



## Answers pg 391 #9,11/WS

9. The job of the red blood cells is to carry oxygen to the cells and take carbon dioxide away.

11. Three functions of blood are:

- transports materials like oxygen and carbon dioxide
- regulates body temperature
- maintains chemical balance
- protects against disease
- transports nutrients throughout the body

- hormone transport

## Section Review 22-3

1. Red Blood Cells
2. White Blood Cells
3. Plasma
4. Red Blood Cells
5. Platelet
6. White Blood Cells
7. Plasma
8. White Blood Cells
9. Platelet
10. Plasma
11. Red Blood Cells
12. Red Blood Cells

## What is a Blood Type?



Blood type is a genetic characteristic associated with the presence or absence of certain molecules called antigens, on the surface of red blood cells.

Blood Type is produced based on inherited genes and what proteins your body produces.

Blood type is important for medical reasons. If you need a blood transfusion you need to receive blood that is the same type as yours or it will clot in your bloodstream.



## ABO Blood Typing System

This is the system that is used to determine our blood type (just one of many blood factors). The blood proteins are A and B. The presence or absence of A and B proteins determines your blood type.



**FOUR TYPES OF HUMAN BLOOD:**

A B AB O

THESE WERE IDENTIFIED BY DR. KARL LANDSTEINER IN 1901.

EACH TYPE CAN BE EITHER RH POSITIVE (RH+) OR RH NEGATIVE (RH -).

**ANIMALS HAVE DIFFERENT BLOOD TYPES THAN HUMANS:**

4 TYPES (Dog)








11 TYPES (Cat)

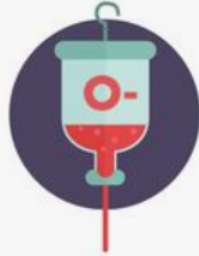
800 TYPES (Cow)

The infographic features a light blue background. On the left, four blue teardrop shapes contain the letters 'A', 'B', 'AB', and 'O' in red. Below them, text in red and blue states they were identified by Dr. Karl Landsteiner in 1901 and can be either Rh positive or negative. On the right, three red silhouettes of a dog, a cat, and a cow are shown. Below each silhouette is a blue teardrop shape containing a number and the word 'TYPES' in white: '4 TYPES' for the dog, '11 TYPES' for the cat, and '800 TYPES' for the cow.

# Blood Groups

There are eight types of blood. A (only antigen A), B (only antigen B), AB (both antigens), and O (no antigens). The protein marker found on the cell membrane identifies blood type. You can also be + or - for the Rh factor for each A,B,AB and O creating 8 blood types.

Blood Type (genotype)	Type A (AA, AO)	Type B (BB, BO)	Type AB (AB)	Type O (OO)
Red Blood Cell Surface Proteins (phenotype)	 A agglutinogens only	 B agglutinogens only	 A and B agglutinogens	 No agglutinogens
Plasma Antibodies (phenotype)	 b agglutinin only	 a agglutinin only	NONE No agglutinin	 a and b agglutinin



Type O negative blood is the **universal donor** because they can donate to any other blood type.



Type AB+ blood is the **universal recipient** because they can receive blood from any other blood type.

# BLOOD TYPES



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TYPE	YOU CAN GIVE BLOOD TO	YOU CAN RECEIVE BLOOD FROM
A+	A+ , AB+	A+ , A- , O+ , O-
O+	O+ , A+ , B+ , AB+	O+ , O-
B+	B+ , AB+	B+ , B- , O+ , O-
AB+	AB+	Everyone
A-	A+ , A- , AB+ , AB-	A- , O-
O-	Everyone	O-
B-	B+ , B- , AB+ , AB-	B- , O-
AB-	AB+ , AB-	AB- , A- , B- , O-

## Attachments

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Biology 113 blood vessel assignment.doc