetic chemicals that can be detected in drinking water.

    A. No Risk
    B. Slight Risk
    C. Moderate Risk
    D. High Risk
    E. Don't Know

134. Infectious Diseases: Viruses and Bacteria that can cause diseases like West Nile virus, Flu, SARS or food poisoning.

    A. No Risk
    B. Slight Risk
    C. Moderate Risk
    D. High Risk
    E. Don't Know

135. Environmental Allergens: Biological pollutants like mold, bacteria, dust mites, animal dander, or cockroach body parts.

    A. No Risk
    B. Slight Risk
    C. Moderate Risk
    D. High Risk
    E. Don't Know

136. Food Additives: Chemicals to help processed food stay fresh longer and taste better.

    A. No Risk
    B. Slight Risk
    C. Moderate Risk
    D. High Risk
    E. Don't Know

137. Alcoholic Beverages.

    A. No Risk
    B. Slight Risk
    C. Moderate Risk
    D. High Risk
    E. Don't Know