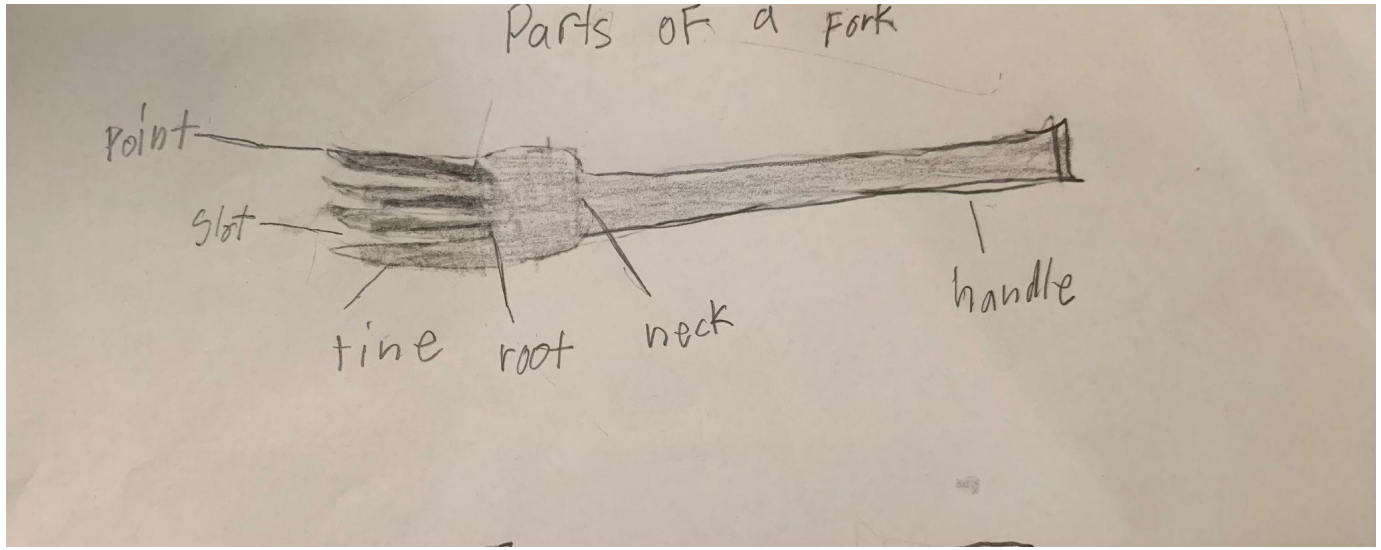
Grades K-3 Abstract Template

50 million Americans have allergies. Some people don’t get sick, other people can get very sick, and some people can even die. Our vision is a smart fork senses allergies, harmful bacteria, and sickness. The fork brush tracks if your eating healthy. It also includes a toothbrush to keep our teeth and mouth healthy. We call our invention the “TORK”.

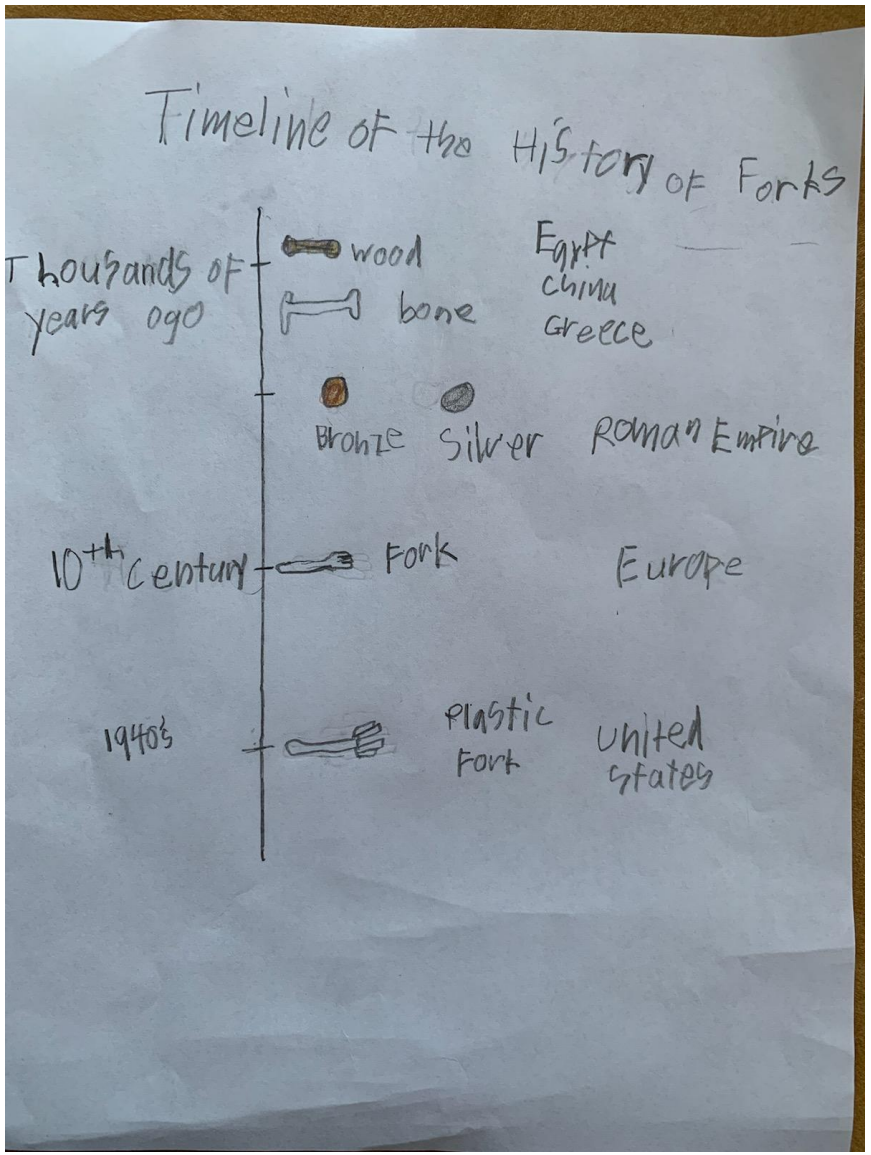
Present Technology



Today's utensils are made out of different materials like metal, plastic, and wood. There are some forks that are made that can help people eat slower by alerting them with a vibration and flash.

Technology, such as a stylish necklace, a nifty clip on airborne allergen tracker, and a wearable that can sense a severe allergy reaction and deliver life saving treatment exists today. The wearable was made by Abigail Barnes and Dr Joseph BelBruno, a professor of chemistry at Dartmouth college.

History

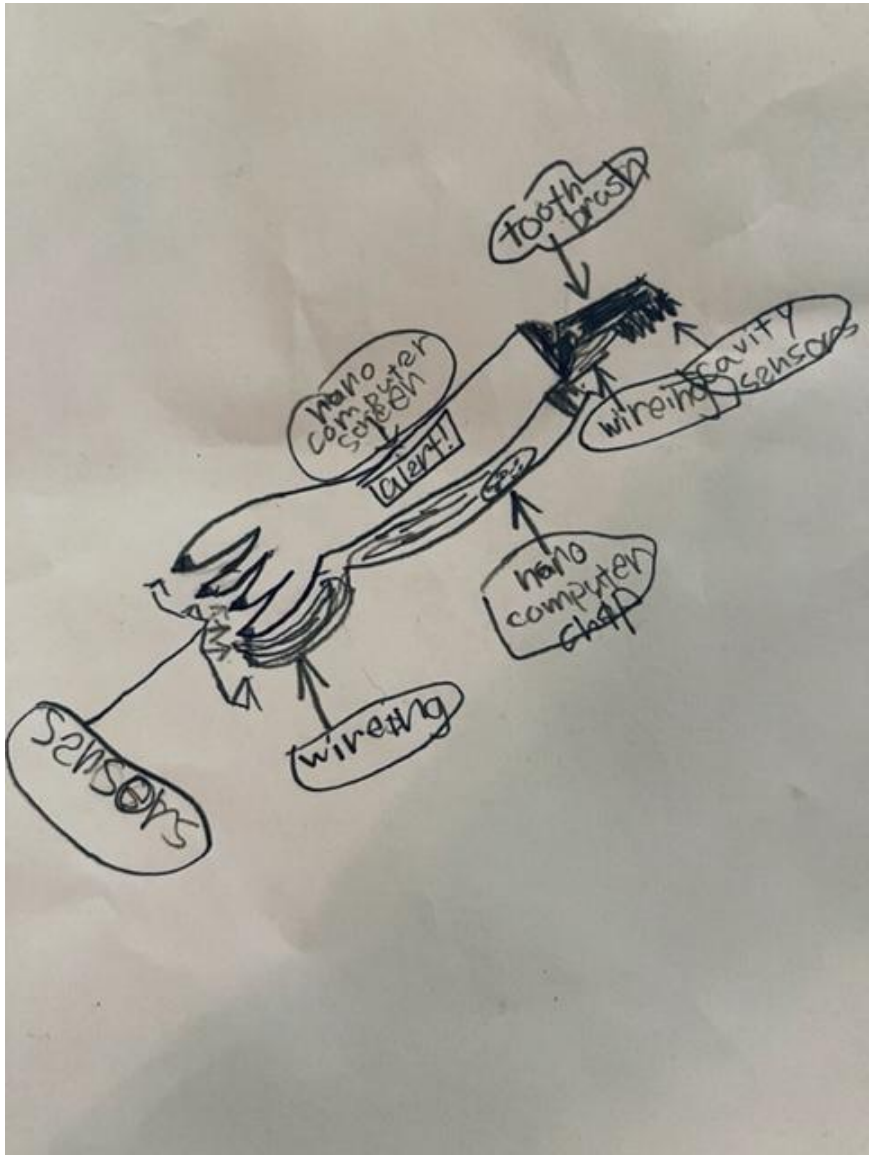


The fork is an utensil. It has been around for many generations. Thousands of years ago in ancient Egypt, China, and Greece they carved forks out of wood and bones. The Roman Empire made them out of bronze and silver.

"The fork was introduced to Europe in the 10th century by Theophanu Byzantine wife of Emperor Otto the 2nd. It made its way to Italy by the 11th century and had become popular amongst merchants by the 14th." [1] In the 1940's the plastic fork was introduced.

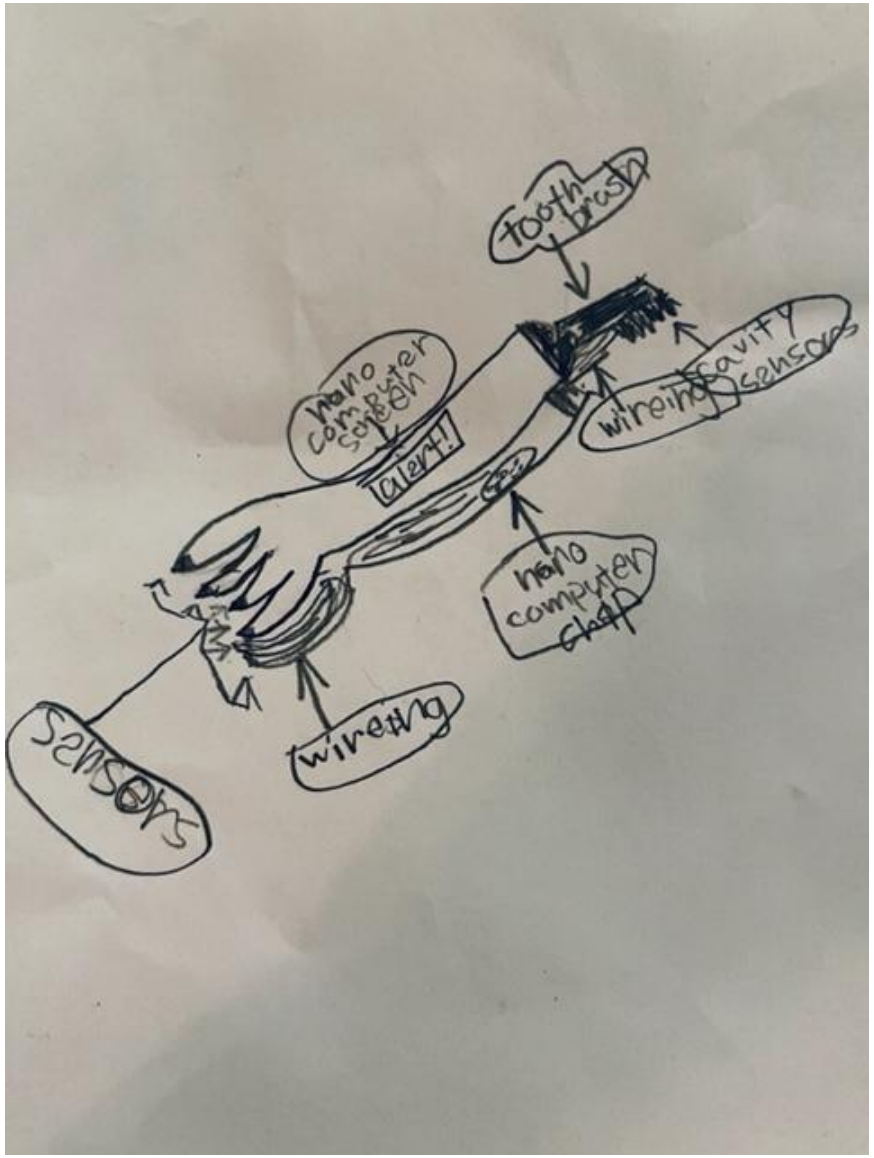
[1]"The History of the Fork." *Royal Museums Greenwich*, https://www.rmg.co.uk/stories/blog/history-fork#:~:text=The%20fork%20was%20introduced%20to%20Europe%20in%20the%2010th%20century,amongst%20merchants%20by%20the%2014th.

Grades K-3 Future Technology Template - 1



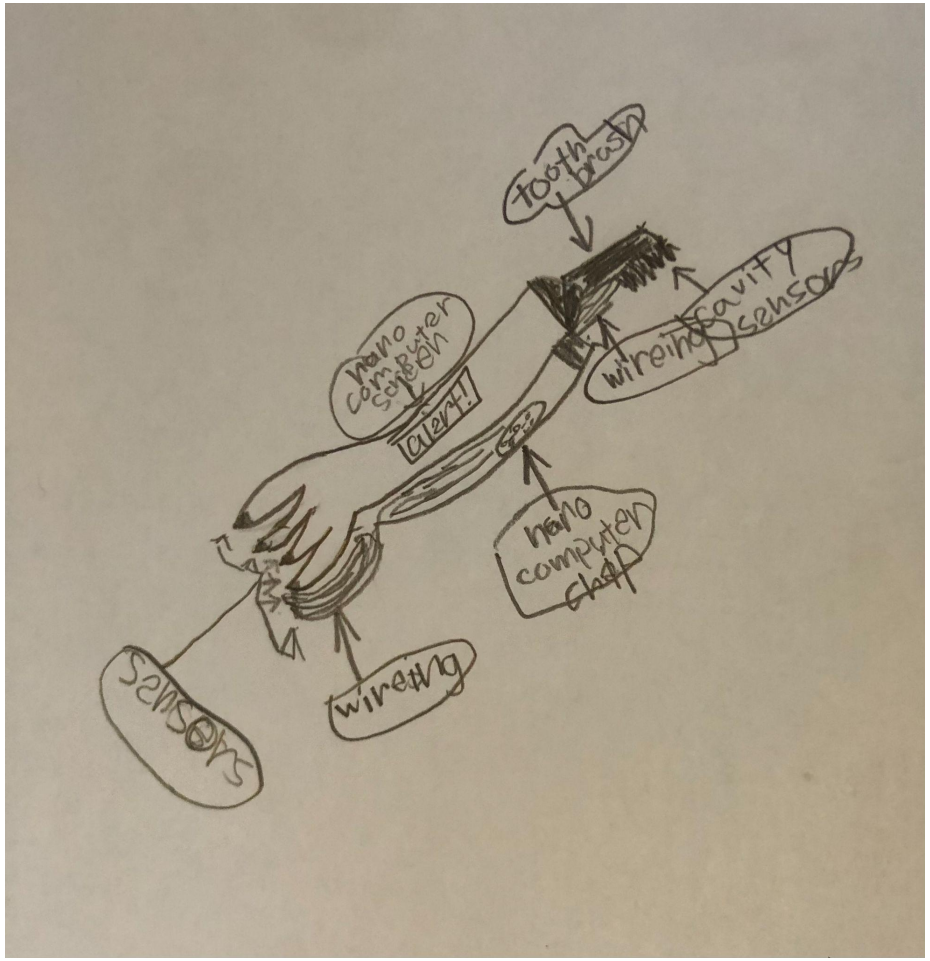
Our fork will be the greatest invention of the 21st century. Our fork is double sided with the opposite end as a toothbrush to keep our teeth and mouth healthy. Our fork will sense for allergies, harmful bacteria, and sickness. It can track if you are eating healthy food or missing important vitamins, minerals, proteins, and more. Our fork will have a screen to display information for example if you are allergic to the food. If it detects something harmful, it will flash red lights and beep. It will get your attention.

Grades K-3 Future Technology Template – 2 (optional)



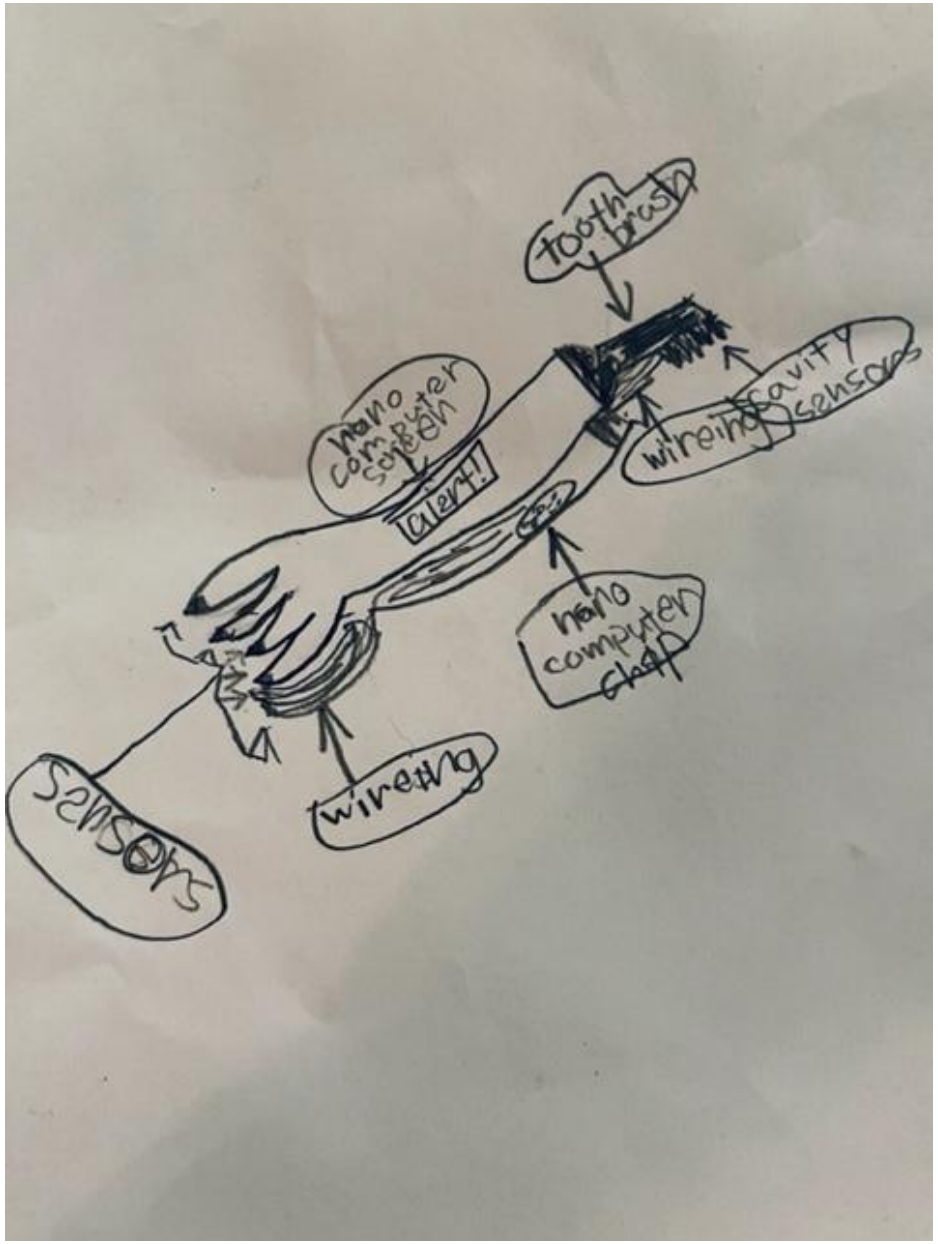
Our fork will need sensors. Sensors get information. The sensors on the fork will gather information on allergens, viruses, bacteria, and what the food is made of. The information will be sent to the computer in our fork. A computer has hardware and software. The software gives the instructions. When you put the fork in your food and it detects anything you allergic to it beeps and flashes red. No need to worry about what ingredients are in the food you are eating because our fork is enabled with sensors in the ends that tell you if a known allergy is present and track if it's healthy. The fork can connect to other devices via bluetooth technology to store information about what you are eating.

Grades K-3 Future Technology Template – 3 (optional)

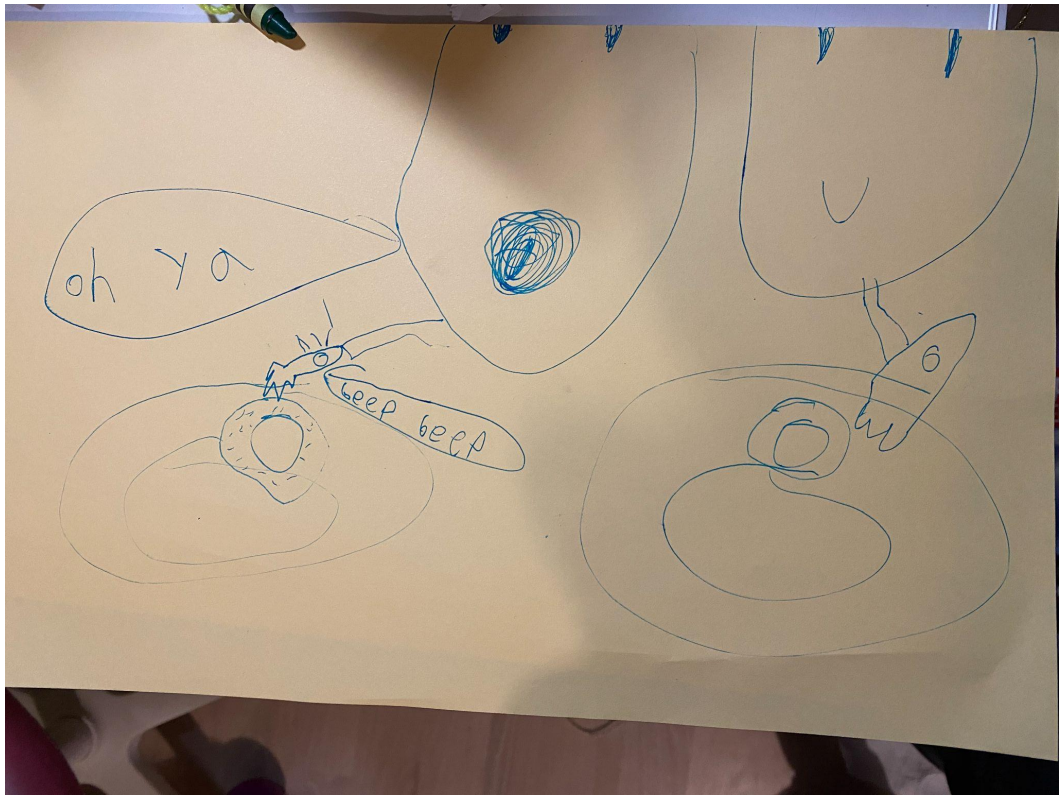


Our fork will use artificial intelligence (AI). AI is the intelligence displayed by machines. This fork is important because machines can learn what humans do and make fewer mistakes. In our forks, when trying to find ingredients, we want to make sure no mistakes will be made and that any allergens are always found. An AI fork allows us to take out the guesswork and ensure the user trusts the fork and what they are eating.

Grades K-3 Future Technology Template – 3 (optional)



Grades K-3 Breakthroughs Template - 1



For our fork to become reality we need breakthroughs in sensors to be able to detect all types of allergens for a person. The sensors in our fork will need to be small and be at a nanoscale.

We will conduct an experiment to test the breakthroughs needed for the sensors. The fork will detect different allergens in different foods based on a person's allergies. The fork will beep and flash red when it senses the allergen.

Grades K-3 Breakthroughs Template – 2 (optional)

Insert drawing here Landscape or Portrait Image Orientation is accepted

N/A

Grades K-3 Breakthroughs Template – 3 (optional)

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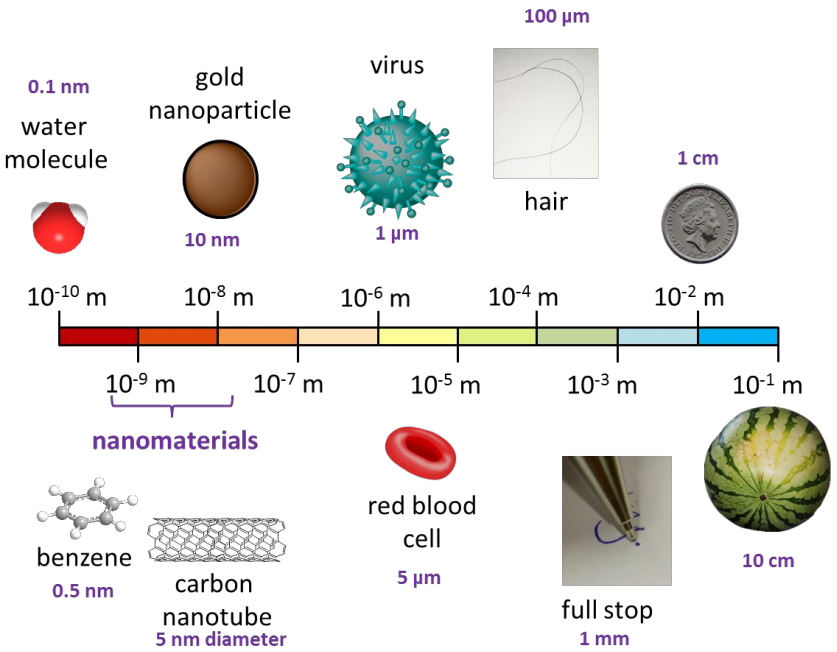
Grades K-3 Design Process Template – 1



https://chembam.com/definitions/nanotechnology/

We wanted to invent a fork that could detect food allergies. We learned about small sensors that can detect allergens and viruses. We added sensors to our folk. We need the sensors to be small. We learned about nanoscale and nanotechnology. We added lights and sounds when it detects allergens to let them know they are allergic to the food. After you eat, we want people to brush their teeth so they don't get cavities. We added a toothbrush to the end for easy brushing.

Grades K-3 Design Process Template – 2 (optional)

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Grades K-3 Design Process Template – 3 (optional)

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Grades K-3 Consequences Template

Insert drawing here Landscape or Portrait Image Orientation is accepted

Our fork will save lives. It has many positive consequences. Our fork prevents people from going to the hospital, and keeps their mouths healthy. It tells people they are sick and have a virus. It prevent others from getting sick by letting people know to stay home.

The negative consequences about our fork is it might malfunction. Not everyone will be able to have our fork because it might cost too much money.

Grades K-3 Bibliography Template

Easybib.com to cite the sources

Law, Jodi Woan-Fei, et al. “Rapid Methods for the Detection of Foodborne Bacterial Pathogens: Principles, Applications, Advantages and Limitations.” *Frontiers*, Frontiers, 1 Jan. 1AD, https://www.frontiersin.org/articles/10.3389/fmicb.2014.00770/full.

https://www.npr.org/sections/thesalt/2018/02/19/584526195/scientists-develop-a-way-to-use-a-smartphone-to-prevent-food-poisoning

People at Risk: Children Under Five

https://www.britannica.com/science/bacteria#ref272356

https://www.britannica.com/science/bacteria#ref39333

https://www.aafa.org/allergy-facts/

https://gizmodo.com/the-history-of-knives-forks-and-spoons-1440558371

Grades K-3 Bibliography Template

Forkstuffs, https://www.brown.edu/Departments/Joukowsky_Institute/courses/13things/7283.html.

Sinpetru, Laura. “Hapifork: £60 Smart Fork Monitors One's Every Bite, Trains People to Eat Well.” *Softpedia*, 7 Jan. 2013, https://news.softpedia.com/news/HAPIfork-60-Smart-Monitors-One-s-Every-Bite-Trains-People-to-Eat-Well-318932.shtml.

“Bacteria.” *Encyclopædia Britannica*, Encyclopædia Britannica, Inc., https://www.britannica.com/science/bacteria.

Assistant Secretary for Public Affairs (ASPA). “People at Risk: Pregnant Women.” *FoodSafety.gov*, 25 Sept. 2020, https://www.foodsafety.gov/people-at-risk/pregnant-women.

Grades K-3 Bibliography Template – 2 (optional)

What Are Computers for Kids | Intro to Computers | Programming for Kids, Socratica Kids , 17 Apr. 2008, https://www.youtube.com/watch?v=RmbFJq2jADY&t=1s.

“The Top 8 Technologies Combating Food Allergy.” *The Medical Futurist*, 20 Aug. 2018, https://medicalfuturist.com/top-8-technologies-combating-food-allergy/.

“The Best Technologies against Food Allergies.” *The Medical Futurist*, 16 Sept. 2021, https://medicalfuturist.com/best-tech-against-food-allergies/.

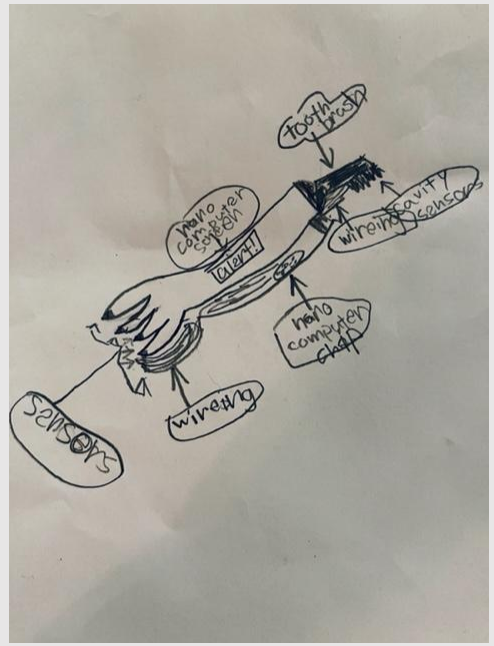
Grades K-3 Bibliography Template – 3 (optional)

https://www.youtube.com/watch?v=ht-_RmhLD7k

https://www.youtube.com/watch?v=ad79nYk2keg

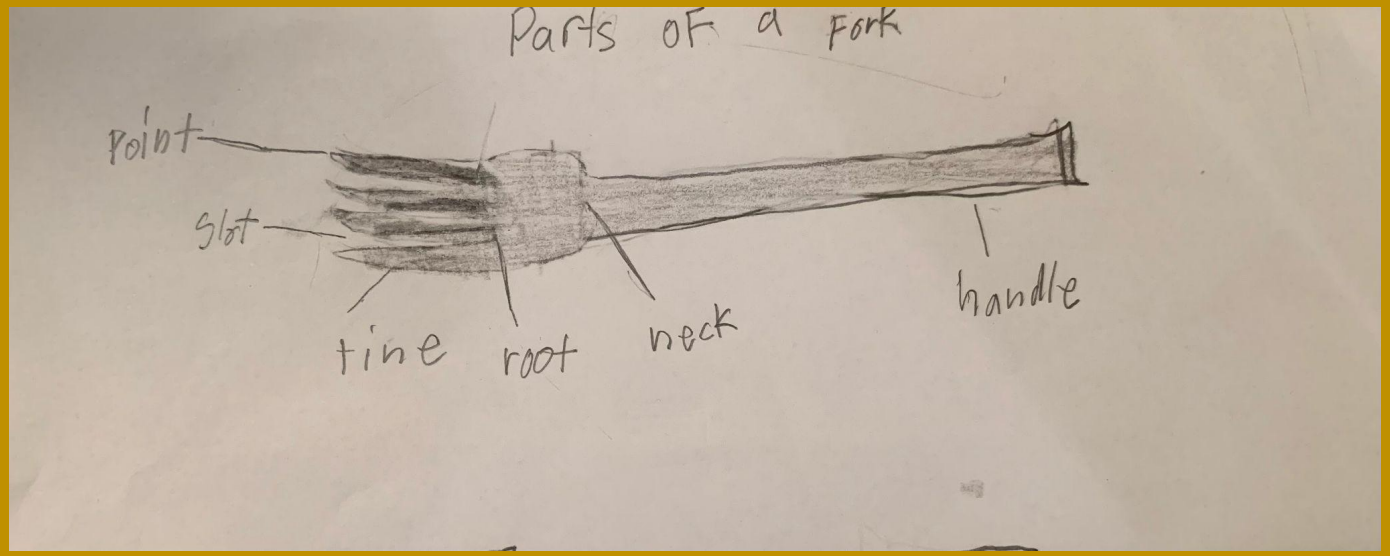
https://www.youtube.com/watch?v=RmbFJq2jADY&t=1s

50 million Americans have allergies. Some people don't get sick, other people can get very sick, and some people can even die. Our smart fork senses allergies, harmful bacteria, and sickness. The fork brush tracks if your eating healthy. It also includes a toothbrush to keep your teeth and mouth healthy. Our invention is called, "The TORK".



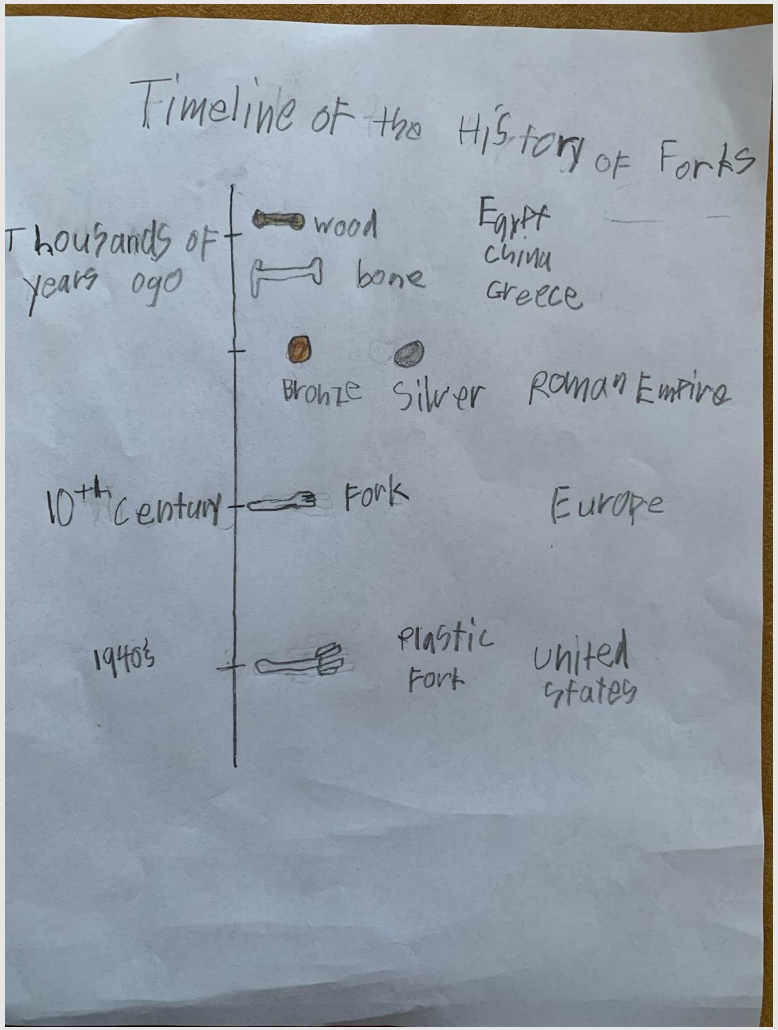
The home page provides a summary of our project with visual and interactive details. When the Sources button on the top bar is clicked, an additional page will appear referencing the sources. When you click on the *a team video will fork brush and demonstrate it.*

Today's utensils are made out of different materials like metal, plastic, and wood. There are some forks that are made that can help people eat slower by alerting them with a vibration and flash.



Click on the picture for more information on the fork and history of the fork.

History



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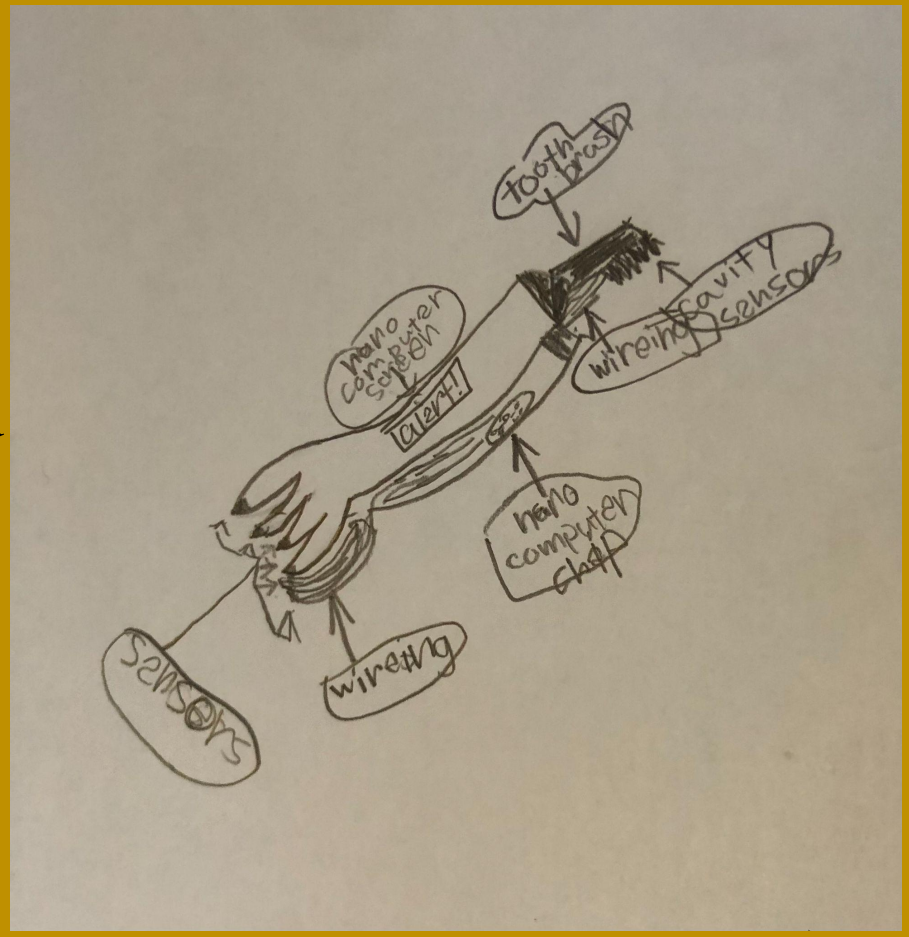


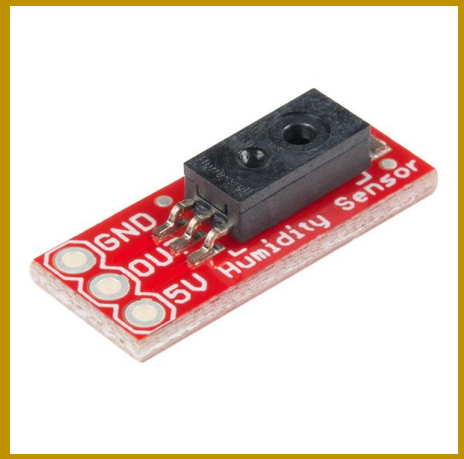
Click to learn about the technologies how they work in our fork brush.

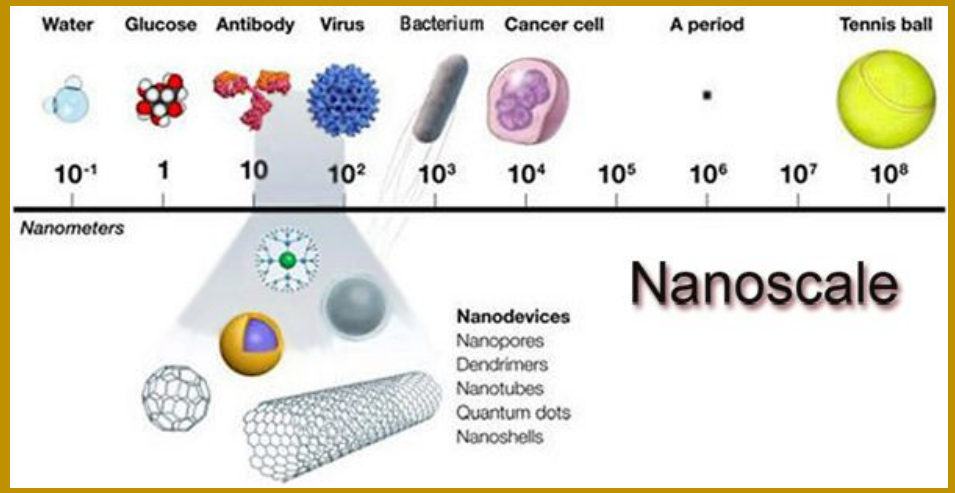
- Sensors
- Nanotechnology
- Computer
- AI
- Communications

When you click on the picture, you can seeour TORK in action.
When you click on the buttons, a pop up will explain the technology.

For our fork to become reality we need breakthroughs in sensors to be able to detect all types of allergens. The sensors in our fork will need to be small and be at a nanoscale.

Click to see how we would test our breakthroughs





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