

# Moving Beyond the “Cut and Paste” Science Lab

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## Contentions

My demonstration is meant to suggest and support my contentions that:

1. Science writing should be authentic and relevant. It should move beyond the “cut and paste” lab format.
2. Classroom science should be inquiry based, leading to higher level thinking skills.
3. Students should be able to find and use evidence to support a hypothesis.

## Background

Before students enter fourth grade they do not have intensive science instruction. I hope to work with the curriculum already in place within the district, [Battle Creek Area Mathematics and Science Center Kits](#), to expand writing in the science classroom. The kits do a good job of bringing reading and writing into science and lab work. However, they present labs in ways that are not authentic. They utilize what I call a “copy and paste” lab where students pull out the key ideas without ever seeing the relevance. I want to move students into purposeful science writing. I will start the year by presenting students with professionally written science labs and papers (adapted to reading level). Students will find the “copy and paste” lab components in the professional writing (Question, Hypothesis, Prediction, Procedures, Results, Conclusion). In our labs students will use the “copy and paste” format to pull out these parts of an authentic lab writing but go a step farther by writing one themselves. This fosters the connection in why we pull out the information we do as well as making it easier to see the importance of evidence in a conclusion. Through scaffolding students will become science writers.

## Plan and Extensions Overview

- Start of School Year:
  - ◆ Look closely at professional science writing. Find major components.
  - ◆ Discuss difference between scientific writing and creative writing.
  - ◆ Cut information as a class to be pasted on sheet as we work through labs. Put information into a class developed report.
- October/November Time Frame:
  - ◆ As a class we answer the “cut and paste” lab.
  - ◆ Have students work in partners to complete the developed lab report.
- January/February
  - ◆ In partners or small groups, students answer the “cut and paste” lab.
  - ◆ Independently students develop lab reports.
- March/April
  - ◆ Students in small groups and independently pull out information for “cut and paste” lab then use information to develop a lab report.
- Ongoing
  - ◆ Students will display knowledge of experiment information in multiple modes.
- End of Unit Project

- ◆ Students pick a career that is within the topic we explored. Using our lab information students would create a project that addresses why a person in that career would need to know the information we learned and how it informs our daily lives. (Ex: environmentalist would study how waste disposal impacts and area. That could in turn affect how farmers can get rid of waste and effect cost.) Shows real life and career importance of what we are learning.

## Questions

1. Do you think students would respond well to this type of writing?
2. Do you think other genres could work in presenting lab ideas in authentic ways (i.e. digital story, comics, vines, narratives, etc)?
3. Do I have effective cues in expanding not only student thinking but responses as well?

## Samples

1. [Poll Everywhere- Science is... Science makes me feel...](#)
2. [Example](#) of “[Cut and Paste](#)” [Lab](#) (3 links)
3. [Examples](#) of [authentic](#) scientific [reports](#)
4. [Modified fishbowl “Ecosystem” lesson script](#)
5. [Modified fishbowl “Ecosystem” lesson mentor lab report](#)
6. [“Why is it a liquid?” Cut and Paste class built components](#)
7. [“Why is it a liquid?” Lab Report template- Make a copy](#)
8. [Poll Everywhere- NOW science is... NOW science makes me feel...](#)

## The Approach/Process

1. Gathering background knowledge
  - a. Find what experiences students have had in science as well as their feelings about science.
  - b. Students will brainstorm what science is and how it makes them feel.
  - c. I will use a [Poll Everywhere](#) poll to anonymously collect and display students feelings.
  - d. Take a moment to review these. No one is alone in how they feel.
2. Scaffolding the move from “Cut and Paste” to formal lab report.
  - a. [We will watch what an accelerated version of what a lesson will look like at the start of the year.](#)
  - b. Students will discuss what our questions, hypothesis, and predictions are about a component of our unit. In this case we will look at recycling and our footprint in our Anspach classroom.
  - c. Students at this point in the year will be given steps to test this question. They will record their data.
  - d. We will come back together as a class and share our findings. Critically analyzing if the data is accurate. We will use this data to create a class idea of our conclusion.
  - e. [Using teacher and student input we will create a formal lab that can be used as a mentor text in the future.](#)
  - f. Refer to Plans and Extensions section for more information on the scaffolding schedule.

3. Guided Practice: The Liquid Lab
  - a. Gather students background knowledge on what are liquids. Guide conversation by asking why are those liquids.
  - b. [As a class fill out the question, hypothesis and prediction of “cut and paste” lab sheet.](#)
  - c. Put students in groups and allow them to observe the liquids at each station. Have them join their groups and write their observations. Allow time for groups to discuss as well as fill in the results sections.
  - d. Bring class together to discuss results. Create an overall conclusion based on our discussion.
  - e. [Have groups work together to write a formal lab report using the mentor text.](#)
  - f. If time allows, have groups share their papers.
4. Checking in with your students
  - a. This check can be used throughout units and at the end of the year. The questions are very similar to the beginning to the year [poll](#). They now are answering NOW what is science to you and NOW how do you feel about science.

## Standards

CCSS.ELA-LITERACY.RI.4.1

Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.

CCSS.ELA-LITERACY.W.4.1.A

Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose.

CCSS.ELA-LITERACY.W.4.1.B

Provide reasons that are supported by facts and details.

CCSS.ELA-LITERACY.W.4.1.D

Provide a concluding statement or section related to the opinion presented.

CCSS.ELA-LITERACY.W.4.2

Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

CCSS.ELA-LITERACY.W.4.4

Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.

CCSS.ELA-LITERACY.SL.4.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 4 topics and texts*, building on others' ideas and expressing their own clearly.

CCSS.ELA-LITERACY.SL.4.4

Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

## Bibliography/Related Reading

[View From the Earth. Vol. 4ES. Battle Creek: Battle Creek Area Mathematics and Science Center, 2009. Print. Michigan Science K-7 Content Expectations.](#)

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[Howarth, Gordon S., and Ross N. Butler. \*RIRDC Publication No. 09/131 RIRDC 9.131 \(2009\): n. pag.\* Australian Government. RIRDC Innovation for Rural Australia, Aug. 2009. Web. 12 July 2015.](#)

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[Oatman, Maddie. "Your Coffee Pods' Dirty Secret." \*Mother Jones\*. Mother Jones, 19 Mar. 2014. Web. 12 July 2015.](#)

["Waste Not! G-Kup is 100% Compostable Coffee Pod" R.J. Huneke. Gadizmo, June 24, 2015. Web. July 12, 2015.](#)

[PowerPoint for my use](#)