Work Sample Suggestions for Science

for

Furry Friends

Inquiry for Benchmark Two

In the State of Oregon, there are four components to inquiry science: form, design, collect, and analyze.

In the scientific process used in the past, students would pose a question and then their suggestion for an answer, a hypothesis. Using the inquiry method today, **form** is like hypothesis but there's more. In addition to what a scientist wants to know and what might happen, scientific background must be stated. This requires a lot of language. At this point, form is not a required part of a formal inquiry work sample at benchmark 2.

Design is like procedure from the scientific process. It's important to students to state their plan step by step, label everything, and be as clear as possible.

Collect is collecting data but, again, there's a bit more. The data is listed on a table but must be converted into a chart, graph, percentage, something that can be analyzed.

Analyze is like conclusion. I tell students to imagine that the paper is being handed in and I ask "Well, how did it go?" or "What did you learn?" I encourage students to go back to each of the first three steps and review their work:

FORM

Were you able to answer your question?
Did you get the results you expected?
Did you learn anything new with this activity?

DESIGN

Was your procedure clearly stated? clearly labeled?
Could another scientist follow your design?
Did your design have only one variable?
Would you change anything if you repeated the activity?

COLLECT

Look back: Were the results different from what your hypothesis?
What were your results?
What might you do the next time?

The following page has a set of questions that can guide students through this process.

FORM

What do you know?

What do you want to know?

What do you think will happen? (hypothesis)

DESIGN

Step by step what are you going to do?

Words are helped by drawings when possible

Could I do this without asking you clarifying questions?

COLLECT

Create and record data on a table

Change the data into a graph or chart

ANALYZE

What were your results?

Look back–did your results match your hypothesis?

Was it a fair test, would you do it differently next time?

Evaporating Water

FORM

I know that water, left out on a shelf, will evaporate. It changes from a liquid to a gas or water vapor.

What would happen if I _____ ?

I think _____

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DESIGN

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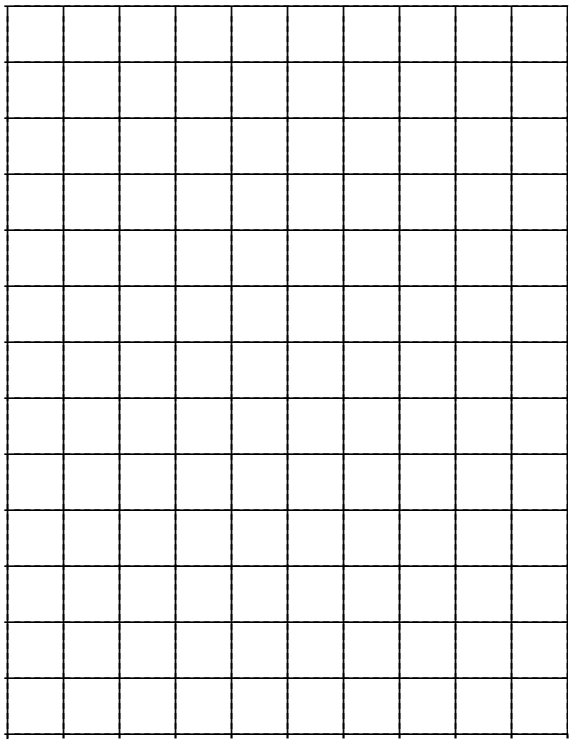
COLLECT

Here is what I found:

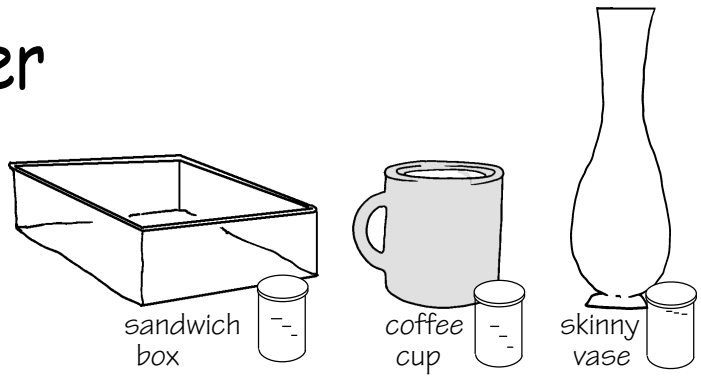


ANALYZE

Evaporating Water

FORM

I know that water, left out on a shelf, will evaporate. It changes from a liquid to a gas or water vapor.



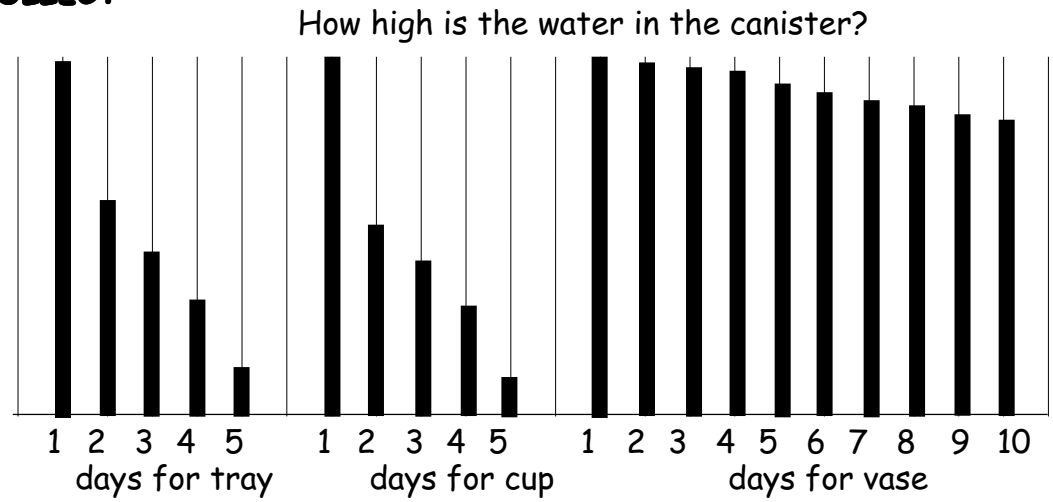
What would happen if I used wide, medium, or narrow containers to evaporate water?

I think the water would evaporate faster in the wide container. The water has more surface area.

DESIGN

1. I need a sandwich box, a coffee cup, a vase, water, and three film canisters. I'll need a permanent pen to mark the film canisters.
2. Fill a white film canister with water and then pour the water into a square sandwich box. Put the film canister in front of the box.
3. Repeat number one with a coffee cup and a skinny bud vase.
4. Wait 24 hours. Pour the water from each container back into the film canister in front of the container. Mark the level of the water with a permanent pen on the side of the canister. Pour the water back into the original container.
5. Repeat number three until all the water is evaporated.
6. Wrap a piece of paper around each canister, mark the lines from the experiment to make a graph.

COLLECT



ANALYZE

My hypothesis was not supported by my results. The water in the cup evaporated faster than the water in the tray. By the sixth day, all the water in both containers was gone. I think the water in the cup might have evaporated fastest because the water stuck to the sides of the ceramic cup more than the plastic box and it could evaporate faster when I poured the water in and out of the cup. Next time, I would use a plastic cup.