Lesson Plan Template – Wednesday July 6 2010

# Breakthrough Denver

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| **Getting Yourself Ready** | | | | |
| **Materials**:  Computer + Power Plug  Whiteboards  Markers | | **Your Preparation**:  Prepare Powerpoint | | **Agenda (w/times)**: |
| **Getting Your Students Ready** | | | | |
| \***Do Now**:  On whiteboards: What are the 3 things a plant needs to make its own food? How does a plant obtain and uptake these 3 things? | | | | |
| **Objective**: *know the respective plant parts that uptake light, water and carbon dioxide. Know the difference between plants’ and animals’ uptake of glucose.* | | | **Proving behavior**: *Draw diagram of plant w/correctly labeled parts. Verbally tell difference between glycogen and starch. I told Aaron the same thing in his lesson, Are they going to demonstrate that they know what these “mouths” are for in regards to photosynthesis? Otherwise, your steps spend too much time with this.* | |
| **Purpose**: *Knowing the machinery of photosynthesis is ½ of photosynthesis’ complexity I like this.* | | | | |
| **Teaching** | | | | |
| Step 1: Introduction | Say: Humans have 1 mouth to obtain our necessary energy: food and water and oxygen. Plants have 3 “mouths.”  See: ppt  \*Do: On a whiteboard, write what you think these 3 mouths are for. | | | |
| Step 2: Water/Nutrients | Say: The first mouth serves two purposes: to uptake water and certain inorganic nutrients like nitrogen. Inorganic = molecule w/o carbon  See: ppt  \*Do: Who knows? (Roots.) On a whiteboard web-diagram all the things that roots are useful for, besides taking up nutrients and water.  Is the only skill they will have here, to be able to diagram the roots independently? Or should they at the end of this step, be able to explain why roots are useful to us? | | | |
| Step 3: CO2 + O2 | Say: The second mouth is used for gas exchange. It simultaneously “breathes in” carbon dioxide and “breathes out” oxygen. This mouth is called the stomata  See: ppt  \*Do: Draw a plant with roots and leaves. Label where water, nutrients and gasses come in and out.  Again, what can they do independently here. I will be looking for this tomorrow. | | | |
| Step 4: Light | Say: The third mouth is used to absorb light energy. They are called chloroplasts. They are located in leaves and are what give plants their green colors.  See: ppt  \*Do: Label the third mouth on your drawing and show what it absorbs. | | | |
| Step 5: Synthesis of Information | Say: What are three advantages to having leaves?  See: ppt  \*Do: Write on whiteboards What do you think they are? You should think about this, so you could lead them to their understandings. | | | |
| Step 6:  How Plants store energy | Say: So we now know the physical parts of plants that uptake a plants’ necessary ingredients. However, sunlight only shines during the day. This is like how we eat during the day but do not eat while we are asleep at night. Even though we are sleeping, at night-time our body still needs energy to power our lungs, hearts and brains. So, how do get this energy? And how do plants get energy during the night when there is no sun?  [Animals and plants both store energy]  So, recall the necklace analogy. Glucose is like a bead that can be hooked up to other glucose molecules in a chain called a carbohydrate. This linking is how we store energy. Animals store it slightly different that plants do, though. Animals have what’s called glycogen – a highly-branched storage system. Plants have starch – a linear storage system  See: ppt  \*Do: How do plants and animals store energy differently? | | | |
| **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: |  | | | |
| Time:  Materials:  Group Size: | Example 2 | | | |
| Time:  Materials:  Group Size: | Example 3 | | | |
| Time:  Materials:  Group Size: | Example 4 | | | |
| \***Guided Practice** (the proving behavior of the objective monitored by the teacher) | | | | |
| Assignment: (from proving behavior) | | | Criteria for Mastery: Correct answers on the A.P. propmpts. | |
| Independent Practice (Homework) | | | | |
| Explain Homework: 3 Questions on photosynthesis machinery. 2 questions on glycogen/starch. One diagram question on photosynthesis inputs and outputs. 1 questions on organic vs. inorganic molecules. 1 question on which wavelength of light plants absorb best and worst. | | | | |
| **Closure** | | | | |
| Explain Closure: Whipshare 1 thing we learned. Write down 2 questions you have on a piece of paper. Write assignment in planners. I sign them. | | | | |

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| **VIP** | | |
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