



HOMESCHOOL SCIENCE EXPERIMENT

MAKING A SOLAR DEHYDRATOR AND TESTING FOOD PRESERVATION

Name: _____

Date: _____

Grade: _____



Big Question: How can the sun help preserve food?



GOAL

Build a solar dehydrator and test how well it removes moisture from food to help preserve it.



HYPOTHESIS

If I use a solar dehydrator, then the food will lose moisture and last longer because _____



MATERIALS

- ☐ 1 cardboard box (pizza box size works well)
- ☐ Aluminum foil
- ☐ Clear plastic wrap or clear plastic sheet
- ☐ Black construction paper or paint
- ☐ Scissors or box cutter (with adult help)
- ☐ Tape or glue
- ☐ Ruler
- ☐ 2-3 mesh screens or cooling racks (to make trays)
- ☐ Food to test (fruit, vegetables, or herbs)
- ☐ Kitchen scale (optional)
- ☐ Notebook and pencil
- ☐ Thermometer (optional)
- ☐ Hygrometer (optional)



BUILD YOUR SOLAR DEHYDRATOR

1. Line the inside of the box with aluminum foil.
2. Cover the bottom of the box with black paper or paint it black.
3. Cut a flap in the lid side of the box with clear plastic. Tape it tight.
4. Make the box into an adjustable angle so the sun shines through the plastic.
5. Place mesh screens inside the box to create trays.
6. Your solar dehydrator is ready!



EXPERIMENT STEPS

1. **Prepare the Food:** Wash and slice food into even pieces. Pat dry.
2. **Weigh (Optional):** Weigh a few pieces and record the starting weight.
3. **Place Food on Trays:** Arrange food in a single layer on the mesh trays.
4. **Dehydrate:** Place the trays in your solar dehydrator. Put the dehydrator in direct sunlight.
5. **Observe and Record:** Check the food every few hours. Record the temperature, humidity (if you have a meter), appearance, and how it feels.
6. **Continue:** Dehydrate for 1-3 days, depending on the food and weather.
7. **Final Check:** Food is done when it is dry, leathery, and does not feel cool or moist.
8. **Store and Test:** Store in a sealed container. Observe the food over the next week for any signs of mold or spoilage.



DATA TABLE

Day / Time	Temperature (°F)	Humidity (%)	Food Appearance	How Food Feels	Notes
Day 1 Morning					
Day 1 Afternoon					
Day 1 Evening					
Day 2					
Day 3 (if needed)					



ANALYSIS - ANSWER IN COMPLETE SENTENCES

1. Did your hypothesis turn out to be correct? Why or why not? _____
2. What worked well in your solar dehydrator? _____
3. What would you improve if you built it again? _____
4. How does removing moisture help preserve food? _____



CONCLUSION

Write 2-3 sentences summarizing what you learned about solar dehydration and food preservation.



SAFETY FIRST

Always use scissors and box cutters with adult supervision.
Make sure your solar dehydrator is placed in a safe location and cannot blow away.

