

## **Biz3D: Creative Entrepreneurship & 3D Printing**

### ***Build your 21<sup>st</sup> century business***

#### **Introduction**

Biz3D was originally developed by Youngstown Business Incubator (YBI), Youngstown State University's STEM College and YSU's Ohio Youth Entrepreneurship Program with support from America Makes, the Federal laboratory for additive (3D) manufacturing which is also located in Youngstown. INVENTORcloud Program, a comprehensive design-thinking program that incorporates problem-based learning, standards-aligned curriculum and Maker Space resources with entrepreneurial mindset, is proud to collaborate with YBI to bring Biz3D to students nationwide.

#### **Appropriate for Grades**

7<sup>th</sup> – 12<sup>th</sup>

#### **Use Scenarios**

- Enrichment program in after-school settings, at school or informal learning sites
- Incorporate into a broad range of content areas such as ELA and social studies as well as elective courses such as engineering and business.

#### **Overview**

Biz3D emphasizes the 3D printing and design process and provides opportunities for students to demonstrate the 21st century skills of teamwork, collaboration, critical thinking and creativity. These skills and competencies will benefit the students regardless of their career aspirations. Students also learn entrepreneurial mindset domains such as initiative and self-reliance, planning for and considering the future, recognizing opportunity, problem solving and comfort with risk.

The students will:

- “Form” their own business.
- Brainstorm a new product or an innovation of an existing product.
- Design and/or build the item using 3D design and printing resources.
- Create the supporting business plan and pitch.



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## **Objectives**

- Students will learn basic computer-aided drafting skills and will learn how to use a fused filament material (FFM) 3D printer.
- Students will be introduced to 3D printing, including:
  - Use of 3D printing in various industries.
  - Different types of 3D printing processes and the materials which may be used.
  - Business, educational and career implications of this emerging technology.
  - Necessary skills needed for 3D printing and design.
- Students will learn about entrepreneurship, including:
  - Importance of entrepreneurial thinking.
  - How to collaborate, problem-solve and brainstorm a business idea.
  - Elements of a business plan.
  - Develop a pitch and business plan presentation

## **Structure**

Eighteen (18) one-hour lessons with instructional content, supplemental PowerPoint, videos, and business plan outline. It is a highly experiential program, with several hands-on activities, learning and designing in CAD program (instructor's choice), brainstorming, design and producing an item around which the student teams will develop a business plan.

## **Standards**

- Common Core State Standards for English/Language Arts
- International Standards for Technology Education (ISTE)
- Ohio Department of Education's K-12 Entrepreneurship Standards

## **Interested?**

INVENTORcloud Program is supporting Biz3D by providing professional development, access to all instructional materials, support for 3D printing and instruction in computer aided design (CAD), if necessary. Please contact Julie Michael Smith at [biz3d@inventorcloud.net](mailto:biz3d@inventorcloud.net) for more information.