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As they work in CODE BLUE, students learn about the body and how it functions, teaching each other about their own specialty. They also learn about several public health issues, how each affects the body, and how problems associated with these health issues can be prevented or avoided. Specifically, your students will experience the following:

Knowledge

- The components and workings of the circulatory, respiratory, nervous, digestive, muscular/skeletal and immune systems
- Relationship between positive health behaviors and the prevention of injury, illness, disease, and premature death
- How health is influenced by the interaction of the body systems
- Ways to reduce risks associated with adolescent health problems
- Location of health products and services

Skills

- Teaching teammates about the body systems through the use of personally created visual aids
- Researching various public health issues
- Speaking publicly to present solutions addressing public health problems
- Applying a decision-making process to health issues and problems individually and collaboratively
- Developing medical breakthroughs to deal with current health problems

Attitudes

- Recognizing the importance of assuming responsibility for personal health behaviors
- Understanding that health-related decisions are influenced by individual, family, and community values
- Appreciating the value of cooperation in problem solving

Essential Questions

The following questions can help focus your teaching and student learning throughout the unit:

- How do the different components of the body work together to enable humans to survive and interact with their environment?
- What are some public health issues that we face in society today? How do these affect the body? What can individuals do to avoid or prevent these?

PURPOSE

OVERVIEW

Students learn about six different systems in the body (the circulatory, respiratory, immune, muscular/skeletal, digestive, and nervous systems). In addition, they learn about important public health issues and the relationship between positive health behaviors and the prevention of injury, illness, disease, and premature death.

Medical Clinics
Students work in cooperative jigsaw groups to form Medical Clinics. Each member of the clinic is assigned, researches, and presents a different specialty. Specialists learn together in Expert Groups as they prepare for their presentations. Each specialty takes a Board Exam relevant to that specialty. Students must pass their Board Exam to be certified in their specialty prior to returning to their Medical Clinic and teaching others. Following all specialty presentations, the whole clinic must pass the Physiology Test before they "see" their first patient.

Challenge Codes
These puzzles complement the curriculum in a fun way. They can be used at any time during the unit. Choose to use them as required assignments, extra credit, or just for fun.

Medical Breakthroughs—Extensions to Learning
Each clinic has the opportunity to achieve medical breakthroughs that could lead to the betterment of society. These typically require creativity as students research a current medical problem and try to design a device or medication to help with the problem. These breakthroughs are optional. Successful breakthroughs may be used as extra credit for student grades.

Code Cards
Each Code Card presents the Medical Clinics with their first patient in an emergency situation. Each code deals with a public health issue, such as cigarette smoking, drug use, and eating disorders. You will only need one Code Card per clinic. There are 10 Code Cards in all. Choose the public health issues you feel will most benefit your class. Another option is to divide each Medical Clinic into two sub-committees, and use all ten (if you have five Medical Clinic groups). In order to complete the Code Card successfully, the Medical Clinic must research the problem and the solutions and present these on a three-paneled presentation board.

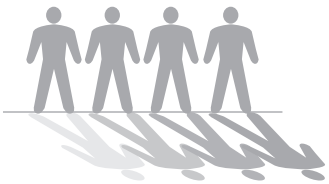
Grand Rounds
The culminating activity for the unit simulates a conference where physicians present interesting patients to one another. Each clinic presents their Code Card patient, using their presentation board to describe their patient, the problem, and their solutions. Consider inviting other classes or parents to tour the Medical Clinics' displays and to ask questions of the "physicians."

1. **Before Beginning**
   Carefully and thoroughly read through this Teacher Guide and the Student Guide before beginning. This will help you plan your time and adjust the unit to meet your students' needs and abilities. Interact employs certain editorial conventions to identify materials.
   a. In preparing materials, *class set* means *one per student*.
   b. One *Day* on the **Unit Time Chart** is the length of a normal class period—50 minutes to one hour.
   c. All transparency masters and student handouts are listed by name using ALL CAPITAL LETTERS.
   d. Teacher reference pages are named in **Bold**.
   e. Special events are named using *Italics* (e.g., *Grand Rounds*).

2. **Timing**
   CODE BLUE consists of 15+ hours of activities. (See the **Unit Time Chart** and **Daily Directions** for specifics on timing.)
   The schedule of this unit is flexible.
   Week 1—students work in Expert Groups to research and discuss one body system, create models and diagrams of their body system, and take a specialty-specific Board Exam.
   Week 2—students regroup in their Medical Clinics as they teach their body system and learn about the other five body systems, prepare and take a Physiology Test, work on Medical Breakthroughs and Challenge Codes, "see" their first patient (Code Card), and begin research.
   Week 3—students in their Medical Clinics complete their research, and prepare for and present at *Grand Rounds*.

15+ hours

3. **Grouping Students**
   The unit utilizes cooperative learning.
   a. **Jigsaw Groups—Medical Clinics**
      On Day 1 you will divide your class into groups, called Medical Clinics, of six students each. These Medical Clinics function as the jigsaw group. Students work together as well as individually to achieve their group goals of learning about six systems of the body, passing exams, working on Challenge Codes and Medical Breakthroughs, and finally on "seeing" and presenting their first patient.
   b. **Expert Groups—Medical Specialties**
      On Day 2 students are grouped into Expert Groups based on the role/specialty they play within their Medical Clinic. All the cardiologists form one Expert Group, all the pulmonologists form a second Expert Group, and so on. See **The Jigsaw Classroom** (page 12) for more information on this grouping strategy.



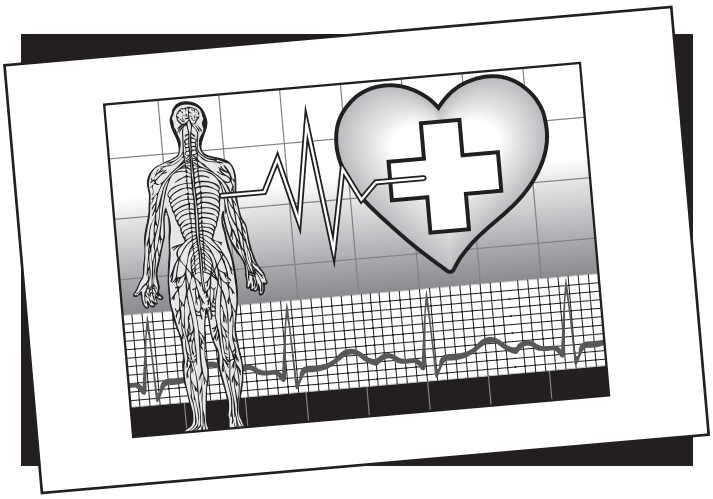
Jigsaw and Expert Groups

Jigsaw Groups have six students. If your classroom does not evenly divide into groups of six, have some groups of more than six. The "extra" students are assigned to any of the six specialties. These groups will have two specialists working on one or more of the six body systems.

UNIT TIME CHART

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Organize teams and assign roles Introduce unit Make clinic signs • COOPERATIVE GROUP WORK RUBRIC	Specialists meet to read about and discuss their body system	Specialists continue research Begin working on models and diagrams	Specialists continue working on assigned tasks Prepare for Board Exams	Board Exams Complete tasks Practice teaching • BOARD EXAMS (CARDIOLOGY, PULMONOLOGY, INFECTIOUS DISEASE, ORTHOPEDIC, GASTROENTER-OLOGY, NEUROLOGY **Teacher Reference** • **Board Exams Answer Key**
DAY 6	**DAY 7**	**DAY 8**	**DAY 9**	**DAY 10**
Specialists teach their body system to the other members of their clinic	Continue teaching Study for Physiology Test	Physiology Test Medical Breakthroughs Challenge Codes • PHYSIOLOGY TEST • MEDICAL BREAKTHROUGHS and RUBRIC • CHALLENGE CODE 1 and 2 **Teacher Reference** • **Physiology Test Answer Keys** • **Challenge Code Answer Keys**	Introduce Code Cards Teams discuss Code Cards and begin planning • GRAND ROUNDS • CODE CARDS • GRAND ROUNDS RUBRIC	Research Code Card problems Begin planning solutions
DAY 11	**DAY 12**	**DAY 13**	**DAY 14**	**DAY 15**
Complete solutions to Code Cards Begin work on presentation boards	Complete work on presentation boards	Write scripts for Grand Rounds presentations	Rehearse presentations for Grand Rounds	*Grand Rounds* Debriefing

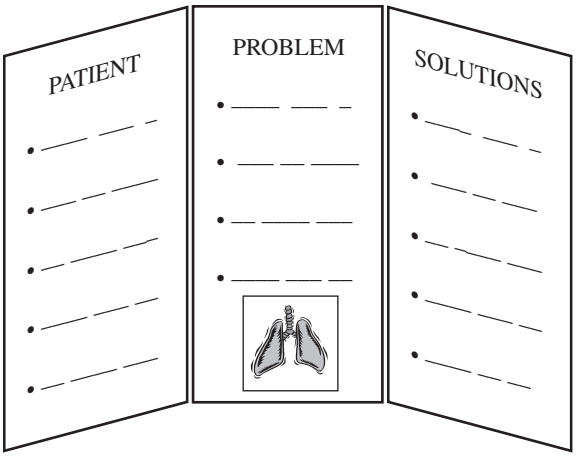
GRAND ROUNDS



Code Card
When you have passed all of the necessary exams and are ready to see your first patient, you will receive a **Code Card**. The Code Card will describe your patient, his or her symptoms, and the diagnosis. Your job is to research the problem and answer the accompanying questions in order to restore health to your patient.

Grand Rounds
Grand Rounds is a special conference physicians have to present interesting patients to one another. For your *Grand Rounds* presentation, you will be required to complete the following:

1. Prepare a three-paneled presentation board with the following information:
   - Your patient—his or her age, sex, and other details relevant to the issues being discussed
   - Problem—symptoms and diagnosis
   - Solutions—what the patient must do to become healthier

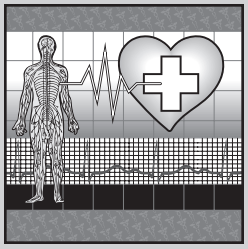


2. Prepare a five-minute oral presentation, carefully explaining all of the above information. Write a script and rehearse with your clinic colleagues before the big day! All physicians participate in the *Grand Rounds* presentation.

3. While preparing for *Grand Rounds*, think about and refer back to what you learned about the body systems. You may even be able to use some of the models and diagrams that were made.

Be clear and prepared. Remember, all of the other Medical Clinics are gathering this vital information from you! Your information could save many lives in the future.

Student Name: _____



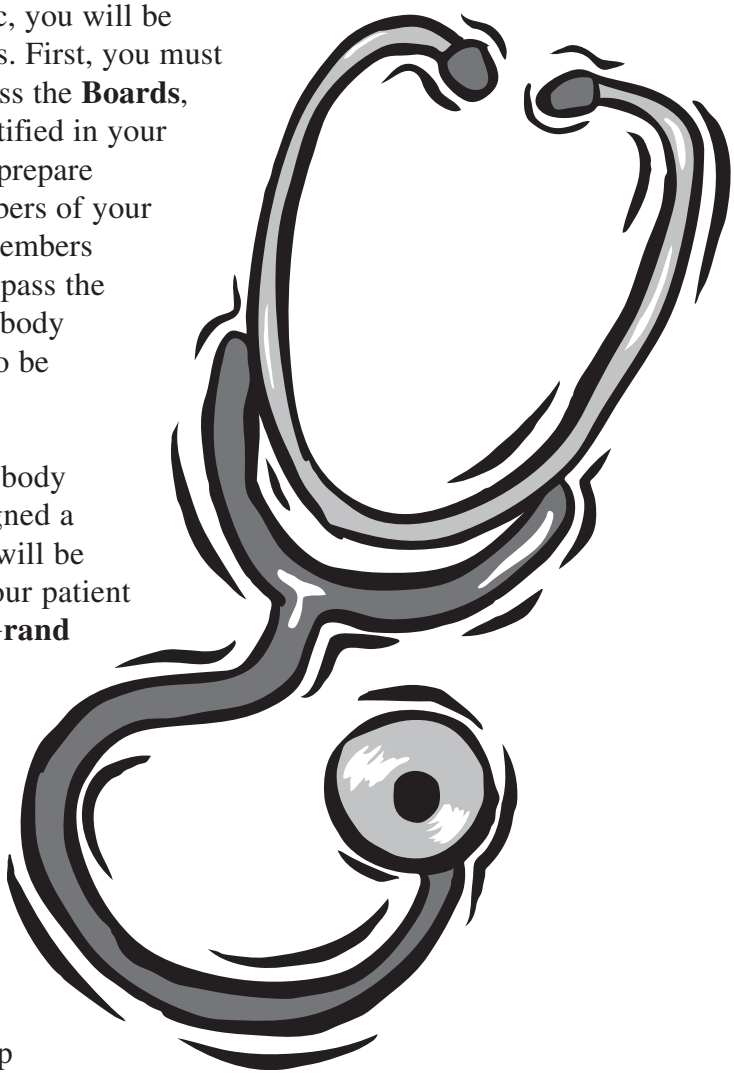
STUDENT GUIDE

CODE BLUE

INTRODUCTION

Congratulations! You have just completed medical school and have recently been hired to work in a Medical Clinic. However, before you begin treating patients, you need to be fully trained in your specialty. Together with others in your specialty, you will attend advanced training to learn one of six body systems. You will be the only physician in your clinic with your particular specialty, so you must work very hard to learn your system well. Your clinic is relying on you for this information!

During your time with your clinic, you will be required to complete several tasks. First, you must learn about your specialty and pass the **Boards**, an exam qualifying you to be certified in your specialty. Additionally you must prepare materials to teach the other members of your clinic about your specialty. All members of your clinic will be required to pass the **Physiology Test** dealing with all body systems in order for your clinic to be allowed to treat patients.



After you have learned about all body systems, your clinic will be assigned a patient to treat. As a group, you will be asked to find solutions to help your patient and to present your findings at **Grand Rounds**, a conference where physicians gather to discuss interesting patients.

Lastly, because of the constant advancements in medical technology, your clinic may choose to accomplish **Medical Breakthroughs**. Through research and creativity, your group can invent a device or medication that can treat current medical problems.

Good luck on each of these endeavors!

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Code Blue

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Learn Through Experience

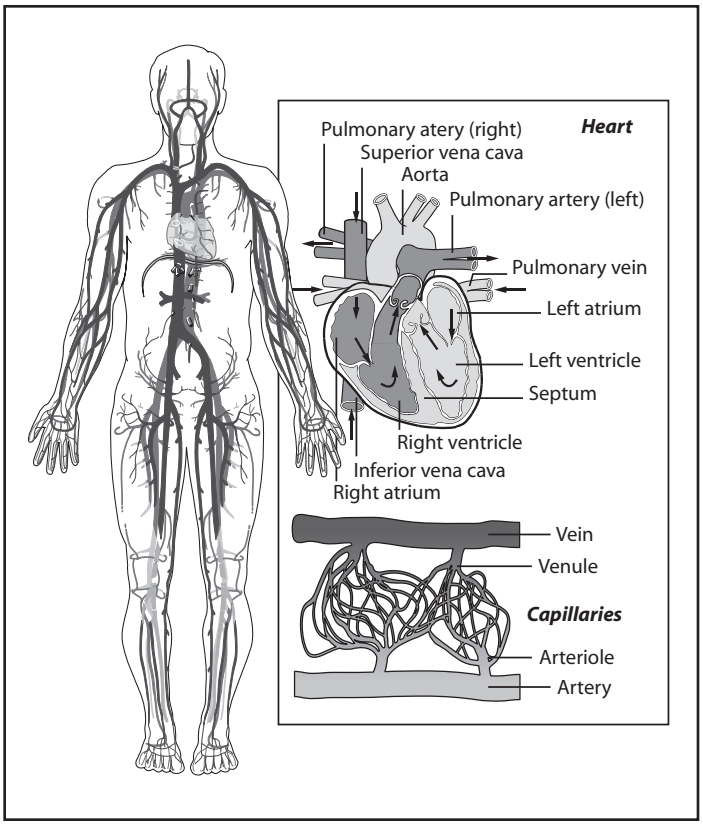
Cardiologists—The Circulatory System

The circulatory system consists of the heart and blood vessels. Its function is to circulate blood containing oxygen and nutrients throughout the body, thus providing the organs of the body with the energy and nutrition needed to live.

The **heart** is divided into a right and left side by a thin muscular wall called the **septum**. Each side has two chambers, an upper chamber called the **atrium** and a lower chamber called the **ventricle**.

Now, let's trace the path of blood around the circulatory system:

First, the **left atrium** receives oxygen-rich blood from the lungs and passes it to the left ventricle. The **left ventricle** pumps the oxygen-rich blood out of the heart. From here, the blood enters the **aorta**, the largest artery of the body. **Arteries** are vessels that transport blood away from the heart. The aorta branches into smaller arteries that transport the oxygen-rich blood to the entire body. The arteries then branch into tiny vessels called capillaries. **Capillaries** are extremely thin, only one cell thick! It is here that the oxygen and nutrients in the blood are exchanged for carbon dioxide and wastes in the tissues.



Now oxygen-poor blood travels to the right side of the heart through vessels called veins. **Veins** are vessels that transport blood towards the heart. The **right atrium** receives the oxygen-poor blood and passes it to the right ventricle. The **right ventricle** then pumps the blood through the **pulmonary arteries** into the capillaries of the lung where the carbon dioxide is exchanged for oxygen. Finally, the **pulmonary veins** carry the oxygen-rich blood to the left atrium of the heart, beginning the cycle again.

Your Tasks

Use the above information and other resources to complete the following:

1. Create a three-dimensional model of the heart, clearly demonstrating all four chambers and valves. NOTE: a purchased model is not an option.
   - The model can be a cross-section model or an open-and-shut model (where you can open the model and look inside)
   - Work with color and different materials to show the various components
   - Consider using paper, plastic tubing of varying diameters, string or yarn of different dimensions, different colored straws, etc.
   - Be creative with the use of color and the size of the various materials

2. Draw a diagram showing the path of blood through the circulatory system, clearly labeling all components.

3. Using the model and diagram you create, teach your Medical Clinic members about the circulatory system.

