**Adrienne Deshaies**

**STARS Science**

**Monday, July 26, 2010**

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| **Getting Yourself Ready** | | | | |
| **Materials**:  Computer/projector  Word problem  Index cards – lots  examples of sci Qs and hypotheses  rubrics and lab packets  Stamp for approval  index cards | | **Your Preparation**:  Create Do Now  Have lab reports graded with rubrics  prepare rubrics and lab packets  Come up with list of materials  Prepare/copy hw | | **Agenda (w/times)**: 55 mn  Do Now/board game = 10 mn  Rubric/lab intro = 10mn  Teaching/practicing hypoth and  Sci Q = 10 mn  Intro to materials, group work time = 20 mn  Closing/hw = 5 mn |
| **Getting Your Students Ready** | | | | |
| \***Do Now**: Rate word problem up on the board, with these questions – which variables are given to us? (d, r, t) Which is missing? Choose a form of the rate equation to solve for the missing variable. Afterward, discuss – how would you go about writing a problem like this? I explain the board-game project, and then we walk through creating a question as a class. (MAKE SURE TO MENTION THAT POST-TEST WILL BE ON WED!) | | | | |
| **Objective**: *Today you will be able to…*  Come up with a scientific question and hypothesis that will guide your final lab (roller coasters!) | | | **Proving behavior**: *by…*  Discussing with project groups to come up with an idea for each of these sections, which I will review for appropriateness/feasibility and check off. | |
| **Purpose**: *We are doing this because…*  Now you have learned all the steps of the scientific process and how to write a lab report. This project is your chance to put all of your new skills into action and take a more independent role as creative scientists. I will be here for assistance and guidance, but it is really up to you guys to design and execute this lab. If you can master these skill sets, you will have the know-how to investigate almost anything you are curious about. | | | | |
| **Teaching** | | | | |
| Step 1: | **Say:** This final lab, creating marble roller coasters, has a lot of room for you guys to be inventive and creative. However, there are also some guidelines we must all follow in order for it to work and for it to be possible in the time frame we have (2 weeks).  **See:** I project the rubric for experiment design, and explain the freedom and limitation within each section.  **\*Do:** I pop questions of scenarios – ex. “Jimmy and Lola want to use bricks and cement to create their roller coaster, is their idea reasonable? Why/not?” and “Bob and Betty decide they have the best idea of anyone in their group, so they decide to work on it alone and leave the rest of the group in their dust – what score would you give them in terms of teamwork?” | | | |
| Step 2: | **Say:** The next part of this project will be recording and analyzing our data in the form of a lab report. You have already had practice with this last week for our catapult lab, and you can use that one as a guide. Unlike catapults, we will be filling in parts of our lab packets as we go along, and in order to move from one section to another, you must check it with me and receive my seal of approval. The grading criteria are printed right next to the sections in your packet, so you should know exactly what I’m looking for in each one.  **See:** I hand out blank roller-coaster packets, as well as catapult packets with grades and corrections.  **\*Do:** Take 2 mn to read through your catapult packets to see what you did well and what you need to improve on this time. Save these and use them for guidance as you create your roller coaster lab reports. | | | |
| Step 3: | **Say:** Today we will be working on just the first two sections, the scientific question and hypothesis. Let’s review the difference between these two: a Sci Q is just a statement of your curiosity about something, a hypothesis takes that curiosity and puts it into a form you could test with an experiment  **See:** Graphic organizer: Sci Q and Hypothesis. I write a scientific question (ex. what will happen if we test our catapults with different projectiles? or Do lighter objects fly faster than heavier ones?). I remind of the format of a hypothesis – If (X is true), then (Y will happen if we do \_\_\_ to test it).  **\*Do:** Take 1 mn to write down a hypothesis for this sci Q. I walk and check answers, have one good one share. | | | |
| **Practice** | | | | |
| \***Structured Practice** (3-4 additional examples led by teacher with gradually quickening pace, helping students approach automaticity by manipulating time, materials, and group size) | | | | |
| Time: 5mn  Materials:  Group Size: 2 | **Example 1**  I show one of our funny cartoons from the beginning of the summer. With a partner (1 mn), come up with a scientific Q for this. All share. Now get back with your partner (1 mn) and come up with a hypothesis about that Scientific Question. | | | |
| Time:  Materials:  Group Size: | **Example 2**  I show an example of a Sci Q on projector. Take 1 mn individually to come up with a hypothesis for it. Then, I show an example of a hypothesis – take 1 mn by yourself to come up with an idea about what the SQ was that led to this hypothesis. | | | |
| \***Guided Practice** (the proving behavior of the objective monitored by the teacher) | | | | |
| **Assignment: (from proving behavior)**  I introduce the materials and time frame for our experiment. As a class, we brainstorm ideas for scientific questions that we might have about these roller coasters (make a list). Then, together we read through the grading criteria for the Scientific Question and the hypothesis. I introduce groups, they get together; keeping in mind the time and materials we have, get with your group and work together to come up with a Scientific Question and a Hypothesis for this lab. | | | **Criteria for Mastery:**  Students can collaborate to come up with an appropriate scientific question and a hypothesis when presented with the basic materials and setup of a lab. Before leaving, I must check off both sections of everyone’s lab report (tell them to write it first in pencil until I check it, then they can go over in pen). | |
| Independent Practice (Homework) | | | | |
| **Explain Homework:**  WS with descriptions of experiments, students must identify the SQ that was being asked and/or the hypothesis that was being tested. Some multiple choice, some short answer. | | | | |
| **Closure** | | | | |
| **Explain Closure:**  On a notecard, write down as many HS success tips from last week as you can remember, and turn them in on your way out. | | | | |

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**Tuesday, July 27, 2010**

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| **Getting Yourself Ready** | | | | |
| **Materials**:  Lab packets  Examples of blueprint and proposal  materials for lab  Review sheets  Index cards | | **Your Preparation**:  prepare examples  Gather materials  Prepare/copy review sheets | | **Agenda (w/times)**: 55 mn  Do Now: 5 mn  Purpose/intro: 5 mn  Explanation of activity: 5 mn  Group work time: 30 mn  Review time: 10 mn |
| **Getting Your Students Ready** | | | | |
| \***Do Now**: On board = turn this result into a conclusion. I walk by and check answers, call a random name to share. (REMINDER ABOUT TEST TOMORROW) | | | | |
| **Objective**: *Today you will be able to…*  Write a proposal for how you plan to test your hypothesis, a blueprint of your design, and make a list of materials you would like to request. | | | **Proving behavior**: *by…*  Collaborating with your groups to come up with a detailed, written proposal for the tests you plan to do using your roller-coaster. It must receive my seal of approval. | |
| **Purpose**: *We are doing this because…*  Good scientists always start with a plan before they jump in and start experimenting. Just like writing an essay, don’t you usually need an outline or an idea of what you want to write about before you start putting words together? | | | | |
| **Teaching** | | | | |
| Step 1: | **Say:** Today your job is to come up with a plan, with your group, about how you want this lab to go and how you will test your hypothesis. By the end of this period, you will need to have a good blueprint idea of what your coaster will look like, a written proposal about how you plan to test it out, and a list of materials that you would like to request for construction.  **See:** example of a blue print with estimated measurements, etc.  **\*Do:** Quick review of independent and dependent variables. Then, get into your groups and wait for further instruction. | | | |
| **Practice** | | | | |
| \***Structured Practice** (3-4 additional examples led by teacher with gradually quickening pace, helping students approach automaticity by manipulating time, materials, and group size) | | | | |
|  | **Example 1**  **n/a** | | | |
| \***Guided Practice** (the proving behavior of the objective monitored by the teacher) | | | | |
| **Assignment: (from proving behavior)**  Elect one or two people (groups have 3-4 total) to be the graphic designer, one-two people to write up a proposal and materials list. The graphic artist’s job is to sketch out a detailed blueprint of the roller coaster you will create –the other partners can contribute opinions/ideas but it is the artist’s responsibility to draw it. You must include estimated lengths for all parts. The proposal-writer’s job is to write up a half-page explanation of why your group chose to design it the way you did, a detailed plan of how you will conduct your test (i.e. what is IV and DV, what changes throughout trials, how many trials, what will you be measuring…) and to make an estimate of what kind/how many materials you will need to construct it (consult designer for amounts). All group members must COMMUNICATE during this process. | | | **Criteria for Mastery:**  Students can collaborate to come up with a detailed blueprint idea for a roller coaster, a satisfactory proposal for how they will test it, have labeled independent and dependent variables, and made a reasonable materials request list. | |
| Independent Practice (Homework) | | | | |
| **Explain Homework:**  create 5 or more rate problem cards for the board game. Review for test! | | | | |
| **Closure** | | | | |
| **Explain Closure:**  Time permitting, review of graphs, conclusions, etc. I provide a study-list of things to review tonight. | | | | |

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**Wednesday, July 28, 2010**

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| **Getting Yourself Ready** | | | | |
| **Materials**:  Copies of post-test w/ 9th grade content probs  Project materials  Index cards | | **Your Preparation**:  Make test copies  Get Do Now graph set up  Have materials ready | | **Agenda (w/times)**: 55 mn  Do Now: 5mn  Intro to test: 5 mn  Test: 20 mn (25 max)  Project work: 20 mn (15 min)  Closing: 5 mn |
| **Getting Your Students Ready** | | | | |
| \***Do Now**: write a result and a conclusion based on this graph (projected) | | | | |
| **Objective**: *Today you will be able to…*  Show me how much you’ve learned so far this summer.  Finish your proposal for your project, and begin construction if time. | | | **Proving behavior**: *by…*  Getting a better score on this post-test than you did on the pre-test. | |
| **Purpose**: *We are doing this because…*  I, and Breakthrough, want to see how far you’ve come this summer. A lot of these things will hopefully seem clearer/easier to you now than they did the first time you took this test – that has been one of our goals. These are all things/skills that will help you in your hs science classes, as well as in other subjects and areas of life. If there is anyone that scores below an 85% on the test, I will ask you to come in to fish bowl on Friday, not as punishment, but because it is VERY IMPORTANT that you understand these things before graduating from BT, and I want to help you as much as I can. | | | | |
| **Teaching** | | | | |
| Step 1: | **Say:** This test shouldn’t take more than about 20-25 mns, and you’ve done it before so it should be a breeze. I can answer clarification questions, but I can’t help you with answering. Once you are done, raise your hand, I’ll collect your test and hand you index cards to keep writing questions for the board game.  **\*Do:** The test. | | | |
| **Practice** | | | | |
| \***Structured Practice** (3-4 additional examples led by teacher with gradually quickening pace, helping students approach automaticity by manipulating time, materials, and group size) | | | | |
| Time:  Materials:  Group Size: | **Example 1**  **N/a** | | | |
| \***Guided Practice** (the proving behavior of the objective monitored by the teacher) | | | | |
| **Assignment: (from proving behavior)**  Students will be given 25 mn max to complete the post-test (same as pretest).  After finishing/time permitting, they will be given time to continue working on blueprints and proposals, or to begin constructions if the former two parts have been checked off by me. | | | **Criteria for Mastery:**  85% (12/14) is a proficient grade. Any student scoring 11 or under must meet with me during lunch on Friday to discuss their errors and review necessary content. | |
| Independent Practice (Homework) | | | | |
| **Explain Homework:**  5 more board game cards due by Friday. | | | | |
| **Closure** | | | | |
| **Explain Closure:**  Exit ticket – where are you in terms of the roller coaster construction/planning, what is your group’s next step (for mon of next week?) | | | | |

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**Friday, July 30, 2010**

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| **Getting Yourself Ready** | | | | |
| **Materials**:  all question cards  Board game setup (on butcher paper)  Game pieces  gold tickets | | **Your Preparation**:  Create board game, have rules projected  Coordinate with other class | | **Agenda (w/times)**: 45 mn  Do Now: 5mn  Game: 38 mn  Ticket Drawing: 2 mn |
| **Getting Your Students Ready** | | | | |
| \***Do Now**: I divide us into teams, take 2 mn to choose a team name and record it on the board. In the meantime, I collect cards and send a volunteer to swap them with Kailah’s class. (talk to Kailah, should we combine classes for the board game?) | | | | |
| **Objective**: *Today you will be able to…*  Show off your mastery of the rate equation! | | | **Proving behavior**: *by…*  Whooping the other team in a game of Rate Race. | |
| **Purpose**: *We are doing this because…*  We’ve already discussed how important this equation is, and this game will not only give you a chance to show off how well you know it, but will also help cement it as a part of your skill set. Let’s get some physics practice in, but mostly lets have fun! | | | | |
| **Teaching** | | | | |
| Step 1: | **Say:** I explain the rules and procedures  **See:** They are projected on screen throughout game  **\*Do:** Play! | | | |
| **Practice** | | | | |
| \***Structured Practice** (3-4 additional examples led by teacher with gradually quickening pace, helping students approach automaticity by manipulating time, materials, and group size) | | | | |
| Time:  Materials:  Group Size: | **Example 1**  **N/a** | | | |
| \***Guided Practice** (the proving behavior of the objective monitored by the teacher) | | | | |
| **Assignment: (from proving behavior)**  Whole class participates in 1-2 rounds of the game, winning team receives 2 tickets each. | | | **Criteria for Mastery:**  Students can quickly and accurately choose a form of the rate equation to use in solving a word problem involving time, distance and speed. | |
| Independent Practice (Homework) | | | | |
| **Explain Homework:** NO HW! | | | | |
| **Closure** | | | | |
| **Explain Closure:** Weekly ticket drawing for good participation! Happy weekend ☺ | | | | |