

BODY BUSINESS

A game about the human body  
designed for upper elementary students.

An Honors Project (HONRS 499)

by

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Muncie, Indiana

December 1992

December 20, 1992

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Body Business is a game about the human body designed for upper elementary school students. The game consists of approximately 500 questions and answers covering all aspects of the human body along with three diagrams of different body systems labeled for easy identification. Also included are a gameboard, directions, gamepieces and dice. Body Business is designed to increase knowledge of the human body in an entertaining and challenging format. The game is designed to be played in teams; however, the game may be adapted to a variety of situations.

As an elementary education major, I wanted my senior project to be used in an actual classroom. My interest in science directed me toward the synthesis of a game about the human body. This game, entitled Body Business, is designed for upper elementary school students and pertains to all aspects of the human body.

I began my project by reading through numerous health and science textbooks to familiarize myself with age-appropriate information. I wanted to be sure the questions I was going to write were neither too easy nor difficult. I then read through approximately one hundred books concerning the human body, searching for ideas for questions. As I wrote each question, I was attentive to whether the topic was pertinent to students. I did not want the questions to be too specific that the students would lose interest.

I wrote the questions using a variety of formats. Included in the game are multiple choice, true or false, identification and fill in the blank questions. After revising and editing each of the questions, I printed them on a laser printer in an 18 point font to ensure easily readable questions. The questions were cut into two-by-four-inch pieces and mounted on index cards. The answer to each question was typed on the back of each card.

I designed a gameboard on a colored filefolder. The gameboard is colorful and consists of a path that the players must follow. The gameboard is fairly simple, since I did not want to distract from the main purpose of the game, learning about the human body. There are three diagrams included in the game consisting of the digestive system, skeletal system and the respiratory and circulatory systems. Each diagram is colored and labeled with letters for use in the identification. I felt that it was important that students know where each organ or bone is located along with knowing about each. The direction sheet tells the players what equipment is needed as well as instructions for play. Also included are gamepieces and dice.

I found the most difficult task in the design and production of Body Business was the actual writing of the questions. I felt some questions needed to be multiple choice because the answer was too hard for the students to get on their own. I then found difficulty in coming up with reasonable words for the other choices. Time was spent writing and phrasing each question. The questions were written at a reading level appropriate to the age of student the game is designed.

The questions range in difficulty. I did not want the players to get discouraged if they did not know a majority of the questions. However, I didn't want them to just breeze through the questions and not be challenged. There are no "trick" questions; however, as thought is required in the decision of the answers.

Below are several questions all about blood and bones. Some are more difficult or challenging than the others. Although there is no way to put them in an exact order of difficulty, one can see how some are easier than others. Each set of questions are grouped into three main groups increasing in difficulty. It is important to remember that the difficulty of each question depends on whether or not each topic was studied by each player.

#### QUESTIONS CONCERNING BLOOD

What color is blood?

What does the heart pump throughout the body?

What organ pumps blood?

What carry blood away from the heart?

About how many quarts of blood does the average adult have?

What gives blood its red color?

How many main blood types are there?

What is the main artery in the human body?

What are the four main types of blood?

What is the function of white blood cells?

## QUESTIONS CONCERNING BONES

What makes up the skeleton?  
What organ does the skull protect?  
Are bones hard?

About how many bones are in the human body --100, 200, or 300?  
What bone structure protects the lungs and heart?  
Is the radius in the arm or leg?  
Bones contain marrow --true or false?  
What is the important mineral found in bones?

Where are tarsals found?  
What is another name for the sternum --breastbone, collarbone or knee?  
What is the longest bone in an average human?

The game may be used in a variety of situations. Body Business may be used as a teaching tool or as review after completion of a unit on the human body. Students may play on teams during a designated time in class. The teacher or designated student may read the questions orally to the class for review or in another game situation. All necessary supplies are included with the game so Body Business requires no preparation outside of reading the directions.

Body Business was given a test run in a sixth grade classroom. The reaction was very positive and all involved were enthusiastic. The students easily understood the directions and grasped the pattern of the game. It was entertaining to watch the students react to the questions and debate with each other concerning the correct answer. Their biggest concern was that the responding team would see the answer on the back of the card. After a few times of pulling the cards out of the box, they were able to solve this problem by simply covering the back of the card with their hand. The students were eager to play again and test their knowledge on the human body.

Body Business has great potential for use in the elementary classroom. I feel this project will be well used for learning and review. Questions may be added to the question box as time elapses, perhaps even allowing the students to write questions of their own. Children of all ages will benefit from this project for many years.

# BODY BUSINESS

**OBJECTIVE:** To complete the path to the center of the board by correctly answering questions about the human body.

**EQUIPMENT:** 1 gameboard, 1 folder of charts and directions, 3 boxes of questions, dice and 6 game pieces.

## **PREPARATION:**

1. Players divide into equal teams of 2 or more people. \*NOTE: The game may be played with one person per side (2-6 players).
2. Place one game piece per team on "start".
3. One player from each team rolls the die to determine which team goes first. The team who rolls the highest number is the responding team.

## **THE PLAY:**

The team to the left of the responding team selects a question from the front of the question box and reads it out loud to the responding team. The responding team may talk among themselves and then give an answer. The reading team turns the card over to determine if the correct answer was given.

---If the correct answer was given, one player from the responding team rolls the die and moves the game piece the rolled amount.

---If the incorrect answer was given, the reading team should give the correct answer and NO SPACES ARE MOVED!

If a team lands on a space occupied by another team, the moving team sends the other team BACK to the closest space of the same color which is occupied.

Play continues around the circle in a clockwise direction. The team that read the question now becomes the responding team and the team to the left becomes the reader. Each team has one chance to correctly answer a question before play continues to the next team.

The color of the spaces have no relationship to the color of the question cards. THE READER SELECTS A QUESTION FROM THE FRONT OF THE BOX AND RETURNS IT TO THE BACK OF THE BOX.

The first team to complete the path and land in the middle star is declared the winner. Play may continue to determine 2nd or 3rd place.

## SAMPLE QUESTIONS

Below are a variety of questions that are included in Body Business. The questions vary in difficulty and style? Since I found multiple choice questions the hardest to write, more of that style are listed. Example of all types of questions that I used are included.

What unit is used to measure the energy in food- proteins, calories or fat?

What is another name for the roof of the mouth- palate, gum or membrane?

Where is the Achilles tendon- ankle, wrist or neck?

What is a condition that makes the skin red, flaky and itchy- eczema, scoliosis, or malaria?

What is the layer of living cells that fill the middle of a tooth- pulp, cavities or enamel?

What makes a tooth strong and protects it from germs- cavities, enamel or pulp?

What is another name for the clavicle- collarbone, breastbone or shoulderbone?

What gland is located in the front of your neck- thyroid, adrenal, or pituitary?

Plasma is part of the- skin, blood or bones?

What type of messages does the auditory nerve send- sound, taste, or sight?

What type of muscle allows you to swing a bat or run in a race- skeletal, smooth or heart?

What gives blood its red color- oxygen, carbon dioxide or plasma?

Where are tastebuds that respond to saltiness- the tip, back or side of the tongue?

What carry digested food to the cells of the entire body- blood vessels, blood tubes or blood canals?

What is the black part of the eye called- the iris, pupil or lens?

How many teeth should an average adult have- about 24, 32 or 40?

What do ligaments connect- bone to bone, bone to muscle, or muscle to muscle?

What watery substance helps to moisten food in the mouth- blood, saliva or bile?

What substance does the liver produce- saliva, bile or plasma?

What is another name for the breastbone- clavicle, sternum or mandible?

The smallest bones in the body are found in the hand- true or false?

What is another name for the patella?

What body system contains the esophagus?

What are the smallest blood vessels called?

Do veins carry blood away from or back toward the heart?

What is the liquid part of the blood called?

What is the thickest layer of skin?

Is the diaphragm a muscle?

What body system fights off disease?

Are humans warm-blooded or cold-blooded?

What are occasional uncontrolled contractions of the diaphragm?

Through what tube does food enter the stomach?

Where is the Achilles tendon-ankle, wrist or neck?

Do bones contain calcium?

What is the colorless film of bacteria on teeth?

What happens when blocked blood vessels prevent the heart from getting oxygen?

What is the large muscle under your lungs?

Is marrow the hard or soft part of a bone?

Is the diaphragm an organ?

Into what does the trachea divide?

What are people called if they have no melanin in their skin and hair?

What is the main gas that humans exhale?

What bone is letter K on Chart C?

What organ is letter B on Chart A?

What letter is the stomach on Chart A?

What letter is the heart on chart B?

What letter is the skull or cranium on Chart C?

What body system contains the stomach?

What body system contains the arteries?

Where does digestion begin?

Following are copies of the diagrams used in Body Business. Three different labeled diagrams were used each showing a different body system. Questions involving use of the diagrams can be found with the sample questions. One type of questions asks the player to identify the name of each organ or bone when given the corresponding letter. Another type of question asks the player to identify the letter of the organ or bone when given the name. The last type of question asks the player to identify the body system(s) shown on each diagram.

Chart A

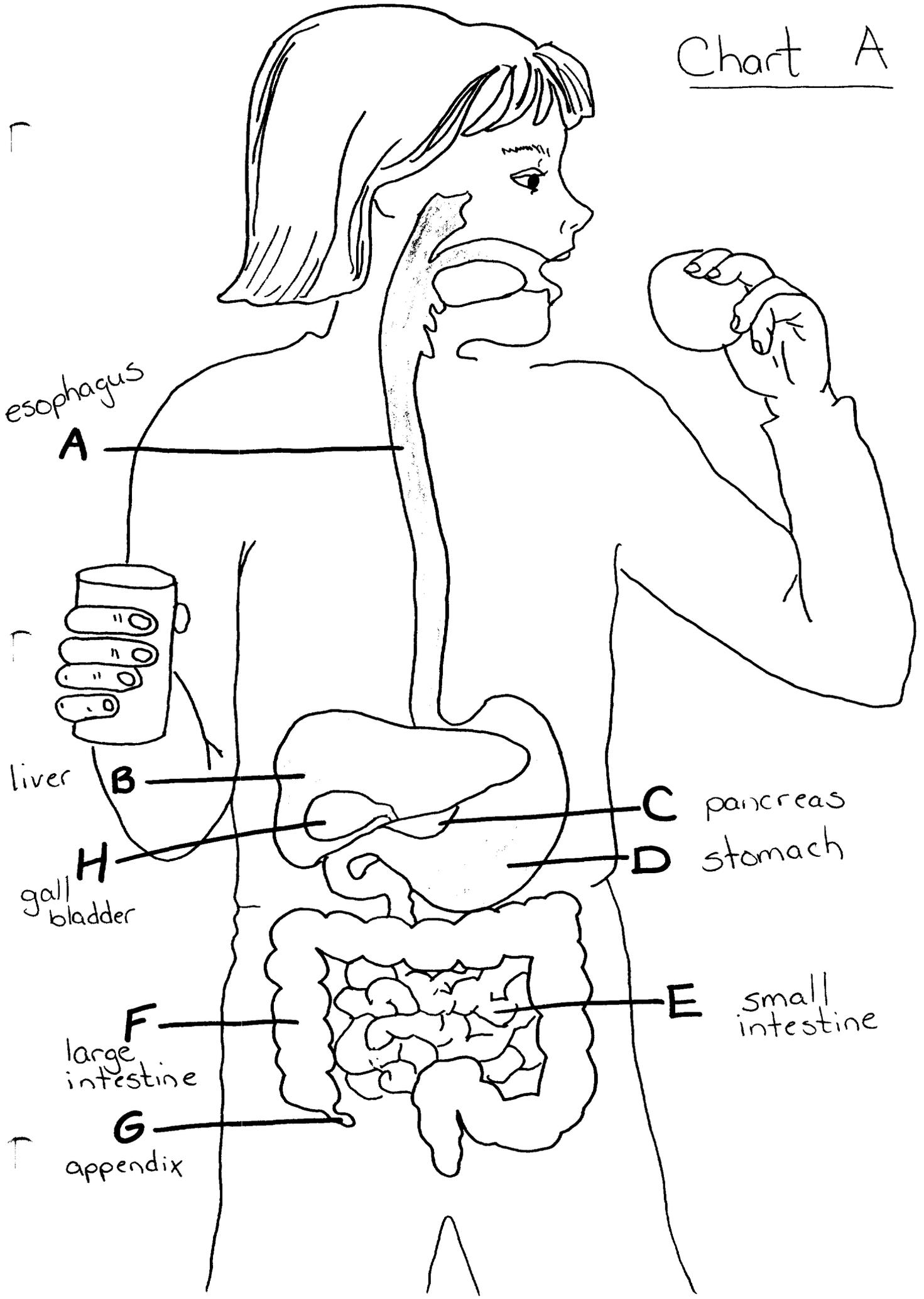


Chart B

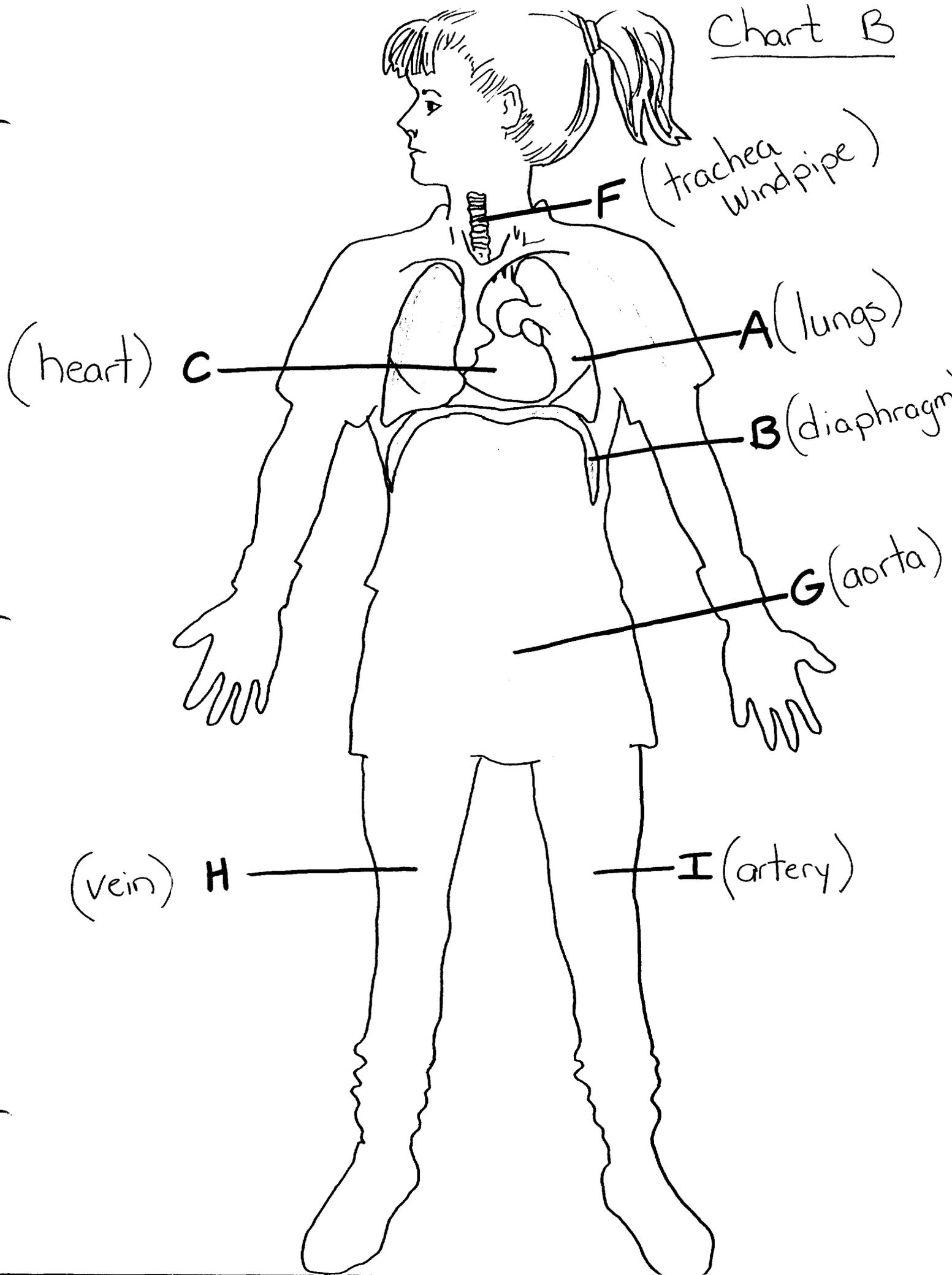
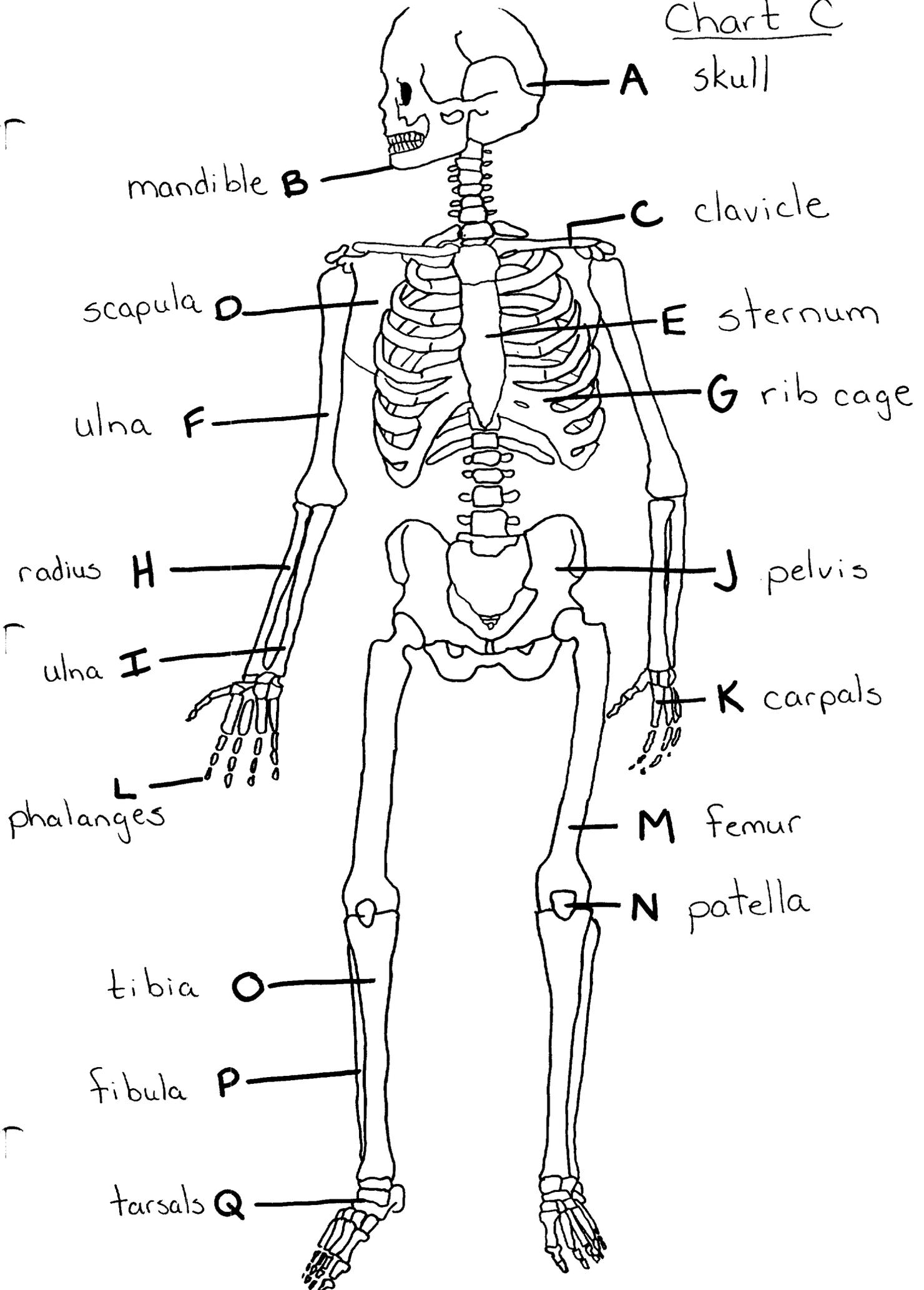


Chart C



## Bibliography

In this bibliography, I have listed various books which I used to get ideas for the questions. This is by no means all of the books available, however, it does give a variety of books from which to choose. I categorized the books by different topics the books cover. General books about the human body were most useful, however, specialized books did provide some more indepth information on certain topics.

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