We4
Change

Girls and Women Connecting
for Environmental Change

We4Change: Girls and Women Connecting for Environmental Change

We4Change Changemakers Event Curriculum

Trainer instructions for the workshop
An intro to 3D printing and creating your own 3D printable object

Contents

Introduction

Three-dimensional (3D) printing, also known as additive manufacturing, is a technology that allows the creation of physical objects from digital models. It is a revolutionary technology that has transformed various industries by enabling faster and more efficient production of complex designs with intricate details. This essay will discuss the significance of 3D printing technology and why it is essential to possess the necessary skills in this field.

One of the significant advantages of 3D printing is its versatility, as it can be used in various industries, including aerospace, automotive, medical, and fashion. In the aerospace industry, 3D printing has enabled the production of lightweight and complex designs that were previously impossible to create with traditional manufacturing methods. The automotive industry has also benefited from 3D printing, as it enables the production of customized parts for different models. In the medical industry, 3D printing has enabled the production of prosthetics and implants, which are customized to fit each patient's unique anatomy. Additionally, in the fashion industry, 3D printing has enabled designers to create unique designs with intricate details that were not possible with traditional manufacturing methods.

Another significant advantage of 3D printing is the cost-effectiveness and speed of production. With traditional manufacturing methods, creating a prototype can take weeks or even months, and it is often expensive. However, with 3D printing, a prototype can be created within hours or days, and at a lower cost. This allows for faster product development and testing, which can save companies a significant amount of time and money.

Having the necessary skills in 3D printing technology is crucial in today's job market, as it is a growing industry with increasing demand for skilled professionals. The skills required in this sector include knowledge of 3D design software, 3D printing technology, and the ability to troubleshoot technical problems. Individuals with these skills can find employment in various industries, including engineering, product design, and research and development.

About the workshop

This workshop introduces participants to the 3D printing sector, showing what additive manufacturing is, what are its benefits and potential for the future of

manufacturing. The exercise proposed by this workshop will teach participants how to design printable objects by having them make a 3D model of a keychain in the shape of the We4Change logo in Tinkercad. This will allow them to understand the main elements of 3D design and how to best design object for themselves with 3D modeling programs.

Learning objectives:

➢ Students will get an understanding of 3D printing, how it can push the production industry forward and the positive effects for the planet.
➢ Students will be able to navigate a 3D modeling program and create their very own printable objects.

Set-up instructions:

➢ A workshop room
➢ A good internet connection (WiFi)
➢ Access to a computer
➢ An account on Tinkercad (https://www.tinkercad.com)

Engage the students

Engaging students in a workshop teaching them 3D design is crucial to help them understand the concepts and develop the necessary skills. Here are some tips to engage students in a 3D design workshop:

- Make it Interactive: Instead of just lecturing on the concepts, create interactive activities that allow students to apply what they have learned. For example, give them a task to design a simple object and have them work in groups to come up with different solutions.

- Use Relevant Examples: Use real-world examples to show students the practical applications of 3D design. This will help them understand the relevance of the skills they are learning and give them motivation to continue learning.

- Demonstrate the Process: Show students the entire process of 3D design from start to finish. This will give them an idea of what to expect and make them more confident in their abilities.

- Provide Feedback: Provide feedback on the students' work, both positive and constructive. This will help them improve and feel more confident in their abilities.

- Use Visual Aids: Use visuals aids, such as images and videos to help students understand the concepts better. This will make the workshop more engaging and memorable.

- Provide Resources: Provide students with resources, such as tutorials, videos, and templates, that they can refer to after the workshop. This will help them continue learning and improving their skills.