TAHMO's goal is to install 20,000 on-the-ground sensing stations every 30 km across the African continent, specifically designed to provide rainfall, temperature, and other critical data from robust redundant sensors uploading by cell-phone in real time. TAHMO will make this high-quality data freely available to governments, scientists and farmers on the Internet for various applications including improving agricultural productivity, providing early warning for floods, and information required to provide short-term weather and long-term climate forecasts. The project will make it possible for Africa to leapfrog to one of the best-monitored continents in the world.

TAHMO

Trans African Hydro-Meteorological Observatory

School2School Program

TAHMO partners schools throughout Africa with sister schools in the United States and Europe. Partner schools work together to fundraise the cost of sensors and necessary fencing materials for each school to set up their own weather station.

TAHMO staff conduct site visits to get to know teachers and students while preparing logistically for installations. As fundraising goals are reached, our TAHMO technical staff deliver an in-person training to school staff members about weather station function and minor maintenance aspects, and they install stations at our partner schools. These stations upload data automatically to an internet server and schools are provided with software and classroom education tools to view and analyze the local weather data that their station and the stations at other schools are recording.

Data can be used to enhance activities with sister schools across the globe by comparing climates and weather. Many of the TAHMO lesson plans provided make use of real-time weather data in the classroom. The weather information is also shared publicly through TAHMO's website for additional research and agricultural applications.

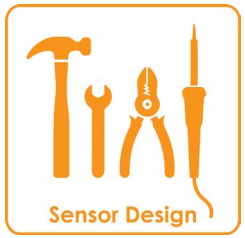
Interested in participating?

Please send an email to **s2s@tahmo.org** with the following information:

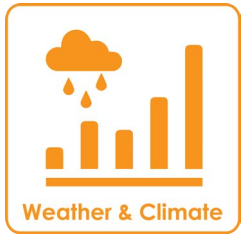
- School's full name + number of students and teachers
- Website of the school (if applicable)
- Grade range
- Information about access to resources: power, Internet, computers, cell phone services, 3G cell phone capacity, etc.
- Picture of the school site

TU Delft · TAHMO · Oregon State OSU

www.tahmo.org



'Sensor Design' focuses on the technical aspects of the weather stations. Students will be asked, for example, to build one of the sensors using a manual, but also to design their own sensor. This will increase their understanding of working principles.



'Weather & Climate' focuses on weather calculations. Students will learn about relationships between, for example, water vapor in the atmosphere and severe weather. Using data from GPS and other meteorological data, students will learn to make predictions.

'Entrepreneurship' links weather data with business. It provides answers to questions such as 'why do we need weather predictions?' and 'how can we improve livelihoods?'.

Learning objectives

The student is able to:

1. make one of the weather sensors based on a detailed manual.
2. understand how the weather sensors work.
3. design a sensor which is able to measure one of the weather variables and make a prototype.

4. take readings from the weather station and make a graph out of it.
5. interpret the data and make weather predictions based on his/her findings.
6. communicate in English (written) with students from other countries in order to find out about their weather and measurements.
7. make a comparison between different climates and weather of different regions in the world and explain how these differences will affect daily life.

8. set up a virtual business and write a business plan in which the weather data play an important role (insurance company, farm, market vendor, etc.)
9. understands how weather insurance companies work.
10. calculate the 'break-even point' in a specific case.

Example Rain Gauge

This lesson plan is about making your own acoustic rain gauge after which it can be tested and evaluated. It is a typical plan of the category 'Sensor Design'. Each plan contains an orange box, like below, with information to make it easy to find the best suitable lesson plan for every occasion.

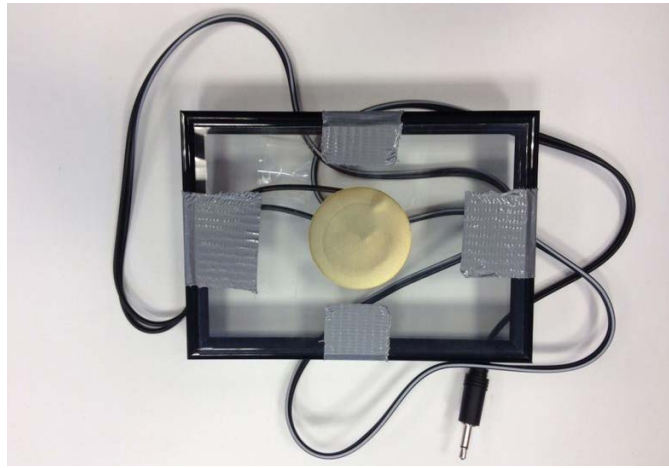
Rain Gauge

12-13 years

Physics, mathematics

Rain, technical

2 hours



Requirements School2School program

- Provide a safe outdoor location for the permanent placement of a weather station.
- Assign two staff members as contacts for the weather station. Contacts should attend a TAHMO training on the basics of weather station equipment use and maintenance. Contacts can be teachers who are using the equipment for classroom education or other school staff, such as administrators.
- Integrate the weather station and collected data into the educational curriculum, interact in a classroom exchange with their sister school, and provide feedback on educational activities and data accessibility. Teachers should attend a professional development workshop about TAHMO education modules and classroom activities.
- Fundraise to help cover the initial station installation and support costs for 2 years (10% support is estimated at 200 USD for AFrican schools). Additional fundraising may be necessary if schools lack internet connectivity or a power supply.