

# Weather Lab # 2 Rate at Which Surface Layers Heat or Freeze

Date: Sept 14

Name & Partners: whole class

**Purpose:** To test how different ground or water layers respond to temperature changes of heating or cooling.

**Hypothesis:** I predict that sand's temperature will take the longest to heat or cool and water's temperature will take the shortest amount of time to heat or cool.

## Materials:

- thermometers
- pencil crayons
- samples: soil, water, gravel, and sand
- lab report
- plastic cups
- pencil

## Procedure:

1. Gather samples in a plastic cup: soil, sand, water and gravel
2. Place a thermometer in each sample and record the temperature at room temperature
3. Record outside present temperature
4. Place samples outside in direct sunlight (ideally) for 10-60 minutes.
5. Observe the temperature of each sample and record and illustrate thermometers
6. Write observations and explain results
7. Refer to your original hypothesis, confirm or refute whether correct or not and why in your conclusion

## Observations:

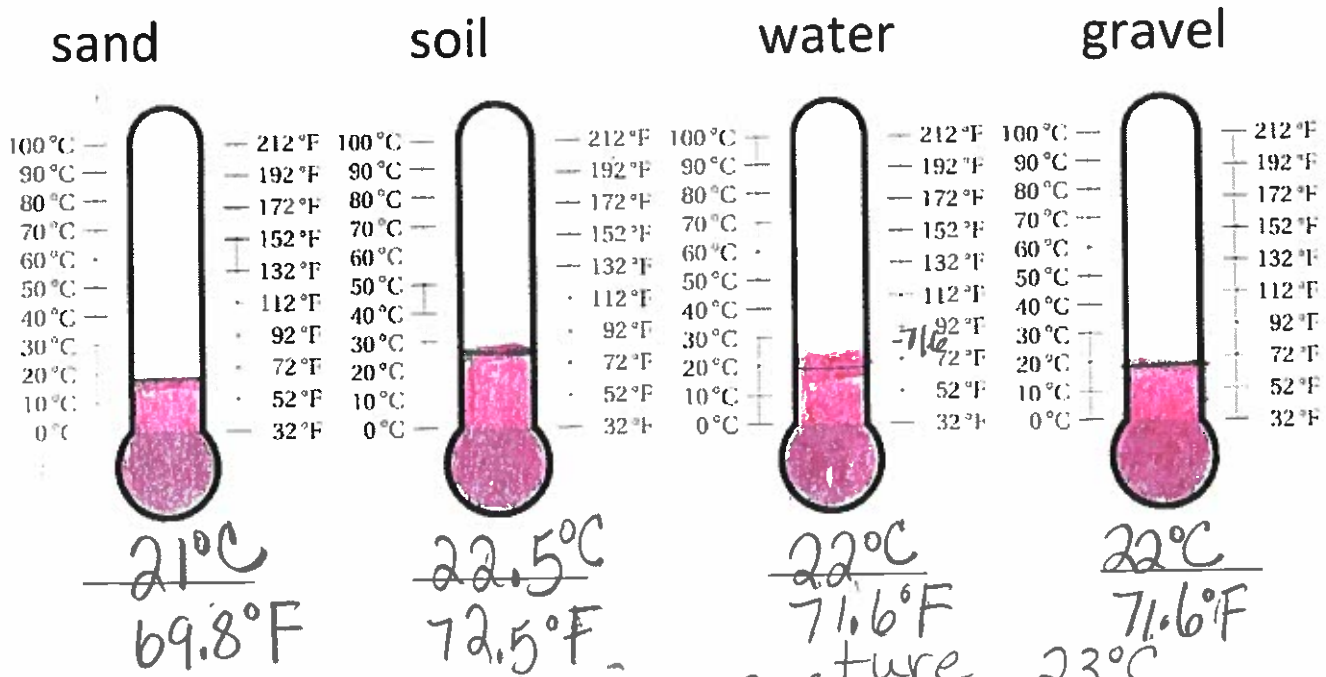
Document data on the table of each sample in degrees:

23°C day/4 hours

Samples/Material	Degrees at room temperature	Degrees in direct sunlight or being outside
water	21°C	22°C went up 1°C
sand	21°C	21°C no change
soil	21°C	22.5°C went up 1.5°C
gravel	21°C	22°C went up 1°C

4 hours

After 240 minutes of being exposed to the sun's rays or outside, this is the temperature of each sample:



Explain observations and results: temperature  
Sand: sand is really thick and the layers take longer to heat.

Soil: soil is a dark and loose. Top layers absorb heat because of colour.

Water: because it is clear, light can pass through and heat the surface, but if deep, the layers will take longer.

Gravel: because the rock sizes are larger, there was a lot more air and space to heat the surface.

**Conclusion:**

My prediction was partly correct. I predicted that water would heat the fastest, which was wrong. Soil heated up the fastest. I was correct about sand taking the longest to heat up.