



## **VITAL SIGNS TO PERSONAL HEALTH PROMOTION AND THE CARE OF OTHERS**

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TPJ10 / TIJ10

Health Care

Summer 2022



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## Introduction

**Course Code:** TIPJ10/TPJ10

**Broad base Technology:** Health Care Technologies

**Destination:** Open

**Grade Level:** 9

**Prerequisite:** None

**Project Name:** Vital Signs to Personal Health Promotion and the Care of Others

This is an introductory course that introduces students to personal health promotion and care of others. Using materials, processes, and techniques used in the industry, students learn the basic fundamental skills in health care regarding taking and maintaining healthy vital signs readings. Students will also consider related diseases, disorders and research environmental and societal issues that affect healthy vital sign readings.

There are some instructional videos that can help guide you through the logistics and main points of items in this Unit plan.

## Project Outline

Students will demonstrate their learning skills regarding vital signs with an introduction to a variety of health care instruments and equipment then demonstrate their knowledge in their ability to document as well as use them correctly in a mock clinic setting.

Students will learn about the importance of documentation and the use of the 24 hour clock.

As an option, there is a reflection activity where students can apply their knowledge while researching preventative measures to avoid a selected abnormality, diseases and/or disorder.

## Planning Notes

Each activity is organized as a step learning or scaffolding process in that some background knowledge is required in order to achieve full understanding of the concept of taking vital signs and the significance thereof.

## Prior Knowledge

Vital Signs is an introductory lesson so no prior knowledge is required in order to complete this Unit Plan

## Student Activities

### Activity 1 - The 24-Hour Clock

Objective: Students require the knowledge of the 24-hour clock so that they will understand the importance of how to identify and eventually investigate various health abnormalities, diseases and/or disorders related to abnormal vital sign readings and when they occur.

Materials: 24 hour clock worksheet (internet link provided)

Time: 2-3 hours

Resources: PowerPoint Note, supportive YouTube video

#### Instructions:

KWL- Post the following questions on the whiteboard (Answers will vary)

What is a 24-hour clock? (Answer: it is the time keeping in which the day runs from midnight to midnight and indicated by the hours passed since midnight -hour 0 to 24 or 23:59)

Why is a 24-hour clock necessary in the Health Care field? (to give an exact time that treatments or ailments to a patient occur and are not confused or create medical errors)

Advise students to change their digital watches to the 24-hour clock mode to help in the understanding of 24 hour time

[\\*24 hour clock PowerPoint](#)

[\\*24 hour clock Practice Worksheets](#)

[\\*24 hour clock Jigsaw Puzzle Activity](#)

## Activity 2 - How to Use a Stethoscope

Objective: Allows for auscultation (listening to internal normal/abnormal body sounds)

Materials: See Equipment list below

Time: 2-3 hours

Resources: PowerPoint Note, supportive YouTube video

Equipment needed:

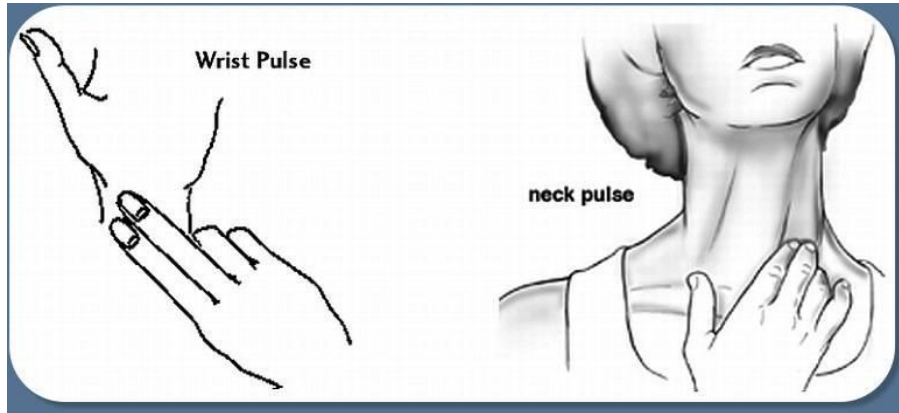
- Class set or students can share a ½ class set of stethoscopes
- alcohol pad for each use and end of use

[Stethoscope Basics video](#)

[How to Use a Stethoscope PPT](#)

[“You Gotta Have Heart” Lab sheet](#)

# You Gotta Have A Heart Lab Sheet



1. Find your pulse using your wrist artery or neck artery.
2. Clock 15 seconds. Count the number of times you feel your pulse.

\_\_\_\_\_ Heartbeats in 15 seconds x 4 = \_\_\_\_\_ per minute

3. Do 20 jumping jacks. Now find your working pulse rate.

\_\_\_\_\_ Heartbeats in 15 seconds x 4 = \_\_\_\_\_ per minute

4. Wait three minutes. Find your cool down heart rate.

\_\_\_\_\_ Heartbeats in 15 seconds x 4 = \_\_\_\_\_ per minute

.....

Heart Profile of:

Name: \_\_\_\_\_

Age: \_\_\_\_\_

My heart beats \_\_\_\_\_ times per minute,

(x60) \_\_\_\_\_ per hour,

(x24) \_\_\_\_\_ times per day,

(x365) \_\_\_\_\_ times per year.

In my lifetime, (x your age \_\_\_\_\_ ), my heart

has beat more than \_\_\_\_\_ times!!!! WOW!!!!

### Activity 3 - Vital Signs Introduction

Objective: Vital signs are the starting point for all health professionals to gauge their patient's progression or digression of their symptoms, disease or disorder

Materials: See Equipment list below

Time: 2-3 hours

Equipment needed:

- 2- 3 SpO2 oximeters and/or video of it
- 1-6 Electric Blood Pressure machine and or video of it
- Various thermometers (oral, tympanic, temporal) with disposable probe covers
- [Snellen Eye Chart](#) website with printable chart and full explanation. [Printable chart](#)
- \*[Pulse Site diagram](#) website- [Pulse Diagram](#)

[What is Pulse? By Toronto Metropolitan University Pressbooks](#)

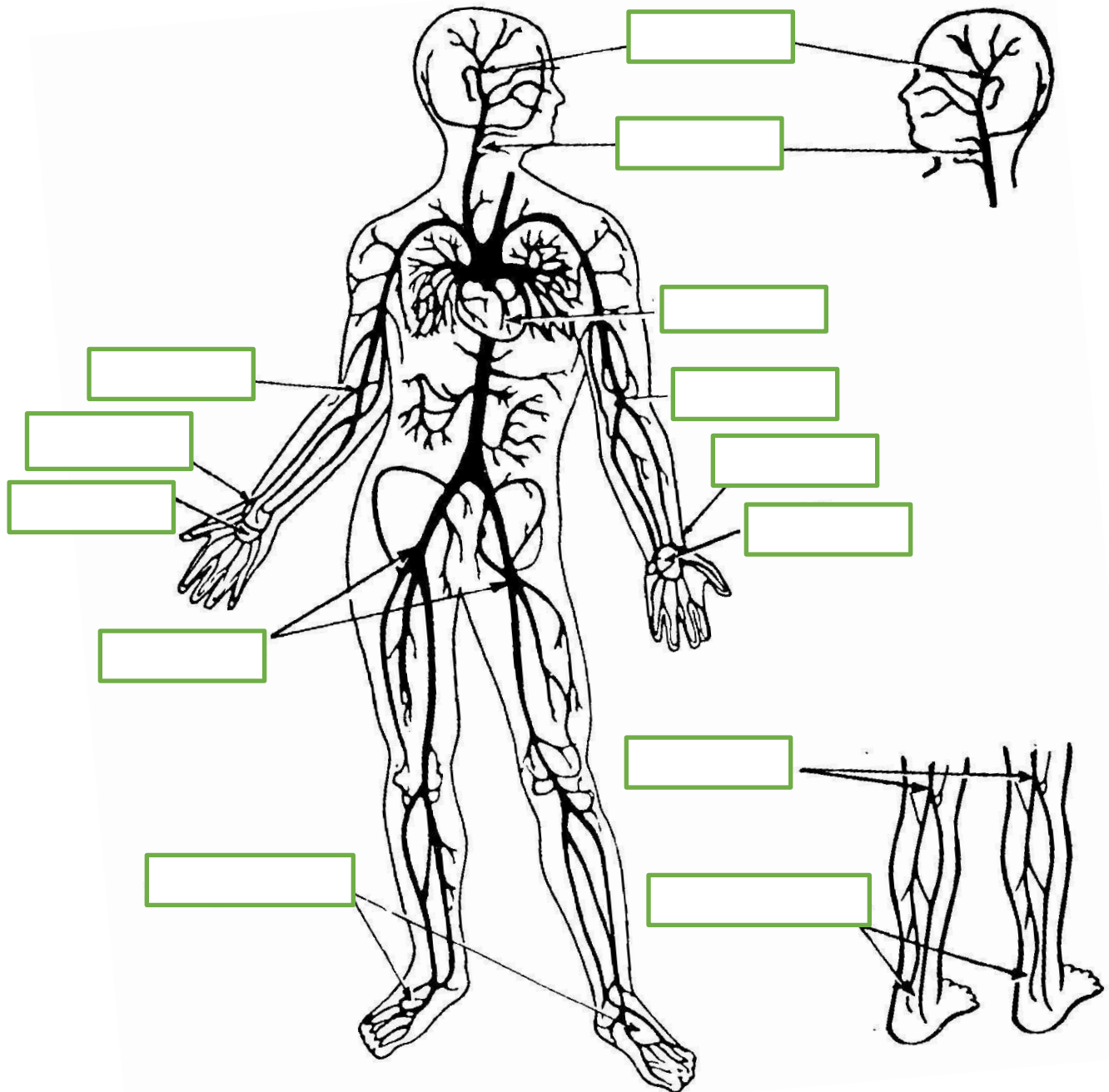
Introduce SpO2 and/or use this [Oxygen Saturation and the Pulse Oximeter video](#)

Introduce Electric Blood Pressure Machine and/or view this [Lumiscscope video](#)

Allow students to practice with equipment and record findings using proper 24-hour clock time and legal patient name



Label the following pulse sites from the Vital Signs PPT then try to palpate as many PULSE SITES AS POSSIBLE on both yourself and then a partner.



## Activity 4 Vital Sign Clinic

Objective: Student can demonstrate their comprehension and understanding of the use of vital sign equipment

Materials: See Equipment list below

Time: 2-3 hours (NOTE: Set up clinic prior to class starting)

Resources: See Clinic Instructions

Equipment needed for each station is in the Vital Sign Clinic document below. Print a copy and place at each station with indicated Station number

[Vital Signs PPT](#)

[Vital Sign Clinic Instructions](#)

[Clinic form handout](#)

\*Introduce students to each station of the clinic at the start of activity

## Activity 5- Unit Test (Optional)

Note: I allow students to take as much time as needed to write test but also introduce the Pamphlet project below for student who finish their test to work quietly on as the other students finish their test

[Vital Sign Unit Test Review, Test](#) and [Answers](#)

## Activity 6 - Vital Signs Pamphlet Assignment (Optional)

Objective: The Pamphlet Assignment is to allow the teacher/instructor to see if students can apply their vital sign acquired knowledge while researching preventative measures to avoid a selected abnormality, diseases and/or disorder.

Materials: Use the Internet Google search or create an exemplar

Time: 2-3 hours

Resources:

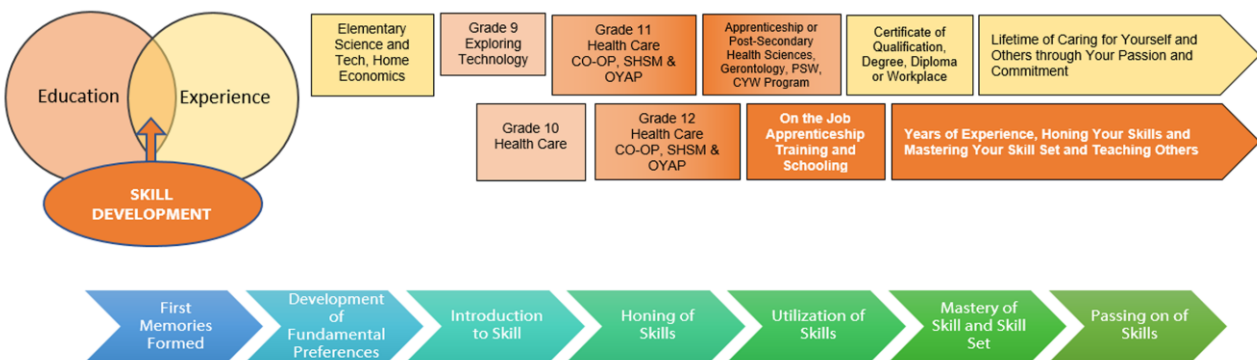
[Disease or Disorder Prevention Pamphlet](#)

## Skilled Trades and Apprenticeship Opportunities

Learning vital signs is extremely important especially in the roles and responsibilities of numerous health care providers/professionals for example, family physicians, various levels of the nursing career (ie. registered practical nurses, personal support workers), and/or specialty areas of nursing, medical equipment dealers etc.

## Skills Continuum

We all have different moments in our lives where we are affected by an experience. This can include learning a new concept or skill, experiencing something for the first time, taking a new course, developing a talent through practice and hard work, or even calling upon a medical professional or first aid responder to assist with a situation and relying on their knowledge, expertise and experience. Think of it as a skilled 'tradesperson' to fix, repair, design, construct, maintain, build, bake, and create innovative solutions. The continuum of influence is a graphic representation of how those experiences can lead to developing a passion and talents in areas of healthcare technology as a paramedic, nurse, nurse practitioner, medical assistant, doctor, lab technician, product sales, medical assistant, scientist, research and development, hospital administration, etc.



## Career and Industry Extensions

Learning vital signs is extremely important for students to implement learned skills in the roles and responsibilities of numerous health care providers/professionals for example, family physicians, various levels of the nursing career (ie. registered practical nurses, personal support workers), and/or specialty areas of nursing, medical equipment dealers etc.

# Resources

## Lesson Plans Instructions

Attached to applicable activities

## Handouts

["You Gotta Have Heart" Lab sheet](#)

[Vital Sign Clinic Instructions](#)

[Clinic form handout](#)

[Vital Sign Unit Test Review.](#)

[Vital Signs Test](#)

[Vital Signs Test Answers](#)

## Pictures/Blueprints

[Snellen Eye Chart](#) (see [Appendix C](#))

## Tools/Equipment

Medical equipment- Stethoscopes, Electric Blood pressure machines, various thermometer types, Flashlights, alcohol cleansing pads

## Materials / Presentations

Handouts, PowerPoint Notes

[How to Use a Stethoscope PPT](#)

[Vital Signs PPT](#)

## Websites for Teachers

[24 hour clock Practice Worksheets](#)

[24 hour clock Jigsaw Puzzle Activity](#)

[What is Pulse? By Toronto Metropolitan University Pressbooks](#)

## Videos

Introduction to Vital Signs for Nursing Students

RN Kid

<https://www.youtube.com/watch?v=Wyl34ussq6U>

(28:31)

Stethoscope Basics for the EMT

Chris Le Baudour

<https://www.youtube.com/watch?v=5SBRX6jq3GI>

(2:43)

Oxygen Saturation and the Pulse Oximeter: Nursing Skill Vital Signs

NurseMinder

<https://www.youtube.com/watch?v=DNXI DcN1Or0>

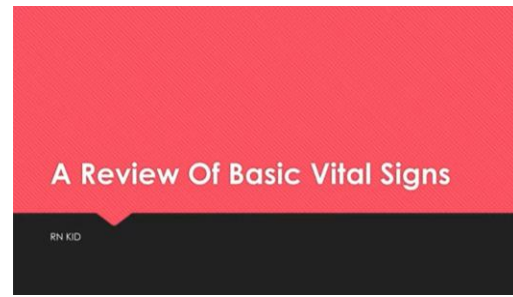
(7:25)

Lumiscopes How to Use the Upper Arm Blood Pressure Monitor: How-to Instruction Video

Graham-Field

<https://youtu.be/dcYICrINPn8>

(3:09)



## Instructional Strategies

Teachers may use any of the following instructional strategies; lecture, storyboard, word wall of various pieces of equipment, disease related terminology etc., K-W-L, anticipation chart, think aloud, analyzing text, and/or Cornell note taking,

## The Hook / Motivational Strategies

Teachers can determine the level of student understanding to increase or decrease the synchronous learning. For example as a hook, show the following [video](#) as an excellent introduction to vital signs.

## Learning Goals and Success Criteria

Students will be able to understand personal health promotion and care of others. Using materials, processes, and techniques used in the industry, students learn the basic fundamental skills in health care regarding taking and maintaining healthy vital signs readings. Students will also consider related diseases, disorders and research environmental and societal issues that affect healthy vital sign readings.

## Overall and Specific Expectations in Support of Ontario Curriculum Grades 9 - 10 Technological Education

This exploratory course introduces students to concepts and skills related to health care, which encompasses personal health promotion, and various medical instruments. In doing so, students will develop an awareness of related societal issues and will begin to explore secondary and postsecondary pathways leading to careers in the field.

### Overall Expectations

A2. Describe factors that affect personal health and well-being

B1. Demonstrate an understanding of and apply correct procedures for ensuring asepsis and proper use of medical equipment

### Specific Expectations

A2.5 Describe situations in which one should seek immediate medical

A2.8 Explain how lifestyle choices can have an impact on an individual's health and well-being

B1.2 Describe a variety of health care instruments and equipment and demonstrate the ability to use them correctly (e.g., *thermometer for body temperature, stethoscope for heart rate and respiration*)

B4.4 Demonstrate an understanding of common health care terms (e.g., stethoscope)

## Safety Concerns

Proper cleaning of medical equipment (ie. alcohol swabs for stethoscope ear pieces) and use of disposable probe covers and disposal thereof

## Challenges Implementing Project

Students require access to indicated medical equipment

## Applicable SAFEDocs and ToolSAFE videos

Refer to [OCTE SAFEdoc for Hairstyling and Aesthetics](#) , specifically:

page 13 Overall Expectations for TPJ20

page 18 Biohazards

page 21 Practice Labs

page 26 Health Care Equipment

page 34 Hand Washing

## Differentiation of the Project / Activity

Using the Health Care Equipment may be difficult initially. For this situation teachers can review the PowerPoint and/or videos or work one-to-one (during class or privately) with students having difficulty before students continue on with the Vital Signs Clinic practical lab.

Visuals of all necessary information for students with reading difficulties is supported in the form of demonstration videos and teacher-initiated demonstrations.

## Assessment and Evaluation

### Assessment as Learning

Students complete work sheets and demonstrate learning in the Vital Sign Learning clinic.

## Assessment As Learning

Teacher/Instructor circulate as students go through the various Vital Signs clinic stations

## Assessment For Learning

Students can write Optional Vital Signs Unit test

Students can complete Vital Sign Pamphlet Assignment

## Career and Industry Extensions

Industry extensions and career exploration include the following areas:

family physicians in different areas of expertise/focus , various levels of the nursing career (ie. registered practical nurses, personal support workers), and/or specialty areas of nursing, medical equipment dealers etc.

## Ethical Considerations

Gender/dealing with patient (provide privacy if necessary) and thoroughly explain procedure prior to touching patient (if applicable)

Racist situations involving patient/health care providers can be avoided with changing of health care worker-to-patient assignment or workload.

## Environmental Considerations

Proper cleaning protocols and dispensing of contaminated tools/supplies

B1.1 Demonstrate an understanding of and perform proper hand-washing techniques to prevent transmission of disease (e.g., preventing the spread of rhinovirus and/or conjunctivitis)

B1.2 Describe a variety of health care instruments and equipment and demonstrate the ability to use them correctly (e.g., thermometer for body temperature, stethoscope for heart rate and respiration)

B1.3 Demonstrate an understanding of and apply safe procedures for preparing, handling, and storing food in order to reduce or eliminate contaminants (e.g., bacteria, viruses, fungi, parasites) and prevent disease (e.g., salmonella or E. coli infections).

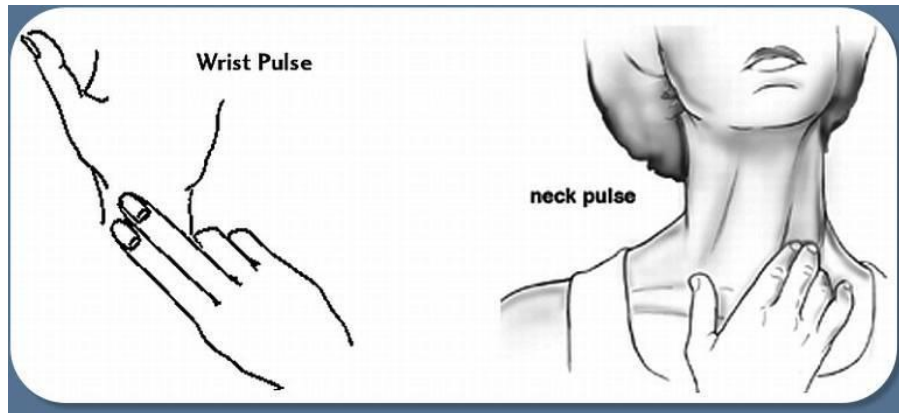


## Reflection or Design Report

Teachers may wish to have the students complete a design report, reflection or create a foldable to consolidate their learning. This would be a nice way to capture the student's understanding in a summative format and be used in preparation for their examination, entering post-secondary education or the workforce.

## Appendix A – You Gotta Have A Heart Lab Sheet

### You Gotta Have A Heart Lab Sheet



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4. Wait three minutes. Find your cool down heart rate.  
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.....

Heart Profile of:

Name: \_\_\_\_\_

Age: \_\_\_\_\_

My heart beats \_\_\_\_\_ times per minute,

(x60) \_\_\_\_\_ per hour,

(x24) \_\_\_\_\_ times per day,

(x365) \_\_\_\_\_ times per year.

In my lifetime, (x your age \_\_\_\_\_), my heart  
has beat more than \_\_\_\_\_ times!!!! WOW!!!!

## Appendix B – Clinic Form Handout

<b>Patient Name:</b>		<b>Health Care Worker Name:</b>	
<b>Site:</b>	High School Clinic	<b>Visit Date:</b>	<div> <div> <div>2</div> <div>0</div> </div> <div> <div></div> <div></div> </div> </div>
	Address		<div> <div>d</div> <div>d</div> </div> <div> <div>m</div> <div>m</div> </div>
	Town/City		<div> <div>y</div> <div>y</div> </div> <div> <div>y</div> <div>y</div> </div>
	Province (Ontario)		
	Postal Code		

1. 24 clock time \_\_\_\_:\_\_\_\_

2. Heart Rate \_\_\_\_\_bpm

Now have your patient do jumping jacks for 1 full minute or run up and down stairs x3 – then take heart rate

Accelerated Heart Rate \_\_\_\_\_bpm

3. Blood Pressure- Using an automated BP cuff.

Take and record your patient's BP in the corresponding position

1. ☐ Sitting \_\_\_\_\_/\_\_\_\_\_ (systolic/diastolic)
2. ☐ Supine \_\_\_\_\_/\_\_\_\_\_ (systolic/diastolic)

4. Oral Temperature \_\_\_\_\_ ☐ °F ☐ °C \_\_\_\_\_

Axillary Temperature \_\_\_\_\_ ☐ °F ☐ °C \_\_\_\_\_

Tympanic Temperature \_\_\_\_\_ ☐ °C

Temporal Temperature \_\_\_\_\_ ☐ °C

5. Respiratory Rate \_\_\_\_\_/min

6. Height \_\_\_\_\_ ☐ inches \_\_\_\_\_ ☐ centimeters

7. O2 saturations \_\_\_\_\_

### 8. Visual assessment1.

Have your patient lie on the bed and close their eyes. Then, using a flashlight, shine the line in and out of the eye. Watch the reaction of the pupils when you shine the light on/off them and guesstimate the size using the pupil size chart below. Do both pupils react the same? If so, then you would record “equal and reactive” under findings and if not, you would record “unequal or non-reactive” if your patient’s pupils do not respond to light.



Findings: \_\_\_\_\_

What is the pupil’s response to bright light? \_\_\_\_\_

**Visual assessment 2.** Read the instructions at the Snellen station to record your patient’s findings

Right Eye \_\_\_\_\_ Left Eye \_\_\_\_\_

## Appendix C - Snellen Eye Chart

### Snellen Eye Chart

Home use of this Snellen eye chart will help you determine the clarity of your distance vision. This can be useful to screen children for nearsightedness, which causes blurry distance vision. The chart also can help you determine if you meet the legal visual acuity requirement for a valid driver's license (20/40 in most states).

#### DIRECTIONS FOR USE

For the best accuracy (and to prevent memorization), have someone assist you when testing your vision with this eye chart. If you use eyeglasses or contact lenses for driving or other distance vision tasks, wear them during the test.

1. Place the chart on a wall or easel 10 feet away.
2. Cover one eye with your hand, a large spoon or some other item that completely blocks the vision of the covered eye. (Do not apply pressure to the covered eye, as it might affect that eye's vision when you test it.)
3. Identify a line on the chart you can comfortably read. Read the letters on that line aloud. Have your assistant stand near the chart and record your accuracy.
4. Continue trying to read the letters on each successively smaller line. Do not squint.
5. Have your assistant stop you when you fail to correctly identify at least 50 percent of the letters on a line.
6. Switch to the other eye and repeat.

Record your visual acuity for each eye by noting the line for which you correctly identified either:

- A. a) More than half the letters on that line, but not all of them.
- B. b) All letters on that line, plus a few letters (less than half) on the next line.

Examples:

If you correctly identify five of the seven letters on the 20/32 line, your visual acuity for that eye is: 20/32-2/7 If you correctly identify all seven letters on the 20/32 line and three of the eight letters on the 20/25 line, your visual acuity in that eye is: 20/32+3/8

#### DISCLAIMER:

Eye charts measure only visual acuity, which is just one component of good vision. They cannot determine if your eyes are "working overtime" (needing to focus more than normal, which can lead to headaches and eye strain), or can they determine if your eyes work properly as a team for clear, comfortable binocular vision and accurate depth perception.

Eye charts also cannot detect serious eye problems such as glaucoma or early diabetic retinopathy that could lead to serious vision impairment and even blindness.

Only a comprehensive eye exam performed by a licensed optometrist or ophthalmologist can determine if your eyes are healthy and you are seeing as clearly and comfortably as possible.

Place chart 10 feet away

20/200	E	1
20/100	F P	2
20/80	T O Z	3
20/63	L P E D	4
20/50	P E C F D	5
20/40	E D F C Z P	6
20/32	F E L O P Z D	7
20/25	D E F P O T E C	8
20/20	L E F O D P C T	9



To find an eye doctor near you, visit [allaboutvision.com/locator](https://www.allaboutvision.com/locator)

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