UNIT: FIRST AID

Reaction in Action – Disinfecting Wounds

Analyze and interpret data on properties of substances before and after the substances interact to determine if a chemical reaction has occurred.

Investigation Goal:

Explore how hydrogen peroxide reacts with “tissue” to clean a wound, and identify evidence of a chemical reaction.

Background Info:

Hydrogen peroxide (H₂O₂) is a common first-aid disinfectant. When it touches living tissue, it breaks down and releases oxygen. This bubbling action helps clean wounds by removing dirt and killing some germs.

MATERIALS:

* 1 small cup (plastic or paper)
* Fresh potato slice *or* a spoonful of yeast solution *(your tissue model)*
* Hydrogen peroxide
* Water (as a control)
* Dropper or pipette
* Safety goggles and gloves (recommended)

STUDENT DIRECTIONS:

**Step 1: Test the Reaction**

1. **Place the potato slice** (or 1 tsp of yeast solution) into a small cup.
2. **Add 5–10 drops** of **hydrogen peroxide** onto the potato or yeast using a dropper.
3. **Watch carefully for 30–60 seconds.** What do you notice?
   * Do you see **bubbling** or **fizzing**?
   * Does it make a sound or create foam?
4. **Record your observations** in the chart below.

**Step 2: Compare to Water (Control Group)**

1. In a second cup, place another potato slice (or fresh yeast).
2. Add 5–10 drops of **plain water** instead of hydrogen peroxide.
3. Watch for another 30–60 seconds.
4. Record what happens.

### **Record Your Results:**

|  |  |  |
| --- | --- | --- |
| **Test Material** | **What Happened? (bubbles, fizz, nothing?)** | **Chemical Reaction? (Yes/No)** |
| Hydrogen Peroxide |  |  |
| Water (Control Test) |  |  |

**Reflect & Analyze:**

Answer in complete sentences.

1. What signs showed that a chemical reaction happened with hydrogen peroxide?  
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2. Why didn’t plain water cause the same reaction?  
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3. Why might this bubbling reaction be helpful in real first aid situations?  
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4. Hydrogen peroxide releases oxygen gas when it reacts. What does that tell you about the kind of change it is (physical or chemical)?  
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Standards Alignment

NGSS: MS-PS1-2 STEL: STEL 2E, STEL 3F, STEL 4E, STEL 8E, STEL 11F CCSS: CCSS.MATH.CONTENT.6.SP.B.4, CCSS.MATH.CONTENT.6.SP.B.5, CCSS.MATH.PRACTICE.MP2, CCSS.MATH.PRACTICE.MP4