

Appendix: Attitude items and multiple-choice content questions in the *N-Squad* field test (correct answers to content questions underlined).

Satisfaction*#
<ul style="list-style-type: none"> • The web-adventures were interesting • I would recommend the web-adventures to my friends • I liked playing the web-adventures • I would play web-adventures like this at home • I think the web-adventures were boring (reverse coded) • I'd like to learn more science using web-adventures like this
Game usability*#
<ul style="list-style-type: none"> • Sometimes I got stuck in the game because I didn't know what to do next (reverse coded) • The science vocabulary made it difficult to follow the story (reverse coded) • The explanations/instructions given in the game were confusing (reverse coded)
Attitudes toward science*
<ul style="list-style-type: none"> • Scientists are boring people (reverse coded) • In school, I enjoy my science class • Science is important • Science is too difficult to be any fun (reverse coded) • I would like to be a scientist
Content questions
<p>1. One serving of beer (12 oz.) has:</p> <ol style="list-style-type: none"> a) less alcohol than one serving of wine (5 oz.) b) less alcohol than one serving of liquor (1.5 oz.) c) <u>the same amount of alcohol as one serving of wine (5 oz.) or liquor (1.5 oz.)</u> d) more alcohol than one serving of wine (5 oz.) or liquor (1.5 oz.)
<p>2. What is an effective way to sober up after drinking alcohol?</p> <ol style="list-style-type: none"> a) Drink coffee b) Take a cold shower c) <u>Allow for time to pass</u> d) Switching to another type of alcohol
<p>3. Which statement below about teens is false?</p> <ol style="list-style-type: none"> a) Teens are twice as likely to be in alcohol related crashes than adults. b) Teens tend not to be as experienced with driving than adults. c) Teens' judgment skills are more harmed by alcohol even if they drink less than adults. d) <u>Teens' driving skills are less likely to be affected by alcohol since teens generally have better eyesight than adults.</u>
<p>4. Which statement below about alcoholism is true?</p> <ol style="list-style-type: none"> a) It is an untreatable disease. b) It can be cured. c) <u>It can be treated.</u> d) It is not an addiction.
<p>5. Which of the following is an effect caused by a depressant?</p> <ol style="list-style-type: none"> a) <u>Slowed thinking ability</u> b) Increased feeling of energy c) Quicker reaction time d) Constant sadness
<p>6. Which organ filters out toxins from the blood and is also the largest organ in the body?</p> <ol style="list-style-type: none"> a) Stomach b) Large intestine c) Pancreas d) <u>Liver</u>

<p>7. Which of the following is the correct pathway in which alcohol moves through the digestive system?</p> <p>a) Mouth to esophagus to large intestine to small intestine b) Mouth to stomach to liver to small intestine c) <u>Mouth to esophagus to stomach to small intestine</u> d) Mouth to stomach to large intestine to liver</p>
<p>8. Short-term alcohol abuse and obesity are major causes of:</p> <p>a) <u>a fatty liver</u> e) cirrhosis f) hepatitis g) bleeding from the intestines</p>
<p>9. Causes of cirrhosis are:</p> <p>a) <u>hepatitis from long-term alcohol abuse</u> b) hepatitis from short-term alcohol abuse c) obesity and eating too many calories d) rapid weight loss and malnutrition</p>
<p>10. Which organ filters alcohol out of the bloodstream?</p> <p>a) Pancreas b) <u>Liver</u> c) Small intestine d) Stomach</p>
<p>11. Alcohol can be classified as the following type of drug:</p> <p>a) <u>Depressant</u> b) Hallucinogen c) Anti-emetic d) Stimulant</p>
<p>12. Which organ eliminates feces (poop) and absorbs water and minerals into the bloodstream?</p> <p>a) Small intestine b) Liver c) <u>Large intestine</u> d) Pancreas</p>
<p>13. Which organ absorbs about 80% of the alcohol into the bloodstream?</p> <p>a) Liver b) Large intestine c) <u>Small intestine</u> d) Stomach</p>
<p>14. Which organ absorbs about 20% of the alcohol into the bloodstream?</p> <p>a) Liver b) Small intestine c) <u>Stomach</u> d) Pancreas</p>
<p>15. Liver scarring is another name for which condition?</p> <p>a) Fatty liver b) Hepatitis c) <u>Cirrhosis</u> d) Normal liver</p>
<p>16. What type of alcohol is found in beer and other alcoholic beverages?</p> <p>a) Methanol b) <u>Ethanol</u> c) Propanol d) Butanol</p>

<p>17. Which three fluids are normally used to screen a dead body for alcohol?</p> <p>a) Blood, saliva, and tears b) Urine, sweat, and mucous c) Phlegm, sweat, and saliva d) <u>Vitreous humor, blood, and urine</u></p>
<p>18. During which stage does alcohol move INTO the bloodstream?</p> <p>a) Elimination b) <u>Absorption</u> c) Distribution d) Metabolism</p>
<p>19. Alcohol moves out of the bloodstream into the water-containing organs of the body as part of the process of:</p> <p>a) elimination b) absorption c) <u>distribution</u> d) metabolism</p>
<p>20. The body gets rid of alcohol through:</p> <p>a) peristalsis and meiosis b) absorption and neurotransmission c) <u>metabolism and excretion</u> d) glycolysis and mitosis</p>
<p>21. What does BAC stand for?</p> <p>a) Body Alcohol Cavity b) Blood Activity Craving c) Basic Activity Circulation d) <u>Blood Alcohol Concentration</u></p>
<p>22. In which stage does BAC increase?</p> <p>a) <u>Absorption</u> b) Elimination c) Distribution d) Mitosis</p>
<p>23. In which stages does BAC decrease?</p> <p>b) Mitosis and Elimination c) Absorption and Distribution d) <u>Elimination and Distribution</u> e) Absorption and Mitosis</p>
<p>24. Alcohol is broken down by enzymes in the:</p> <p>a) kidney b) lungs c) <u>liver</u> d) heart</p>
<p>25. The higher the BAC, the:</p> <p>a) longer it takes for the body to get rid of the alcohol. b) more intoxicated a person is. c) less coordinated the body is. d) <u>all of the above.</u></p>
<p>26. Which of the following is NOT an important factor in determining BAC?</p> <p>a) Whether the person is male or female b) <u>Height</u> c) Weight d) The number of drinks consumed per hour</p>

<p>27. On average, how many servings of alcohol can the body metabolize per hour?</p> <p>a) <u>One</u></p> <p>b) Two</p> <p>c) Three</p> <p>d) Four</p>
<p>28. One reason why women are more affected by alcohol than men is because females have less:</p> <p>a) insulin</p> <p>b) <u>ADH</u></p> <p>c) fat</p> <p>d) minerals</p>
<p>29. The process by which alcohol is broken down by enzymes is called:</p> <p>a) excretion</p> <p>b) absorption</p> <p>c) <u>metabolism</u></p> <p>d) distribution</p>
<p>30. Intoxication can occur if:</p> <p>a) <u>alcohol molecules outnumber ADH molecules.</u></p> <p>b) ADH molecules outnumber alcohol molecules.</p> <p>c) alcohol molecules and ADH molecules are equal in number.</p> <p>d) DNA molecules outnumber alcohol molecules.</p>
<p>31. An adult with a BAC of 5% (0.05) will be:</p> <p>a) over the legal limit to drive.</p> <p>b) unimpaired by the alcohol.</p> <p>c) in danger of alcohol poisoning.</p> <p>d) <u>having slowed reactions.</u></p>
<p>32. A gene is a segment of:</p> <p>a) alcohol dehydrogenase</p> <p>b) endorphin</p> <p>c) <u>deoxyribonucleic acid</u></p> <p>d) endocannabinoid</p>
<p>33. The likelihood that a person will use alcohol is influenced by his/her peers, family, community and:</p> <p>a) metabolism</p> <p>b) mitochondria</p> <p>c) <u>genes</u></p> <p>d) cognitive ability</p>
<p>34. Which of the following structures transmits AND receives messages?</p> <p>a) <u>Neuron</u></p> <p>b) Ribosome</p> <p>c) Axon</p> <p>d) Dendrite</p>
<p>35. The gap between neurons is called the:</p> <p>a) receptor</p> <p>b) <u>synapse</u></p> <p>c) myelin</p> <p>d) neurotransmitter</p>
<p>36. A zero-tolerance law is an example of which type of influence on drinking?</p> <p>a) Peer</p> <p>b) Family</p> <p>c) <u>Community</u></p> <p>d) Gene</p>

<p>37. Which of the following chemicals carries messages across the synapse?</p> <p>a) DNA b) <u>Neurotransmitter</u> c) Myelin d) Alcohol dehydrogenase</p>
<p>38. Messages move across the synapse from:</p> <p>a) axon to axon b) dendrite to axon c) <u>axon to dendrite</u> d) dendrite to dendrite</p>
<p>39. An area of the brain involved in impulse control, thinking and planning is the:</p> <p>a) cerebellum b) <u>prefrontal cortex</u> c) brain stem d) nucleus accumbens</p>
<p>40. Which brain area is important for learning and forming new memories?</p> <p>a) Spinal cord b) Brain stem c) <u>Hippocampus</u> d) Corpus callosum</p>
<p>41. The brain's ability to change by "wiring" itself in response to a person's thoughts or actions is called:</p> <p>a) elasticity b) <u>plasticity</u> c) toxicity d) viscosity</p>
<p>42. Two brain areas that undergo extensive wiring during adolescence are:</p> <p>a) spinal cord and hippocampus b) brain stem and prefrontal cortex c) <u>hippocampus and prefrontal cortex</u> d) cerebellum and spinal cord</p>
<p>43. Alcohol damages learning and memory:</p> <p>a) <u>more in teens than in adults</u> b) more in adults than in teens c) in teens and adults to the same degree d) only in teens</p>
<p>44. Prior to binding to a receptor, a neurotransmitter:</p> <p>a) is broken down by enzymes in the synapse b) <u>crosses the synapse between neurons</u> c) is absorbed into the receiving neuron d) is stored in the receiving neuron</p>
<p>45. Which of the following is a symptom of alcoholism caused by neuroadaptation?</p> <p>a) Increased alertness b) <u>Withdrawal</u> c) Rapid eye movement d) Pain</p>
<p>46. Alcohol dependence is treated using special medications and:</p> <p>a) surgery b) <u>behavioral therapy</u> c) vaccines d) radiation therapy</p>

* Answer options: (1) Strongly disagree, (2) Disagree, (3) Neutral, (4) Agree, (5) Strongly Agree

Post-test only