

Being **Hyper** Releases **Tension**

Studies show that High Blood pressure or hypertension affects many Americans but the problem is often not recognized until it is almost too late. Based on scientific and health findings, it is understood that High Blood Pressure usually develops, and therefore can be prevented, during the early stages of life. It is important for our youth to develop the healthy habits necessary to prevent High Blood Pressure because many of our lifelong habits develop at an early age.

Description: This unit is designed for 9th graders in freshman health. It is intended to increase the emphasis on blood pressure in the Heart unit. Recent studies are showing that our youth are the most obese generation in American history and are subject to a higher risk of heart disease and high blood pressure. Therefore, offering an alternative method of delivery, the students can hopefully see the importance of the Blood Pressure awareness.

Students will increase skills in research, science and health, writing, and technology use (Internet and Software). Students will use their health books, the Internet, MS PowerPoint, MS Word, MS Access, and MS Excel.

Prior Knowledge: The Human Heart, Functions and Components of the Human Heart, Circulatory System, Internet, MS Office, Printing

Before beginning lesson on High Blood Pressure, use the first ten minutes of class to recap the students on the previous section dealing with the heart and its components and functions. Begin the transition to High Blood Pressure by asking students to describe what they think is meant by blood pressure and what it means to have high blood pressure. After a couple student responses, briefly explain what is meant by blood pressure and then begin the first lesson.

Equipment and Material Needs:

Computer lab able to meet needs of each student (numbers, software, etc.):

- MS Word
- MS Access
- MS PowerPoint
- MS Excel
- Internet
- Printer
- CD-RW drive
- Sphygmomanometer

Unit goals:

1. Students will get an introduction to the heart and the relationship of High Blood pressure to the heart, as well as beginning to learn the importance of understanding high blood pressure.
2. Students will begin to get a good understanding of HBP including potential causes, risks, prevention methods, and treatments.
3. Students will exemplify their understanding of the High Blood pressure terminology. Students will then learn how to measure blood pressure and begin to see how exercise, stress, and sleep have an effect on Blood pressure.
4. Students will learn to understand their blood pressure reading.
5. Students will be able to use the web as a research tool and use their data to create documents that demonstrate their understanding of materials (databases, presentations, essays, tables, and charts).

Lesson 1

Time: 1 block

Objectives:

1. Students will test their current understanding of high blood pressure via the web
2. Students will learn the basic terminology pertaining to high-blood pressure
3. Students will be able to organize data into a database

Procedures:

- (10 minutes) Prior to beginning the main parts of the assignment have the students do the following and explain purpose:
 - Create a new folder in “My Documents” titled “Heart.”
- (15 minutes) Ask students to:
 - visit <http://www.americanheart.org/presenter.jhtml?identifier=2114>
 - Read the introduction about high blood pressure
 - Take the Blood Pressure IQ quiz
 - Students will type their score in MS Word as well as the question numbers they missed.
 - Students will save the file as “Pre-Quiz” to folder named “Heart”
 - They will revisit the quiz at the end of the unit
 - (45 minutes) After the students take the quiz, they are to read the chapter in the book on the Heart and High Blood Pressure and Define the Vocabulary from that chapter.
 - The vocabulary is to be typed using Microsoft word in the form of a two column table (Terms on the left and the definition on the right) and save the file as “Heart Vocabulary” in the “Heart Folder.”
 - (20 minutes) After each student completes their vocabulary and you check them off for completion, have them begin to prepare a database using MS Access based on Handout #1 criteria. Explain to them that you will come back to the database in two class periods, but it is necessary to complete prior to.

Lesson 2

Time: 1 block

Objectives:

1. Students will learn the relationship of high blood pressure to the heart and body
2. Students will be able to use the web to conduct research and gather facts about high blood pressure

(15 minutes) Begin the lesson with a lecture covering the main aspects of High Blood pressure and its relationship to the heart/circulatory system.

- Upon completion of the lecture, go over the Terms the students defined in class the previous day and inform them that there will be a matching quiz tomorrow
- (75 minutes) Students will visit www.cnn.com
 - Click on the “Health” Link
 - Find the Article from Tuesday August 24 Titled, ” Report: More Have High Blood Pressure” Under “Conditions News.”
 - (30 minutes) Each student is to individually cut and paste information from the site that answers the criteria on the handout accompanying this activity (Handout #2) for the PowerPoint.
- Students will Visit at least one other website with information relevant to High Blood Pressure and find two other interesting facts about High Blood pressure and email to the instructor.
 - Compile all the interesting facts the students found and create a document to post in the room. During one segment of a class period, allow several students to share at least one of their interesting facts.
 - (45 minutes) After each student has finished reading the article and gathering information, they will be placed into groups of 3 or 4 (teacher pick groups) the second half of class to begin preparing a PowerPoint presentation containing the following:
 - The assumed causes of High Blood Pressure
 - The possible risks from High Blood pressure
 - What increases the risk of High Blood pressure
 - The comparison over the years
 - The ratio’s of persons affected
 - Persons most affected
 - Include all statistics
 - Treatment methods
 - Why is High Blood Pressure called the “silent killer?”

Lesson 3

Time: 1 Block

Objectives:

1. Students will learn how to use a sphygmomanometer
2. Students will record their blood pressure readings into their databases

(25 minutes) Students will take the matching terms quiz (See Handout #3)

- Go over as a class to clear up any questions
- (10 minutes) Have students pull up their individual databases as you go over the purpose:
 - Explain to students that as they are working on their group PowerPoint, you will pull each of them individually and show them how to use the sphygmomanometer and then they will have their blood pressure taken.
 - Over the course of the next two weeks (10 class periods) each student will have their blood pressure taken and they will fill in the information for that day in their database.
 - Explain to the students that an analysis in the form of a chart will be used once the readings are complete in two weeks to show the major affects their lifestyles have on their blood pressure. They will be displayed anonymously in class on bulletin board once completed.
 - (55 minutes) Students will continue working on their group PowerPoint assignments throughout the period

Lesson 4

Time: 1 block

Objectives:

1. Students will use the web as a means to learn how to interpret their blood pressure readings
2. Students will learn how to burn data to a CD

(30 minutes) Have students individually visit

<http://www.bpassoc.org.uk/information/measured.htm>

- Answer the questions in handout #4 after visiting the site:
- Have students type the question and answer in MS Word and email their results to you by the end of class.
 - Have the students include, based on their readings up to this point:
 - Their blood pressure rate today
 - Is it high or low?
 - How much off are they?
 - Go over the information as a class the last 5-10 minutes of class
- (50 minutes) Have students finish their group PowerPoint and turn in on a CD-RW
 - Teacher will choose at least one slide from each group's PowerPoint to use as they go over the content in the next block as a means of covering all necessary content as well as creating a sense of worthiness of the students' work.

Lesson 5

Time: 1 Block

Objectives:

1. Instructor will reiterate important facts
2. Students will review high blood pressure information in preparation for exam

- Go over the information from cnn.com and any content not mentioned in the students' PowerPoint
 - During the lecture, ask questions that lead up to the content rather than just going over material. Hold students accountable for material, and then pull up information on the screen to reiterate.
 - This is where the students' slides will be showed (at least one from each group making sure to cover all content).
 - Remind students that the exam covering the Heart and Blood Pressure will be in 3 class periods from today
 - The exam will be two part:
 - Essay that causes them to apply knowledge
 - Part II will be the following (Give them a heads up to start thinking about it):
 - They are to apply their knowledge of the heart, circulatory system, and blood pressure to do the following:
 - Use the web to learn how a car's fuel system operates (The fuel pump and the fuel line specifically)
 - Use this information and compare it to the way the heart functions
 - What (in a car) could be compared to High Blood Pressure in humans?

Lesson 6 (10th day of reading blood pressure)

Time: 1 Block

Objective:

1. Students will apply their overall knowledge of the affects of lifestyle on blood pressure.
2. Students will integrate across two applications
3. Students will demonstrate the ability to analyze their blood pressure results
 - Students will integrate information from MS Access into MS Excel Students will create a bar chart and a line chart representative of their blood pressure over the last 10 days.
 - Accompanying the chart will be a print out of all the criteria in the database pertaining to the blood pressure (diet, exercise, sleep, stress, etc.)
 - Students will type a 2-3 page paper using MS Word to analyze and rationalize their results.
 - Any fluctuations or lack of
 - Any trends
 - ETC.

- The results will be anonymously posted on the class bulletin board

**Grading Scheme for HBP PowerPoint
(Due End of 4th Block of HBP Unit)**

Directions:

1. Visit cnn.com and do the following:
 - Click on the “Health” Link
 - Find the Article from Tuesday August 24 Titled,” Report: More Have High Blood Pressure” Under “Conditions News.”
 - Individually cut and paste information from the site that answers the criteria below for the PowerPoint.
2. Visit at least one other website with information relevant to High Blood Pressure and find two other interesting facts about High Blood pressure and email to the instructor, including the URL where the information was found.
 - Compile your interesting fact results in your groups and add a slide to your PowerPoint listing all the other interesting facts

You will use the information you found at www.cnn.com to prepare a PowerPoint presentation in the group you were assigned to. Your PowerPoint will not be presented to the class, but the grading scheme is below:

- **Minimum of 12 slides (60 points)**
- **All required content covered (50 points)**
 - The assumed causes of High Blood Pressure
 - The possible risks from High Blood pressure
 - What increases the risk of High Blood pressure
 - The comparison over the years
 - The ratio’s of persons affected
 - Include all statistics
 - Treatment methods
 - Why is High Blood Pressure called the “silent killer?”
 - Interesting facts
- **Completed log of work for each group member (25 points)**
(Student Log Attached)
- **Relevant graphics throughout the Presentation inserted from the web (25 points)**
- **A slide containing all Web Resources used by each group member (25 points)**
 - Including cnn.com
 - All graphics
 - Interesting facts
- **Completed on time (10 points)**
- **Presentation Properly burned to a CD-RW (5 points)**
- **TOTAL (200 POINTS)**

Group Contribution Log

Prior to beginning your PowerPoint presentation, decide which group members will be responsible for what portion of the assignment. Each group member must contribute equally. Divide the number of slides completed, the resources, and all other tasks evenly. Place a check mark beside the name of the group member and underneath the appropriate task completed. In the final column, place the URL's that each group member used for resources.

Name	Slide 1	Slide 2	Slide 3	Slide 4	Slide 5	Slide 6	Slide 7	Slide 8	Slide 9	Slide 10	Slide 11	Slide 12	URL's Used

- **Each group member is to also type a short summary of how they completed their portion of the assignment and email it to the instructor the day the Presentation is turned in.**

Handout #3

NAME _____

Blood Pressure Terms Quiz

Directions:

In the space provided beside each term, write the letter of the definition that corresponds with the correct term.

1. Aorta B
 2. Artery C
 3. Aspirin D
 4. Atherosclerosis A
 5. Autoregulation I
 6. Beta Blocker J
 7. Blood Pressure E
 8. Body Mass Index F
 9. Calcium Blocker G
 10. Capillaries H
 11. Cardiac Output K
 12. Circulatory System L
 13. Diastolic Blood Pressure O
 14. Exercise Stress Test Q
 15. Heart Attack P
 16. High Blood Pressure R
 17. Hypertension T
 18. Hypotension S
 19. Obesity M
 20. Vertigo N
- A.** A disease process that leads to the buildup of a waxy substance, called plaque, inside blood vessels
- B.** The largest artery in the body and the initial blood-supply vessel from the heart
- C.** A vessel that carries oxygen-rich blood to the body
- D.** Acetylsalicylic acid; a medicine used to relieve pain, reduce inflammation, and prevent blood clots
- E.** The force or pressure exerted by the heart in pumping blood
- F.** A number that doctors use to determine the risk of cardiovascular disease created by overweight or obesity
- G.** A medicine that lowers blood pressure by regulating calcium-related electrical activity in the heart
- H.** Microscopically small blood vessels between arteries and veins that distribute oxygen-rich blood to the body's tissues.
- I.** When blood flow to an organ stays the same although pressure changes in the artery that delivers blood to that organ may have changed.
- J.** An antihypertensive drug that limits the activity of epinephrine, a hormone that increases blood pressure
- K.** The amount of blood the heart pumps through the circulatory system in one minute
- L.** Pertaining to the heart, blood vessels, and the circulation of blood
- M.** The condition of being significantly overweight
- N.** A feeling of dizziness or spinning
- O.** The lowest blood pressure measured in the arteries
- P.** Death of, or damage to, part of the heart muscle due to insufficient blood supply
- Q.** A common test for diagnosing coronary artery disease, especially in patients who have symptoms of heart disease
- R.** A chronic increase in blood pressure above its normal range
- S.** Abnormally low blood pressure
- T.** High Blood Pressure

Lesson 4 Handout

- Visit <http://www.bpassoc.org.uk/information/measured.htm> and answer the following questions:

1. How often do I need to have my blood pressure checked?

2. How is blood pressure measured?

3. What do the numbers mean?

4. What should my blood pressure be?
