Nursing: First Aid Skills and Medical Devices

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Time Frame 85 minutes

Essential Question(s)

- What skill opportunities exist within the field of nursing?

Summary

What do nurses do? How do they develop their skills? This series of activities will help students better understand the knowledge and abilities needed for a career in nursing. This resource will help students realize that nurses have a variety of opportunities to work in different settings, to specialize in areas such as pediatrics, critical care, or community health, and acquire life-saving skills. They will further get to see that nurses are compassionate, detail-oriented problem-solvers who use their expertise to care for patients and promote well-being. These activities will help students explore the vital role of nurses, participate in hands-on activities that nurses encounter, and consider whether this rewarding career might be a great fit for them!

Learning Goals

- Demonstrate and explain proper CPR techniques, including chest compressions and rescue breaths in emergency situations.
- Identify key components of a physical examination and explain the importance of a nurse/ nurse practitioner in relaying accurate information.
- Accurately measure, record, and analyze vital signs to determine normal versus abnormal ranges and discuss their potential health implications.

Attachments

- Careers Card Sort Answers—Nursing.docx
- Careers Card Sort—Nursing.docx
- Physical Check Up Station Cards—Nursing.docx
- Physical Check-Up—Nursing.docx
- Resource Slides—Nursing.pptx
- Vital Check Station Cards—Nursing.docx
- Vital Check—Nursing.docx

Materials

- Resource slides (attached)
- Physical Check-Up Station cards (attached; one per station)
- Step-by-step CPR Card handout (attached; one per student)
- Physical Check-Up handout (attached; one per student)
- Careers Card Sort (attached; one per student)
- Adult CPR mannequins
- Infant CPR mannequins
- Mouth bags for mannequins
- Sphygmomanometer/Blood pressure monitor and cuff
- Thermometers
- Stethoscopes
- Pulse oximeters
- Alcohol wipes (for disinfecting)
- Nursing Career Scenario Cards (optional)

10 minutes

Preparation

Before beginning the activities you will want to set up five posters around the room with the skills listed below. In addition, it will be helpful to have the four activity stations for each medical device established before beginning the activities. Each station should have the medical device, room to move around, and the needed **Physical Check-Up Stations** cards. These activities assume access to six of each medical device, you can use less and adjust the number of stations accordingly. Should you have more (14-16), you can set up stations for each pair of students to use.

5 minutes

Introduction

Use the attached **Resource Slides** to introduce students through the following activities.

Start on **slide 3** and take a minute to highlight where the career cluster we are focused on today, healthcare, is on the image.

Transition through **slides 4-6** and share a little about nursing as a career, including the education needed. Let student's know that there are many different types of nurses, and the profession comes with a wide range of salaries. The average salary for a nurse can range from $45,670 - $239,200 (nurse anesthetist) or (132,680 for an RN) per year.

To begin the activities, go to **slide 7** and introduce the five corners activity. Evenly divide students to each corner of the room to specific skills that a nurse should contain:

- Clinical and Technical Skills (job related skills needed to take care of patients)
- Communication and Interpersonal(interaction with others) Skills
- Critical Thinking and Problem Solving
- Emotional and Physical Stamina
- Leadership and Organization Skills

While at their corner, have students generate three ideas of why that skill would be important for a nurse to have in their profession. Inform them to consider a spokesperson that will share out their three reasons for the group. After students have shared out, have them return to their seats, move to **slide 8**, and share any other reasons that the students may not have addressed for each skill.

Display **slide 9** and share with students that if they are interested in a career in nursing, there are a few steps they can take while they are in middle and high school. These include focusing on key subjects like science and mathematics, especially chemistry and biology. If opportunities are available, in high school, they may also be able to volunteer at clinics, hospitals or nursing homes. One step they can take now is to start by learning first aid and cardiopulmonary resuscitation (CPR).

20 minutes

Activity 1: Cardiopulmonary Resuscitation (CPR)

Cardiopulmonary resuscitation (CPR) is a procedure used by many health care workers. It is a combination of chest compression and breathing to help get the heart pumping again and return oxygen flow throughout the body.

Review the steps of CPR Steps for adults outlined by the American Red Cross.

Move to **slide 11** and play the American Heart Association's 2010 Guidelines for CPR video. Have students mimic the steps in the video as they follow along.

Embedded video
https://youtube.com/watch?v=O9T25SMyz3A

Teacher's Note

TN: You may also consider showing the American Heart Association's How to Give CPR to a Child video on **slide 12**.

Review the steps of CPR for children outlined by the American Red Cross. Move to **slide 13** and play Cincinatti's Children's CPR for Infants (Newborn to 1 Year) video. Have students mimic the steps in the video as they follow along.

Embedded video
https://youtube.com/watch?v=n65HW1iJUuY

Go to **slide 14**. Review with students that the C.A.B. acronym is often used to remember the steps of CPR:

1. ***C – Compressions****: Start with **30 chest compressions**, pushing hard and fast in the center of the chest at a rate of 100-120 per minute.*
2. ***A – Airway****: Tilt the head back slightly to open the airway.*
3. ***B – Breathing****: Give **2 rescue breaths**, ensuring the chest rises.*

Proceed to **slide 15**, and provide students with the **Step-by-Step CPR Card** for adults and infants. Inform students that they will be given a scenario and will need to determine the correct steps to do based on the prompt that is shared.

Share one of the following scenarios for students to decide the steps to take for CPR:

Scenario 1: You're at home watching TV when you hear a loud crash in the garage. Rushing in, you find your dad, Tim the Toolman Taylor, collapsed on the floor. At first, you think he may have just slipped, but when you check on him, he's unresponsive and not breathing.

Scenario 2: You're babysitting your nine-month-old cousin, Tommy Pickles, when you notice him putting a small toy in his mouth. Before you can stop him, he suddenly starts coughing, then goes silent and struggles to breathe. His face turns red, and he appears distressed.

Follow along to see if the students are completing the correct CPR protocols for each scenario.

20 minutes

Activity 2: Physical Check-Up

Before beginning this activity, you will want to set-up four stations, one for each medical device.

Move to **slide 17**. Inform students that when they visit the doctor, often one of the first things that will happen is a nurse will collect your "vitals" or vital signs. Review the vital signs students will be checking today. Let students know that these vital signs are signals from your body the doctor can interpret to get a general idea of your health and if you need treatment.

Explain that today they are going to practice with each of the tools that help nurses obtain these vital signs, just like if they were a medical professional starting a check-up. As you move to the next slides, it may be beneficial to demonstrate how to use each device that follows.

Move to **slide 18**. Introduce the type of thermometer to be used and its general operation. Let students know that they may need to get close to use the non-contact thermometer but that they shouldn't touch it to the forehead.

Display **slide 19**. Let student's know that stethoscopes are a medical device that allows a medical professional to hear inside your body, typically used for the cardiovascular (heart) and respiratory (breathing) systems.

Transition to **slide 20**. Inform students that for blood pressure, a device known as a sphygmomanometer or more commonly, a blood pressure monitor and cuff, is used. Share that a normal range is less than 120 systolic (the top number) and less than 80 diastolic (the bottom number). To reduce health anxiety, this is an opportunity to share that blood pressure is most important over time, and a single reading does not indicate issues.

Move to **slide 21**. Introduce the pulse oximeter, which will record the level of oxygen in the blood. The pulse oximeter helps nurses know how well the body is taking in and circulating oxygen.

Once you have gone over all the medical devices that will be used today, place students into groups of three or four and distribute the **Physical Check-Up** handout to each student. Students will use this handout to fill in their group members vital signs, as well as their own, while they move from station to station. 5-10 minutes per station should be enough time for each student to collect their vitals.

20 minutes

Activity 3: What's in a Vital Sign

Share with students that the leading cause of death in America and across the world is heart disease. The heart's job is to regulate the movement of oxygenated blood to maintain the ability for vital organs to function in the body. There are many factors that can affect the effectiveness of our heart such as high blood pressure, high cholesterol, smoking, poor diet, and lack of exercise. Exercising is one way to prevent cholesterol from building up in your arteries. Invite students to do a couple of activities to see what happens to the oxygen in our blood over time when we become active.

Teacher's Note: Preparation

Set up 4 stations. The **Vital Check Station Cards** include instructions that can be placed at each station for a pair of students to do. Once one pair has completed a step, have them move on to the next step while the next pair follows behind a step. Give each student a copy of the **Vital Check** handout to fill in as they move around the stations. Depending on the number of devices you have, you could have more students at more stations, take into account the number of devices you have and your space.

Move to **slide 23** and review the steps and normal vital readings that students will collect for each activity. Be sure to assuage anxiety by letting student know that there are many reasons they may get a reading out of these zones, and they may all not mean health issues.

Move to **slide 24** and review the steps that each pair of students will complete before they begin:

- **Station 1:** Allow your body to be at rest for 1 minute. After the minute, follow the steps above and record your readings on your table.
- **Station 2:** Walk around for 1 minute. After the minute, follow the steps above and record it on your table
- **Station 3:** Jog/run in place for 1 minute. After the minute, follow the steps above and record it on your table
- **Station 4.** Provide the following reflection questions for students to answer with their partner:
  - If exercising prevents heart problems such as a stroke, why does your blood pressure, BP, rise when you exercise?
  - Is there such a thing as too much exercise?
  - What do you think was the cause of your BP rising? Do you know the name of the process that causes this?
  - Why should you be concerned if your BP was high at your resting state?

Review experiences of all three activities as a whole class.

Research Rationale

Research demonstrates that early development of occupational knowledge through school career education programs supports students in building an understanding of the world of work and available career opportunities (Ginevra et al., 2024; Godbey & Gordon, 2019; James, 2024; Kim & Lee, 2023). The middle and high school years are fundamental for students to explore careers and develop transferable skills to help them succeed in high school and beyond (James, 2024; Kim & Lee, 2023). Where career exploration programs involve experiential learning, student engagement is increased, improving graduation rates, and college and career readiness (Godbey & Gordon, 2019; James, 2024; Kim & Lee, 2023).

Resources

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