5 Benefits of Robotics For Kids

Robots have been a major area of excitement for people of all ages and across all ethnicities mostly because, well, they are super cool. I mean look at them! Most of them are notorious, glorious, magnificent, and breathtaking. Terminator, Optimus Prime, and Robocop are just a few of these.

And if they're not as strong and heavily armed, they can do cool stuff like C3PO who can speak multiple alien languages or R2D2 the ball-drone that unlocks doors, hacks into systems, makes holographic video calls across the galaxy and pilots spacecrafts! And all those are only a handful of the famous robots that pretty much everybody has some memories attached to!

While in reality the field of robotics engineering is still distant from producing such technology, the advancements in the field have been extraordinary, the most famous of which is Boston Dynamic's *"Fluffy"*; the Robot Dog! The field has been around for a couple of decades as we know it today but in reality working on robots dates back to the time of Leonardo Da Vinci. Read more about this jaw dropping field of science in our article on "Robotics, The Abyss of Technology".

In this article we are going to talk about some of the countless benefits of Robotics for kids.

#1 Acquaintance With Different Fields of Engineering

In our article “Engineering, The Realm of Creators”, we have fully discussed what engineering is and have dived deeply into the major areas of this field in terms of what they do, what their courses look like, what their career prospects are and more. I highly recommend reading that one as well or at least giving it a skim read to get more familiar with the major fields of Engineering. Well you can skip this step, if you have a good sense of what engineering is or are an engineer yourself.

The truth being told, the term Robotics Engineering has been around for such a long time with a large number of definitions and even a variety of job descriptions in the market, there is still not a single set of skills that the community of engineers can solely agree upon about Robotics. There is often not one single robotics engineer in a company or project but rather, companies have to hire a number of engineers that are experts in different fields in order to run their projects. These are mostly mechanical, electrical and electronics engineers along with experts in computer sciences, programming and Artificial Intelligence (aka AI).

Taking a look at this from a nurturing perspective, a child who is just entering the field of robotics gets to experience pretty much all of the above mentioned areas. It is apparent that the project they will be working on is nothing similar to what major companies such as Boston Dynamic develops, however, they will still be designing and developing their projects on their own. Once they are past the initiations and reach to the more advanced levels, your child will be designing the mechanical body of their robot and then assemble the parts all together to make it stand in a stationary position which is kind of what a mechanical engineer would do in any project.

They will then have to design a control system for their project which is among the duties of an electrical engineer, then put it in the form of code, which is basically the language of computers, to make it work with their robot. In some cases they also design their own electronic boards as well.

This is just a brief example of how taking robotics lessons can help your child with experimenting all the areas of engineering.

#2 Boosting Teamwork Skills

As mentioned earlier, robotics is not a field of work that can be done alone. There are quite a lot of one-man armies out there who try to take care of everything but

that path is often very exhausting and time consuming as one person has to do all the work instead of a number of people working parallely.

By stepping foot into the fields of robotics, your child starts to get a tangible feeling of not only why teamwork is crucial, but also learns the ups and downs and the Dos and Don'ts of it. They will take this valuable skill not by someone actually teaching them (which is often twisted with some form of enforcing laws), but rather by picking it up by themselves throughout their journey.

They will also learn how they should put aside their differences and avoid conflicts in order to work toward achieving a common goal. For example, despite their opinions on how their firefighting robot could look in terms of aesthetics, they will choose to select the one that is most efficient in performance as they must be producing their design in order to win a certain competition.

They will also develop a strong sense of crisis management as well. With more basic robotic projects, there are so many things that can go wrong pretty much everywhere. The most popular area for things to go downhill is the electronics. There are so many times that a basic robot, say a line follower, works perfectly fine the night before its big day and then the next morning (boom!), it stops working right before its turn has arrived to compete. This can often turn into a disaster and become a very stressful situation. By developing a sense of crisis management, children will learn to control their emotions and think more rationally during such times and make the right decision.

Having said that, robotics can be a catalyst in helping the child to develop a very effective sense of cooperation that will be moulded into their character as they grow up and will feel natural to them in the future when they enter the job market and have to work with a bunch of new people they have never met.

#3 Brings STEM To Life

This one may feel kind of duplicated provided we have already established how children will be coming into contact with a wide variety of engineering disciplines, however it is not! Previously we only covered the engineering area of robotics while there is so much more that's out there in the field. Allow me to elaborate where STEM comes into play.

Let's face the truth here, school is not always fun especially when you are spending countless hours over and over again forcefully learning what seems to be obsolete and useless in your future. Especially math! In one article posted in Geniusmath, they have deeply discussed how this can easily escalate into an extremely frustrating situation for the student which will lead to a dramatic drop in their self-esteem. Head over to their website and read the article "6 Signs Your Child Needs a Private Math Tutor" to learn more.

Chemistry, IT and physics don't stay behind the curtains either. Soon they will start to feel unnecessarily difficult while their applications are left unknown.

As already established, robotics is a multidisciplinary field of work. This is not limited to the circle of physics and mathematics though. Let's elaborate this with an example. Think of a thermite robot which is most commonly known as the firefighter robot. While designing one requires extensive activities in the field of engineering, there is also quite a lot of chemistry involved in the project too.

The people behind the project must carry out a large number of experiments in order to find the most suitable extinguishing substance that best suits their project. They will have to put IT and electronics together in order to dictate what the robot has to do when facing a variety of situations.

This is how robotics will turn all the tedious subjects that your child has to wrestle with everyday into fun by driving the workflow towards the practical applications of their subjects rather than keeping everything in the realms of theory.

#4 Robotics Is The New Thing of The Future

Have you noticed this thing with all robot movies they're all kind of in a time that is beyond our reach, past or future, that is filled with extraordinary technological advancements. The terminator was literally a guardian robot that came from a time well beyond Sara and John Connor's. Or the robots from Star wars, and I'm not talking about a specific one but rather about all of them entirely, whether the ball drones or the fighter robots or even the aircrafts belong to a time I'm of much more significant advancements than we are at right now. And even if they are from our time, they come from different galaxies and planets such as the mighty Transformers!

Many psychologists believe that technological fiction is where humans subconsciously, or consciously, want to be in the future. Does this ring a bell? Well it should! This is evidence proving that robotics is going to be the next big thing of the future. It has even become an independent university major in quite a few countries such as Japan, Iran and China. This means that a lot of countries are starting to redirect their perspective from robotics being an interdisciplinary field to an area of its own.

But that's not just it. As we have previously discussed robotics is not just the science of creating line followers, firefighters or supervillain machines that are to serve the Earth and suddenly out of nowhere decide to take all over it but rather, it is the knowledge where mechanics and electrical engineering are married together to produce automated tools and devices.

Take your garage door as an example. If you can make your garage door open and close using a remote controller, a bunch of censors and a tiny programmer, you are technically working in the field of robotics engineering! It can be that simple.

Pretty much all the manufacturers and factories that are out there are somehow in need of a robotics engineer to develop, manage, run and repair their machinery. The manufacturers who create these machinery will also be in huge need of robotics experts for designing their products which are often customized depending on the needs of their clients.

This one deserves an article of its own but I think you got the idea of why robotics is the thing of the future. Now let's move to the next one!

#5 Nurtures Critical Thinking Abilities

Today, critical thinking has become a critical part of even the most basic and simple jobs. In order to achieve a better understanding of this matter, we are going to have to start from a common ground which is the most basic definition of critical thinking. Basically, critical thinking is the ability of making difficult decisions and solving nigh uncommon problems using creativity, the data and the tools at hand.

The problems we are talking about at this point are the ones you cannot Google in order to find an answer for. Having said that it must now be a parent that how critical thinking is important when it comes to dealing with real word jobs and colleagues. After all, ordinary people who solve ordinary problems are most likely to find ordinary jobs and make ordinary money.

Now having come this far in this article and having read all the previous ones about robotics, you must now have a significant amount of awareness about the fields of robotics and specifically how things can suddenly go wrong. As mentioned in benefit number two, crisis management will play a key role in such times but without critical thinking how far do you think that crisis management is going to take you? The truth being told, critical thinking and crisis management are like two hands when clapping; having one skill without having the other one is not going to be very fruitful if fruitful at all!

Robotics helps your child cognitively figure out the major areas and key concepts of critical thinking all by themselves, at their own pace and in their own way and then later, develop them in a way that is %100 customized according to their character type and personality.

Every robot or mechanical thing that is created is unique in their own ways. One person may be creating two very simple line follower robots and, as much as they try to keep all the variables constant, still end up with two different results. What this means is that while there are a lot of standard issues that may happen, a large number of the problems that are likely to surface are not things that commonly happen or have standard solutions already created for them.

This is the time when critical thinking comes into play. At this point your child starts to sharpen their abilities in coming up with creative and efficient solutions which will immediately meet the needs of the project.

Where to Next?

After going through all the benefits robotics engineering would have for your child, the next step you are likely to take is trying to figure out how you are going to get to the right place to begin this journey. Well this is it.

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