Career Readiness Online Challenge

By Team 8878B

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Hello, we are team 8878 B. We choose the career Surgeon to write about for this online challenge. We selected this career because Some of us have always been interested in biology and how the human body works, as well as other organisms. We think that our love for Biology stems from our curiosity of humanity, and our inclination to help people, who are in need of help. We love helping people.One major resource that surgeons use that incorporates the Vex Design Process is the massive amounts of surgical robots. For the sake of simplicity, We will be focusing on the Da Vinci Surgical Robot. The Da Vinci Surgical Robot definitely included the Vex Design Process, because it is a robot that needs to be capable of performing surgery with little to no error. If the Design Process was not used, we might have a janky hunk of metal with knives just cutting through people's organs and doing more harm than good. But, thanks to the excellent engineering that worked on the Da Vinci Surgical Robot, it is amazing. The Da Vinci Surgical Robot is famous for precisely peeling off the skin of a grape. This feat of robotics was achieved by using all, if not more, of the Vex Design Process. Professional Surgeons go through the Vex Design Process not very often, but people who design the robots made for helping them do. For example, The Da Vinci Surgical System was created by Intuitive Surgical Inc., a company that is dedicated to making a Surgeon's job as easy and as reliable as possible. They might use the Design Process in steps such as: **Understanding**. They understand that a surgeon's job is difficult and they are trying to make it as easy as possible. The Surgeons do not want to make mistakes. The Creators of the Da Vinci System do not want them to make mistakes either. **Ideate.** They have created many, many possible designs for this system, and multiple versions of this system are on the market today, one better than the previous. **Prototype.** They prototyped many times to get to where they are today, for if they did not, we would not be very well off with the robot we have because there might be tons of unknown errors everywhere. **Choose.** This is a tricky one, considering the fact that they have many types of the System available, each for a specific surgery. For example, one is designed for Narrow Access Surgery. One is designed for Customization and the ability to change out the instruments. Speaking of which, they have many different tools that you can use for surgery that the robot has arms that you can connect to. **Refine.** Da Vinci Surgical systems has gone through many refinements, to make sure that surgeons have the absolute best experience possible while using it. **Implement.** This Surgical system has been implemented in many hospitals, including the one my Mother works at, which I have not yet had the pleasure of seeing yet. This design process that Intuitive Surgical Inc. uses is different from the process we use on our robot, because they have to go through many more refinements and prototypes than we do, because they are creating a machine that operates on living organisms rather than just us who are playing a game for fun. They need to absolutely ensure everything is perfect because they might be responsible for a loss of life while we might lose a

silly game. Our participation in VEX might help us for this career in the future because we might understand a lot more about this robot or other robots that might help us while performing surgery, and we might be able to implement the knowledge of robots or programming, or even driving to operate the machine and possibly even save a patient's life.