



PLTW Virtual Learning

6th Grade Intro to Gateway

April 20, 2020



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Lesson: April 20 (Part 1 of 5)

Objective/Learning Target:

Student will research and develop a deeper understanding of different types of robots used in society today and in the near future.

Warm-Ups:

Look around your home. Make a list of all of the things that you own that you think are controlled by a robotic brain, like perhaps a microcontroller like you learned about in last week's lessons.

Make a second list of all of the things in your home that you would LIKE to be automated. (Automation is a mechanical device that can imitate the actions of people or animals.) Would you try out a robotic vacuum? What about a robotic shirt folder? A self-driving car?

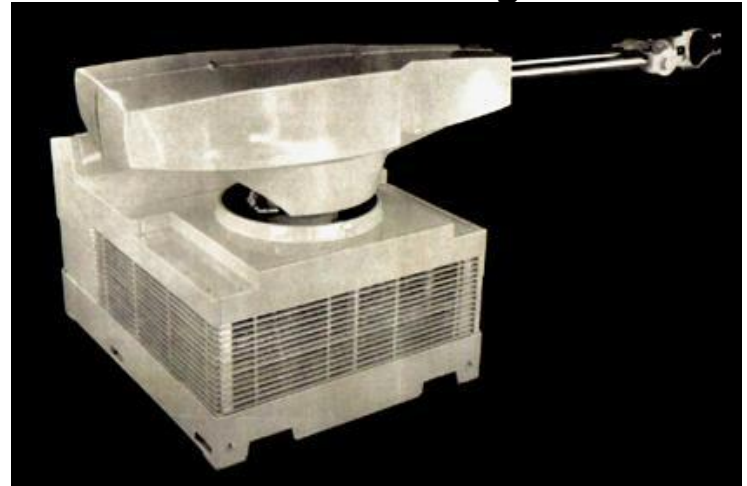
Lesson Introduction/Background Information:

This week we are focusing on introducing the ideas of automation and robotics. As I mentioned, an automation is a mechanical device that can do simple tasks that a human or animal can do.

On the other hand, a robot is a machine that performs complicated tasks and is guided by automatic controls, so a human doesn't have to be controlling it.

First generation robots have really been around since the 1960s and were mostly designed to do factory work, performing simple tasks that were dangerous or unappealing to humans.

1961 - The first industrial robot was online in a General Motors automobile factory in New Jersey. It was called UNIMATE. It was used to pick up and put down parts.



Lesson Introduction/Background Information:

The second generation of robots perform much more complex tasks and simulate more human actions than first generation robots. With sensors and programming built in, they can move, respond to changes in their environment, and sense their surroundings.

SWORDS on Display U.S. Army Sgt. 1st Class Jason Mero (right) describes the capabilities of the SWORDS (Special Weapons Observation Remote Direct-Action System) robot to Garth Renn, an attendee at the Washington Auto Show, Washington Convention Center in Washington D.C., Jan. 24, 2006. Defense Dept. photo by Gerry J. Gilmore.



Practice:

You will be watching a video today and jotting down some of your thoughts, as the video raises a lot of interesting points about the future of robotics and our society.

On a piece of paper, draw a 3 column 3-2-1 chart. In the 3 column, you will fill out “3 Things I Learned Today” while watching this video. In the 2 column, you will fill out “2 Questions I Can Now Create” that you now have. In the 1 column, you will fill out “1 Thing That I Still Need to Learn More About” for an area that interests you with regards to robotics.

Video: [Humans Need Not Apply](#)

Self-Assessment:

Share some of the things you learned or questions you developed with someone at home. Do they agree with the points that you wrote down about the video? Have they seen automation taking over a job that they've had before?

Extend Your Learning/Continued Practice:

The video you watched was published about 5 years ago, and it talked a lot about self-driving cars.

[Watch this video](#) published a few months ago about why self-driving cars still aren't around. Do you think there are other predictions the video made that haven't come true yet?