📍 **Station 2: Cool It Down!**  
**Focus:** Heat Transfer & Burn Treatment  
**NGSS Standard:** 2-PS1-4

**Goal:**

Test different types of bandages to see which one works **best** when applied to a moist or sweaty wound. You’ll test how well they stick, how strong they are, and how easy (or hard) they are to remove.

**Materials:**

* Fabric bandage (like cloth adhesive)
* Plastic bandage (like standard Band-Aid)
* Gauze + tape
* Paper towel + tape (DIY bandage)
* Spray bottle with water (to simulate sweat or moisture)
* Paper "skin" or a damp sponge
* Timer (or stopwatch)
* Pencil for recording results

**Student Directions:**

**Step 1: Prep your “skin”:**  
Lay your paper "skin" flat on the table (or use a moist sponge if instructed).

**Step 2: Stick on your bandages:**  
Apply each type of bandage to a separate spot on the "skin" or sponge. Make sure each one is pressed down firmly so it starts out sticking well.

**Step 3: Spray the bandages:**  
Use the spray bottle to lightly mist the bandages 3–4 times. This simulates moisture from sweat, rain, or a humid day.

**Step 4: Start your timer:**  
Wait **1 minute** without touching the bandages. Observe:

* + Did any start to peel off?
  + Which one stayed on best?

**Step 5: Do the strength test:**  
After 1 minute, gently tug each bandage. Try pulling from the corner.

* + Which one came off easily?
  + Which one held strong?

**Step 6: Record your results** in the table below. Discuss with your group what each material was good or not so good at.

### 📋 Record It:

| **Bandage Type** | **Stayed on when wet?** | **Easy to remove?** | **Strong hold?** |
| --- | --- | --- | --- |
| Fabric Bandage | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No |
| Plastic Bandage | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No |
| Gauze + Tape | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No |
| Paper Towel + Tape | ☐ Yes ☐ No | ☐ Yes ☐ No | ☐ Yes ☐ No |

### 💬 Think & Reflect:

1. **Which bandage worked the best overall (held tight, stayed dry, felt comfortable)? Why?**  
   → \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. **If you had a real cut or scrape, which bandage would you choose and why?**  
   → \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. **What properties make a bandage useful in real life? (Think: water resistance, flexibility, comfort...)**  
   → \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### 📍 **Activity: Cool It Down!**

**NGSS Standard:**

* **2-PS1-4** – Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.

### ✅ ITEEA STEL Standards – Elementary Level

**STEL 1A** – Everyone can design solutions to problems.  
→ Students test different types of bandages and evaluate their real-world effectiveness in keeping wounds dry and protected.

**STEL 4A** – The use of materials is determined by their properties.  
→ Learners directly observe how different bandages behave under moisture, highlighting the impact of material properties like absorbency, adhesion, and flexibility.

**STEL 8A** – Testing and evaluating are part of the design process.  
→ Students collect and analyze data on which materials perform best and why.

**STEL 11A** – Medical technologies help people stay healthy.  
→ This activity helps students understand how different first-aid materials are designed to support healing and protection.

### ✅ Common Core Math Standards – Elementary Level

**CCSS.MATH.CONTENT.2.MD.A.1** – Measure the length of an object by selecting and using appropriate tools.  
→ Optional use of rulers to measure bandage size or water coverage if extended.

**CCSS.MATH.CONTENT.2.MD.D.10** – Draw a picture graph and a bar graph to represent a data set with up to four categories.  
→ Students can graph results to compare which bandage stuck best or was easiest to remove.

**CCSS.MATH.PRACTICE.MP2** – Reason abstractly and quantitatively.  
→ Students analyze their testing results to reason which bandage material is best and why.

**CCSS.MATH.PRACTICE.MP4** – Model with mathematics.  
→ Students organize performance outcomes in tables and optional charts.

**CCSS.MATH.PRACTICE.MP6** – Attend to precision.  
→ Accurate timing, observation, and recording results are essential to this investigation.

### ✅ Summary

This experiment empowers students to **evaluate real-world medical materials** through testing and observation, aligning with **NGSS physical science**, **ITEEA design and materials standards**, and **Common Core math** skills in reasoning, categorizing, and analyzing.

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