

TOO HOT OR NOT – THERMOSTAT CHECK-UP

*Lesson from the Green School's Tool Kit Manual for use in conjunction with the tool kit

Objective:

Students will use a temperature and relative humidity meter to determine whether the school's thermostat is accurate and whether the building humidity is at an appropriate level for the heating system.

Grade Level: 6 – 10

Background Information

A heating system's thermostat is crucial in supplying the proper amount of heat. If it is out of adjustment, it may provide too much or too little heat. This affects the amount of energy used as well as the comfort level of the rooms. The comfort level is also dependent on proper humidity. In the winter, heated air can become dry. If the humidity is too low, below 30, human health is affected because the mucous membranes may develop small cracks or openings that allow easier access for viruses and bacteria. This may increase the number of student sick days due to colds and flu.

Equipment:

Temperature and relative humidity meter (from Green Schools Tool Kit)

Advance Preparation:

Plan this investigation during the winter months when the heating system is being used. Ask the custodian to remove thermostat covers before the investigation.

Leading the Investigation:

Follow the investigation as described on the student page, either as a whole class or in small groups.

Follow-Up:

If the thermostat is not accurate, students can calculate the cost to the school per degrees Celsius of any wasted heat.

Too Hot or Not? - Thermostat Check-Up

Question

Is the school's thermostat accurate and is the building humidity at an appropriate level?

Your prediction:

Equipment

Temperature and relative humidity meter

Procedure

1. Use the temperature and relative humidity meter to measure the temperature and the relative humidity in different rooms around the school. Take three different measurements in each room.
2. Look at the school's thermostat to see its temperature setting. Use the thermometer and relative humidity meter to measure the air temperature near the thermostat.

Data

Room: _____		Room: _____		Room: _____	
Temp (°C)	Relative Humidity	Temp (°C)	Relative Humidity	Temp (°C)	Relative Humidity

Thermostat Setting: _____

Air Temperature at Thermostat: _____

Thermostat Location: _____

Analyzing the Data

1. Is the thermostat accurate? How do you know?
2. Does the thermostat setting reflect the actual temperature of the school's rooms?
3. What is the average humidity of the building? Is it at a healthy level?