

Lawn Aerator

Content Area: **21st Century Life & Careers**
Course(s): **Generic Course**
Time Period: **Marking Period 3**
Length: **4 Weeks**
Status: **Published**

Unit Introduction

Standards

9.3.12.AC.1	Use vocabulary, symbols and formulas common to architecture and construction.
9.3.12.AC-CST.9	Safely use and maintain appropriate tools, machinery, equipment and resources to accomplish construction project goals.
9.3.12.AC-DES.6	Apply the techniques and skills of modern drafting, design, engineering and construction to projects.
ARCH.9-12.9.4.12.B.(1).1	Demonstrate communication skills and strategies that are used to work effectively with potential clients and others.
ARCH.9-12.9.4.12.B.(1).9	Develop technical drawings drafted by hand and computer-generated plans to design structures.
ARCH.9-12.9.4.12.B.(1).10	Demonstrate understanding of principles, conventions, standards, applications, and restrictions pertaining to the manufacture and use of construction materials, components, and assemblies, and incorporate this understanding into project design.
ARCH.9-12.9.4.12.B.(1).11	Apply basic organizational, spatial, structural, and constructional principles to the design of interior and exterior space so that design plans are effective.
ARCH.9-12.9.4.12.B.18	Employ critical thinking skills (e.g., analyze, synthesize, and evaluate) independently and in teams to solve problems and make decisions.
ARCH.9-12.9.4.12.B.22	Create and implement project plans to accomplish realistic planning in design and construction situations, considering available resources and requirements of a project/problem.
ARCH.9-12.9.4.12.B.26	Operate Internet applications to perform tasks.
ARCH.9-12.9.4.12.B.61	Demonstrate skills related to seeking and applying for employment in a desired job.
ARCH.9-12.9.4.12.B.62	Maintain a career portfolio to document knowledge, skills, and experience in a career field.
ARCH.9-12.9.4.12.B.74	Read, interpret, and use technical drawings, documents, and specifications to plan a project.
STEM.9-12.9.4.12.O.(1).1	Apply the concepts, processes, guiding principles, and standards of school mathematics to solve science, technology, engineering, and mathematics problems.
STEM.9-12.9.4.12.O.(1).9	Employ concepts and processes for the application of technology to engineering.
STEM.9-12.9.4.12.O.2	Demonstrate mathematics knowledge and skills required to pursue the full range of postsecondary education and career opportunities.
STEM.9-12.9.4.12.O.48	Employ teamwork skills to achieve collective goals and use team members' talents effectively.

Essential Questions

1. What can we learn by solving this problem?
2. How does/can an aerator work?
3. What factors can/will influence design/solution?
4. How do you know if you have successfully solved the problem?

Content / Skills

Students will research/develop a new type of lawn aerating device and produce a set of working drawings, a model and presentation/advertisement for the product.

Textbooks:

Basic Technical Drawing - Spencer, Dygdon, Novak, 8th edition, 2004

Engineering Drawing & Design - D.A. Madsen, D.P. Madsen, 6th edition, 2017

Skills: See Below

- brainstorming/modelstorming
- craftsmanship
- design process
- dimensioning
- drawing pictorials/3D
- Interpreting Orthographic views
- Layout
- math operations
- measurement
- mechanical drawing
- Plotting Drawings to Scale
- safety
- sectioning
- teamwork
- using CAD
- visualization

