Fourth Grade “The Human Body: The Circulatory System”
Assessment

1a. The __________________ system pumps and carries blood throughout the human body.

1b. The circulatory system is made up of:
   a. blood, blood vessels, heart
   b. lungs, brain, heart
   c. arms, legs, head
   d. kidneys, liver, cells

1c. Identify the three parts of the circulatory system and explain what each does.
   1. __________________________________________________________________
   2. __________________________________________________________________
   3. __________________________________________________________________

2a. Who created the basis for all modern research on the heart and blood vessels?
   a. William Harvey
   b. Benjamin Banneker

2b. The basis for all modern research on the heart and blood vessels was started by
   ____________________________________________.

2c. Explain how William Harvey’s theories of how blood was pumped from the heart
    throughout the body, then returned to the heart and re-circulated changed the way people
    of the 17th century believed the human body worked.
    ___________________________________________________________________________
    ___________________________________________________________________________
    ___________________________________________________________________________
    ___________________________________________________________________________
    ___________________________________________________________________________

3a. Which organ listed acts as a pump?
   a. kidneys
   b. stomach
   c. heart
   d. lungs
3b. Label the right atrium, right ventricle, left atrium, and left ventricle.

3c. Label the four chambers of the heart.

4a. What is the largest artery in the human body?
   a. septum
   b. aorta

4b. What is the largest artery in the human body?

4c. Name the largest artery and describe its function:
5a. The ________________ blood cells carry oxygen from the lungs to the body cells.
   a.  red
   b.  white

5b. Name the part of the blood that carries oxygen to the cells of the body.
   a.  red blood cells
   b.  white blood cells
   c.  platelets
   d.  plasma

5c. Identify the three solid parts of the blood and explain the role of each part.
   1. ______________________________________
     ______________________________________
     ______________________________________
   2. ______________________________________
     ______________________________________
     ______________________________________
   3. ______________________________________
     ______________________________________
     ______________________________________

6a. The ________________________ blood cells are larger than the red blood cells and help
to fight off infection and disease.

6b. The ________________________ blood cells are larger than the red blood cells and help
to fight off infection and disease and the __________________________ blood cells carry oxygen from the lungs to the body cells.

6c. Explain the differences between white blood cells and red blood cells.
     ______________________________________
     ______________________________________
     ______________________________________

7a. Scabs are formed when ________________ clot the blood.
   a.  red blood cells
   b.  white blood cells
   c.  platelets
   d.  plasma

7b. Tell what would happen if your blood did not contain platelets.
     ______________________________________
     ______________________________________
     ______________________________________

7c. Develop a plan of what you would change in your house if you found out a member of
your family’s blood did not contain platelets.
8a. Name the chemical protein in the red blood cells that causes your blood to look red.
   a. hemoglobin
   b. plasma

8b. Hemoglobin is used to:
   a. transport the oxygen in your red blood cells to the body.
   b. surround and ‘eat’ infections in the body.
   c. clog broken blood vessels to stop bleeding.

8c. Inside red blood cells is __________________ which gives the blood its red color and carries the oxygen and carbon dioxide.

9a. Plasma is the ________________ part of the blood.
   a. solid
   b. liquid

9b. Plasma is the ________________ part of the blood.
   a. solid
   b. red
   c. liquid
   d. hard

9c. The liquid part of the blood is: _______________________.

10a. Arteries, veins, and capillaries are all types of ________________.
    a. blood vessels
    b. blood pressure

10b. Which of the following is not a blood vessel?
    a. arteries
    b. plasma
    c. veins
    d. capillaries

10c. List the three types of blood vessels in the body.
    1. ______________________________
    2. ______________________________
    3. ______________________________

11a. Which of the following is true?
    a. It is easiest to find your pulse on the inside of your wrist.
    b. It is easiest to find your pulse on the side of your knee.
11b. List three places to find your pulse.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

11c. How would you test for a person’s pulse if you could not find it on their wrist?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

12a. The ____________ produces antibodies.
   a. spleen
   b. lungs
   c. stomach
   d. heart

12b. The _______________ removes disease-producing organisms and worn-out red blood cells from the bloodstream.

12c. List three functions of the spleen:
   1. __________________________________________________________________
   2. __________________________________________________________________
   3. __________________________________________________________________

13a. Eating foods high in fat can cause the clogging of blood vessels and lead to a
   a. heart attack
   b. healthy body

13b. Eating foods high in fat can cause the clogging of blood vessels and lead to a
   ____________________________________.

13c. List three things you can do to help keep your circulatory system healthy.
   1. __________________________________________________________________
   2. __________________________________________________________________
   3. __________________________________________________________________

14a. How many basic blood types are there?
   a. four
   b. two

14b. List the four basic blood types: __________, __________, __________, __________
14c. What must first be determined before performing a blood transfusion? Why?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

15a. Who first developed blood banks and the system for storing blood plasma?
   a. William Harvey
   b. Charles Drew

15b. Who organized the world’s first blood bank and established the American Red Cross Blood Bank? __________________

15c. What important discovery did Charles Drew make and where was it first used?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

16a. Substances made by the body that fight disease-causing germs are:
   a. antibodies
   b. viruses

16b. Substances made by the body that fight disease-causing germs are:
   a. viruses
   b. antibodies
   c. bacteria
   d. organs

16c. Proteins in the blood that are produced by the body to fight off specific bacteria are called ____________________.

17a. Which large organ removes waste from the blood?
   a. stomach
   b. liver

17b. The __________ removes waste from the blood and produces digestive juices.

17c. List three functions of the liver.
   1. __________________________________________
   2. __________________________________________
   3. __________________________________________

18a. The measure of how hard the blood presses against the walls of the arteries is:
a. blood type  
b. blood pressure

18b. The measure of how hard the blood presses against the walls of the blood vessels is called _____________________________.

18c. What can happen if a person’s blood pressure gets to high?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

19a. When blood coagulates it forms a ______________________.
   a. scab  
b. bruise

19b. When blood coagulates it forms a ______________________.

19c. Why does your blood coagulate?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

The following Colorado Model Content Standards are covered in this assessment by the questions indicated:

Question 2c: Standard 1.a.K-4 asking questions and stating predictions (hypotheses) that can be addressed through scientific investigation;

Question 6a, 8a, 8c, 9a, 9b, 9c: Standard 2.1.a.K-4 examining, describing, classifying, and comparing tangible objects in terms of common physical properties (for example, state of matter, size, shape, texture, flexibility, color

Questions 1a, 1b, 1c, 3a, 4a, 4b, 4c, 5a, 5b, 5c, 6b, 6c, 7a, 7b, 8a, 8b, 8c, 9a, 9b, 9c, 10a, 10b, 10c, 12a, 12b, 12c, 13a, 13b, 13c, 14a, 14b: Standard 3.3.a.K-4 describing human body systems (for example, digestive, respiratory, circulatory, skeletal, muscular)

Question 7c: Standard 5.b.K-4 inventing a device that addresses an everyday problem (or task), and communicating the problem (or task), design, and solution;

Questions 3b, 3c: Standard 6.1.e.K-4 comparing a model with what it represents (for example, comparing a map of the school to the actual school; a model of the Earth to the Earth itself).
**Answer Key**

1a. circulatory
1b. a. blood, blood vessels, heart
1c. Blood: carries nutrient, oxygen and waste products throughout the body
    Heart: pumps the blood through the body
    Blood Vessels: transport blood through the body

2a. a. William Harvey
2b. William Harvey
2c. Acceptable answers could include:
    -before William Harvey’s discoveries most people of the day believed that food was converted into blood by the liver, then was consumed as fuel by the body
    -developed an accurate theory of how the heart and circulatory system operated.
    -Harvey's work encouraged others to investigate blood circulation
    -proved that the body made new blood as its supplies were used up was wrong
    -Harvey's work made little difference to general medical practice at the time, as most people did not believe his theories; it was not until after his death that his ideas were more widely accepted

3a. c. heart
3b.
3c.
4a. b. aorta
4b. aorta
4c. aorta; delivers oxygen rich blood to the cells

5a. a. red
5b. a. red blood cells
5c. Acceptable answers could include:
- Red blood cells; carry oxygen from the lungs to the body cells and pick up waste from the cells to be dropped off at the lungs
- White blood cells; help the body fight off infection and disease; surround and eat invaders in the blood and body cells
- Platelets; help clot the blood, or thicken

6a. white
6b. white; red
6c. Acceptable answers could include:
- Red blood cells carry oxygen and carbon dioxide throughout the body. Red blood cells contain hemoglobin which gives red blood cells their red color. White blood cells are much larger than red blood cells. White blood cells are used to fight off infection.

7a. c. platelets
7b. Acceptable answers could include:
- You would bleed to death from even the tiniest cut in a blood vessel.
- Your body would not be able to stop bleeding.
7c. Acceptable answers could include:
- Keep a list of emergency numbers readily available.
- Replace all glass with plastic or plexiglass.
- Safely cover all table corners or sharp objects.

8a. a. hemoglobin
8b. a. transport the oxygen in your red blood cells to the body.

8c. hemoglobin

9a. b. liquid
9b. c. liquid
9c. plasma

10a. a. blood vessels
10b. b. plasma
10c. arteries, veins, capillaries

11a. a. It is easiest to find your pulse on the inside of your wrist.
11b. Acceptable answers could include:
   - inside of your wrist
   - side of your neck
   - front of your hip
   - inside of your foot
   - temple

11c. Acceptable answers could include:
   - Find the next most accessible place on an individual’s body.
   - Use a stethoscope
   - Listen to the heart beat
   - Locate medical personal for assistance

12a. spleen
12b. spleen
12c. Acceptable answers could include:
   - Removes worn-out red blood cells from the bloodstream.
   - Removes iron from the hemoglobin of red blood cells for use in the body.
   - Produces antibodies
   - Remove waste materials for excretion as bile by the liver.

13a. heart attack
13b. heart attack
13c. Acceptable answers could include:
   - eat a balanced diet
   - not smoke
   - exercise
   - consume less fatty foods

14a. four
14b. A, B, O, AB
14c. Blood Type
   - Blood transfusions often fail because the blood type of the recipient is not compatible with that of the donor.
   - Certain blood types contain antibodies that will react against other blood types.

15a. b. Charles Drew
15b. Charles Drew
15c. Acceptable answers could include:
   - developed blood banks
   - found way to store blood for later use in transfusions
   - first used in World War II

16a. antibodies
16b. antibodies
16c. antibodies
17a. b. liver
17b. liver
17c. Acceptable answers could include:
- produces bile
- removes toxins from the blood
- breaks down old red blood cells
- helps maintain levels of blood sugar in the body
- stores vitamins for later release into the blood

18a. b. blood pressure
18b. blood pressure
18c. Acceptable answers could include:
- high blood pressure can cause damage to the heart
- can lead to a heart attack
- damage other parts of the body

19a. a. scab
19b. scab
19c. Acceptable answers could include:
- to form a scab
- to stop your body from bleeding
- to close break is blood vessels