Lesson 4 – Designing for Production

Lesson Focus
This lesson will introduce students to computer-assisted designing (CAD). Students will work individually to innovate and design a new quadcopter drone hardware part, utilizing CAD and 3D printing.

Lesson Synopsis
Students will utilize a form of AutoDesk programming, TinkerCAD to learn the basics of 3D designing. Students will innovate an existing part on their drone or design a new part for their quadcopter drone, utilizing the program.

Objectives
During this lesson, students will:
- Apply the engineering design process, using the Design Brief, to design a 3D part for their quadcopter drone.
- Design, print, test, and redesign a quadcopter drone 3D prototype.

Anticipated Learner Outcomes
As a result of this activity, students will have:
- Applied the engineering design process, using the Design Brief, to design and build a 3D part for their quadcopter drone.
- Designed, tested, and redesign a quadcopter drone 3D prototype.

Lesson Activities
Students will write a design brief for a fictional client and design one part for the clients’ quadcopter drone.

Students will use TinkerCAD to design the part and a 3D printer to print the part for testing.

Resources / Materials
- Teacher Resource Documents (attached)
- Student Worksheets (attached)
- Student Resource Sheets (attached)

Alignment to Curriculum Frameworks
See attached curriculum alignment sheet.

Lesson created by Anne Lopez / Eastside Middle School STEM Teacher