Integrating White-Boarding into Mi-Star and Interactions

Presentation by
Darci Merillat:  merillatd@bcschools.net
Allison VanDriessche:  vandriesschea@bcschools.net
From Bay City Public Schools

http://tiny.cc/qjivkz
What is White-boarding?

- A way in which to make student thinking visible
- Provides opportunities for students to collaborate and build off one another’s ideas
- Data collection (for the teacher)
- Way to address student misconceptions
How can I incorporate white-boarding into an existing Curriculum?
Incorporating White-Boarding with Mi-STAR lessons.
How do Cell Membranes do their job?

Students are presented with the phenomena of cornstarch and water solution in a ziploc bag, set into a beaker of iodine solution.
After 15 Minutes...

Observe the system
Individually record the following

N  What do you notice?

W  What do you wonder?

H  What is happening?
Next, in your group, grab a whiteboard and model the system (put your student hat on)
Circle up to do a **white-board discussion**.

Compare and contrast boards. . . be sure to use thoughtful language with each other and use your **talk moves**.

**Gallery Walk**

(TEACHER NOTES)
Let students repeat, add on, or clarify. Instead of you repeating, ask another student to repeat, clarify or reinterpret. Let students ask follow up questions, or ask for repetition if they didn’t hear or understand.
Identify and describe the phenomena

Consider using a model that shows “over time”

Identify inputs, outputs and key
Using White-Boarding For Assessments

- For questions on pre/post tests in Interactions and Mi-Star that students collectively struggle with.
- Especially difficult test questions are given to groups as a group assessment practical.
- Rubric is given to students.
- Groups have 1 day to create their models.
- Reduces grading on assessments.
In Interactions, students Investigate and Learn about the following:

1. What are materials made of?
   Students analyze observations of matter to evaluate the continuous and particle models of matter, and use investigations to evaluate both models when dealing with liquids. Finally, students apply their models to observations of gases.

2. What are nature’s building blocks?
   Students explore the historical development of the atomic structure. Students use simulations and hands-on activities to gain insight into the size of the atom compared to that of other objects.
In Interactions, students Investigate and Learn about the following:

3. How does an object become charged?

Students build upon the model of atomic structure and explore the forces that are involved in maintaining the structure of an atom. Students learn about electrical fields and electron distribution and electrostatic interactions. Students further learn about how an atom becomes charged, electron distribution, and how neutral atoms are attracted to positively and negatively charged objects.
Rubric

Tom used the apparatus shown in the diagram to investigate the structure of an atom. Positively charged particles about the size of an atom are shot at a silver sheet much thinner than a sheet of paper.

For every 10,000 positively charged particles shot at the silver sheet,

- 9900 particles went straight through the sheet (Path A)
- 100 particles were deflected.
  - 2 particles do not pass through the sheet, but are deflected bounced back (Path B)
  - About 98 particles passed through the sheet, but on an angle (Paths C and D)
Backwards Model
Tom used the apparatus shown in the diagram to investigate the structure of an atom. Positively charged particles about the size of an atom are shot at a silver sheet much thinner than a sheet of paper.

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- About 98 particles passed through the sheet, but on an angle (Paths C and D)
Silver Atom Model

- Path B: Only 2 particles take path B.
- Path A: 9000 particles take path A.
- Path C: 0.8 particles take path C and D.
- Positively charged particles:
- Nucleus:
- Electrons:
- Path D:
- Path E:
Explanation:

Path A goes through the silver atom because the particles are moving fast, so they don't have enough time to have a reaction. Path B repels away from the silver sheet because the positive particles have a much higher concentrated area of positive energy. Path C and D repel away from the aluminum they go through because they get close enough to repel, but not close enough to repel backwards like path A.
Water vapor differs than liquid water. Draw a diagram that shows the differences between liquid water and water vapor.
In a CER format; explain if this diagram shows the differences between liquid water and gaseous water based on what we have learned so far. Provide evidence from our the diagram itself and use what we have learned in Interactions for your reasoning.
How To Buy and Make Whiteboards on a Budget

Go to Lowe's or Home Depot and locate the White Panelboards (in the paneling section of the store).

A 4 ft by 8 ft sheet costs $11.87 and they will cut it for you.

Cut into 6 large white boards (24” x 32”)

Thank you!

Any questions?

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