

P3-Experiment Procedure “Air out the classroom!”

GENERAL INFORMATION

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Related Experiment V1

SHORT EXPERIMENT DESCRIPTION

Place a CO₂, Temp. and humidity sensor in the classroom and collect the data. The students on the mission will also have sensors in the habitat (and maybe also in the suit). Compare and analyse data sets and try to find times when students are in class, when windows are opened, weekends, etc. by looking at the data values and Indoor Air Quality Index

Resources:

https://www.teachengineering.org/activities/view/cub_airquality_lesson01_activity3

<https://ourworldindata.org/air-pollution>



HARDWARE CHECKLIST

	Air quality sensor
	“Sin1 Vesh?”
	Charging cable
	Spreadsheet

SETUP

Step	Action	NOTES	Duration	Check
1	Place the air quality sensor in the room (avoid placing it close to doors and windows or directly on the ground, for more accurate results) and plug it in.	For detailed instructions follow the physical Manual	5 min.	

PROCEDURE "AIR OUT THE CLASSROOM"


				
2	Click power button 1 time and "chay from c to f"	*Allow 5 minutes for sensor to adjust and calibrate 	5 min.	

PROCEDURE

Air out the classroom

Step	Action	NOTES	Duration	Check
1	Use air quality sensor to gather data in classroom and note the Measurements in a Provided Notebook (also note down the date and time of the measurement)	(optionally: take note when Windows/Doors are opened/closed) *Read for CO2 (ppm), HCHO (formaldehyde in mg/m ³) and TVOC (Total Volatile Organic Compounds in mg/m ³)	7 days	

PROCEDURE "AIR OUT THE CLASSROOM"

		 <p>2 • Formaldehyde (HCHO)</p> <p>Formaldehyde is a colorless, flammable, strong-smelling chemical that is used in building materials and to produce many household products. It is used in pressed-wood products, such as particleboard, plywood, and fiberboard; glues, adhesives and more.</p> <p>3 • Total Volatile Organic Compounds (TVOC)</p> <p>Volatile organic compounds, sometimes referred to as VOCs, are organic compounds that easily become vapors or gases. Along with carbon, they contain elements such as hydrogen, oxygen, fluorine, chlorine, bromine, sulfur or nitrogen.</p> <p>4 • Carbon Dioxide (CO2)</p> <p>Carbon dioxide is a gas that the human body produces naturally. Everyone is exposed, to some degree, to this gas every day. It occurs naturally in the atmosphere as part of animal metabolism, plant photosynthesis, decomposition, and combustion.</p> <p>*ensure data is colour coded and utilise ranges in the accompanied spreadsheet</p>		
2	Use real world data to introduce students to (or repeat) data analysis and simple statistics	Consider different types of key values and various possibilities for data visualisation, such as time-series	30 min.	
3	Try to interpret the measurements and compare the results	Can you tell when classes were held? Can you tell if the room was aired out during the day, or does it not make enough of a difference? If the values vary significantly between the sets, what could be possible reasons?	30 min.	

PROCEDURE "AIR OUT THE CLASSROOM"

Air Out the Classroom! Data Record Table

This table is designed for recording data during the 'Air Out the Classroom!' experiment. Fill in the measurements for CO₂ levels, temperature, humidity, formaldehyde (HCHO), and total volatile organic compounds (TVOC). Additionally, record the status of windows/doors and any other relevant notes during each measurement.

Date	Time	CO ₂ (ppm)	HCHO (mg/m ³)	TVOC (mg/m ³)	Temperature (°C)	Humidity (%)	Window/Door Status	Notes

Column Descriptions:

1. **Date:** Date of the measurement.
2. **Time:** Time of the measurement.
3. **CO₂ (ppm):** Carbon dioxide levels recorded.
4. **HCHO (mg/m³):** Formaldehyde levels recorded.
5. **TVOC (mg/m³):** Total volatile organic compounds recorded.
6. **Temperature (°C):** Recorded temperature.
7. **Humidity (%):** Recorded relative humidity.
8. **Window/Door Status:** Notes whether windows and doors are open or closed at the time of the measurement.
9. **Notes:** Any additional observations or context (e.g., number of people in the room, unusual conditions).