ACT-Based Math Activity 3

UNIT: PRACTICE FIRST AID KIT UNIT

### Here are ACT-aligned math activities for First Aid Kits that help students apply real-world skills in measurement, dosage calculations, and data interpretation relevant to emergency care.

### **📌 Activity 1: Calculating Wound Area**

### Objective:

Students will measure wound dimensions and calculate the affected area.

MATERIALS NEEDED:

Ruler, graph paper, wound measurement scenarios worksheet.

Instructions:

## Read each wound scenario carefully.

## Use the given dimensions to calculate the wound area.

## Round your answers to the nearest tenth if necessary.

## Compare wound sizes and determine severity levels.

**Scenario 1: Scrape from a Fall**

A patient has a scraped knee from falling off a bike. The wound is roughly **5 cm long and 3 cm wide**.

* **Calculate the area of the wound.**
* If a wound larger than **12 cm²** is considered a "moderate injury," does this wound fall into that category?

**Scenario 2: Deep Cut from a Sharp Object**

A cook accidentally cuts their hand while chopping vegetables. The wound is **2.5 cm long and 1 cm wide**.

* **Calculate the wound area.**
* If deep cuts larger than **5 cm²** require stitches, does this wound meet that requirement?

**Scenario 3: Minor Burn from Hot Water**

A patient spills hot water on their arm, causing a burn area of approximately **4 cm by 4 cm**.

* **Calculate the affected skin surface.**
* Burns larger than **16 cm²** are classified as "significant." Does this burn fit that category?

**Scenario 4: Large Abrasion from a Car Accident**

A motorcyclist falls and scrapes a large portion of their forearm. The abrasion is **10 cm long and 6 cm wide**.

* **Calculate the total surface area of the wound.**
* If abrasions over **40 cm²** require professional medical attention, what should be done in this case?

## ACT-Style MATH Question for FIRST AID KITS

### **Question 1**

## *A hiker falls and sustains two separate scrapes: one measuring* ***6 cm × 3 cm*** *and the other measuring* ***4 cm × 5 cm****.*

## ***What is the combined area of both wounds?***

## *If wounds covering more than* ***30 cm²*** *are considered "severe injuries," does this patient require immediate medical attention?*

## ***ACT Question Example:*** *A wound measures* ***4 cm by 3 cm****. What is the total wound area?*

## *A) 7 cm²  B) 12 cm²  C) 15 cm²  D) 18 cm²*

## **⚡ Why These Activities and Questions Matter**

By engaging in writing-based activities connected to JCI Building Systems, students:

✅ Practice organizing technical information into clear, structured arguments.  
✅ Strengthen their ability to explain HVAC and smart building concepts in writing.  
✅ Develop persuasive and analytical writing skills using real-world topics like energy efficiency and automation.

These skills mirror the ACT Writing requirements—helping students become confident, effective communicators prepared for college and STEM careers.