

Problem Based Learning (PBL)

Problem Based Learning plan

1. Overview and rationale

- The students will be asked to create their own police car with emphasis on the signage aspect. The focus students will be given a variation of materials and will be tasked with planning and producing a three dimensional model of a police car and will typically take around 20-30 minutes to complete their models. They have a large amount of background knowledge on signage from our previous activities. Using that information, they will have to pull different words, symbols, and numbers that they remember being on a police vehicle. Additionally, they will have to decide how to make the vehicle stand up, what color to make the vehicle, how to show the doors, sirens, lights, mirrors, and other features they wish to add. The students have the ability to use all of the materials available to them through previous practice.
- This activity will push the students to critically think about the outside of the police car, more specifically the signage, and pull from the knowledge they have. In addition, they will have to determine how to make the police car stand through the process of trial and error. The students will be asked to think abstractly about the police vehicles and its features and then implement those ideas using different materials onto their police car. The biggest obstacle I believe the students will run into is the spelling of "police" and "Warrensburg". To counteract we will have to work through sounding out the words and then I will be able to help them spell out the word. This activity will allow me to see their creativity and persistence using a variety of materials that they may have no prior experience with.
- The children will be asked to make a 3-D representation of a police car with focus on signage, while using various materials. Students will have to work through any problems that come with the utilization of the different materials, in order to make a police car they believe is accurate.

2. Planning for Instruction

Primary and Secondary Learning Standards:

LLD 7: Concepts about Print

- Child shows an increasing understanding of the conventions and physical organization of print material and that print carries meaning.

ALT-REG 3: Engagement and Persistence

- Child Increasingly persists in understanding or mastering activities, even if they are challenging or difficult

Child Objectives:

- While creating their representation of signage on their police car, the child will demonstrate that print carries meaning, in order to develop concepts about print.
- While being faced with problems during their creation of their 3-D police cars, the child will increasingly persist through challenges and difficulties, in order to show understanding and mastering of the activity.

Theoretical Connection:

- Lev Vygotsky Sociocultural theory uses the idea of self talk and scaffolding to work through a problem. The focus students will be faced with multiple problems throughout the activity and will have to use their previous knowledge as a base and attempt different problem solving solutions. The use of self talk will help the child to work through the issue by using scaffolding and building off of their previous knowledge. They will either decide if the route they took was effective or not and can use that information to assimilate their previous schema.

3. Teaching strategies

Instructional Strategies:

- o Strategy 1: Instructional Support: Concept Development: Creating
- o Strategy 2: Instructional Support: Concept Development: Analysis
- Tell how these strategies support the child objectives
 - o This strategy will help me to brainstorm with the students about what materials they will use for their police car and what they will represent. The students will then be able to plan what they are thinking about for their project and then go on to produce their product. If they run out of ideas throughout the

project, I can brainstorm with them more aspects of the police car that they could add to their work, as well as ask how they would go about doing that.

- o This strategy will allow me to ask why or how questions about the materials they used to create different aspects of the police vehicle. By doing so, children will have to use the terms they have developed during our project and make connections from their knowledge of police cars to the project.

Open Ended Questions

- o 1. How are you going to let people know it is a police car?
- o 2. Why did you use that material?
- o 3. How can you show other aspects of the police car (i.e. lights, sirens, mirrors, tires, etc.)?

4. Materials & Safety

- Glue stick
- Liquid glue
- Hot glue
- Poster board with police outline x2
- Crayons
- Markers
- Colored pencils
- Scotch tape
- Packing tape
- Tinsel
- Pipe cleaners
- Magazines (Letter cutout)
- Sticky letters
- Pencil
- Tissue paper
- Multicolored ribbon
- Multi Colored construction paper
- Beads
- Coffee liners
- Scissors
- Feathers
- Shape stickers

All the materials should not pose a safety concern as they have previous practice with safety of scissors and the following materials, if used properly and under supervision, will be safe for school use.

5. Developmental Needs

- Both students know all of their letters and letter sounds, but I have one student that struggles with reading and writing. A large focus of this activity is based on the signage of the police car, highlighting words such as “police” and “Warrensburg”. I can foresee that the student will have a difficult time spelling these words and may want to skip the creation of signage as a whole to get around not being able to spell them properly. To counteract this problem, I will inform the students that we will have to spell some difficult words. We will work through sounding out each letter and having them write each word on a separate page. I will praise them for their efforts and then write the proper spelling of each word for them to replicate onto their projects.

6. Assessment

- Both students will be in the integrating section of the learning standards. Their assessment will be based on the knowledge they allude to during the activity, which I will be writing down in a notebook. Additionally, the largest indication of understanding will be concluded based on their work samples.

7. Self-Reflection

For the problem based learning activity, I had my focus students build their own police cars with an array of materials. I additionally included many options for adhering the materials to the boxes, including; glue stick, liquid glue, hot glue, and tape. I was prepared for the students to get to work right

away, gluing different items to the boxes. Instead, both my students froze and thought for a moment what the best way to go about creating their ideas. Although it is great for the students to internalize their thoughts before going off in various directions, the time constraint on this activity had me worried. I stepped in immediately and began asking questions, such as; “How will you go about starting your project?” “What will be your first step?” From there they began but not in the way I had envisioned. Both students are very detail oriented, this gave me the idea that they would want to make a police car similar to the one we have looked at over the semester. Alternatively, they decided to start with small areas such as the windows and windshield wipers.

Focus student 1 attempted to adhere styrofoam balls, as the wheels, with liquid glue. He soon realized that this strategy was not going to work. I communicated with him that although the liquid glue was not the right option, there are other alternatives. We went through all the materials we had and he told me the best option would be hot glue. I glued down the wheels for him and asked if that was the correct option. He agreed that the wheels were now stuck onto the box and continued on his project. Seeing that his partner had attached wheels, focus student 2 now wanted his turn. He scanned the materials and landed on small container lids. He began by putting liquid glue on the inside of the container lid and placing it against the box. From his angle it seemed as if the lids were sticking to the box. Knowing they were solely resting on the box, I had him lift up his project and they fell onto the table. I asked him, “Is the glue touching the box or are the edges of the lid in the way?” He determined that the edges were obstructing the glue. He attempted to put glue on the edges of the lid but I stopped him and had him consider other options. I consulted with him, “If we flip over the lid would the glue be able to touch the box?” He agreed and doused the other side with liquid glue. To which I reminded him that glue needs time to dry and if we put too much it more than likely will not stick. He removed a portion of the glue and stuck it to the box. As some time went by, the wheels continued to fall off. He insisted it was in need of more liquid glue. I took his glue in my hands and had him consider the other options we had available to us. Focus student 1 suggested tape or hot glue. Focus student 2 ultimately decided on hot glue. After gluing down each wheel with hot glue, I gave him his police car. I asked him what he thought about the hot glue? Was it successful? He was pleased with his decisions to use hot glue and continued on with his police vehicle.

Focus student 2 was soon faced with another problem to overcome. He was looking to place two pieces of gold paper to the top of the vehicle but the flaps of the box would not stay down. I held down the cardboard pieces as he glued his paper on. I asked him, “when I let my hand go, do you think the flaps will stay down or pop up?” He believed that the liquid glue he placed on the paper would be enough. I slowly removed my hand and the pieces of paper slid off as the flaps rose. Placing my hand back down on the flaps, I had him contemplate how we could make the cardboard stay down. He placed another piece of gold paper with liquid glue next to his previously placed paper. The process repeated with a similar result. Informing him that the paper would probably not be strong enough, we assessed the other options. He got out the tape but placed it on the glued down paper. Understanding that he was not aware of which area would need to have reinforcement, I aided him to place tape in a specific location. He then was able to use that hint to position the next piece of tape on the opposite side of the box. When I released my hand, the box was able to stay in the place he was attempting to achieve.

Both focus students are very artistic and have expressed on multiple occasions that they enjoy creating different forms of artwork. When considering which way to go about the PBL, I wanted to put them in an environment they felt comfortable but still provide challenges. I decided on an idea that would highlight their artistic abilities but implement materials they are not familiar with. I was thoroughly surprised by their hesitancy brought on by the activity but was proud of the strategies I was able to apply to provoke their creativity. Both students were successfully able to achieve the standards set in place, LLD:7 Concepts about Print and ALT-REG 3: Engagement and Persistence. At the

beginning of project work, the students struggled with the spelling of “Police” and “Warrensburg”. Continuous work throughout the various activities led the students to have little trouble with the spelling of both words during the PBL. Overall, you can never expect activities to go the direction you were envisioning. I believed the students would cover their police cars with different colored papers, but in hindsight, very few pieces of paper were used. They were far more engaged by creating the different characteristics of the police vehicle we had touched on throughout the semester. The creations made by the students help me to better understand how they process the information that is being obtained.