

Cross Curricular Connections in the Creation of a Product / Service

STEP	DESCRIPTION	EXAMPLE
[1] Idea	The inventor thinks of a new idea for a product or a modification to an existing product.	In 1902, Mary Anderson was riding a street car in New York City during a snowstorm. She watched the streetcar driver try to see by leaving the windshield open and letting the cold weather into the car.
[2] Model	The inventor creates designs to try out to decide which one is best.	Mary Anderson made sketches for a windshield wiper that showed a lever on the inside that was attached to a wiping mechanism on the outside.
[3] Materials	Materials are chosen for the components of the product.	She hired a company to make a model out of wood and rubber strips.
[4] Research	The inventor may need to learn more about materials or how to improve the design of the product.	In 1903, she was awarded a design patent for the windshield wiper design
[5] Improvements	After research, design changes may be necessary, so that it lasts longer, is easier or cheaper to make, uses different materials.	After Anderson's patent expired in 1920, car manufacturers improved the design.
[6] Prototype	With some products, designers make working models instead of full-scale versions of the final product. This is done to ensure the everything works as planned and that the final product can be made.	None of Anderson's records exist, but when inventors have a prototype they can put it through tests (if necessary) to make sure there is no error in the design. If any changes need to be made, the inventors can go back to any of the previous steps
[7] Market Research	Information is gathered to find out how much of the item should be produced. Researchers also find out how much people are willing to pay for the item.	Anderson wrote to a large company to sell them her design but they were not interested.
[8] Production	The manufacturer decides where and how the product will be made and starts production.	Anderson was discouraged and did not develop the idea herself. However, some car companies did use it, and she received royalties for her invention until the patent expired. Today, windshield wipers are installed on every automobile that is made.
[9] Advertising	The public is informed that there is a new product for them to buy. Sometimes, this happens months before the product is even available.	Since the windshield wipers are manufactured for cars the advertisements we see are mostly for replacement blades.
[10] Distribution	The product is sent to retailers or directly to the consumer.	Replacement wipers and blades are sold to car dealerships and automotive stores.
[11] Consumer's Choice	For each product that they buy, consumers often have to choose among several different brands.	Some companies advertise specialty wipers for different seasons so that consumers can change them to suit local weather conditions
[12] Disposal	When the product breaks, wears out, or is no longer needed, it is discarded. It may be composted, re-used, recycled, or sent to a landfill.	When wipers wear out, they are generally sent to a landfill.

Cross Curricular Connections in the Creation of a Product / Service

STEP	Activity Suggestions
[1] Idea	<ul style="list-style-type: none"> - Students investigate the world around them to discover real-world problems/issues - use of simple machines or ideas - Students will write a Persuasive Writing describing their idea and why it is a necessity for development. Will it make the world a better place? Why is it a good idea?
[2] Model	<ul style="list-style-type: none"> - 8.5 x 11 sheet template (MAKE TEMPLATE) - Proposal with sketch and one paragraph(Descriptive Writing) of how the machine will work
[3] Materials	<ul style="list-style-type: none"> - Make a chart listing the materials they chose. - Where will they get the materials? Why did they choose them *** Option: - Students can write a Persuasive Writing describing why and how their materials are the best choice for the product.
[4] Research	<ul style="list-style-type: none"> - Teacher Check-in / Feedback #1 through Oral Communication / presentation - Reflect on any feedback given (use of materials, ability to achieve goal / create product)
[5] Improvements	<ul style="list-style-type: none"> - Students will make revisions based on peer and teacher feedback in order to create the best product possible. - Re-submit Research Proposal for review
[6] Prototype	<ul style="list-style-type: none"> - Once given the ok, students can build a working model of their product - Detailed / Labeled sketch to show the different parts of the product / devices - Procedural Writing: Students will write detailed step by step instructions on how the prototype was created (even including any difficulties that arose, and how they solved the problems)
[7] Market Research	<ul style="list-style-type: none"> - Students will create a Survey to gather information about the interest / demand of their product, and possible sale price / locations <ul style="list-style-type: none"> - Students will have to make sure that the survey questions are not biased - Students will Collect, Organize and Analyze Data and present their findings AND make a convincing argument for the production of their product (based on the analysis of collected data) <ul style="list-style-type: none"> - Oral Communication using appropriate mathematical terms, graphs and data OR - Persuasive Writing using appropriate mathematical terms, graphs and data
[8] Production	<ul style="list-style-type: none"> - Students must research possible production methods locations based on materials / costs / demand and distribution - Students will need to identify three possible production locations and explain the benefits of each <ul style="list-style-type: none"> - Geography: Mapping assignment
[9] Advertising	<ul style="list-style-type: none"> - Students will create a Survey to gather information about the possible target audience of their product (students will have to make sure that the survey questions are not biased). <ul style="list-style-type: none"> - Students will Collect, Organize and Analyze Data and present their findings through the creation of various advertisements focused on the target audience (MEDIA) - Students will create a Poster AND Commercial for their product, aimed at the target audience
[10] Distribution	<ul style="list-style-type: none"> - Create a package for the product that will be cost efficient and environmentally friendly <ul style="list-style-type: none"> - describe the size and material used to create the package through detailed sketch of the containers net OR an actual model (MATH) - include less materials, or more eco-friendly materials, to protect / save the environment - Determine if more efficient delivery methods are possible (\$ and Environment)
[11] Consumer's Choice	<ul style="list-style-type: none"> - Students can make different advertisements for different target audiences (possibly come up with alternative uses for the product) - Poster or Commercial / Youtube Ad or Internet Pop-up (MEDIA)
[12] Disposal	<ul style="list-style-type: none"> - Students can work on creating a product that has a longer life cycle (or possible uses for parts of the product once it is no longer able to complete the task it was produced for) - Students can also look for more environmentally friendly materials and / or packaging if an issue arises (coffee pods)

Cross Curricular Connections in the Creation of a Product / Service

STEP	Expectations
[1] <i>Idea</i>	
[2] <i>Model</i>	
[3] <i>Materials</i>	
[4] <i>Research</i>	
[5] <i>Improvements</i>	
[6] <i>Prototype</i>	
[7] <i>Market Research</i>	
[8] <i>Production</i>	
[9] <i>Advertising</i>	
[10] <i>Distribution</i>	
[11] <i>Consumer's Choice</i>	
[12] <i>Disposal</i>	