

Name:	
Period:	

UNIT: FIRST AID

COOL IT! – BURN TREATMENT ENGINEERING

Apply scientific principles to design, test, and refine a device that minimizes the transfer of thermal energy.

INVESTIGATION GOAL:

Test how well different first aid materials (like aloe gel, ice, and cloth) remove heat from a simulated skin burn.

BACKGROUND:

When someone gets a minor burn, cooling the area quickly helps stop further skin damage. You'll act like an engineer testing different cooling materials to see which one works best.

MATERIALS:

- √ 3 small cups (or water balloons or plastic bags with warm water to simulate "skin")
- ✓ Hot water (~40–45°C, safe to handle)
- ✓ Aloe vera gel
- ✓ Ice pack or frozen sponge in a bag
- ✓ Clean cloth (dry or slightly damp)
- ✓ Thermometer (or your hand if safe and instructed by your teacher)
- ✓ Timer or stopwatch
- ✓ Paper towel (to wipe and clean between trials)

STUDENT DIRECTIONS:

1. Prepare your "burn site":

Fill 3 cups with warm water to simulate a mild skin burn. Make sure all cups are at about the same starting temperature. Record the **starting temperature** of one cup.

	Start Temp:	°C
_	Start remp.	_



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- 2. Apply the treatments (one per cup):
 - Cup 1: Cover the surface with aloe vera gel
 - o Cup 2: Place the ice pack or frozen sponge on top
 - Cup 3: Drape with a clean cloth
- 3. Wait for 2 minutes.

Use a stopwatch or timer. Do not stir the water.

- 4. After 2 minutes, measure the end temperature of each cup using a thermometer (or carefully use the back of your hand to feel warmth if approved). Wipe the thermometer between uses.
 - End Temps:

o Aloe: _____°C

lce Pack: _____ °CCloth: ____ °C

5. Record your data and compare the results. Which material cooled the "burn" fastest?

Record It:

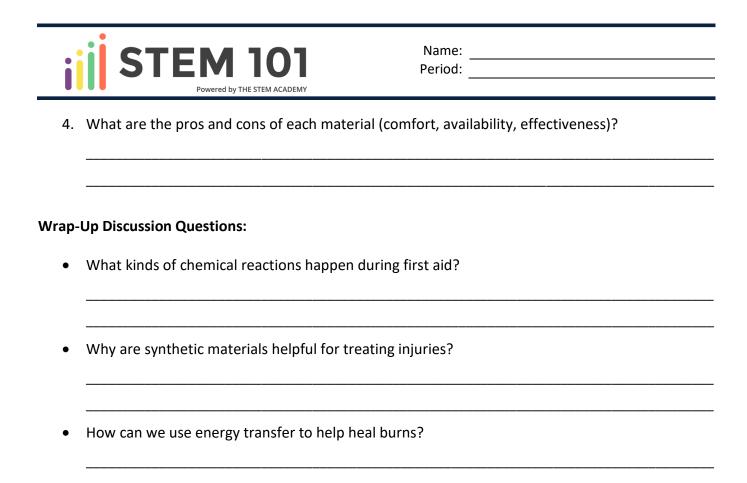
Treatment	Start Temp (°C)	End Temp (°C)	Temperature Drop (°C)
Aloe Gel			
Ice Pack			
Cloth			

Reflect Questions:

1.	Which	material	helped	cool the	water the	fastest?
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Which material would you recommend for burn treatment and why?

3. Why is it important to cool a burn quickly in first aid?



STANDARDS ALIGNMENT

NGSS: MS-PS3-3 STEL: STEL 1F, STEL 2E, STEL 4E, STEL 7E, STEL 8F, STEL 11F CCSS: CCSS.MATH.CONTENT.6.SP.B.5, CCSS.MATH.CONTENT.7.RP.A.2, CCSS.MATH.PRACTICE.MP4, CCSS.MATH.PRACTICE.MP2, CCSS.MATH.PRACTICE.MP6