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| Project Overview |
| **Name of Project:** | Making Our Diet Less SAD | **Teach Dates:**  |
| **Subject:** | AP Environmental Science | **Teachers:**  **Development assisted by UTeach Dallas PBI preservice teachers, Zobia Iftikhar and Hijab Makda** |
| **Driving Questions:** | How can we design a detailed, professional presentation to influence our local school community modeling the need to reduce energy consumption that is produced in a standard American Diet? |
| **Summary and format of Entry Document – Submit a copy** | The entry document gives the objective to the students to create a detailed, professional multimedia presentation to give to the student body government and the school board in order to influence the school community to reduced energy consumption and production in their diets by using solutions that they have researched and come up with in their groups as alternatives to the standard American diet. The presentation can be their choice, as long as it’s not PowerPoint and they will participate in independent research, workshops, and DIYs to make their presentations, as well as a model showing energy consumption, which must be part of the presentation.  |
| **Anticipated “need to knows” from entry document – include logistics and content** | What is the standard American diet?How much energy is needed to supply the American diet and our local community, as well as the cost, to produce? What are ways to reduce energy consumption in our diet?What are the pros and cons of vegetarianism and veganism in terms of diet and energy consumption?What kind of presentation should we make?How do we make a model displaying energy flow?What is biomass? |
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| **Project Launch**Summary of how you will launch the project – include anchor video link and purpose | [https://www.ted.com/talks/graham\_hill\_weekday\_vegetarian?language=en#t-33674](https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.ted.com%2Ftalks%2Fgraham_hill_weekday_vegetarian%3Flanguage%3Den%23t-33674&h=tAQFlhCyH)This short video explains why one man made the choice to become a weekday vegetarian. The purpose of this video is to address how meat consumption can be detrimental environmentally due to the fact that a lot of water and fossil fuels. He also describes the impact about dietary needs as human beings and the amount of energy it takes to produce the food we need and gives a solution that is not too radical for those who do not want to go completely vegetarian. This leads to our discussion on how we will ask the students to make up their own solutions to reducing energy consumption in their diets for the sake of the environment but at the same time satisfies dietary needs.  |
| **Student Products/Assessment:** | * Professional, detailed multimedia presentation
* Clinical Interview
* Workshops and DIYs participation
* Model displaying energy consumption
* Post to iEARN site “Staying Healthy” Project <https://iearn.org/cc/space-2/group-476>
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| **Objectives:**SWBAT  | Students will be able to construct models of energy consumption and biomass pyramids. Students will be able to make professional multimedia presentations to provide a solution to a problem. Students will be able to utilize problem solving skills to determine how to reduce energy production and consumption in their diets.Students will be able to research and form opinions on diets around the world and see if they are conscious to environmental needs. |
| **Content Standards** to be taught and assessed**:**  | **AP Environmental Science Standard:**The principle of conservation of energy can be modeled by the energy transformations along food chains and energy production systems.**TEKS for Biology:**3)  Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:(A)  in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;(B)  communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials; (D)  evaluate the impact of scientific research on society and the environment;(E)  evaluate models according to their limitations in representing biological objects or events; and(12)  Science concepts. The student knows that interdependence and interactions occur within an environmental system. The student is expected to: (C)  analyze the flow of matter and energy through trophic levels using various models, including food chains, food webs, and ecological pyramids;(D)  recognize that long-term survival of species is dependent on changing resource bases that are limited; |
| **Safety:**Include any safety issues and *how* they will be addressed. | * All standard safety procedures will be observed during this project. Special care need to be taken with the calorimetry lab. Details are on the lab itself. Otherwise, there are no unique safety hazards in regards to this lesson that would need to be addressed.
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| PROJECT CALENDAR |
| **project: Making Our Diet Less SAD** | **Teach Dates: 10-24, 10-26, and 10-27****Teaching Time: 10:20AM – 11:12AM** |
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| DAY 1 | DAY 2DAY 3 | DAY 3FRIDAY |
| **Before Class:** Get launch video set up on the computer before class. Get all copies of Launch event documents, Social contracts, and workshop papers and materials set up. Find a place where you will be setting up your workshops. **1.**  Show launch event video to the class**2.** Split the class into their assigned groups that and handout the launch event document along with the rubrics. Make a knows and needs to knows chart and discuss academic calendar and expectations. Let the group fill out their social contracts in their groups.**3.** Host the first workshop (Our S.A.D.) with the workshop managers while while remaining students do independent research.**4.** Workshop managers will discuss what they learned to their group members. | **Before Class:** Get all the copies ready for the DIY today. Also brainstorm questions for each group for the clinical interviews.**1.** Review project expectations and revisit KNTK to address any questions or concerns. Check in with workshop managers during this time period and assign DIY. Facilitate the groups to see if they are on task.  **2.** Lead the Energy Transfer Model workshop with the workshop managers. Research on S.A. D. continues in the larger groups until managers return to teach the manipulative to their teams.**3.** Groups brainstorm and sketch ideas for their model. During this time period teacher will host clinical interviews with each group to see how they are doing content-wise and collaboration-wise.  | **Before Class:** Have group assignments made in iEARN for each team**1.** Global Project: Teams will be challenged to revise a family recipe based on the principles learned in their research. Each team will comment on another post on the “Staying Healthy” project in iEARN, making recipes at home, posting pictures and commenting on another post. <https://iearn.org/cc/space-2/group-476> **2.**  Research and work on models continues**3.** Workshop on navigating iEARN if necessary.**4.** Critical Friends protocol on models: Students will share “I likes” and “I wonders” with two other teams after which students will revise their model ideas and begin model creation. |
| Supplies needed:* A computer connected to a projector and the internet for the launch event video and the Google Document for Knows and Need to Knows.
* Copies for the entire class of the launch event document.
* Copies of the rubrics for the entire class.
* Copies of articles from the Our S.A.D. workshop for each group.
* Access to laptops and internet.
 | Supplies needed:* Copies of the materials needed for the DIYS.
* A list of questions for the clinical interviews.
* Access to laptops and internet.
* Energy model cards for each group and blank squares pages for the Energy Transfer Model workshop for each group.
 | Supplies needed:* Computer with access to a projector.
* iPad timer.
* Copies of CRITS sheets for all the students and the teacher.
* Students bring family recipes
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| PROJECT CALENDAR |
| DAY 4 | DAY 5 | DAY 6 |
| **Before Class:** Calorimetry Lab Setup: See lab sheet**1.** Cheetos Calorimetry Lab**2.** Groups continue to work on models and finalize presentations, adding ideas/principles from calorimetry lab |  **1.** Review project expectations and revisit KNTK to address any questions or concerns. Check in with workshop managers to check progress. Facilitate the groups to see if they are on task.  **2.** Groups continue to work on models and finalize presentations, adding ideas from calorimetry lab.**3.** During this time period teacher will host clinical interviews with each group to see how they are doing content-wise and collaboration-wise. | **Before Class:** Get projector screens up and ready for presentations. Maybe move furniture around the room to prepare for presentations. Get all the rubrics ready for each groups. Each group will be given 8 minutes to discuss their presentation. Fellow students will be our person in charge of giving CRITS to our students while we grade them based on our rubric.   |
| Supplies needed:* Lab supplies.
* iPad timer.
 | Supplies needed:* Computer with internet access
 | Supplies needed:* Computer with access to a projector.
* iPad timer.
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