STEM 101
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Name: _____
Period: _____

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 (H_2O_2) 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?

   _____

   _____

2. Why didn't plain water cause the same reaction?

   _____

   _____

3. Why might this bubbling reaction be helpful in real first aid situations?

   _____

   _____

4. Hydrogen peroxide releases oxygen gas when it reacts. What does that tell you about the kind of change it is (physical or chemical)?

   _____

   _____

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