## PRACTICE FIRST AID

## The **Practice First Aid Kit** aligns with ACT standards by integrating critical thinking, problem-solving, and analytical skills across multiple disciplines. Students engage in real-world applications of **math, science, reading, writing, and English**, reinforcing key competencies tested on the ACT. Through hands-on activities, they develop measurement and data analysis skills in **Math**, explore human anatomy and wound healing in **Science**, analyze emergency response texts in **Reading**, refine technical writing for medical documentation in **Writing**, and enhance clarity in first aid communication in **English**. This interdisciplinary approach ensures students build essential skills for both standardized testing and real-life emergency response situations.

## **MATHEMATICS – ACT Alignment: Measurement & Data Analysis**

Students apply mathematical principles to emergency response, including wound area calculations, dosage computations, and burn percentage estimations using proportional reasoning and real-world data analysis.

🔹 **ACT Math Rating Scale – Problem Solving & Data Interpretation**

* (16-19) Understanding basic wound size measurements.
* (20-23) Applying unit conversions in medical dosages.
* (24-27) Analyzing statistical trends in injury data.
* (28-32) Interpreting proportions in burn treatment calculations.
* (33-36) Using mathematical models to predict recovery times.

**📌 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:**

1. Students will measure given wound dimensions from sample images.
2. Calculate the surface area using geometric formulas.
3. Compare different wound areas to assess severity.

**Wound Measurement Scenarios Worksheet**

**Instructions:**

1. Read each wound scenario carefully.
2. Use the given dimensions to calculate the wound area.
3. Round your answers to the nearest tenth if necessary.
4. 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?

**Challenge Question (ACT-Style)**

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  
(Correct Answer: B)

**📌 Activity 2: Dosage Calculation for Pain Management**

**Objective:** Students will calculate appropriate medication dosages based on patient weight.

**Materials Needed:** Calculator, dosage chart, patient scenarios.

**Instructions:**

1. Review a medication dosage chart based on weight.
2. Solve for proper dosage using ratio and proportion.
3. Discuss implications of incorrect dosages.

**Dosage Chart & Patient Scenarios Worksheet**

**Instructions:**

1. Review the **dosage chart** below, which provides medication dosages based on patient weight.
2. Read each patient scenario carefully.
3. Calculate the correct medication dosage based on the patient’s weight and the dosage guidelines.
4. Discuss the consequences of incorrect dosages.

**Dosage Chart for Pain Relief Medication**

| **Patient Weight (kg)** | **Dosage (mg per kg)** | **Maximum Dosage (mg)** |
| --- | --- | --- |
| 10-20 kg | 2 mg/kg | 40 mg |
| 21-40 kg | 3 mg/kg | 100 mg |
| 41-60 kg | 5 mg/kg | 250 mg |
| 61-80 kg | 7 mg/kg | 400 mg |

**Patient Scenarios**

**Scenario 1: Child with a Mild Injury**

A **15 kg** child falls and suffers a minor injury requiring pain relief.

* Using the dosage chart, calculate the correct dosage for this child.
* Does the calculated dosage exceed the maximum allowed?

**Scenario 2: Teenager with a Sprained Ankle**

A **50 kg** teenager needs pain relief for a sprained ankle.

* How much medication should they receive based on the chart?
* If the pharmacy only provides 100 mg tablets, how many tablets should be given?

**Scenario 3: Adult with Severe Pain**

A **72 kg** adult is prescribed pain medication after an accident.

* What is their recommended dosage?
* What is the closest whole number of **50 mg tablets** that should be given without exceeding the max dose?

**ACT-Style Challenge Question**

A **patient weighs 38 kg** and needs **3 mg per kg** of pain relief medication.

* **What is their total required dosage?**  
  A) 76 mg  
  B) 100 mg  
  C) 114 mg  
  D) 120 mg  
  (Correct Answer: A)

**ACT Question Example:** A patient weighing **50 kg** requires **5 mg per kg** of pain relief medication. What is the total dosage?

A) 100 mg  
B) 200 mg  
C) 250 mg  
D) 300 mg  
(Correct Answer: C)

**📆 Activity 3: Burn Severity Percentage Calculation**

**Objective:** Students will estimate the total body surface area affected by burns using the "Rule of Nines."

**Materials Needed:** Human body diagram, percentage charts.

**Instructions:**

1. Assign burn locations on a diagram.
2. Calculate affected body surface area using "Rule of Nines."
3. Compare mild, moderate, and severe burn classifications.

**Human Body Diagram & Percentage Charts Worksheet**

**Instructions:**

1. Review the **Rule of Nines** chart, which estimates the total body surface area (TBSA) affected by burns.
2. Label different sections of the human body using the provided diagram.
3. Apply percentage calculations to determine burn severity for each patient scenario.

**Rule of Nines Chart (Total Body Surface Area - TBSA)**

| **Body Part** | **Percentage of TBSA** |
| --- | --- |
| Head & Neck | 9% |
| Each Arm (front & back) | 9% (4.5% per side) |
| Each Leg (front & back) | 18% (9% per side) |
| Front Torso | 18% |
| Back Torso | 18% |
| Perineum | 1% |

**Human Body Diagram**

* (A labeled human body diagram with designated percentage regions for burns.) \*

**Patient Scenarios**

**Scenario 1: Minor Burn Injury**

A **patient has burns covering their left arm (4.5%) and half of their back (9%)**.

* **What is their total burned body surface area?**
* **Is this classified as a mild, moderate, or severe burn?**

**Scenario 2: Extensive Burn Case**

A **patient has burns covering their right leg (18%) and front torso (18%)**.

* **Calculate their total burned percentage.**
* **Would this patient require hospitalization? Why or why not?**

**ACT-Style Challenge Question**

A **patient has burns covering the front of both legs (18%) and the back of their left arm (4.5%)**.

* **What percentage of their body is burned?**  
  A) 18%  
  B) 22.5%  
  C) 27%  
  D) 31.5%  
  (Correct Answer: C)

**ACT Question Example:** A patient has burns covering the right arm (9%) and half the left leg (9%). What percentage of their body is burned?

A) 9%  
B) 13.5%  
C) 18%  
D) 22.5%  
(Correct Answer: B)

## **SCIENCE – ACT Alignment: Human Physiology & First Aid**

Learners explore human anatomy, wound healing processes, and infection prevention while evaluating first aid effectiveness and predicting complications using case studies and experimental analysis.

🔹 **ACT Science Rating Scale – Experimental & Data Analysis**

* (16-19) Identifying functions of human skin and circulatory system.
* (20-23) Understanding wound healing stages.
* (24-27) Analyzing immune responses to injury.
* (28-32) Evaluating effectiveness of first aid treatments.
* (33-36) Predicting complications based on case studies.

### **📆 Activity 1: Wound Healing Process Investigation**

**Objective:** Students will analyze the body's natural healing stages.   
**Materials Needed:** Diagrams of skin layers, wound healing timeline chart.

**Instructions:**

1. Review the four stages of wound healing.
2. Match symptoms to each stage.
3. Predict healing times for different injuries.

**ACT Question Example:** Which of the following is the **first** stage in wound healing?

A) Inflammatory phase  
B) Proliferative phase  
C) Maturation phase  
D) Remodeling phase  
(Correct Answer: A)

### **📆 Activity 2: Infection Risk Assessment**

**Objective:** Students will evaluate factors that increase infection risk in untreated wounds.

**Materials Needed:** Case study scenarios, infection risk checklist.

**Instructions:**

1. Analyze case studies of untreated wounds.
2. Identify risk factors leading to infection.
3. Suggest first aid interventions to prevent complications.

**ACT Question Example:** Which factor is **most** likely to increase infection risk in a wound?

A) Keeping the wound uncovered  
B) Washing the wound with clean water  
C) Applying antibiotic ointment  
D) Changing the dressing daily  
(Correct Answer: A)

### **📆 Activity 3: Evaluating First Aid Effectiveness**

**Objective:** Students will compare first aid treatments for different injuries.

**Materials Needed:** First aid guidebook, sample injury cases.

**Instructions:**

1. Match injuries with correct first aid procedures.
2. Discuss pros and cons of different treatments.
3. Simulate proper first aid responses.

**ACT Question Example:** What is the recommended **first** step when treating a minor burn?

A) Apply ice directly to the burn  
B) Rinse with cool water for 10-15 minutes  
C) Pop any blisters that form  
D) Wrap tightly with dry gauze  
(Correct Answer: B)

## **READING – ACT Alignment: Medical Text Comprehension**

Students develop comprehension skills by analyzing first aid manuals, interpreting medical charts, and synthesizing key details from emergency case studies to determine best practices.

🔹 **ACT Reading Rating Scale – Comprehension & Interpretation**

* (16-19) Identifying key details in first aid guides.
* (20-23) Recognizing main ideas in medical texts.
* (24-27) Evaluating cause-and-effect relationships in wound care.
* (28-32) Analyzing complex emergency response guidelines.
* (33-36) Synthesizing information from multiple health sources.

### **📆 Activity 1: Reading First Aid Manuals**

**Objective:** Students will extract key information from first aid instructions.

**Materials Needed:** First aid handbook, comprehension worksheet.

**Instructions:**

1. Read first aid instructions for different injuries.
2. Summarize key steps in treatment.
3. Answer comprehension questions.

**ACT Question Example:** According to standard first aid guidelines, what is the **first** step in treating severe bleeding?

A) Apply direct pressure to the wound  
B) Clean the wound with soap and water  
C) Remove any embedded objects  
D) Elevate the wound above heart level  
(Correct Answer: A)

### **📆 Activity 2: Understanding Emergency Response Steps**

**Objective:** Students will analyze the step-by-step emergency procedures in first aid situations.

**Materials Needed:** Emergency response guides, comprehension worksheet.

**Instructions:**

1. Read emergency response protocols for injuries.
2. Identify the correct sequence of actions.
3. Answer comprehension questions based on the reading.

**Emergency Response Guide**

**Introduction:**

Emergency response guides provide crucial step-by-step instructions for handling medical emergencies. Understanding these guides ensures quick, effective decision-making in life-threatening situations.

**Common Emergency Situations & Response Steps**

**1. Severe Bleeding**

* **Step 1:** Apply direct pressure to the wound using a sterile dressing.
* **Step 2:** Elevate the injured area if possible.
* **Step 3:** If bleeding does not stop, apply a pressure bandage.
* **Step 4:** Seek immediate medical attention.

**Comprehension Question:**  
What is the **primary** reason for applying direct pressure to a bleeding wound?  
A) To prevent infection  
B) To increase blood circulation  
C) To stop the bleeding  
D) To relieve pain  
(Correct Answer: C)

**2. Treating Burns**

* **Step 1:** Remove the person from the source of the burn.
* **Step 2:** Cool the burn by running it under **cool (not cold) water** for 10-15 minutes.
* **Step 3:** Cover the burn with a **non-stick** sterile dressing.
* **Step 4:** Seek medical care if the burn is severe or covers a large area.

**Comprehension Question:**  
Why should **ice not** be applied to a burn?  
A) It does not help with pain relief  
B) It can cause further tissue damage  
C) It increases the risk of infection  
D) It prevents the burn from healing  
(Correct Answer: B)

**3. Performing CPR (Cardiopulmonary Resuscitation)**

* **Step 1:** Check if the person is responsive.
* **Step 2:** Call **911** and ask for an **AED (Automated External Defibrillator)** if available.
* **Step 3:** Begin chest compressions:
  + Place both hands on the center of the chest.
  + Press down **hard and fast** at a rate of **100-120 compressions per minute**.
  + Give **30 compressions**, followed by **2 rescue breaths** (if trained).
* **Step 4:** Continue until emergency responders arrive.

**Comprehension Question:**  
Which of the following is the **correct** compression rate for CPR?  
A) 50 compressions per minute  
B) 75 compressions per minute  
C) 100-120 compressions per minute  
D) 150 compressions per minute  
(Correct Answer: C)

**4. Choking (Heimlich Maneuver)**

* **Step 1:** Ask the person if they can speak or breathe.
* **Step 2:** If they cannot, stand behind them and place your hands above their navel.
* **Step 3:** Perform **abdominal thrusts** by pulling inward and upward.
* **Step 4:** Continue until the object is expelled or emergency help arrives.

**Comprehension Question:**  
Why is it important to act **quickly** when someone is choking?  
A) They might panic and make it worse  
B) Lack of oxygen can cause brain damage or death  
C) It prevents them from coughing  
D) It makes them more comfortable  
(Correct Answer: B)

**5. Recognizing Signs of a Stroke (FAST Method)**

* **F (Face Drooping):** One side of the face may be numb or drooping.
* **A (Arm Weakness):** One arm may be weak or numb.
* **S (Speech Difficulty):** Slurred speech or inability to speak.
* **T (Time to Call 911):** Immediate medical attention is required.

**Comprehension Question:**  
Which of the following symptoms **suggests** someone may be having a stroke?  
A) Chest pain and shortness of breath  
B) Sudden numbness in one arm and slurred speech  
C) Severe stomach pain and nausea  
D) Dizziness from standing too quickly  
(Correct Answer: B)

**ACT-Style Reading Passage & Question Set**

**Emergency Response: Why Quick Action Matters**

Emergencies require **rapid** and **accurate** responses. In cases of **severe bleeding**, the body can lose a dangerous amount of blood within minutes. Applying **direct pressure** to the wound helps slow blood loss, while elevating the injured limb reduces blood flow to the area. In burn cases, **cooling the burn immediately** prevents further tissue damage, but using **ice** can worsen the injury. CPR, a life-saving technique, ensures that oxygen reaches the brain when the heart stops beating. With **100-120 chest compressions per minute**, the rescuer helps sustain vital functions until medical help arrives. The Heimlich maneuver, used for choking, removes airway blockages through **forceful abdominal thrusts**. Finally, recognizing **stroke symptoms early** can mean the difference between life and death. The **FAST method** helps identify signs of a stroke, ensuring that medical intervention occurs quickly.

**Question:**  
What is the **main idea** of this passage?  
A) Emergency response skills are useful but rarely necessary  
B) Quick action in emergencies can save lives  
C) First aid should only be performed by medical professionals  
D) Most emergencies resolve without any intervention  
(Correct Answer: B)

**ACT Question Example:** What is the correct order of steps for CPR?

A) Call for help, check breathing, begin chest compressions  
B) Check breathing, begin chest compressions, call for help  
C) Begin chest compressions, call for help, check breathing  
D) Call for help, perform rescue breaths, check breathing  
(Correct Answer: A)

### **📆 Activity 3: Comparing First Aid Myths and Facts**

**Objective:** Students will differentiate between common first aid myths and factual information.

**Materials Needed:** Myth vs. fact worksheet, medical reference materials.

**Instructions:**

1. Read statements about first aid.
2. Identify whether they are myths or facts.
3. Use credible sources to verify accuracy.

**ACT Question Example:** Which of the following is a **common first aid myth**?

A) Tilting your head back helps stop a nosebleed  
B) Rinsing a burn with cool water soothes the skin  
C) Applying pressure helps control bleeding  
D) Using a tourniquet should be a last resort  
(Correct Answer: A)

## **WRITING – ACT Alignment: Informative & Technical Writing in First Aid**

Activities focus on technical writing and clarity in emergency reporting, where students refine first aid instructions, draft medical response reports, and use precise terminology in crisis communication.

🔹 **ACT Writing Rating Scale – Organization & Clarity**

* (16-19) Identifying key components of emergency response reports.
* (20-23) Structuring clear and logical medical instructions.
* (24-27) Evaluating the effectiveness of written first aid procedures.
* (28-32) Writing technical explanations in medical contexts.
* (33-36) Synthesizing first aid concepts into comprehensive written responses.

### **📆 Activity 1: Writing an Emergency Response Report**

**Objective:** Students will write a structured report on a simulated first aid incident.

**Materials Needed:** Incident scenario prompts, report templates.

**Instructions:**

1. Read a simulated emergency scenario.
2. Write a detailed emergency response report.
3. Use structured formatting with key details (who, what, when, where, how).

**Incident Scenario Prompts – First Aid Edition**

**Instructions:**

* Read each scenario carefully.
* Answer the **ACT-style comprehension questions** based on the scenario.
* Use critical thinking skills to determine the appropriate first aid response.

**Scenario 1: Playground Injury**

While playing on the school playground, a student falls and scrapes their knee on the pavement. The wound is bleeding slightly, but the student can walk. The nearest teacher provides a first aid kit and asks for assistance in treating the injury.

**Questions:**

1. What is the **first step** in treating this wound?  
   A) Apply antibiotic ointment immediately  
   B) Rinse the wound with clean water and gently pat it dry  
   C) Cover the wound with a bandage before cleaning it  
   D) Ignore the wound unless it is bleeding heavily

*(Correct Answer: B)*

1. Why is it important to clean the wound before bandaging it?  
   A) To prevent infection and remove debris  
   B) To make sure the bandage sticks properly  
   C) To stop the wound from bleeding faster  
   D) To test if the wound is deep enough for stitches

*(Correct Answer: A)*

**Scenario 2: Choking Emergency**

During lunch at a restaurant, a man suddenly begins coughing and grabbing his throat. He is unable to speak but is still making sounds. A bystander considers performing the Heimlich maneuver.

**Questions:**

1. What should the bystander do first?  
   A) Immediately begin the Heimlich maneuver  
   B) Encourage the man to keep coughing  
   C) Give the man a glass of water to drink  
   D) Slap the man’s back forcefully until the food dislodges

*(Correct Answer: B)*

1. When should the Heimlich maneuver be performed?  
   A) When the person is still coughing but looks uncomfortable  
   B) When the person is silent and unable to cough, breathe, or speak  
   C) As soon as someone starts choking, even if they can still talk  
   D) Only if the person has choked before

*(Correct Answer: B)*

**Scenario 3: Heat Exhaustion at a Sports Event**

A runner in a high school track meet begins feeling dizzy and nauseous. He is sweating heavily and appears pale. His teammates help him sit down in the shade, and a coach brings him a bottle of water.

**Questions:**

1. What is the most likely cause of the runner’s symptoms?  
   A) A muscle cramp from running too fast  
   B) Dehydration and overheating from prolonged physical activity  
   C) A minor cold or flu that started earlier in the day  
   D) A sprained ankle that is causing dizziness

*(Correct Answer: B)*

1. Which action should be taken to help the runner recover?  
   A) Encourage him to drink water, rest in a cool place, and apply cool cloths to his skin  
   B) Tell him to keep running slowly to work through the dizziness  
   C) Have him stand up immediately to prevent fainting  
   D) Give him a large, sugary meal to boost his energy

*(Correct Answer: A)*

**ACT Reading Extension:**

**Prompt:**

Choose one of the incident scenarios and explain why **each first aid step** is necessary. Provide evidence from medical guidelines to support your response.

**Example Response:**  
In the **heat exhaustion scenario**, the runner is experiencing symptoms of dehydration and overheating. It is important to **move him to a cool place** because staying in the heat could lead to heat stroke, a life-threatening condition. Drinking water **helps replenish lost fluids**, and applying **cool cloths** can bring his body temperature down. Following these steps helps prevent the situation from worsening.

**ACT Question Example:** Which sentence best conveys urgency in an emergency response report?

A) "The injury was bad, and I tried to help."  
B) "Immediate action was needed to stop the severe bleeding."  
C) "I saw someone get hurt, and I walked over to help them."  
D) "The wound was big, so I thought I should do something."  
(Correct Answer: B)

### **📆 Activity 2: Writing a Step-by-Step First Aid Guide**

**Objective:** Students will create a clear instructional guide for treating a specific injury.

**Materials Needed:** First aid reference books, writing paper.

**Instructions:**

1. Select a common first aid situation (e.g., choking, burns, sprains).
2. Write step-by-step instructions for administering first aid.
3. Ensure clarity, conciseness, and accuracy in explanations.

### **📆 Activity 3: Creating a First Aid Safety Poster**

**Objective:** Students will design a visual aid summarizing key first aid principles.

**Materials Needed:** Poster board, markers, printed health guidelines.

**Instructions:**

1. Choose a common first aid emergency (e.g., burns, bleeding, choking).
2. Design a poster that explains the step-by-step first aid response.
3. Include key terms, visuals, and emergency contact information.

**ACT Question Example:** Which of the following would be **most** effective in a first aid safety poster?

1. A long paragraph explaining wound care  
   B) A bullet-point list of steps for treating burns  
   C) A detailed story about a first aid situation  
   D) A history of first aid techniques  
   (Correct Answer: B)

## **ENGLISH – ACT Alignment: First Aid Communication & Terminology**

Students enhance their language skills by identifying and correcting first aid terminology, improving grammar in emergency instructions, and evaluating the effectiveness of first aid communication in critical situations.

🔹 **ACT English Rating Scale – Grammar & Clarity**

* (16-19) Identifying key first aid terminology.
* (20-23) Correcting grammar and clarity in emergency instructions.
* (24-27) Improving sentence structure in first aid reports.
* (28-32) Refining technical writing for clarity and precision.
* (33-36) Evaluating the effectiveness of emergency communication.

### **📆 Activity 1: First Aid Terminology Matching**

**Objective:** Students will match medical terms to their definitions.

**Materials Needed:** Flashcards, glossary of first aid terms.

**Instructions:**

1. Match medical terms to their correct definitions.
2. Discuss the importance of using precise terminology.
3. Use terms in context through scenario-based discussions.

**ACT Question Example:** Which term refers to stopping excessive bleeding?

A) Contusion  
B) Hemorrhage  
C) Abrasion  
D) Laceration  
(Correct Answer: B)

### **📆 Activity 2: Improving Clarity in First Aid Instructions**

**Objective:** Students will revise poorly written first aid instructions.

**Materials Needed:** Sample first aid instructions, editing worksheets.

**Instructions:**

1. Analyze sample emergency instructions with grammar issues.
2. Correct sentence structure for clarity and readability.
3. Present revised instructions for discussion.

**ACT Question Example:** Which revision improves clarity?

A) "Apply bandage on wound tightly in case of emergency stop."  
B) "In an emergency, apply a tight bandage to stop the bleeding."  
C) "A tight bandage apply emergency stop wound."  
D) "Emergency wounds need stopping a bandage tight apply."  
(Correct Answer: B)

### **📆 Activity 3: Writing Emergency Response Reports**

**Objective:** Students will compose detailed first aid reports.

**Materials Needed:** Report templates, injury scenarios.

**Instructions:**

1. Write a report documenting a first aid scenario.
2. Include necessary medical details for clarity.
3. Revise for accuracy and conciseness.

**ACT Question Example:** What is the most important detail to include in an emergency report?

A) The victim’s full medical history  
B) A clear description of the injury and treatment  
C) Personal opinions about the situation  
D) The responder’s emotions at the time  
(Correct Answer: B)