Simple and fun prototype to show young students how it is possible to produce water from air humidity. This project can be done with easy-to-find materials and is an effective way to teach science and sustainability concepts.

Project: Harvesting Water from Air Humidity

Objective:

Show how water can be extracted from moisture in the air using a simple condensation system.

Materials Needed:

- One transparent plastic bottle (2 litres)
- A small fan (can be a USB fan)
- Ice
- Salt
- A small container (such as a bowl)
- Adhesive tape
- Thermometer (optional)
- Paper and pen for notetaking

Steps:

1. **Bottle Preparation**:
    - Cut the plastic bottle in half. The top part will be used as a funnel and the bottom part as a water collector.
2. **System Assembly**:
    - Place the small container inside the bottom of the bottle.
    - Fill the top of the bottle (the funnel part) with ice and add a little salt to lower the temperature of the ice even further.
    - Place the top of the bottle (with the ice) upside down inside the bottom, so that the funnel is above the small container.
3. **Fan Addition**:
    - Position the fan so that it blows air towards the funnel with ice. Use duct tape to secure the fan if necessary.
4. **Note**:
    - Turn on the fan and watch what happens. The warm, moist air around the funnel will encounter the cold surface of the funnel, causing the moisture to condense into water droplets.

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- The water droplets will run down the funnel and fall into the small container.

5. **Notes and Discussion**:
    - Use the thermometer to measure the temperature of the air and ice, if available.
    - Ask students to write down their observations: How long does it take for water to start condensing? How long does it take to fill the small container?
    - Discuss with students how this process mimics the formation of dew in nature and how it can be used to obtain water in areas with poor availability of drinking water.

Conclusion:

This simple prototype demonstrates how water can be extracted from moisture in the air through condensation. It is an effective way to teach students about water cycles, the importance of resource conservation, and the possibilities of sustainable technologies.

Extra help:

Some videos that can help explain how to produce water from moisture in the air to students:

1. **Learning About Water from Kids: Rainwater Harvesting** - This short, educational video shows how rainwater harvesting can be done simply and effectively.
2. **Drinking Water From Thin Air?! How To Harvest Moisture With A Dehumidifier** - This video explains how to use a dehumidifier to produce drinking water from the air, covering the principles of operation and practical applications.
3. **Rain Water Harvesting for kids | Types of Rain Water Harvesting | Primary School Learning** - An educational video that teaches different rainwater harvesting methods, ideal for primary school students.

These videos can be great visuals to complement the prototype and help students better understand the process.

https://youtu.be/kKk_G_8FcUM?feature=shared

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