STEM in

LESSON PLAN

Weather station

In this activity, students will build simple tools like a rain gauge or anemometer and record weather patterns over a week.

45-60 min **Duration**

Recommended age for this game

10-12 years

Learning Objectives

- Understand weather patterns and how they are measured.
- Learn to use basic tools for tracking weather data (e.g., temperature, rainfall, wind).
- Develop skills to interpret and predict weather conditions.

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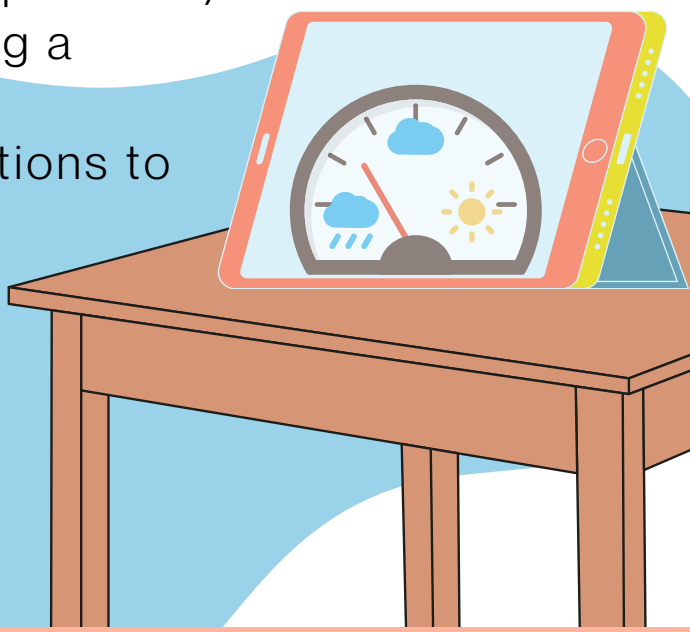
Materials and tools needed

- Thermometer (for measuring temperature).
- Rain gauge (or a DIY version using a plastic bottle).
- Anemometer (optional, or instructions to build one).
- Compass (for wind direction).
- Recording sheets or digital apps for tracking weather data (See Annex 1)



Guidance for Teachers

Activity description

Students will create a simple weather station and record daily weather data to learn about patterns and prediction.

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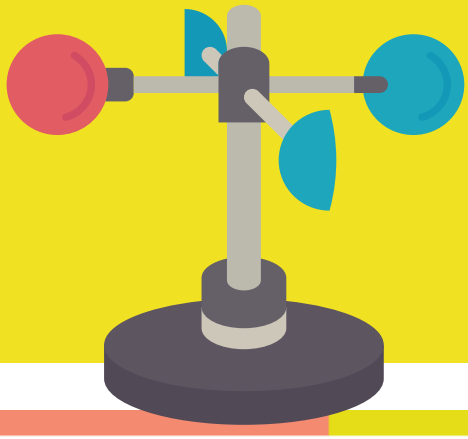
Guidance for Teachers

Preparation

- Collect or prepare weather measurement tools.
- Set up an outdoor space for students to place their weather station.
- Prepare templates or apps for students to record weather data.

Implementation steps

- INTRO: Discuss the importance of weather monitoring and introduce key tools. Show also examples of professional weather stations.
- BUILDING PHASE: Guide students in building simple weather measurement tools (e.g., DIY rain gauge). Set up the weather station outside.



- DATA COLLECTION: Have students collect weather data at the same time each day. Record temperature, rainfall, and wind direction/speed.

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- DATA ANALYSIS AND PREDICTION: Analyze the collected data to identify patterns. Use the data to make predictions for the next day's weather.
- REFLECTION: Discuss how weather data impacts daily life and future planning.

Follow-up

- Research how meteorologists use technology to predict extreme weather.
- Discuss how climate change affects weather patterns globally.

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Student Activities

Activity description	Expected outcome	Technology integration
Build a Weather Station	Students will construct simple tools to measure weather variables.	Watch a tutorial on building weather tools
Record Weather Data	Students will collect and document daily weather conditions.	Use weather-tracking apps for accurate comparisons.
Analyze Weather Patterns	Students will analyze their data to identify trends and make predictions.	Plot data using Excel or Google Sheets.
Present Weather Report	Students will create a weather forecast based on their observations.	Use video tools like Canva or iMovie for reports.

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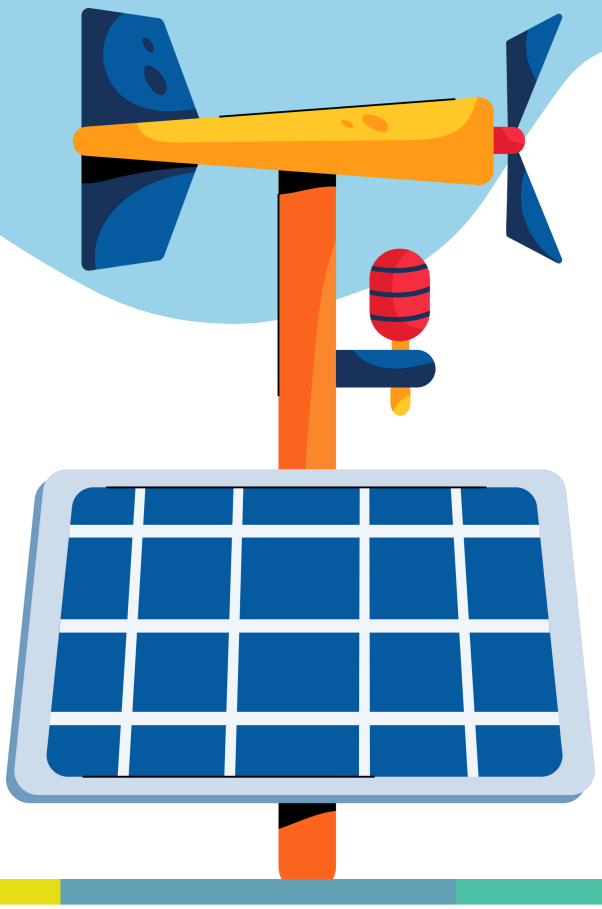
Reflective questions for students

- What weather patterns did you notice over the week?
- How accurate were your predictions?
- Why is it important to monitor weather in real-time?
- How does technology improve the accuracy of weather forecasting?



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Differentiation ideas

Advanced Students

- Challenge them to include more variables, like humidity or barometric pressure.
- Have them create a detailed weather forecast report using historical data.
- Encourage them to research global weather trends and compare them with local data.

Students with special needs

- Simplify data collection by focusing on one variable (e.g., temperature).
- Provide visual aids and hands-on guidance during setup.
- Pair them with a peer for support during the activity.

Tips

- Encourage students to be consistent with the time of data collection.
- Use age-appropriate explanations for weather concepts.
- Provide examples of professional weather reports to inspire students.
- Ensure all students actively participate, whether in setup, recording, or analysis.

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Additional materials and references

- Websites: NOAA for kids or Weather Wiz Kids for fun facts and resources.

- Book: "National Geographic Kids Everything Weather" by Kathy Furgang.

- App: Weather tracking app MyRadar.

- Video: DIY weather tools

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ANNEX 1

Recording sheet

Weather observations:
1. Daily weather log (add as many days as you need)

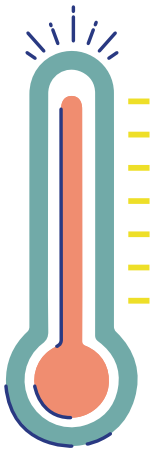
Date	Temperature (°C/°F)	Wind Speed (km/h or mph)	Cloud Cover (None, Partial, Full)	Rainfall (Yes/No)
Day 1				
Day 2				

Weather pattern analysis:

1. What was the average temperature over the 5 days?
   _____
2. Was there a pattern in cloud cover? Yes / No (Explain:
   _____
3. Did you notice any changes in wind speed over the 5 days? Yes / No (Explain: _____)
4. Did rainfall affect temperature changes? Yes / No (Explain: _____)

Weather Prediction:

1. Based on the data, predict tomorrow's weather:
2. Temperature: _____°C/°F
3. Wind Speed: _____ km/h or mph
4. Cloud Cover: (None, Partial, Full) _____
5. Rainfall: (Yes/No) _____
6. What clues helped you make your prediction?



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