Honeywell Engineer.

Career Readiness Challenge

TEAM: 1102E
(Dominique+Eva)

Located in West Vancouver, Canada

Meet The Team!
We are 1102E!

Our team consists of two members. Dominique D. and Eva P. We are participating in the VEX Robotics this year. Vex is a great opportunity to learn the fundamentals of becoming a great STEM leader!

COMPANY WE CHOSE: HONEYWELL

When it is dark in a room, you turn on the light. When it is cold in your house, you turn up the heat. We do tasks like these in our everyday life. Have you ever wondered what the science behind these gadgets are? Or who makes them? The people that make them are called engineers. The definition of an engineer is someone who builds and designs. In Honeywell, They do exactly that. They build, design, and work with technology.

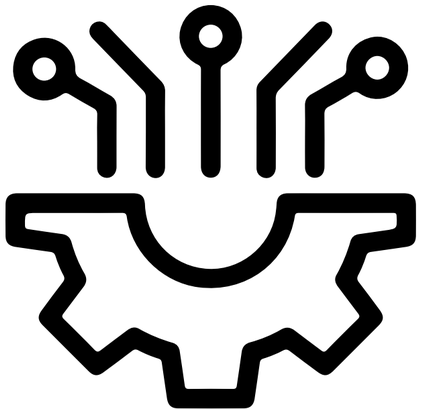
WHY HONEYWELL

We chose Honeywell because it is a company that does many different things with different types of engineers. We found the different problems they solve and products they have and the different types of engineers at Honeywell interesting. Honeywell is everywhere - from pharmaceuticals to rockets, to heaters in your home!

INTERVIEW WITH AN ENGINEER AT HONEYWELL

We interviewed Paul at Honeywell. He does software engineering and system design. He works with industrial automation. Industrial automation is when you help make things efficiently and safely. He uses computer science/programming and industrial processes and technologies. He ensures his company's products are interoperable with other systems. You should be able to use Honeywell's motor with another company's sensor!

Honeywell

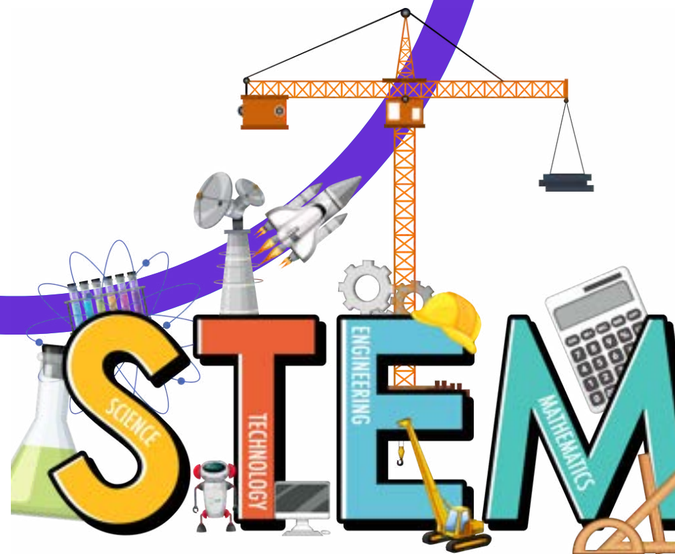


How does Vex prepare you for future careers?

- Learn how to design products and solve problems efficiently and effectively.
- Experience to learn fundamentals of the engineering design process (EDP).
- Learn how to program, build, design, organize your ideas, and collaborate with your teammate(s) (future colleagues).
- Vex prepares you for any job that requires thoughtful thinking and collaborating
- You learn to follow a proven process and never stop because you repeat EDP. Which can be frustrating but important.

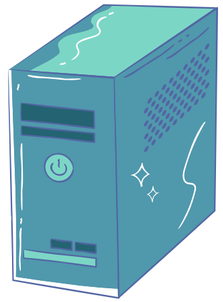
3.5 million

STEM jobs unfilled in 2 years



Honeywell

Honeywell engineers program computers to send different signals and commands to a brain. The brain then tells the sensor to do something. While this process is in action, it is someone's job to watch and make sure everything is going as planned. If not, they can hit the stop button to investigate.



Honeywell

VEX IQ

VEX IQ CHALLENGE

At Vex, we are the engineers. We tell the brain what to do using the joystick or by programming. The brain alerts the motor to start turning when we tell it to. When testing the robot, we watch carefully to make sure everything is going as planned. If not, we stop the motor to investigate and iterate.

Honeywell

EDP

Engeering Design Process

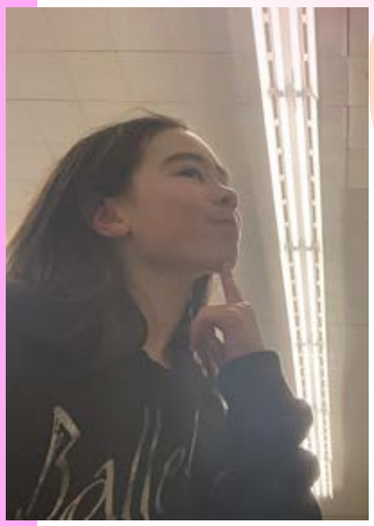
In a Glance

ASK	RESEARCH	IMAGINE	PLAN	CREATE	TEST	IMRPOVE
Talk to customers to learn about the problem.	Identify problem	Brainstorm Possible solutions	Plan, including reasources and time	Prototype starting with the highest technical risk solution	Test against the requirements	Redesign as needed
Ask the challenge, rules, and requirements of the game	Research about the problems and potential designs	Brainstorm possible design solutions	Plan the building design, Including time and pieces	Build a robot	Test robot	Keep working on the design to improve

VEX IQ CHALLENGE

HONEYWELL

At Honeywell, they talk to customers to learn what they need and get feedback to make things better. They talk to their internal teams too, like the support teams, to learn about their experiences with the product. This helps them to compete with others.



ASK

VEX IQ

At Vex, we talk to our teammates about problems and possible solutions. We can also talk to teachers for small hints and technical issues. This saves us time. And when you ask, your teammate is now aware of the problem and can think together.

HONEYWELL

At Honeywell, they research the problem. They study, perform tests, and compare the cost of the product. They also work with local schools to research new technologies.

VEX IQ

At Vex, we research about the problem. We inspect every part of the robot to ensure everything is intact. Then, we research ideas and the best plan to compete.

HONEYWELL

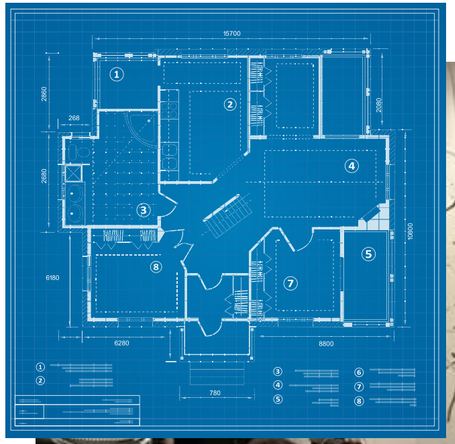
Honeywell imagines possible solutions using the research and clues provided. It is easier to imagine solutions with the help of co-workers.

VEX IQ

At Vex IQ, we imagine possible solutions by brainstorming with teammates and collaborating in our notebook. The notebook helps us keep track of the steps we took for success and failure.

HONEYWELL

Honeywell plans out the products before constructing them. This way, they don't spend lots of money to realize that it doesn't work. Every piece and function should be completely covered.



VEX IQ

At Vex IQ, we plan out our robot before building it. This way we know exactly what pieces we need and how much time we need. We document our plans in our engineering notebook.

HONEYWELL

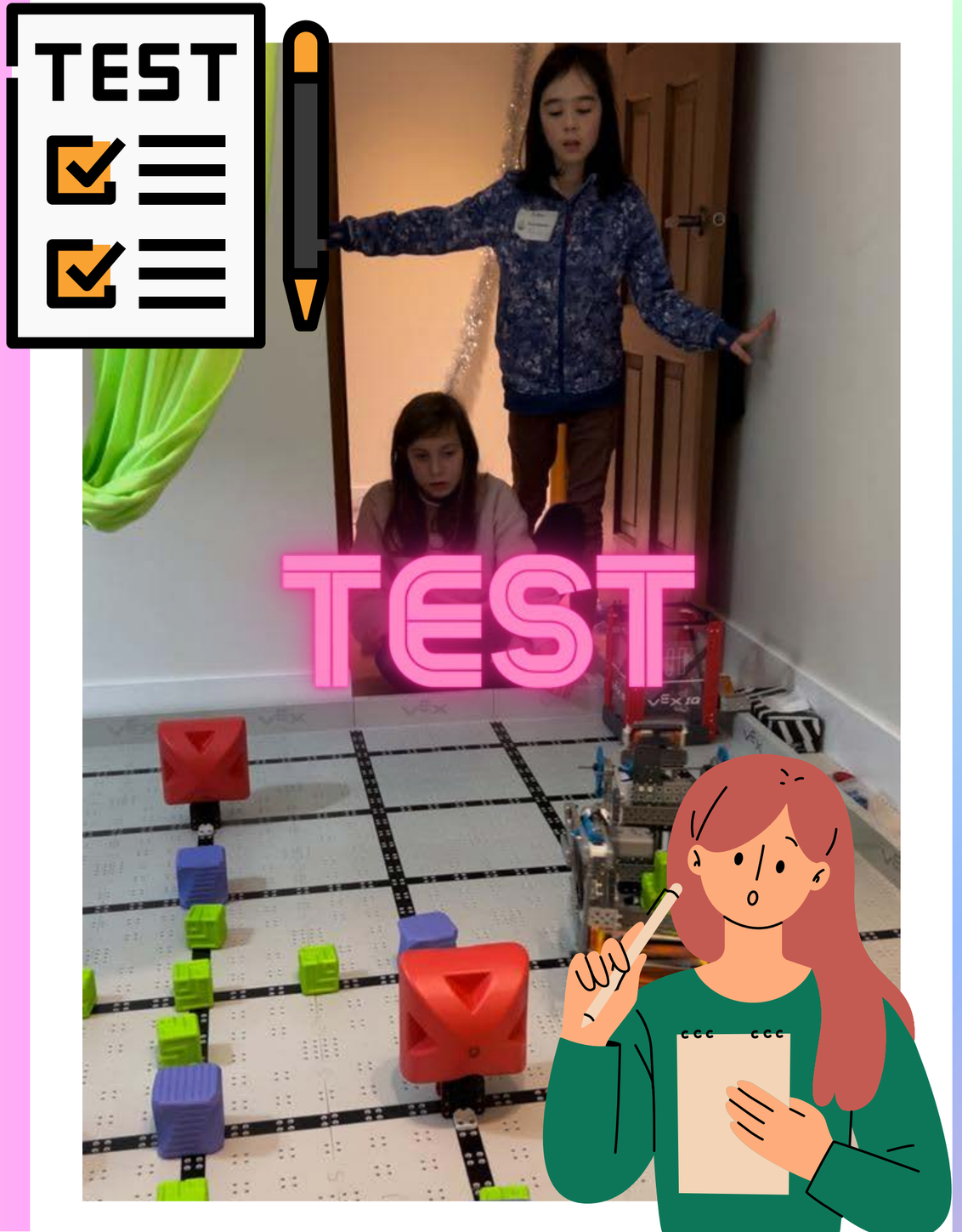
Honeywell creates many different kinds of products. It is important to build exactly as planned. These materials cost money. They manufacture all types of things using the E.D.P.

VEX IQ

At Vex, building is very fun! We create a robot using beams, shafts, gears, motors, and many more awesome materials! We look back at our engineering notebook to make sure that we are following the plan to avoid problems.

HONEYWELL

Honeywell tests their design by deciding on an approach to test the product against the requirements. Then they set up the environment to test the product. Second, they run the test record the results, and review.

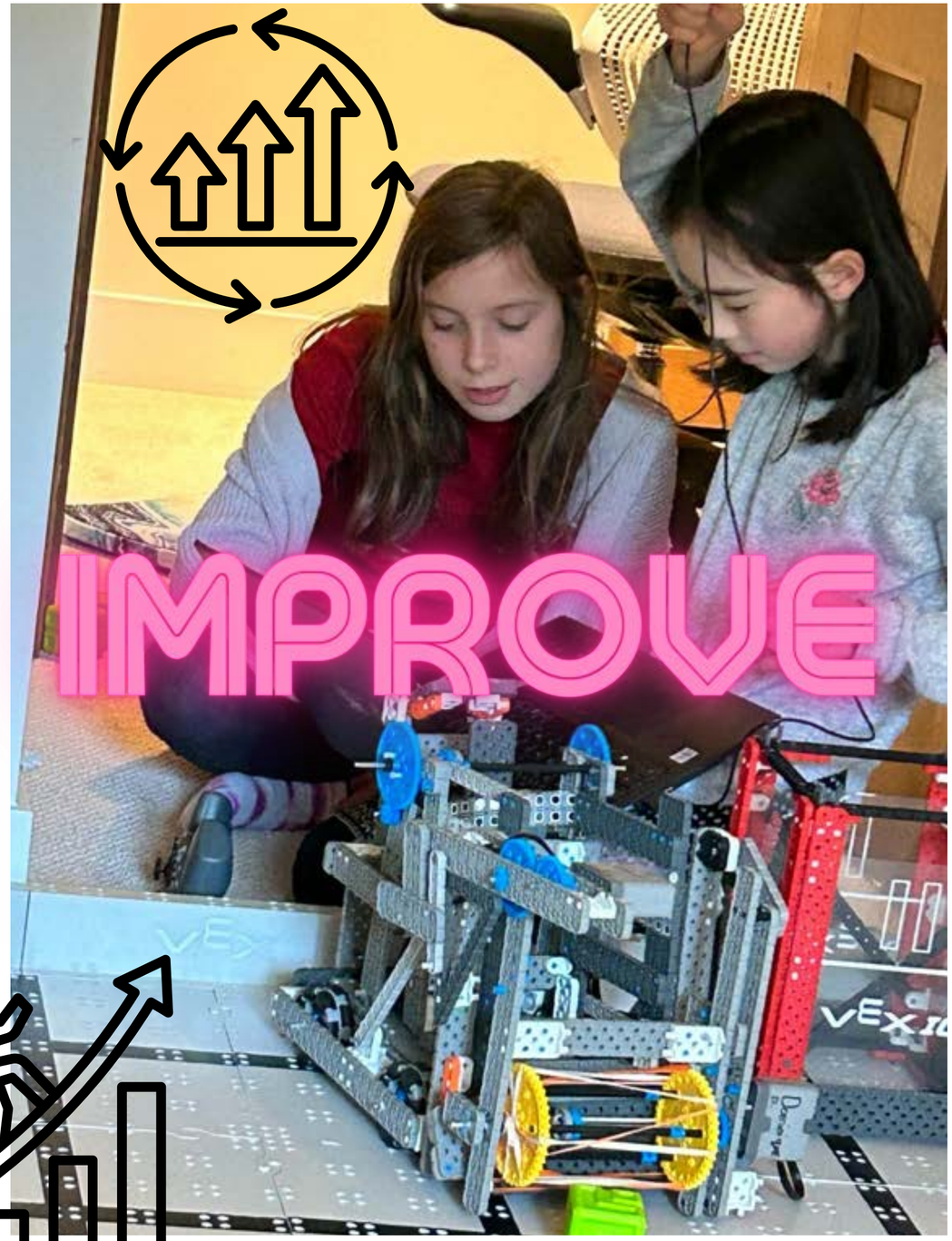


VEX IQ

We test all mechanics individually to see if it meets the requirements. Afterwards, we write down the results of the test in our engineering notebook. We keep testing for better results.

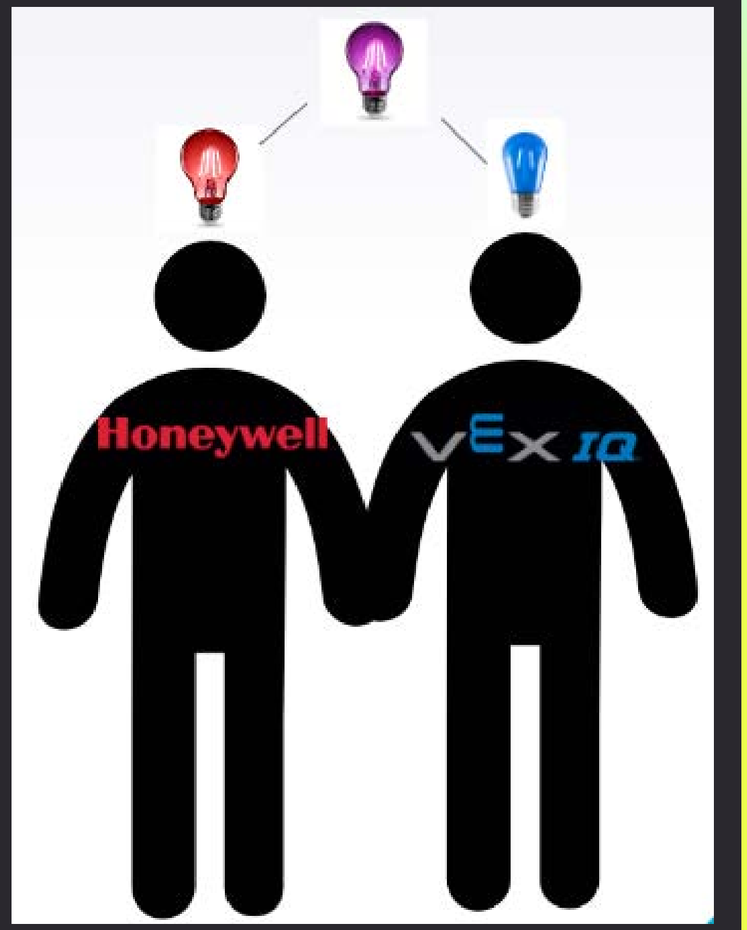
HONEYWELL

Honeywell improves and redesigns as needed. They show the product to potential users and gather their feedback. Then, they make design improvements as needed. Sometimes for a better product, and sometimes for better cost.

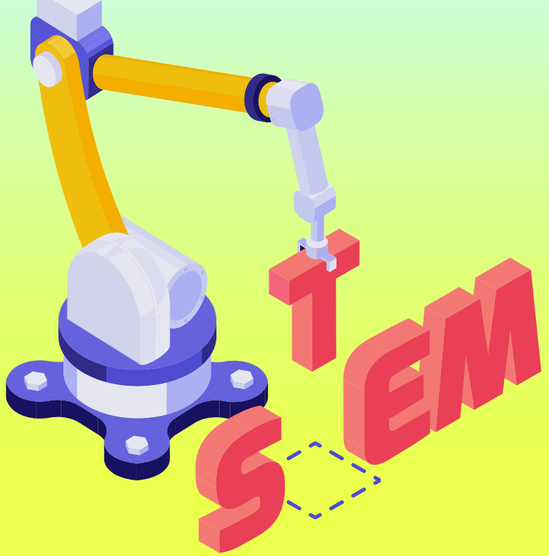


VEX IQ

After the test, we go over our results and observations. Before improving our robot, we design it in our engineering notebook. This is the most fun but also frustrating step of the EDP. The EDP repeats.



What Did We Learn From That EDP Diagram?



- The engineering design process is almost identical
- Learning EDP in Vex will prepare us for future STEM careers
- EDP process at both Honeywell and Vex involves working well with others as well as following a process

ASK

RESEARCH

IMAGINE

PLAN

CREATE

TEST

IMRPOVE

HAVE FUN!

Source: Interview with Paul D. A Honeywell Engineer

Thank you

By: 1102E