**Dr. Robert Karl**

**EPSY 8639**

**Instructional Needs Assessment**

**10 Nov 2014**

**Carl B. Snell**

**Background**

My school is 94% Latino, 5% black, 1% other in terms of ethnicity.This lesson is for my advisory which has 28 students total (1 new special ed student began today) – 8 of which are special ed, 5 are ELLs, and all but 5 have reading levels below the 5th grade 5th month. 96.5% of these children come from nearby economically disadvantaged households.

**Preliminary Problem Statement**

Rather than verbally explain & give notes on aviation concepts who struggle with reading, I have my students undertake a problem based learning unit. The NASA [Future Flight Design Challenge](http://futureflight.arc.nasa.gov/design.html) provides tons of visuals in context, allows my students to work hands on as teams, stimulates creative problem solving & reasoning skills while also drawing on artistic, mathematical, history, scientific knowledge & skills previously acquired. It is outlined in the letter below:

 

NASA is asking for yo

ur help to design a future aircraft.

* Crowded roads make it difficult to get to the airport.
* At the airport, flights are often delayed. Current runways and air systems can't handle the growing number of people and goods that need to travel by air.

Changing the current system and airports may help with this problem, but NASA is also interested in what kind of aircraft might also help.

Choose a situation, and explore the Future Flight Design Center labs to come up with a new aircraft design. Your new aircraft will be tested for the following:

* It is able to fly.
* It can carry the number of people for your chosen situation.
* It is cost-effective.
* It is able to fly the distance in your chosen situation.
* It fits your chosen situation in terms of its size.
* It doesn't increase ground traffic.

Good luck and thank you for your assistance in solving this problem.

 **Needs Analysis Tools**

The Student Learning Objective (SLO) Process Template is utlitized by the School District of Philadelphia to document a measure of educator effectiveness based on student achievement of content standards. They are a component of the PDE’s multiple-measure compressive system of Educator Effectiveness.

The Monitoring Tool track reading and math achievement for students by logging each child’s respective PSSA scores, instructional reading level, & interventions provided.

The ELL instructor is consulted for what suggested strategies & activities work best with ELL children at various levels from WIDA level 1 to 5. They may be pushed into regular class or pulled out for small group/ individualized instruction. A child at level 6 is no longer treated as an ELL but has bridged the gap to language proficiency. They may be pushed into regular class or pulled out for small group/ individualized instruction.

**Data Analysis Tool:**

School Net as provided by on the School District of Philadelphia website is used to compile, store, access, & analyze student data. The link – apparently password protected - is <https://phila.schoolnet.com/myschoolnet/?pg=Teacher&pi=DEBURGOS%2C%20J.%20ELEMENTARY%20-%205170>

For this unit the student’s engineering design notebook provides all the evidence of their work to meet the prescribed protocol for aircraft design:

1. Defi ne the Problem

2. Generate Ideas

3. Select a Solution

4. Test and Refi ne the Solution

5. Present the Results

The unit is interactive, but since I’ve had problems with it before. I may have to redo it as a google doc. Here is the link: <http://futureflight.arc.nasa.gov/pdf/ffd_media_student.pdf>

**Instruction Rationale** (from the assistant principal):

**In line with our school’s *Comprehensive Action Plan* to increase Literacy proficiency from last year’s 23.5%, as measured by 2013-14*PSSA* scores, to 43.5%, and Writing proficiency from 6.7% to 13.4 percent, the class goal will be strictly focused on helping students develop the skills that will impact both of these areas, and on gauging their academic growth along the way using Constructed Responses from Benchmark Assessments. By tackling literacy and writing proficiency, students will acquire cross-curricular skills that will positively impact their performance in other subjects, such as Science and Social Studies.**

**Class Activity Needs Assessment:**

<http://futureflight.arc.nasa.gov/aero.html> assesses students prior knowledge of the 4 fundamental forces of flight.

This pretest will then be given to measure where students are in terms of recognizing forces affecting flight. It has to be modified first for special ed & ELL students. But here is the original format before the google form is to be created: <http://www.proprofs.com/quiz-school/story.php?title=introduction-to-flight-pretest>.

To introduce the following unit on Mars we will use this google survey: <http://www.google.com/virgle/application.html>

**Instructional Goals:**

My purpose is to continually expose students to projects or problem based learning in real world context that encourage them to rely on either the scientific method or the engineering design process to produce creative solutions to problem encountered. Also they must logically consider data recorded & information gathered during their discovery activities that can be molded into a narrative that clearly explains just what it is they accomplished, how so, and for what purpose. Lastly they must judge if that purpose was fulfilled and if the process can or should be duplicated by others.