

# **LABORATORY ACTIVITY NO. 12**

## **THE BLOOD**

### **Scope of Laboratory Activity**

This laboratory activity consists of three (3) worksheets:

- Worksheet no. 1 Blood Typing
- Worksheet no. 2 Blood Smear
- Worksheet no. 3 Blood Coagulation

### **Overview**

Blood, the vital “life fluid” that courses through the body’s blood vessels, provides the means by which the body’s cells receive vital nutrients and oxygen and dispose of the metabolic wastes. As blood flows past the tissue cells, exchanges continually occur between the blood and the tissue cells, so that vital activities can go on continuously (Marieb, 2001).

### **Objectives**

After completing this laboratory activity, the student will be able to:

1. Determine one’s blood type.
2. Appreciate the process of blood typing.
3. Recognize the different cellular components of blood in a blood smear.
4. Determine bleeding and clotting times.

### **Materials**

Lancets	Blood smear slide	Microscope
Glass slides	Pencil/ Colored pencil	
Anti-A serum and Anti-B Serum	Filter Paper	
Toothpicks	Needle	
70% Alcohol	Watch with a second hand	
Cotton Balls		

### **Worksheet 1 Blood Typing (not to be answered))**

#### **Before the procedure**

1. Follow safety precaution.
  - 1.1 Wear gloves while performing blood tests.
  - 1.2 Place blood slides and toothpicks in a biohazard container after the activity.

- 1.3 Clean your area at the end of the laboratory activity.
2. Prepare a clean glass slide, two new toothpicks, pencil, lancet, cotton balls, 70% alcohol and anti-A and anti-B sera.
3. Divide the glass slide in half and Mark A on the left side and B on the right side.

### **Obtaining Blood Sample**

4. Wash your hands thoroughly with soap and water. Dry with clean paper towel.
5. Wipe the fingertip of your ring finger with a cotton ball soaked in 70% alcohol. Allow alcohol to dry without wiping.
6. Open a new, sterile blood lancet exposing the sharp tip only.
7. Puncture the cleaned fingertip with a sterile lancet (The instructor will teach you how to do this). **Never reuse** a lancet, even your own.
8. Deposit the used lancet in the sharps container for biohazard materials only.
9. Wipe away the first drop of blood with a cotton ball and dispose in a biohazard wastes container.
10. Gently squeeze one drop of blood on each side of a clean prepared slide without the finger touching the slide.
11. Add a drop of Anti-A serum (group B) to the blood drop on side A. Add a drop of anti-B serum (group A) to the blood drop on slide B.
12. Mix the serum and blood cells using separate and clean toothpicks. Observe closely what happens to the mixture. Determine presence/absence of agglutination or clumping of cells.

After the procedure

13. Interpret results as follows:

Blood Type A – agglutination occurs only on glass slide A

Blood Type B – agglutination occurs only a glass slide B

Blood Type AB – agglutination occurs on both glass slides A and B

Blood Type O – no agglutination occurs on both glass slides.

14. Answer the following questions:

- a. Result of your blood typing revealed you have Blood type \_\_\_\_\_. (This has to be verified by your instructor. Show both slides properly labelled.)
- b. The above is based on the observation that agglutination occurred in glass slide(s)\_\_\_\_\_.

c. Correctly complete the following table concerning ABO Blood Groups

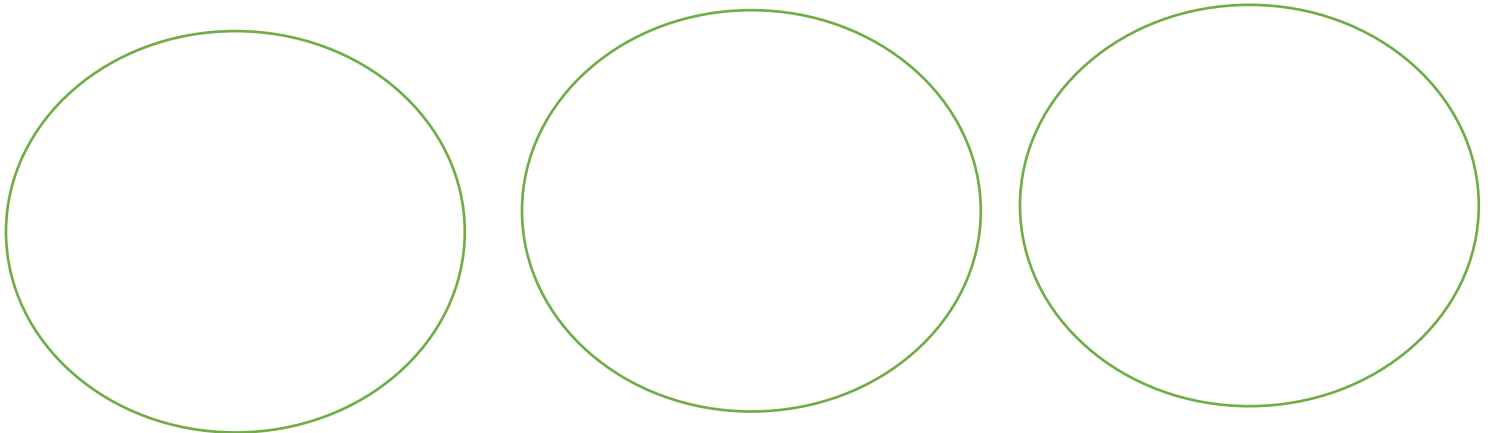
Blood Type	Agglutinogens or Antigens	Agglutinins or antibodies in plasma	Can donate blood to type	Can receive blood from type
Type A	A			
Type B		Anti -A		
Type AB			AB	
Type O	None			

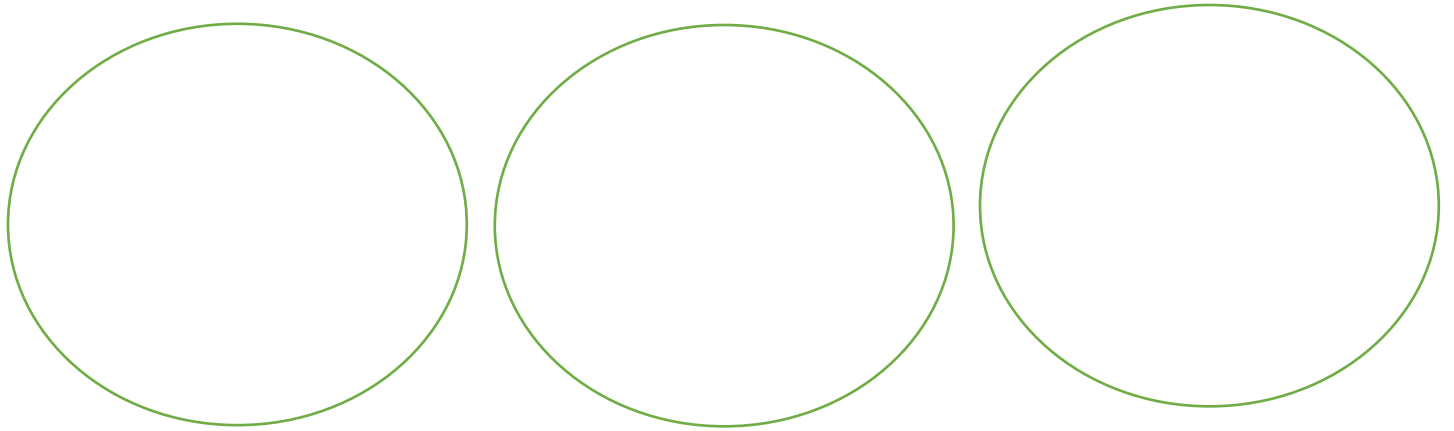
d. What blood type is the universal donor? \_\_\_\_\_.

e. What blood type is the universal recipient? \_\_\_\_\_.

**Worksheet 2. Blood Smear (not to be answered)**

1. Examine the prepared microscope slides of the different blood elements.
2. Identify the erythrocytes, basophils, neutrophils, lymphocytes, eosinophils, monocytes and thrombocytes.
3. Draw and color the identified blood elements.





### Worksheet 3. **Blood Coagulation and Bleeding Time**

1. Follow safety precaution.
  - 1.1 Wear gloves while performing blood tests.
  - 1.2 Place blood slides and toothpicks in a biohazard container after the activity.
  - 1.3 Clean your area at the end of the laboratory activity.
2. Prepare a clean glass slide, lancet/needle, cotton balls, 70% alcohol and filter paper.
3. Wash your hands thoroughly with soap and water. Dry with clean paper towel.
4. Wipe the fingertip of your index finger with a cotton ball soaked in 70% alcohol. Allow alcohol to dry without wiping.
5. Open a new, sterile blood lancet or needle exposing the sharp tip only.
6. Puncture the finger with a blood lancet or needle deep enough to insure a free flow of blood.
7. Record the **TIME finger is PUNCTURED** \_\_\_\_\_.
8. At 30 seconds intervals, using a piece of filter paper, remove drops of blood that will flow. Do this until blood ceases to flow. **TIME blood ceases to flow** \_\_\_\_\_.
9. The bleeding time is the time elapsed between puncturing the finger and the cessation of bleeding. This is normally between 1 to 3 minutes. **BLEEDING TIME:** \_\_\_\_\_.

## References

- Allen, Connie and Harper, Valerie. (2011) Laboratory Manual for Anatomy and Physiology. 4<sup>th</sup> Edition. Jon Wiley & Sons. Inc.
- Marieb, Elaine.(2002). Anatomy & Physiology Coloring Workbook 6<sup>th</sup> Edition. Pearson Education Asia Pte.Ltd
- Paguio,JT, Valera, MJT Valera, Abad, PJ. (2011) Laboratory Manual for Anatomy and Physiology (some contents are adapted from this manual)