The Cure for Boredom is Curiosity...

or is it Project-Based Learning?
Today’s Workshop

No teacher ever wants to hear the dreaded words “I’m BORED!” from students. This includes us, so here’s the basic agenda for today to either alleviate or reconfirm your fears:

★ A peek into the world of 212° Academy
★ Practical application of PBL, including student assessment and glitter management strategies.
★ Let’s Play – YOU Get to DO Stuff!
★ Resource share & wrap up

**Be mentally prepared for sudden creativity brain blasts**

Don’t worry, we will include a restroom break.
PRESENTER INTRO:
ANDREA HEMING & JEN SHEFFIELD
Let’s hear what some GT kids have to say about being gifted.
"I expect you all to be independent, innovative, critical thinkers who will do exactly as I say."

**Why PBL?**
Experimental design units— we consider these a form of PBL— Students Must Include all 4: a plan for procedure, replication, data collection, measurement and analysis.
Ms. Heming and Mrs. Sheffield are trying to decide which type of paper towel to purchase for cleaning up after 212° Academy experiments. One commercial on TV claims that Bounty paper towels are the “quicker picker upper.” The other commercial claims Brawny paper towels have “the strength to take on tough messes.” Your task is to design an experiment to test both paper towels and decide which one really cleans up messes the best.

So far you have been given the following materials:

- Roll of Bounty paper towels
- Roll of Brawny paper towels
- Timer
- Beaker

You do not have to use all the materials listed. Also, think carefully about what other tools or materials you may need to effectively conduct your experiment.

Create an experimental design plan to test both paper towels. Remember to give an example of how you plan to collect data.

We like doing science this way because:

- It allows the students think and collaborate
- Students aren’t just following a pre-formatted recipe for success
- Open discussion of what best really means - define problem
- Reinforces learning of experimental design through *gasp* freedom to fail!
BRAIN BREAK!!!!
Problem-based Learning management Strategies

You can’t just turn ‘em loose and expect things to go well...
...at least not right away. But there is hope!

**Inquiry Model Scaffolding**

<table>
<thead>
<tr>
<th>Level of Inquiry</th>
<th>Question</th>
<th>Procedure</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirmation/Verification*</td>
<td>Provided</td>
<td>Provided</td>
<td>Provided</td>
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<tr>
<td>Structured</td>
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<tr>
<td>Open</td>
<td>Student-generated</td>
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PBL Assessment Strategies

- DAP tools
- Technology Rubrics
- Self-reflections
- Peer evaluations
- Opportunities to revise work
MANAGING CHAOS

- ORGANIZE MATERIALS IN LABELED BOXES OR BINS THAT ARE KID-ACCESSIBLE
- CHEAP & EASY STUFF!
- HAVE A PLACE DESIGNATED FOR STORAGE OF PROJECTS
- SOME KIDS FINISH EARLY, SOME KIDS NEVER FINISH...
Restroom/Text/contemplate running away
(but please come back!) Break

A little free time to go deal with the text-happy people in your life...
**High interest hook**

*Get the students involved & invested before they even know what they're doing!*

**Brainpop Programming Video**

- Morning routine programming challenge and skits

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**Flowcharting**

All robots need to have programs to make them run. The easiest way to start a program is to first have a plan. This plan consists of a flowchart of small steps that make up the entire program. Each step is simple enough that the robot can perform it without too much effort.

**Task:** Using the blank flowchart below, plan out your daily morning routine, from when you wake up until you get to school.

```
Wake up

→

→

Arrive at School
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AWESOME ONLINE RESOURCES – LET’S CHECK THEM OUT!

High Tech High

Vi Hart Videos

PBS Design Squad Nation: Build

Library of Congress Educational resources

212° website: Hour of Code links
Brain break!!!!!
Inventor's Workshop

So Many Ways to Play! (...and learn, of course.)
Choose a universal theme which is both incredibly deep and broad, so it can authentically apply across multiple content strands.
So...Too Many People. So what?

- Brainstorm effects of too many people (in a room, local, global, etc.)

Too Many People: Elvis Edition

- Which problem(s) do you think are the most urgent?

- Research the issue

- Design and build prototype of an invention that could help alleviate the problem & change the world!
Some other ideas!

- **brief explanation**
- **Meander through idea tables**

Visual Thinking Strategies to Hook Independent Research projects

Lulu Books

Paper Coasters - budget and physics

Straw Bridges as part of bridge unit

Dancing, tessellations, fractals, patterns, art

Machine Dissection

iMovie & storyboarding

Experimental Design

PBL Units

Assessment
COME BACK TOGETHER: QUESTIONS & ANSWERS
SHARE & WRAP UP
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