

A Performance Task: Aircraft Designer You will implement specific engineering criteria to design airplanes

Essential Questions	Content	Knowledge and Skills	Vocabulary	Assessments	Lessons	Resources	Standards
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S Culinary Artist: Sustainability You will establish a restaurant that utilizes sustainable agricultural practices

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p •How do humans influence the environment?

Create a name, develop a menu, and a logo for your restaurant to use to advertise your new restaurant.

Your goal is to establish a restaurant that utilizes sustainable agricultural practices. Through this process you will work to enhance your menu and restaurant using fruits, vegetables, and spices created in the restaurant's own garden. The challenge is to keep the menu as fresh and sustainable as possible, while developing a marketing strategy that allows you to attract and maintain a following within the community

Environment

Completed Brochure

Computer, internet access, headphones

t •How do local and regional businesses react to increased competition?

Create advertising for their new restaurant by writing a magazine article, creating a multimedia presentation and newscast.

Competition

Completed article, power point, television ad

iPad Mini with video recording capabilities

e •How do various factors shape changes in the physical environment?

Physical environment

Logo
Sustainable
Compost

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O Manufacturing
 Engineering: Sunglasses
 You will develop and market new sunglasses for a sector of extreme sports participants

	Essential Questions	Content	Knowledge and Skills	Vocabulary	Assessments	Lessons	Resources	Standards
t	How would you apply technological design and problem-solving methods to the development of inventions and innovations?	Create a catchy press release that shares the exciting details of the new sunglass design	To prepare your presentation regarding your decision and design, a great deal of research will be conducted, data will be organized and design decisions will be made based on the information you have gathered. Students will include the design options and lens technology that will be available to consumers and the improvements that their team has made to the previous extreme sporting sunglasses	Light waves	Press Release		Computer, Internet access, poster board, power point, iPad Mini	
o		Create either a two- or three-dimensional model that describes how the sun's waves are absorbed, reflected, or transmitted through the materials selected for the sunglass lenses	Students will include a wave model of light to explain, brightness, color, and the bending of the light based upon the lens. They will consider the materials that are used to design the model as consumers will be interested in the science behind the sunglasses	Bending light	Graphical Depaction			
b		Prepare a plan for reaching out to unveil the product to the public	Determine where would you access your target audience? Where will you find large numbers of people gathered that would have interest in the new sunglasses? Once you have determined your plan, you will need to develop a demonstration that explains how these sunglasses will protect the wearer's eyes. Share various sunglass designs for men and women and share how the lens material and design benefits the wearer.	Polarization	Public presentation			

e	Create a PowerPoint, or Prezi to communicate their research, data and design to the audience.	Their student portfolio should contain examples of sunglasses used by participants in a number of different events and/or sports. They will highlight the design, dimensions, lens tint, colors, material selections chosen by the participants. This information will be synthesized and used to inform their design solution. At the conclusion of the portfolio, they will present their design options and advanced sketches	Tinting	Inclusive Power Point
r	Develop a 30-60 second television commercial for your sunglasses	When writing their commercial script, students will remember that effective commercials frequently mention the name of the product, show the product in action, and have audio that matches what is on the screen. Their commercial should also inform the viewer about how the lenses are designed to keep the sun's harmful rays from damaging the wearer's eyes. They will also include information about why your sunglasses are special and how they are an improvement over past models.	Target Audience	Video Project

- fingerprinting
- DNA
- perpetrator
- victim

D Crime Scene Investigator
 You will help educate and equip a local, regional police department with the skills and tools necessary to start their own crime scene unit.

e	Essential Questions	Content	Knowledge and Skills	Vocabulary	Assessments	Lessons	Resources	Standards
c	How does genetic information connect a crime scene to the perpetrator and the victim?	Write an editorial in favor of more funding for a police crime scene unit	Students will begin by listing the benefits that a crime-scene unit would add to a community. Citizens will want to know how many more crimes could be solved as a result of having this unit, the potential percentage improvement in crimes solved, and the predicted number of dollars spent per additional crime solved. Based on their research they will write this editorial in a Word document in a block style format.	-editorial	Editorial		Internet	
e		Create a list of the three most important tasks carried out by a regional police crime lab	Students will research the tools and equipment needed to carry out these tasks. Develop a list of essential equipment with an explanation of why each item is important in a table in a Word document. This list will be used to make purchasing decisions for opening up your crime lab in an overall presentation.	-funding	Table		Microsoft Word	

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J Aircraft Designer:
Implementing specific
engineering criteria to
design airplanes

a	Essential Questions	Content	Knowledge and Skills	Vocabulary	Assessments	Lessons	Resources	Standards
n	What causes objects to move?	Create an electronic outline to contain all of their data gathered from testing their planes.	This presentation will show all elements of your project. You must include slides showing design elements, design sketch, flight data (in chart or graph form), budget, materials, and results for each plane. You will also include analysis slides at the end showing how your design elements met your goals (in effect, you will be selling your product at this point). This presentation should support your oral overview to the leadership group.		Power Point		Internet, Power point, graphs	
u	What effect do the design elements have on the actual performance of a product?	Create three planes that fit the given criteria, using the video guidelines	You will create three separate paper airplanes. Plane one will meet the requirement of being the fastest. Its design will need to be based upon specific criteria as related to airplane speed. Plane two will meet the requirement of being the slowest. Its design will also need to be based upon specific criteria as related to airplane speed. Plane three will meet the requirement of going the farthest or having the greatest hangtime. Its design will need to be based upon specific criteria as related to airplanes gliding. Develop a brief abstract for each model in which mathematical ideas such as symmetry and congruence are addressed as well as the scientific principle of physics		Completed model plane			

a Create an advertisement to promote your new plane design. Include pictures and graphs.

Your advertisement will need to convince people to purchase one of your model airplanes. You will need to highlight the pros of your design including specific engineering features, as well as cost effectiveness. The purpose of this advertisement is sell your model airplane to the public. This will be presented in a poster format.

Poster Board

paper and pencils, various measuring devices

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y

Poster paper, tape, glue, printer

F Adobe Dreamweaver website creation

e	Essential Questions	Content	Knowledge and Skills	Vocabulary	Assessments	Lessons	Resources	Standards
b	Is there enough information about my chosen decade to have four categories of interest?	Research online a potential decade they would like to create a personalized website about. Identify websites they would use for research.	Class will complete a given written outline about their decade, proving that they can find enough information about their individual categories for this project, adding bookmarks along the way for later reference.	Entertainment	Website research			
r	Why do we use this program for creating websites?	Create a new personalized website using Adobe Dreamweaver	Open and proceed together through the process of initially setting up their websites, ensuring all subfolders are properly set up or their site won't work. All pictures are saved for insertion into their site.	Decade	Website creation			
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