



Dublin City Schools
STEAM
Graded Course of Study
2022

DCS STEAM Vision

Dublin City Schools is committed to providing purposeful STEAM learning experiences to students throughout their K-12 journey. These experiences will be in the form of integrated, interdisciplinary experiences as well as focused pathways in the areas of STEAM.

We commit to transforming STEAM into more than the integration of Science, Technology, Engineering, and Mathematics with vision to expand ownership to all disciplines and grade levels. By creating a culture of thinking, curiosity and creativity across content, students will engage in interest based learning that will help them develop the attitudes and skills that will support them in a variety of career and life pathways. These learning experiences will support students as lifelong, adaptable learners who can thrive in a quickly changing world.

We believe in STEAM learning for all students and commit to creating equitable access so that our STEAM classrooms are representative of our school populations and communities.

Instructional Agreements:

- We recognize the importance of early access and exposure to STEAM learning.
- We prioritize learning where students will identify and solve open-ended problems and engage in experiential learning.
- We will engage students through a lens of design thinking and promote opportunities for PBL.
- We will provide students with industry connections and experiences.
- We prioritize educating the whole child, in addition to our content. This includes a commitment to employability skills and emotional intelligence.
- We value students seeing themselves in STEAM fields.

Architectural Design and Modeling - High School

Architectural Design and Modeling Course Goals:

Students will study the basic architectural drawing techniques of building design. Students will examine and execute plans for basic construction and service systems. Three-dimensional modeling will allow students to assess the validity and appropriateness of their designs.

Safety		
Strand	Topic	Content Statement
Equipment Safety	Tools and Habits	Develop safe workshop habits using power tools and hand tools.

Digital Architectural Design Tools and Applications		
Strand	Topic	Content Statement
Information and Communications Technology (OH Tech) The understanding and application of digital learning tools for accessing, creating, evaluating, applying and communicating ideas and information.	1. Identify and use appropriate digital learning tools and resources to accomplish a defined task.	9-12.ICT.1.a Develop strategies for using digital learning tools and resources to plan, implement and reflect upon a complex task. 9-12.ICT.1.b Based on project-specific requirements, develop criteria to select digital learning tools and resources to support the concurrent management of multiple projects. 9-12.ICT.1.c Analyze and evaluate the ease of use and effectiveness of available features of selected digital learning

Custom Architectural Design

Strand	Topic	Content Statement
<p>Design and Technology (OH Tech) Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.</p>	<p>4. Evaluate designs using functional, aesthetic and creative elements.</p>	<p>9-12.DT.4.a Evaluate project/product solutions and communicate observations of the entire design process results.</p> <p>9-12.DT.4.b Interpret data/information related to product testing to determine revisions and modifications to a design's function and aesthetics.</p> <p>9-12.DT.4.c Critically evaluate a design solution at multiple points of a design process. Consider design requirements and adjust processes and outcomes as needed.</p>

Project and Portfolio Development

Strand	Topic	Content Statement
<p>Design and Technology (OH Tech) Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.</p>	<p>2. Identify a problem and use an engineering design process to solve the problem.</p>	<p>9-12.DT.2.b Implement, document and present a design process as applied to a particular product, process or problem.</p>

Scale Model Build Techniques

Strand	Topic	Content Statement
Design and Technology (OH Tech) Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.	2. Identify a problem and use an engineering design process to solve the problem.	9-12.DT.2.a Evaluate a design solution using conceptual, physical, digital and mathematical models at various intervals of a design process in order to check for proper design and note areas where improvements are needed (e.g., check the design solutions against criteria and constraints). 9-12.DT.2.b Implement, document and present a design process as applied to a particular product, process or problem.
	4. Evaluate designs using functional, aesthetic and creative elements.	9-12.DT.4.a Evaluate project/product solutions and communicate observations of the entire design process results. 9-12.DT.4.b Interpret data/information related to product testing to determine revisions and modifications to a design's function and aesthetics. 9-12.DT.4.c Critically evaluate a design solution at multiple points of a design process. Consider design requirements and adjust processes and outcomes as needed. 9-12.DT.4.d Explain the interrelationship between technology, creativity and innovation.

Custom Architectural Design

Strand	Topic	Content Statement
Design and Technology (OH Tech) Addresses the nature	4. Evaluate designs using functional, aesthetic and creative elements.	9-12.DT.4.a Evaluate project/product solutions and communicate observations of the entire design process results. 9-12.DT.4.b Interpret data/information related to product testing to

<p>of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.</p>		<p>determine revisions and modifications to a design's function and aesthetics.</p> <p>9-12.DT.4.c Critically evaluate a design solution at multiple points of a design process. Consider design requirements and adjust processes and outcomes as needed.</p>
---	--	--

Digital Portfolio Development		
Strand	Topic	Content Statement
<p>Information and Communications Technology (OH Tech) The understanding and application of digital learning tools for accessing, creating, evaluating, applying and communicating ideas and information.</p>	<p>4. Use digital learning tools and resources to communicate and disseminate information to multiple audiences.</p>	<p>9-12.ICT.4.a Use digital learning tools and resources to identify communication needs considering goals, audience, content, access to tools or devices, timing of communication (e.g., time zones), etc.</p> <p>9-12.ICT.4.b Based on communication needs, develop, implement and evaluate a communication plan to disseminate information to multiple audiences.</p> <p>9-12.ICT.4.c Integrate accessibility principles to effectively communicate to, and meet the needs of, multiple audiences.</p> <p>9-12.ICT.4.d Use digital learning tools to represent and model complex systems of information to a target audience.</p>

Design Portfolio		
Strand	Topic	Content Statement
<p>Information and Communications</p>	<p>3. Use digital learning tools and resources to construct</p>	<p>9-12.ICT.3.c Create artifacts using digital learning tools and resources to demonstrate knowledge.</p>

<p>Technology (OH Tech) The understanding and application of digital learning tools for accessing, creating, evaluating, applying and communicating ideas and information.</p>	<p>knowledge.</p>	
<p>Design and Technology (OH Tech) Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.</p>	<p>2. Identify a problem and use an engineering design process to solve the problem.</p>	<p>9-12.DT.2.b Implement, document and present a design process as applied to a particular product, process or problem.</p>
	<p>4. Use digital learning tools and resources to communicate and disseminate information to multiple audiences.</p>	<p>9-12.DT.4.a Evaluate project/product solutions and communicate observations of the entire design process results.</p>