**IBMYP Earth/Environmental Science Technology Project**

*Area of Interaction – Environment*

*Unit Question – What will the environment be like tomorrow if I make changes today?*

**GOAL - Design an Environmentally Friendly Home that focuses on Sustainability.**

From the EPA’s Website - **“Sustainability** creates and maintains the conditions under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations. Sustainability is important to making sure that we have and will continue to have, the water, materials, and resources to protect human health and our environment.”

**Your project will be graded on the IBMYP Technology Assessment Criteria**

 **A. Investigate –** Identify the problem; develop a brief description of the focus of your design and how you are planning on carrying out the goal of developing an Environmentally Friendly Home focusing on Sustainability.

 **B. Design –** Develop two different initial designs and evaluate which design is the best. Select one design after evaluation and justify why you chose this design.

 **C. Plan –** Construct a plant to create your product with a series of logical steps that makes use of resources and time. You must evaluate your plan and justify any changes to the design.

 **D. Create –** Buildyour environmentally friendly home; document the progress of your model with dated photographs. You must follow your plan and/or justify any changes while creating the model.

 **E. Evaluate –** Assessyour model’s final outcome compared to what you originally designed. Discuss how it impacts people(society), profit(the economy) and the planet(the environment). Explain how it could be improved and evaluate your own performance at each stage of the design cycle and how you could improve at each stage.

 **F. Attitudes in Technology –** This section is graded based on personal engagement – how motivated, independent, and positive are you about this assignment? Also your attitude and respect towards safety and cooperation with others.

**Guidelines for Assignments**

 All work should be neat, dated, and kept in chronological order in a specific technology folder, including your blueprint. All papers should be typed and 12 pt. Times New Roman Font, 1” Margins and Double Spacing should be used. Reference Pages in MLA format and in text citations should be used when necessary.

 **Tentative Schedule**

Attached is a tentative schedule for the project. Please keep up with the assignments. You will get checkpoint grades but the final product will be due when you present your model at the end of the school year, near the end of May.

Day 1 – Computer Lab to write about the city that you would like to build your sustainable home

Day 2 – Computer Lab to start on the People, Profit, Planet table

Day 3 – Computer Lab to finish the People, Profit, Planet table

Day 4 – Classroom to develop two different basic plans for our sustainable homes

Day 5– Classroom to create step-by-step procedure of how you will build your home; draw detailed blueprint

Day 6 – Classroom to begin building sustainable home \*Note: All above must be completed before building begins

***Day 1*** *- INVESTIGATE* – use the worksheet from today to complete your assignment. Then complete your typed paper (following guidelines above). Be sure to address the following questions:

 Investigate Paper Guidelines - Where in the world is your house going to be? Why? What is the climate like? What are some of societal factors (type of government) and economic factors that may impact how you can build your house and what kind of technologies would be available there. What type of technologies are you going to focus on? Think of a theme. How is your home going to focus on sustainability (people, profit and the planet)?

***Day 2 and 3 -***

Start People, Profit, Planet Chart – you must have your chart and 10 technologies completed by next class. You have freedom in choosing environmentally friendly technologies but make sure they go with the theme you choose in completing your Investigate Paper. You will create a chart of all your technologies and how they positively impact people, profit(the economy) and the planet. Please use facts and statistics!

 ***Day 4 – DESIGN – develop at least 2 different designs for your Environmentally Friendly Home.***

 ***This includes a drawing of what it will look like on the outside and a blueprint of the inside.***

* + Include an outside view
	+ How many rooms and floors your house is going to have
		- Approximate size of your house
		- The blueprint is neat and organized. (5 points)
		- Make sure you have 20 different technologies numbered, named and a picture is drawn for each. (25 points)
		- All rooms have labeled believable dimensions (10 points)
		- All windows, doors and rooms are clearly labeled (5 points)
		- The technologies are numbered according to the people, profit, planet chart. (5 points)

***Day 5-Plan***

 ***Create a step by step procedure on how you are going to build the model design of your choice. Bring in supplies to build your model.***

* In your model you must show your best 10 technologies.
* Your model can be of any part of the house you would like - your entire house, a room or a couple of rooms, the outside of your house.
* Your step by step procedure must descriptive enough that anyone could build your model while reading it.

***Day 6 …– Create***

 Model Workshop Day 1 – A separate Rubric will be passed out for the model.

* Take pictures while you are building the model to show the progress of it being built. Keep a journal each day you work on the model and discuss your strengths and weaknesses.

**On your own *- Evaluate***

Cost Sheet

* Cost Sheet Directions:
	+ Organize the cost sheet by room in the house.
	+ Number the technologies according to your People, Profit, Planet chart. Make sure you include the name of each technology as well.
	+ When calculating the price of flooring make sure you multiply by how many square feet in the room it is being used.
	+ If items are used more than once in the same room make sure you indicate that in your cost sheet and multiple the prices by how many times used.
	+ Include a total cost for the entire house labeled at the end of the cost sheet. (Use Excel Formulas)
* If you did a good job on your People, Profit, Planet Chart you shouldn’t need to look up too much information on costs.

Example of Possible Cost Sheet Set up:

Room in the House Technology # & Name Cost of Technology Times Used/Sq. Feet Needed Total Cost

 Guidelines for the Evaluate Paper (1 page, typed):

 What were your strengths throughout the project? What did you struggle with? What would you have done differently if you were presented with the same task again? What did you enjoy the most about the entire project? What does being green mean to you now that you have completed this assignment? What are you going to do in the future to help the world reach sustainability? Discuss what other IBMYP Area of Interaction your project best represents beside the Environment. Defend your choice with specific reasons and examples.

 **Project will be due May 19th for B day classes and May 20th for A day classes**

Your Technology Folder, Model and Presentation are all due same day.

**Model Rubric (100 points)**

1. Model appearance is neat, creative, and organize (all parts of the house are together, layout similar to blueprint, etc) \_**\_\_\_\_\_\_\_\_\_20pts.**

2. The student’s name is clearly labeled on the model. **\_\_\_\_\_\_\_ 5 pt.**

3. Typed summary of house and technologies. 5-6 sentences; City location, why you choose this city, describe what makes your model unique, and technologies. Summary should be attached/beside model.\_\_\_\_\_\_\_\_\_\_\_\_\_**30pts.**

4. Model has at least 15 technologies and each technology in the model is labeled with a number that corresponds to the printed summary that should be attached/beside model. **\_\_\_\_\_\_30 pts.**

5. Each room of the model should have at least one piece of furniture that corresponds with the room**\_\_\_\_\_\_\_\_15pts.**

**\_\_ Technology Folder Rubric (100 pts)\_\_\_\_\_\_\_**

\_\_\_\_\_\_1. All papers are hole punched, in the 3 ring binder, and in order as listed. (5 pt)

\_\_\_\_\_\_2. Table of Contents Sheet (1st pg). Rubric (2nd pg.) (5 pt)

\_\_\_\_\_\_3. Introduction Paper – Where your house is going to be and why? (10 pt)

\_\_\_\_\_\_4. People, Profit, Planet Chart – final completed copy with all 20 technologies (20 pt)

\_\_\_\_\_\_ 5. 2 different floor plans illustrating the design process (10 pt)

\_\_\_\_\_\_ 6. Blueprint with dimensions and square footage (5 pt)

\_\_\_\_\_\_7. The materials list and detailed procedure of how to build your house (10pt)

\_\_\_\_\_\_ 8. Journal/Process Logs of how you built you model, what materials you used, and the dates you worked on it, and any reflections of the design/build process (10 pt)

\_\_\_\_\_\_9. Pictures of your Model – taken with a Camera – can be printed out on Computer Paper. May be color or black and white. (5 pt)

\_\_\_\_\_\_10. Cost Sheet and Evaluation Paper (10pt)

\_\_\_\_\_\_11. Your folder is in order and neat and organized. Day 1, Day 2, etc… (5 pt)

\_\_\_\_\_\_ 12. This rubric was in the front left hand pocket of your folder. (5 pt)