

## **Answer Key for BLM 1**

### **Eye Safety**

- To provide a clear pathway to the eyewash so people do not trip.
- Immediately go to the eyewash, hold open eyelid, and rinse for 15 minutes. Report the accident to your teacher.
- Clutter and trash will clog the eyewash faucet, preventing a stream from reaching the eyes of a person seeking aid.

### **Dissection Safety**

- Scissors, scalpels, and a dissection pan.
- To protect the person who is emptying the container and to avoid placing hazardous materials in the trash that may end up in a landfill.
- Report the accident to your teacher, rinse the wound in running water, and apply a bandage.

## **Answer Key for BLM 2**

### **Heating Safety**

- Beakers, Erlenmeyer flasks, and test tubes.
- Beaker tongs are used to handle hot beakers. Utility tongs will be used to handle hot flasks. Test tube clamps and a test tube rack will be used to handle hot test tubes.
- Report the accident to your teacher; cool the burn by running cold water over the burned area for 5 minutes or until the pain subsides.

### **Microscope Safety**

- To protect the lenses and prevent the ocular, or eyepiece, from falling out.
- The fibers in paper towels, tissue, and clothing will scratch the lenses. A special cloth or lens paper is designed not to scratch the lenses.

## **Answer Key for BLM 3**

### **Chemical Safety**

- Use an eyewash, and rinse the eye for 15 minutes.
- Report the spill to your teacher; contain the spill by surrounding it with absorbent material.

### **Fire Safety**

- Iodine contains ethyl alcohol and is classified as a type B fire. A fire extinguisher that is a type B or an ABC is appropriate.
- The PASS acronym refers to the fire extinguisher procedure of Pull, Aim, Squeeze, and Sweep.
- It may trap smoke and heat under the blanket. The injured person may receive additional damage to his or her lungs from inhaling the trapped smoke.

## Answer Key for BLM 6

1. Goggles and apron.
2. Place the backpack and coat under the lab bench or desk.
3. Fire extinguisher, eyewash and safety shower, fire blanket, and first-aid kit.
4. Wash hands and clean work area.
5. Notify the teacher, then rinse wound with running tap water.
6. Long, loose sleeves and open-toe shoes.
7. Upright with two hands, one hand on the arm and one hand on the base.
8. Use the appropriate tongs or heat-resistant gloves.
9. Immediately notify the teacher, smother the flame with a fire blanket, or use the fire extinguisher.
10. Carry the instrument with the tip pointing down, and grasp only by the handle.

## **Answer Key for BLM 7**

Answers are found in TE pp. 1.2B–1.2F.

## Answer Key for BLM 8

Answers are found in TE pp. 1.2G–1.2H.

**Observations:** Polar ice caps are seen through telescope, photo images show no surface water, and sensors indicate CO<sub>2</sub> in atmosphere with traces of water vapor.

**Ask Questions:** Does life exist on Mars?

**Hypothesis:**

1. If microorganisms are present within Mars soil, then they will release or consume gases.
2. If microorganisms are present within Mars soil, then they will consume CO<sub>2</sub> and produce a carbon-based compound.
3. If microorganisms are present within Mars soil, then they will take in nutrients and produce carbon dioxide.

**Experimentation:**

1. Gas Exchange experiment
2. Carbon Assimilation experiment
3. Labeled Release experiment

**Data Collection or Experimental Results:** Gas Exchange and Carbon Assimilation experiments show no activity from living organisms because experimental data were no different than the control. The Labeled Release experiment showed positive results for biological activity; repeated tests were inconsistent.

**Conclusion:** Based on the results of the three experiments, Mars does not support life as we know it.

## **Answer Key for BLM 8 (continued)**

**Report Results:** Data from NASA are shared with other scientists from around the world.

**Verify Results:** The scientist who designed the Labeled Release experiment does not agree with NASA's conclusion. Tests on Earth to mimic the results from *Viking* are unable to establish the same results.

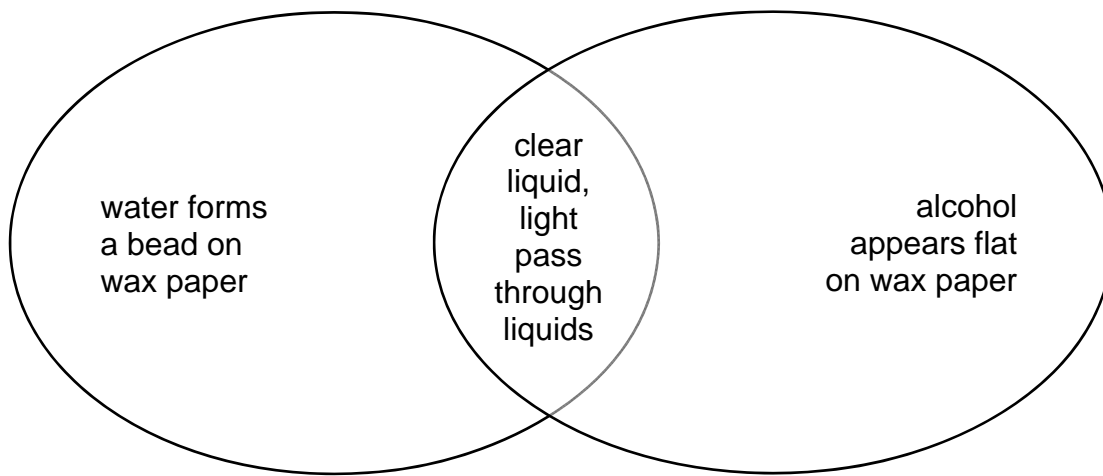
## Answer Key for BLM 11

1. mass and volume
2. ice
3. salt water
4. Ice is less dense than water.
5. Because ice floats on water, the fish survive underneath the ice when a lake freezes. If ice sank when it froze, living organisms in freshwater would die during the freeze. In saltwater environments, ice provides a platform for polar bears, penguins, and seals.
6. The ocean's salt water would be found underneath the freshwater; freshwater fish would be found swimming near the surface.



## Answer Key for BLM 13

2. The water drop is shaped like a dome.
3. The water drop is difficult to split with a toothpick.
5. The alcohol does not form a dome shape. It appears flat on the wax paper.
6. The light beam passes through the water and alcohol.
- 7.



## **Answer Key for BLM 14**

### **Part 1**

2. The paper clip sinks.
5. The water appears to stretch at the ends of the paper clip.
6. The soap breaks the surface tension and the paper clip sinks.

### **Part 2**

4. The water stays inside the test tube. The adhesive and cohesive properties of water form a surface tension between the plastic mesh openings, preventing the water from flowing out of the test tube.

## **Answer Key for BLM 15**

7. Answers will vary. The alcohol soaks into the paper and evaporates. The water drop forms a bead and does not soak into the paper. The water does not evaporate.

## **Answer Key for BLM 16**

4. Answers will vary.

5. Answers will vary. Water will not travel as high in the larger diameter roll.

6. Answers will vary.

## **Answer Key for BLM 18**

1. The types of solutions are the Independent Variable; the Dependent Variable is the germination of the seed; the dry seeds are the Control.
2. Answers will vary.
3. Answers will vary.

## **Answer Key for BLM 23**

Answers are found in TE p. 44.

## **Answer Key for BLM 24**

Answers are found in TE p. 44.

## **Answer Key for BLM 25**

Answers are found on Trans 8.



## **Answer Key for BLM 26**

### **Pre-Lab Questions:**

1. Glucose solution
2. Starch solution
3. Vegetable oil
4. Albumin solution

## **Answer Key for BLM 27**

### **Procedures:**

#### **Part A. Biuret Test**

7. Test tube A.  
Solution in Test Tube A changed to light purple.

#### **Part B. Sudan III Stain Test**

7. Test Tube O.  
Red ring appeared above the solution in Test Tube O.

## **Answer Key for BLM 28**

### **Part C. Lugol's Iodine Test**

7. Test Tube S.  
Solution in Test Tube S changed to dark purple.

### **Part D. Benedict's Test**

9. Test Tube G.  
Solution in Test Tube G changed to orange.

## **Answer Key for BLM 29**

1. Biuret, changes from blue to light purple.
2. Sudan III, red-stained oil layer separates from water.
3. Benedict's solution, changes from blue to yellow/orange or red depending on the amount of sugar.
4. Lugol's iodine, changes from yellow to dark purple.
5. Water serves as a control.
6. Answers will vary but should include summarizing the steps used with each reagent.

## **Answer Key for BLM 30**

Answers are found on Trans 9.