

Lab Framework

Text: Unit 3 Measuring in English and Metric Units.

Unit number and title: B Naming Numbers in Different Ways

Short Description: For years, the Health Care Industry and Providers have interchanged the English and Metric systems. The United States health care system is the only nation that still using English systems. Over the past 10 years, the health care system has become diligent to convert to the metric system. Metric applications are used in a multi-disciplinary system to protect an individual from harm. Height and weight are used to calculate a wide variety of procedures and treatments, medications, nutritional needs, hydration, and monitoring diseases that interfere with the human body's delicate fluid and electrolyte balance, heart, renal, hepatic, vascular, inflammatory, lymphatic, thyroid and pancreatic disorders.

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Lab Title

Measuring Height and Weight on an adult with contractures

LAB PLAN

TEACHER: Judy Burchett, RN MSN

- **Lesson Objectives:**

- Describe and demonstrate how to obtain an accurate height on an individual with skeletal contractures or spinal compression using a manual tape measure. You may use a cloth, laser, paper, or metal tape measure.
- Verbally review normal height and weight parameters.
- Review tape measure measurement tools
- Add the sum of your findings (a-d) in inches and convert the inches to centimeters:
 - a) back of heel to back of the knee
 - b) back of the knee to the hip bone (iliac crest)
 - c) hip bone to back of the neck (C-7) or where the shoulders meet the base of the neck
 - d) base of the neck to the top of the head
- Change inches (in) to centimeters (cm).
- Change pounds (#) and ounces (oz) to kilograms (kg).
- Graph the conversions on the provided graph paper
- Discuss different rationales, methods, medical conditions and tools utilized when obtaining of height and weight on an adult individual.
- Discuss and demonstrate the safety, comfort measures in the pre-procedure, procedure and post procedure when obtaining height and weight measurement of an individual.

- Document the measurements on the graph sheet provided in black ink pen; report normal and abnormal measurements

Statement of pre-requisite skills needed:

- Prior learned theory of A&P of the muscular/skeletal, mobility and exercise and integumentary systems.
- **Unit 3** – converting inches to centimeters using the formula 2.54 cm/inch.
- Skills lab practice utilizing the different types of techniques and tools to obtain height measurement.
- Watch the CD “How to obtain height and weight” Mosby’s 6th Edition. Nursing Assistant.

- **New Vocabulary & Medical Terminology:** Hgt, Wgt, skeletal contracture, Patient and cognitive function

Math terminology and abbreviations:

Pounds (#), ounces (oz), and kilogram (kg) inches (in), centimeters (cm).

- **Equipment and Materials for Adult Measurement: Cloth or metal tape measure**
 - Laser digital measurer
 - Stand alone scales (marked in inches, centimeters, pounds, ounces and kilograms)
 - Electronic digital scales
 - Hospital bed scales – built in electronic conversion from English to metric...
 - Chair scales (marked in inches, centimeters, pounds, ounces and kilograms)
 - Graphing chart
 - Black ink pen for medical record chart documentation
 - Legal medical record – such as a person medical chart graph sheet.
 - Calculators will be used in a later lesson for calculating height and weight.
 - Gloves, gown, robe, non-skid foot-ware, gait belt, and 2 paper towels for the scale platform.
- **GLE’s addressed:**

Math: EALR 1/GLE: 1.1.1-1.1.3, 1.1.6, 1.1.7 **COMPONENT 1.1: Understand and apply concepts and procedures from number sense. 9th & 10th grade level**

1.2.3 Apply unit conversions within measurement systems, U.S. or metric, to maintain an appropriate level of precision. W.9th & 10th grade level

1.2.6 Understand and apply estimation strategies to obtain reasonable measurements at an appropriate level of precision. W. 9th & 10th grade level

EARL 4.2: Organize, represent, and share information.

4.2.2 Represent math information in graphs and other appropriate forms. W

Reading: 1.2.2 Apply strategies to comprehend words and ideas.

Component 2.1 Demonstrate evidence of reading comprehension.

Writing:

EARLS 2: The student writes in a variety of forms for different audiences.

2.2 The student writes for different purposes.

EARLS 3: The student writes clearly and efficiently

3.3 Know and applies writing conversions appropriate for the grade level. W

- **Set-up information (Remind students to follow these basic rules.)**
Show work
Use appropriate units in your answer.
A zero must be placed in front of the decimal: for example 0.1, not .1 – high risk for interpretation and medication error.
- **Teacher Assessment of student learning (scoring guide, rubric)**
Solutions are attached
- **Summary of learning**
Review the solutions with class
- **Optional activities**
Discuss similar applications from various career and everyday life examples.
- **Career Applications**
All health care professions; including Dietitians, military services, clothing manufacturing, cosmetology, child care, consumer, fitness and wellness organizations and trainers.

LAB TITLE: Measuring Height and Weight on an adult with contractures

STUDENT INSTRUCTIONS:

- **Statement of problem addressed by lab**
Obtain, document and report to the RN the height of an individual with skeletal contractures.
- **Grouping instructions and roles:**
- Each student will work in teams of two and be assigned a simulated skeletal contracture. They will change roles so each student has an opportunity to practice obtaining measurements.
- Using the measuring device provided, the team member will obtain the height of their team member assigned with a contracture deformity.
- Each team member who performed the hgt measurement will calculate hgt and convert the English measurement to metric and vice versa **without a calculator**.
- The students will graph their height and weight measurements on the graph sheet provided.
- The Instructor and students will review and discuss their findings in the last 30 minutes of class.
- **Procedures** – Follow the quality of life, pre-procedure, safety, comfort, procedure and post-procedure guidelines identified in Mosby 6th Edition Skills competency CD on obtain height and weight.
- Check the orders against the order sheet and your team leader

- Gather your equipment: Black Pen, graphing sheet, gloves, measuring device. For this exercise we will use a cloth tape measure.
- Wash your hands
- Knock on the person's door announcing yourself as "nursing".
- Introduce yourself, verify the person's ID by name, armband, and medical record number.
- Explain the procedure
- Provide for warmth and comfort
- Measure:
 - a) from the back of the heel to the back of the knee
 - b) back of the knee to the hip bone (iliac crest)
 - c) Hip bone to the back of the next (C-7 vertebrae) or where the neck meets the shoulders.
 - d) Base of the neck to the top of the head
 - Thank the person, provide for comfort, secure the room, wash your hands and leave the person's room.
 - Add the sum of your findings (a-d) in inches and convert the inches to centimeters:
 - Change inches (in) to centimeters (cm).
 - Graph the conversions in the individual's chart on the graphic flow sheet on the provided graph paper.
 - Document the measurements on the graph sheet provided in black ink pen; report normal and abnormal measurements to the RN or unit team leader

- **Outcome instructions**

- **Assessment instructions** (peer-teacher)

Students will be assessed on the accuracy of obtaining the measurements, calculating and documenting the measurements on the graph sheet. The conclusion should include supportive data from their lab as well as a persuasive answer.

<https://wa-appliedmath.org/>

Lab Data Collection

Student: _____ Date: _____

Unit: _____

Lab Title:

Criteria: Write the problem/objective in statement form

Data Collection: Record the collected/given data

Calculations: Complete the given calculations to solve for an answer(s)

Summary Statement:

Other Assessment(s)

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