

Earth Science & Wilderness Safety: Weather and Terrain Hazards

Materials Needed:

- Computer with internet access
- Local topographical map (physical or digital)
- Weather forecasting website/app
- Notebook or paper
- Pen or pencil
- Optional: Basic first aid kit
- Optional: Compass

Introduction (10 mins)

Discuss: What comes to mind when you think about 'wilderness safety'? How might knowledge of Earth Science, like weather or the shape of the land, help someone stay safe outdoors or respond to an emergency? Today, we're going to be Earth Science detectives, looking for clues in weather reports and maps that warn us about potential dangers, and linking those clues to the kinds of first aid situations someone might encounter.

Activity 1: Weather Watch (20 mins)

1. Access a reliable weather forecasting website/app for your local area or a chosen wilderness area (e.g., a nearby national park).
2. Examine the forecast for the next 24-48 hours. Look specifically for: Temperature highs and lows, precipitation (type, amount, probability), wind speed and direction, and any special alerts (severe thunderstorm watches/warnings, heat advisories, freeze warnings).
3. Discuss for each element: What kind of wilderness first aid emergencies could this weather condition cause or worsen? (Examples: Low temps/precipitation -> Hypothermia; High temps/humidity -> Heatstroke/Dehydration; Thunderstorms -> Lightning strikes; High winds -> Falling debris/difficulty navigating).
4. Record connections in the notebook.

Activity 2: Terrain Traps (20 mins)

1. Examine the topographical map of your chosen area.
2. Identify key features: Contour lines (indicating steepness), ridges, valleys, rivers/creeks, marked trails, symbols for cliffs or rocky areas.
3. Discuss: How could these features pose a risk? (Examples: Steep slopes/cliffs -> Falls, sprains, fractures; Rivers -> Drowning, hypothermia during crossing; Loose rock/scree -> Slips, falls, twisted ankles; Dense forest off-trail -> Getting lost, encountering obstacles).
4. Optional: If using a compass, practice orienting the map and identifying direction of travel, discussing how disorientation is another hazard.
5. Record connections in the notebook.

Scenario Synthesis (15 mins)

Present 1-2 hypothetical scenarios combining weather and terrain. Example:

Scenario: You plan a day hike in [Chosen Area]. The forecast predicts a high of 85°F, 70% humidity, and a 30% chance of afternoon thunderstorms. Your route crosses a creek and involves a steep climb up a rocky slope shown on the map.

Discuss: What are the primary Earth Science-related hazards? (Heat/humidity -> Heat exhaustion/stroke; Thunderstorms -> Lightning; Creek -> Slippery crossing/potential flash flood if storm hits; Steep/rocky slope -> Falls/sprains). What first aid knowledge would be most relevant here? (Recognizing heat illness, lightning safety protocols, basic wound/sprain care, water safety).

Wrap-up & Reflection (5 mins)

Review the connections made between Earth Science (weather, terrain) and wilderness first aid.

Discuss: How does understanding the environment change how you might prepare for an outdoor trip?

What's one key takeaway about using Earth Science knowledge for safety?

Extension (Optional)

Research specific local environmental hazards (e.g., flash flood areas, common weather patterns like inversions, local poisonous plants/animals influenced by environment) and their associated first aid protocols. Create a mini-guide for staying safe in a specific local park.