Destination 2017: Education for Sustainability Lesson Plan

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Week 1

1. **Course Prefix and Name:** MAT0022C Developmental Math II Combined

2. **Needs Assessment**

   a. **What is the CIM [course outcome](#) that you plan on teaching during your sustainability-focused lesson?**

      1. The student will be able to perform arithmetic operations with real numbers and algebraic Equations.
      2. The student will be able to solve algebraic Equations.
      3. The student will be able to read in a mathematical context.

   b. **What is a particular lesson, activity, or unit you already use that you wish to incorporate sustainability? Or, if you will be creating a new lesson, which concepts might align with sustainability?**

   I will be editing an existing in order to include the component of sustainability. The idea is to have the students compare the cost between a environmental friendly car versus their dream car. They will be able to calculate the car payment and add the cost of owning the car. The last step in the lab will be to reflect on what the math learn. The lab include several steps, which are: pros and cons on both car options, vocabulary relate to the concept of buying a car and what is sustainability, math computations and reflections questions.

   c. **What [sustainability topic](#) might it cover?**

   Energy consumption and air pollution.

   For more resources see,
   - Sample Valencia lesson plans ([English](#), [New Student Experience](#), [Mathematics](#)),
   - [Tips on integrating sustainability into existing courses](#)
   - [Arizona State University's archive of sustainability lesson plans](#)

Week 2

3. **Student Learning Outcomes**

What is your end learning goal with the lesson? What should the <u>students be able to do/understand/care about</u>?

Students will apply mathematical reasoning to determine the cost saving when buying an environmentally friendly car.

Students will apply the I=prt formula to determine the car payment.

    a. What is sustainability?
    b. What can they do to help decrease the amount of water consumption.

Week 3

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4. **Lesson Title:** Finance Your Ride

5. **Lesson Summary:** Reseach, calculate and reflect

6. **Lesson Overview/Background:**

    a. **How will your lesson connect to the <u>3 pillars of sustainability</u>: environmental, social, and economic issues?**

Environmental: The students will be able to see how much they could save on a car payment and if they were to buy a environmental friendly car. Therefore, the students could be able to see that by buying a green car they would be saving money and helping the environment.
Social: It helps the community because it will be a car that it's environmentally friendlier.
Economic: I am not sure, but I believe that the less expensive is the car the less the dealers will benefit.

    b. **How will your lesson address at least one of the <u>5 key concepts</u>?**

Long Term effect, with time buying a green car will prove to be a cost-saving decision.

7. **Assessment**

    a. **Identify the <u>type(s) of assessment</u> (*experiential, inquiry-based, project-based, place-based*) strategies you will use to assess content mastery (<u>summative</u>) and write out the instructions that will be given to students.**

Project-based Learning

"Is there a new car you are interested in purchasing? Do you know its approximate price? Do you know how to calculate a monthly car payment? In this project, you will have the opportunity to discuss and analyze financial terms applied to car loans, monthly car payments and expenses including license, title, insurance, gasoline, etc. You will also have the opportunity to learn about the concept of Sustainability and how buying an

environmentally friendly car can be you act sustainable. The purpose of this assignment is to give practical knowledge and understanding of the costs associated with financing the car of your dreams or an environmental friendly car.

b. Identify the strategy or strategies you will use to assess student learning and provide ongoing feedback ([formative](#)) and write out the instructions that will be given to students.

The students will calculate the car payment, estimate the number of miles driven each month, cost of miles per month and the cost of car insurance.

8. **Lesson Activities**

   a. What will students need to know or do prior to the lesson activity or activities (readings, items to be prepared, prior knowledge)?

The students need to know the I=prt formula and how to use it.

   b. Describe the activity or activities students will be doing.

      i. Write out the instructions that will be given to students.

1. Read the lab overview and objectives.
2. Read the vocabulary.
3. Go to the third page and read directions and start your research on cost of your dream car and an environmental friendly car.
4. Write down the Make, Model, Year, MPG and price of both cars.
5. Write down at least 2 pros and cons for owing each car.
6. Go to the next page and do the calculations.
7. Reflect on what you have learn.

      ii. How will you keep students engaged throughout this activity.

I will check-in through the week that they have to complete this lab assignment and help with questions they may have about the math computation or the research they have to do.

9. **Materials and Resources**

   For the questions below, include links to resources you plan to use with a summary of how you plan to use the resource.

   a. What content do you already have?

I have the actual Finance your Ride lab, but I have to add the concept of sustainability.

b. What new materials will you need to create?

I just have to do the research on the types of environmentally friendly car exist and learn how beneficial are those cars for the environment to I can add reflection questions correctly.

Week 4

10. Reflection
    a. **Explain how your outcome(s), learning activities, and assessments are aligned and connected.**

    b. **How will you [evaluate the effectiveness of your lesson](#)?**

    By grading all parts of the lab and I would like to also have a small discussion regarding what the students have learn.

Notes to consider!

Water scarcity is the **lack** of sufficient available water resources to meet water needs within a region. It affects every continent and around 2.8 billion people around the world at least one month out of every year. More than 1.2 billion people **lack** access to clean drinking water.

The **effects of water scarcity** can be grouped into these 4 broad areas— Health, Hunger, Education, and Poverty. Less **water** also means sewage does not flow, and mosquitoes are other insects breed on still (stagnant) dirty **water**. ... Lack of **water**or quality **water** causes huge sanitation issues.

Around 700 million people in 43 countries suffer today from water scarcity. By 2025, **1.8 billion people** will be living in countries or regions with absolute water scarcity, and two-thirds of the world's population could be living under water stressed conditions.

Water scarcity means greater risks for a community's long-term viability and a negative impact on their competitiveness. It also means that a community's ability to grow and create jobs is at risk. ... If not properly managed, **water scarcity** will directly **affect** the local ability to grow and create jobs.

Water shortages may be **caused** by climate change, such as altered weather patterns including droughts or floods, increased pollution, and increased human demand and overuse of **water**. A **water** crisis is a situation where the available potable, unpolluted **water** within a region is less than that region's demand.

Water Crisis is the lack of sufficient available **water** resources to meet **water** needs within a region. It affects every continent and around 2.8 billion people around the world at least one month out of every year. More than 1.2 billion people lack access to clean drinking **water**.

85% of the world population lives in the driest half of the planet. 783 million people do not have access to clean water and almost 2.5 billion do not have access to adequate sanitation. 6 to 8 million people die annually from the consequences of disasters and water-related diseases.

Water is the most **important** thing for human being because without **water** human being cannot live. **Water** means safe **water** which is like for drink so we must preserve **water** and maintain safe **water** for human beings. All diseases are in dirty **water** which human beings drink then they are in sick.

Only 3% of the world's **water is fresh water**, and two-thirds of that is tucked away in frozen glaciers or otherwise unavailable for our use. As a result, some 1.1 billion people worldwide lack access to **water**, and a total of 2.7 billion find **water scarce**for at least one month of the year.

https://www.google.com/#q=water+scarcity+mathematical+models