

WATER FENCES

Teaching Guidelines

Subject: Science

Topics: The Nature of Science and Technology, Physics

Grades:

Knowledge and Skills:

- Can create a chart for the collection of experimental results
- Can present experimental results clearly in written form
- Can design an experiment which isolates and evaluates the relationship between two variables
- Understands what factors contribute to rate of evaporation

Materials: None

Procedure: This project should be done by students in teams of two or three.

Each team will need a cake pan, a water supply and a controllable method of producing airflow across the top of the pan (such as a small multi-speed fan).

Distribute the handout and discuss it. Ask students to think about how one might measure the influence that wind has on evaporation, and to form hypotheses about what they think might happen.

Distribute the materials to each team. Ask each team to first prepare a plan for their experiment, for your review.

In reviewing the plans, look for opportunities to get students to think about what other factors besides wind might influence evaporation, and whether they control those (temperature and humidity).

(One way to minimize effects of varying temperatures and humidity is to have different teams test evaporation with different wind speeds at the same interval of time, so that only the wind speeds varies. In this case it will be important that the teams use identical cake pans.)

Give students a schedule for working on the project and a due date.

School-to-Career Connection: Visit a farm and see how irrigation is done.



E-mail printout

Addressee: Director of Research

cc: Disbursements Officer

From: Vice President, Sales

Suzanne,

As you know, our product line hasn't yet really caught on among the farmers in our state. I guess the idea of building fences to reduce water evaporation is a little too new for them.

I think it would help if we could show them just how much wind increases water evaporation over an area. Then the idea of putting up a barrier to reduce the wind might make more sense.

Could you devise an experiment that measures the effect that wind has on evaporation? Ideally you would end up with a graph that shows how increased wind velocity leads to more water loss in a given period of time.

I know it would be difficult to do this in an actual field, but even if we could show this on a very small scale, say in a cake pan, I think it would help.

I am sending a copy of this memo to the disbursements officer as an authorization for you to get the equipment you will need.

I think it would be best if you had multiple teams doing the same experiment so they can check each other's results.

Please give me a nice clear report so that I can just turn it over to our graphics department to make into an advertising piece.

Regards,

Malcolm