PlateWell

I. Abstract

We are designing a technology plate. Our vision is to help people by letting them know if there are foods they are allergic to on their plate. It will keep track of the amount of food. This plate will help you to know what is on your plate and manage your health.

PlateWell

II. Description

1. Present Technology

Plates that exist today that we put food on can be made of different things like plastic, glass, wood, pottery, metal, and carved stone.The different parts on the plate are the well, the lip, the rim, and the base. The well is the most important part of the plate because it holds all the food you eat for meals.The lip is the raised outer section of the plate. The rim is the outer edge of the plate that sometimes can have decorations. Lastly, the base holds the plate steady and even balanced.

Currently, plates that are being sold can only be used for daily eating. Portion control plates that are available and have sections which are color organized into food groups like fruit, grain, veggie, and protein. There is a brand called Smart Plate which was released a couple years ago but it is very expensive and requires a monthly membership fee.The smart plate can analyze what you're eating. The smart plate is difficult to always have with you because you can’t bring it to other places that are not your home. Also, if you have allergies the smart plate will not tell you.

Picture 1: Parts of a Plate

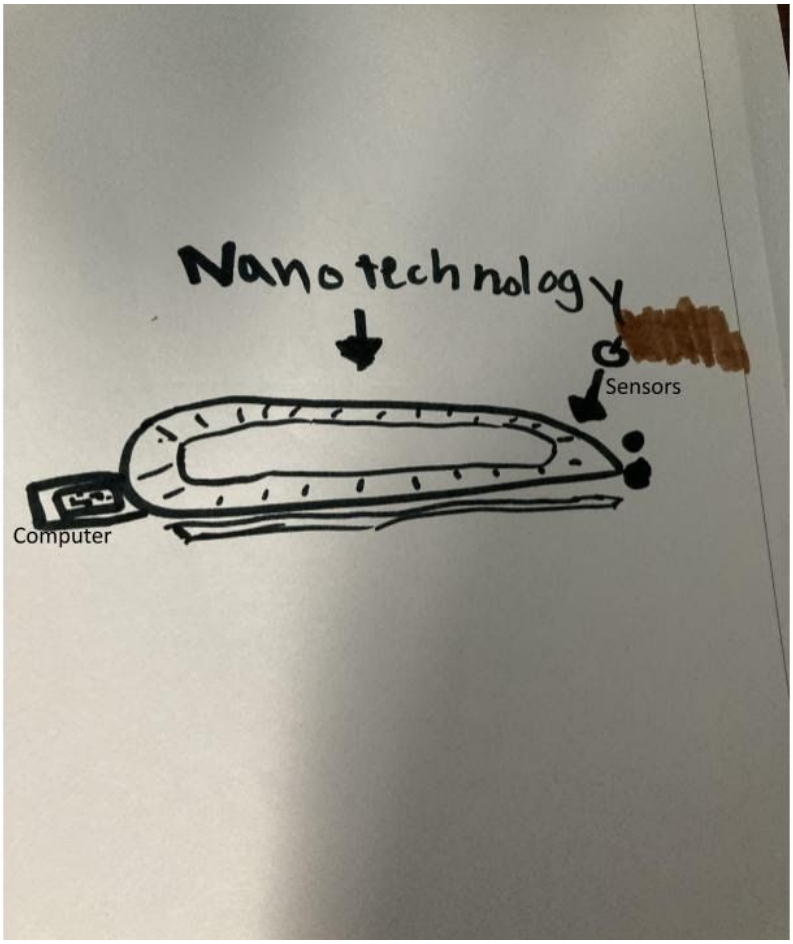
2. History

The first plates were from nature from stuff like leaves, shells, and halves of vegetables. Around the 16th century, people started making plates using wood and clay.In the 17 century glass plates were invented in France.The first paper plate was made in 1904. They also made plates out of bread amazing! After that people used plastic plates.Plastic and paper

plates aren’t good for the environment. Today we have technology that is smarter than basic plates.

3. Future Technology Plate

Our vision is that our plate will be easy to use and bring anywhere you want. We want the plate to make the plate light, flexible, and easy to clean. The plate will tell you if there is too much food on your plate. It will tell you how many pounds of food on your plate and if there is too much food on your plate. Also, if you are allergic to the food you're eating it will sense it. Once one of my teachers told me that their brother ate ice cream every day for breakfast and he had so many cavities. So these are stuff the plate helps tell you if you're eating nutritious foods. The plate will help your health.



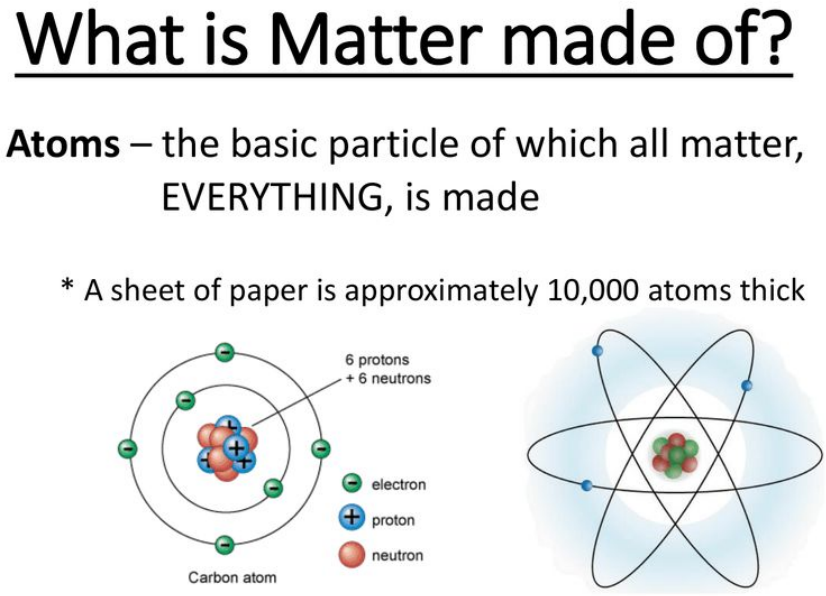
Picture 1: PlateWell Design

Our plate will need a computer. Without a computer it would be a normal plate but with a computer it would be a smart plate. We want the plate to have a sensor so that it will know what food is on your plate. The sensors will pick up the food that you tell it and then it will tell you if you are allergic to the food.

PlateWell

We will use scales to weigh the food to see if we have too much food. The scales will feel how much is on the plate by the force and will send that information to the computer.

In order to create our PlateWell, we have to have a flexible material. Atoms make matter and matter is used in nanotechnology. As seen in picture 2, atoms make up particles of matter to make up everything. Nanotechnology uses nanometers which are a billionth of a meter and can't be seen with a human eye. As nanotechnology improves, our materials will get more flexible and lighter weight.



Picture 2:

Our PlateWell will be molded into a waterproof material, light, high quality and thin like rubber, plastic, and polyester. We want the plate to be flexible, and we want it to be able to bring it everywhere. We want to be able to wash the plate but not mess up the computer inside of the plate. We also want it to be able to fold because then you could bring it around everywhere.

4. Breakthroughs

Currently, the nanotech to build a micro computer are available. We will need to create a material to build the plate. We were thinking we need it to be flexible, moldable, waterproof, and lightweight. We will need advancements in nanotechnology in order to build a sample of PlateWell.

We can test the plate by having to rinse the plate and put food on the plate and how we would do that is we would put eggs with and without egg shells and say is there egg shells? We will bring a person that has allergies and make sure the PlateWell recognized the food that has allergies.

We would test it by rinsing it and checking if the computer and the sensors would be ok if they got touched by water. And then we would test

the sensors by putting food on the plate so that the sensors would tell you what the food is.

5. Design Process

We need sensors because we need to be able to tell which food you are allergic to. To have sensors in the plate will be hard to put in but adding a sensor will help tell if the food is not good for you or not. We also need it to weigh the food to tell if there are too many calories so we added scale.

The sensors need to be protected from water when you wash it and protect it from food particles. Also we want it to be able to fold the plate and we don't want the computer and the sensors to break when you bring it everywhere. In the first week we thought our material was going to be made of rubber for the plate. We learned and watched a video on nanotechnology, and we are going to use that for our plate. You can arrange atoms and move them around. Soon it will create the material you need: flexible, moldy, waterproof, and light.

We had a camera to see what food was on the plate at the start but we deleted the camera after we learned about sensors and nanotechnology. Now we will use sensors to identify the food on our plate.

6. Consequences

The plate will help lots of people and even save lives. Because we will sense if you're eating too much or if you are eating food you're allergic too. It will because it will become popular so more people can get it and that’s how we will become life savers & inventors.

The negative to our plate is that it uses materials that are not created yet. If we create the material it could tell wrong information. The plate also needs to be almost perfect. And it could be harmful to humans.

III. Bibliography

Picture 2:

“What Is Matter Made of? Atoms.” *Studylib.net*, studylib.net/doc/10011239/what-is-matter-made-of%3F-atoms.

“Computer Basics: What Is a Computer?” *GCFGlobal.org*, edu.gcfglobal.org/en/computerbasics/what-is-a-computer/1/.

“An Introduction to Nanotechnology.” *Nanotechnology Introduction*, www.understandingnano.com/introduction.html#:~:text=Nanotechnology%20is%20defined%20as%20the,width%20of%20a%20human%20hair.

“Plate.” *Wikipedia*, Wikimedia Foundation, 14 Dec. 2020, en.wikipedia.org/wiki/Plate.

“Weights and Balances: How Scales Work.” *Explain That Stuff Matter? - Crash Course Kids #3.1ff*, 23 Dec. 2020,

www.explainthatstuff.com/weights_and_balances.html#:~:text=Scales%20measure%20how%20much%20something,re%20weighing%20and%20planet%20Earth.&text=The%20heavier%20the%20object%2C%20the,more%20it%20stretches%20the%20spring.

Fadelli, Ingrid. “FoodTracker: An AI-Powered Food Detection Mobile Application.” *Tech Xplore - Technology and Engineering News*, Tech Xplore, 26 Sept. 2019, techxplore.com/news/2019-09-foodtracker-ai-powered-food-mobile-application.html#:~:text=FoodTracker%2C%20the%20mobile%20app%20developed,rapidly%20recognizes%20its%20different%20ingredients.

https://discover.hubpages.com/living/history-of-the-plate#:~:text=It%20is%20thought%20that%20the%20earliest%20plates%20used,all%20members%20of%20a%20tribe,%20family,%20or%20group.

Bramen, Lisa. “Turning Fallen Leaves into Dinner Plates.” *Smithsonian.com*, Smithsonian Institution, 21 Oct. 2011, www.smithsonianmag.com/arts-culture/turning-fallen-leaves-into-dinner-plates-114764049/.

PlateWell

Videos

What's Matter? - Crash Course Kids #3.1 - YouTube

What is a Computer ? - Educational Video for Children -Fun Learning

Computer For children - YouTube

What is nanotechnology? - YouTube

These Metamaterials Go Beyond the ProperThese Metamaterials Go

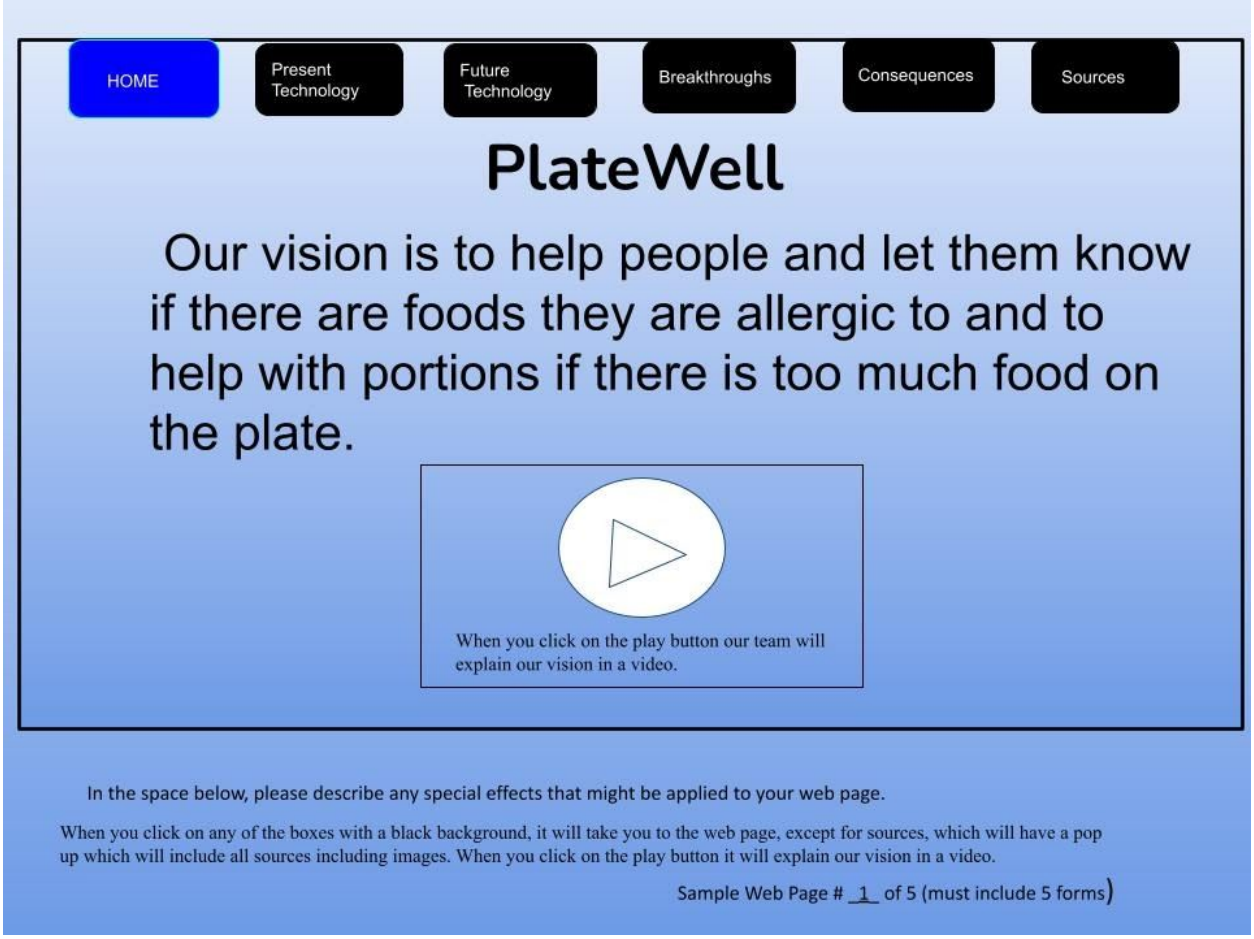
Beyond the Properties of Natureties of Nature - YouTube

https://www.youtube.com/watch?v=DAOFpgocfrg&t=77s

What's Matter? - Crash Course Kids #3.1 - YouTube

IV. Web Pages

Web Page 1

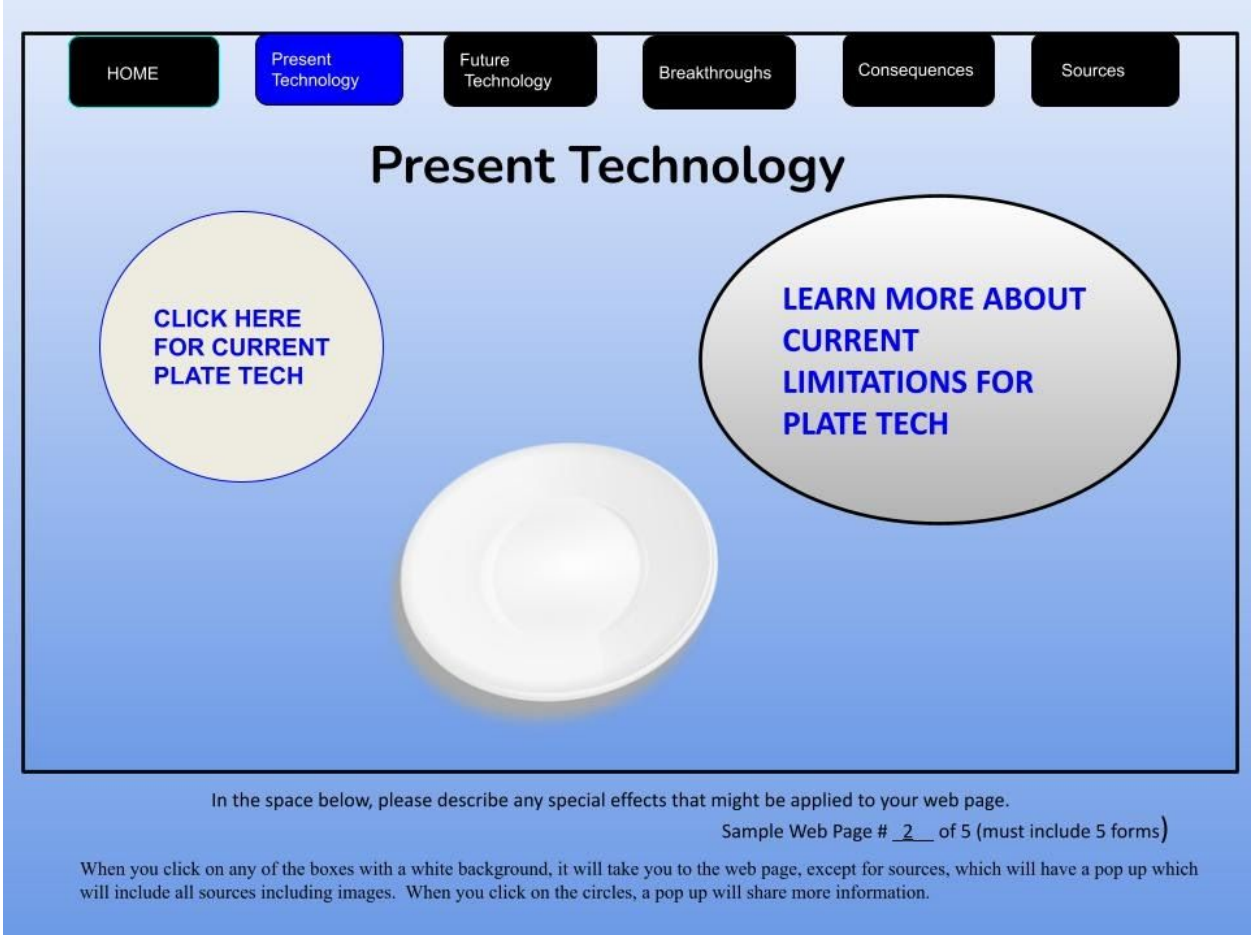


In the space below, please describe any special effects that might be applied to your web page.

When you click on any of the boxes with a black background, it will take you to the web page, except for sources, which will have a pop up which will include all sources including images. When you click on the play button it will explain our vision in a video.

Sample Web Page # _1_ of 5 (must include 5 forms)

Web Page 2



In the space below, please describe any special effects that might be applied to your web page.

Sample Web Page # 2 of 5 (must include 5 forms)

When you click on any of the boxes with a white background, it will take you to the web page, except for sources, which will have a pop up which will include all sources including images. When you click on the circles, a pop up will share more information.

PlateWell

Web Page 3

HOME | Present Technology | Future Technology | Breakthroughs | Consequences | Sources

Future Technology

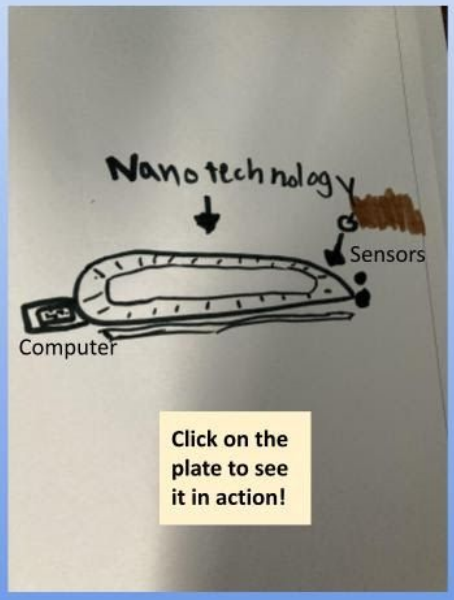
Learn what our plate will do.

Our plate will be light, flexible, and easy to clean.

The plate will tell you how many grams of food are on your plate and if there is too much food on your plate.

The plate will tell you if you are allergic to the food on the plate it will tell you.

The plate helps tell you if you're eating nutritious foods. The plate will help with your health.



Learn how our plate works.

Plate will have sensors, a computer, and nanotechnology.

The sensors will use samples of the food and deliver the information to the computer .

Based on the information, the computer will tell what the food is.

Nanotechnology will give us the properties we want for our plate material and technologies used in the plate.

When you click on any of the boxes with a black background, it will take you to the web page, except for sources, which will have a pop up which will include all sources including images. When you click on the plate, you can see it in action.

Sample Web Page # _3__ of 5 (must include 5 forms)

Web Page 4

HOME | Present Technolofy | Future Technology | Breakthroughs | Consequences | Sources

Breakthroughs

Learn about breakthroughs our plate will need and how we would test our plate.

NANOTECHNOLOGY

- Improvements on material to be flexible, moldable, waterproof and lightweight
- Tiny micro sensors that sense food and identify those food to determine if they are good for you.

We can test the plate by having to rinse the plate and put food on the plate and how we would do that is we would put eggs with and without egg shells and say is there egg shells?

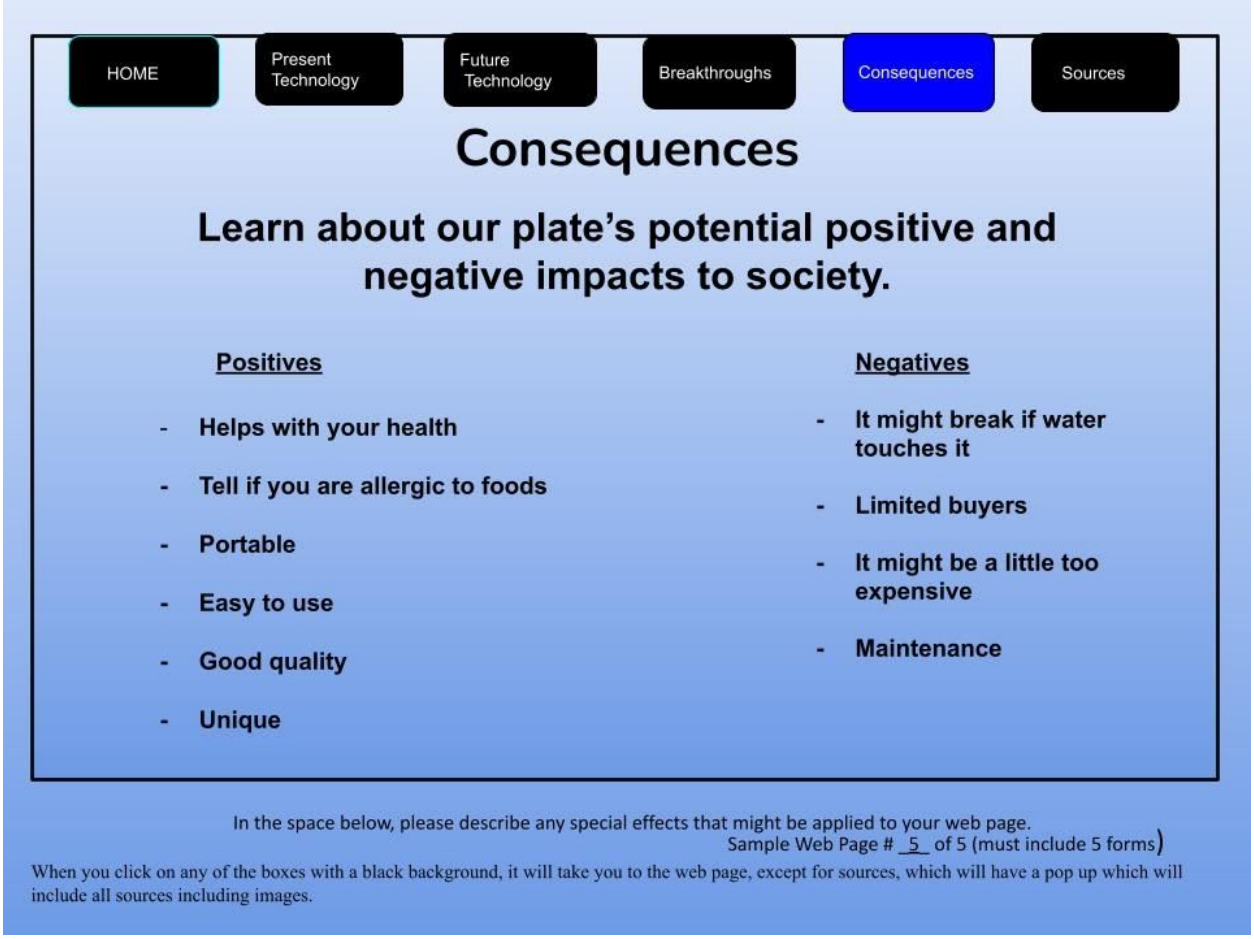
Click to see the plate being tested

In the space below, please describe any special effects that might be applied to your web page.
Sample Web Page # _4_ of 5 (must include 5 forms)

When you click on any of the boxes with a black background, it will take you to the web page, except for sources, which will have a pop up which will include all sources including images. When you click on the plate, you can see the plate being tested.

PlateWell

Web Page 5



In the space below, please describe any special effects that might be applied to your web page.
Sample Web Page # _5_ of 5 (must include 5 forms)

When you click on any of the boxes with a black background, it will take you to the web page, except for sources, which will have a pop up which will include all sources including images.