Nutley Public Schools

Residential Architecture

Grades: 10-12

Unit 1: Floor Plan	
Summary and Rationale	
In architecture and building engineering, a floor plan is a drawing to scale, showing a view from above, of the relationships between rooms, spaces and other physical features at one level of a structure. Dimensions are usually drawn between the walls to specify room sizes and wall lengths. Floor plans may also include details of fixtures like sinks, water heaters, furnaces, etc. Floor plans may include notes for construction to specify finishes, construction methods, or symbols for electrical items.	
Recommended Pacing	
7 weeks	
Standards	
Career and Technical Education 9.3	
9.3.12.AC.1	Use vocabulary, symbols and formulas common to architecture and construction.
9.3.12.AC.2	Use architecture and construction skills to create and manage a project.
9.3.12.AC.3	Comply with regulations and applicable codes to establish and manage a legal and safe workplace.
9.3.12.AC.4	Evaluate the nature and scope of the Architecture & Construction Career Cluster and the role of architecture and construction in society and the economy.
9.3.12.AC.5	Describe the roles, responsibilities, and relationships found in the architecture and construction trades and professions, including labor/management relationships.
9.3.12.AC.6	Read, interpret and use technical drawings, documents and specifications to plan a project.
9.3.12.AC-CST.1	Describe contractual relationships between all parties involved in the building process.
9.3.12.AC-CST.2	Describe the approval procedures required for successful completion of a construction project.
9.3.12.AC-CST.3	Implement testing and inspection procedures to ensure successful completion of a construction project.
9.3.12.AC-CST.4	Apply scheduling practices to ensure the successful completion of a construction project.
9.3.12.AC-CST.6	Manage relationships with internal and external parties to successfully complete construction projects.
9.3.12.AC-CST.7	Compare and contrast the building systems and components required for a construction project.
9.3.12.AC-CST.8	Demonstrate the construction crafts required for each phase of a construction project.
9.3.12.AC-DES.1	Justify design solutions through the use of research documentation and analysis of data.
9.3.12.AC-DES.2	Use effective communication skills and strategies (listening, speaking, reading, writing and graphic communications) to work with clients and colleagues.
9.3.12.AC-DES.4	Apply building codes, laws and rules in the project design.
9.3.12.AC-DES.5	Identify the diversity of needs, values and social patterns in project design, including accessibility standards.
9.3.12.AC-DES.6	Apply the techniques and skills of modern drafting, design, engineering and construction to projects.

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9.3.12.AC-DES.7	Employ appropriate representational media to communicate concepts and project design.
9.3.ST-ET.3	Apply processes and concepts for the use of technological tools in STEM.
9.3.ST-ET.4	Apply the elements of the design process.
9.3.ST-SM.2	Apply science and mathematics concepts to the development of plans, processes and projects that address real world problems.
Career Ready Practices	
CRP1.	Act as a responsible and contributing citizen and employee.
CRP2.	Apply appropriate academic and technical skills.
CRP4.	Communicate clearly and effectively and with reason.
CRP5.	Consider the environmental, social and economic impacts of decisions.
CRP6.	Demonstrate creativity and innovation.
CRP7.	Employ valid and reliable research strategies.
CRP8.	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP10.	Plan education and career paths aligned to personal goals.
CRP11.	Use technology to enhance productivity.
CRP12.	Work productively in teams while using cultural global competence.
Interdisciplinary Connections	
Standard x.x	
Integration of Technology	
Standard x.x	
CPI #	Cumulative Progress Indicator (CPI)

Instructional Focus

Enduring Understandings

- The general design of a structure is interpreted through several basic architectural plans.
- In choosing a house style to design, architects must consider the geographic location and the surrounding environment.
- The design process is an ever evolving process where an end point is determined only when you stop working.
- There is no one right answer to a design problem.
- Architects require specialized training and licenses by their state.

Essential Questions

- How do we correctly read a set of architectural floor plans?
- What are the legal documents required by the building process?
- What are the building standards for wood frame construction?
- What drafting concepts are needed for effective communication?
- Why is the ability to measure accurately essential in the construction trades?
- What are some considerations that should be made when designing room arrangements?
- Is it more important for a design to be functional or aesthetic?

Evidence of Learning (Assessments)

Nutley Public Schools

Successful completion of:
Capstone project (First Floor Plan w/dimensions, Window/Door Schedule)

Objectives

Students will know:

- and identify room requirements for Bed, Bath, Kitchen, Foyer, Living, Dining, Family, Garage and additional rooms according to BOCA Code requirements
- BOCA Codes relative to room sizes and requirements
- interior/exterior wall thicknesses
- interior/exterior door sizes
- nominal size vs actual size of building materials
- closet sizes
- types of interior doors (single, french, bi-fold, accordion, sliding, pocket)
- room dimensioning
- square footage calculation
- how to research window and door sizes
- proper locations for doors and windows
- how to self evaluate
- how to appropriately manage time

Students will be able to:

- utilize AutoCAD to complete a floor plan
- draft floor plan for single floor residence
- label rooms with appropriate room sizes
- dimension exterior walls
- dimension and locate windows, doors and interior walls
- research window/door distributors
- compile window and door schedule for residence
- label windows and doors according to schedule
- complete a rubric
- follow procedural calendar to stay on task and track their progress

Integration

Technology Integration

Writing Integration

Competencies

Suggested Resources

Nutley Public Schools

Residential Architecture

Grade: 10-12

Unit 2: Foundation Plan	
Summary and Rationale	
Each and every structure requires a foundation. The primary utility of a foundation is to provide a level and consistently distribute support to the structure. A foundation plan is a sketch of the baseline of the entire structure. It represents the view of the structure to show the design and how contractors anticipate building it. The foundation should be strong enough to sustain and dispense the load of the structure and be adequately leveled to avert walls from cracking and the doors and windows from sticking. The other use of foundation is to prevent cold or warm air and dampness from entering the structure from beneath. The footing is that part of the structure which allocates the weight of the structure over a large area. The footing is typically made from concrete so that it can endure heavy weights.	
Recommended Pacing	
8 weeks	
Standards	
Career and Technical Education 9.3	
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9.3.12.AC.2	Use architecture and construction skills to create and manage a project.
9.3.12.AC.3	Comply with regulations and applicable codes to establish and manage a legal and safe workplace.
9.3.12.AC.4	Evaluate the nature and scope of the Architecture & Construction Career Cluster and the role of architecture and construction in society and the economy.
9.3.12.AC.5	Describe the roles, responsibilities, and relationships found in the architecture and construction trades and professions, including labor/management relationships.
9.3.12.AC.6	Read, interpret and use technical drawings, documents and specifications to plan a project.
9.3.12.AC-CST.1	Describe contractual relationships between all parties involved in the building process.
9.3.12.AC-CST.2	Describe the approval procedures required for successful completion of a construction project.
9.3.12.AC-CST.3	Implement testing and inspection procedures to ensure successful completion of a construction project.
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9.3.12.AC-CST.6	Manage relationships with internal and external parties to successfully complete construction projects.
9.3.12.AC-CST.7	Compare and contrast the building systems and components required for a construction project.
9.3.12.AC-CST.8	Demonstrate the construction crafts required for each phase of a construction project.
9.3.12.AC-DES.1	Justify design solutions through the use of research documentation and analysis of data.
9.3.12.AC-DES.2	Use effective communication skills and strategies (listening, speaking, reading, writing and graphic communications) to work with clients and colleagues.
9.3.12.AC-DES.4	Apply building codes, laws and rules in the project design.

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9.3.12.AC-DES.5	Identify the diversity of needs, values and social patterns in project design, including accessibility standards.
9.3.12.AC-DES.6	Apply the techniques and skills of modern drafting, design, engineering and construction to projects.
9.3.12.AC-DES.7	Employ appropriate representational media to communicate concepts and project design.
9.3.ST-ET.3	Apply processes and concepts for the use of technological tools in STEM.
9.3.ST-ET.4	Apply the elements of the design process.
9.3.ST-SM.2	Apply science and mathematics concepts to the development of plans, processes and projects that address real world problems.
Career Ready Practices	
CRP1.	Act as a responsible and contributing citizen and employee.
CRP2.	Apply appropriate academic and technical skills.
CRP4.	Communicate clearly and effectively and with reason.
CRP5.	Consider the environmental, social and economic impacts of decisions.
CRP6.	Demonstrate creativity and innovation.
CRP7.	Employ valid and reliable research strategies.
CRP8.	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP10.	Plan education and career paths aligned to personal goals.
CRP11.	Use technology to enhance productivity.
CRP12.	Work productively in teams while using cultural global competence.
Interdisciplinary Connections	
Standard x.x	
Integration of Technology	
Standard x.x	
CPI #	Cumulative Progress Indicator (CPI)

Instructional Focus

Enduring Understandings

- In choosing a house style to design, architects must consider the geographic location and the surrounding environment.
- The foundation plan is as important to be considered at the same time as the shape of the rest of the house.
- Foundations have to be structurally sufficient to carry the entire load of the house.
- You need to think of the future needs for space in your home so you can determine the height of the foundation/basement.

Essential Questions

- Why should you consider the foundation when designing the rest of the house?
- What are the ideal parameters for a foundation?
- What sort of ways could you use the foundation/basement for?

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Evidence of Learning (Assessments)
Successful completion of: ● Foundation Labeling Quiz ● Stair Labeling Quiz ● Capstone project (Foundation Plan, Stair Plan)
Objectives
Students will know: ● the 4 major types of of foundations: slab, crawl space, full height, and pier/column ● the relationship between excavated vs unexcavated land, and when the are used ● the proper sizes and minimum depth for foundation footings ● the difference and application of load bearing vs. non-load bearing walls ● factors that increase the strentgh of a structural member: size, material, shape ● the proper sizing, spacing, spanning, and location of structural members: Lally Columns, Girders, Floor Joists, Rim Joists, Sill plates, Sub-floor, and various finished floor types (hardwood, tile, carpet, etc.) ● the anatomy of stairs: Header, Stringer, Riser, Treads, Landing, Bullnose ● calculating stair treads and risers ● the relationship between tread and riser proportions and importance of tolerance ● how to self evaluate ● how to appropriately manage time Students will be able to: ● identify load bearing and non-load bearing walls in a structural plan ● draw, label and dimension foundation plan for main dwelling area and garage area-- structural plan [footings, lally columns, foundation wall, girder, sill plate, joists, sub-floor, finished floor] ● draw, label and dimension fireplace structure -- footings ● draw, label and dimension stair plan-- Header, Stringer, Riser, Treads, Landing, Bullnose ● complete a rubric ● follow procedural calendar to stay on task and track their progress
Integration
Technology Integration
Writing Integration
Competencies
Suggested Resources

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Residential Architecture

Grade: 10-12

Unit 3: Electrical Plan

Summary and Rationale

An electrical drawing, is a type of technical drawing that shows information about power, lighting, and communication for an engineering or architectural project. Any electrical working drawing consists of "lines, symbols, dimensions, and notations to accurately convey an engineering's design to the workers, who install the electrical system on the job".
A complete set of working drawings for the average electrical system in large projects usually consists of a plot plan showing the building's location and outside electrical wiring, and floor plans showing the location of electrical systems on every floor.

Recommended Pacing

8 weeks

Standards

Career and Technical Education 9.3	
9.3.12.AC.1	Use vocabulary, symbols and formulas common to architecture and construction.
9.3.12.AC.2	Use architecture and construction skills to create and manage a project.
9.3.12.AC.3	Comply with regulations and applicable codes to establish and manage a legal and safe workplace.
9.3.12.AC.4	Evaluate the nature and scope of the Architecture & Construction Career Cluster and the role of architecture and construction in society and the economy.
9.3.12.AC.5	Describe the roles, responsibilities, and relationships found in the architecture and construction trades and professions, including labor/management relationships.
9.3.12.AC.6	Read, interpret and use technical drawings, documents and specifications to plan a project.
9.3.12.AC-CST.1	Describe contractual relationships between all parties involved in the building process.
9.3.12.AC-CST.2	Describe the approval procedures required for successful completion of a construction project.
9.3.12.AC-CST.3	Implement testing and inspection procedures to ensure successful completion of a construction project.
9.3.12.AC-CST.4	Apply scheduling practices to ensure the successful completion of a construction project.
9.3.12.AC-CST.6	Manage relationships with internal and external parties to successfully complete construction projects.
9.3.12.AC-CST.7	Compare and contrast the building systems and components required for a construction project.
9.3.12.AC-CST.8	Demonstrate the construction crafts required for each phase of a construction project.
9.3.12.AC-DES.1	Justify design solutions through the use of research documentation and analysis of data.
9.3.12.AC-DES.2	Use effective communication skills and strategies (listening, speaking, reading, writing and graphic communications) to work with clients and colleagues.
9.3.12.AC-DES.4	Apply building codes, laws and rules in the project design.
9.3.12.AC-DES.5	Identify the diversity of needs, values and social patterns in project design, including accessibility standards.
9.3.12.AC-DES.6	Apply the techniques and skills of modern drafting, design, engineering and construction to

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	projects.
9.3.12.AC-DES.7	Employ appropriate representational media to communicate concepts and project design.
9.3.ST-ET.3	Apply processes and concepts for the use of technological tools in STEM.
9.3.ST-ET.4	Apply the elements of the design process.
9.3.ST-SM.2	Apply science and mathematics concepts to the development of plans, processes and projects that address real world problems.
Career Ready Practices	
CRP1.	Act as a responsible and contributing citizen and employee.
CRP2.	Apply appropriate academic and technical skills.
CRP4.	Communicate clearly and effectively and with reason.
CRP5.	Consider the environmental, social and economic impacts of decisions.
CRP6.	Demonstrate creativity and innovation.
CRP7.	Employ valid and reliable research strategies.
CRP8.	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP10.	Plan education and career paths aligned to personal goals.
CRP11.	Use technology to enhance productivity.
CRP12.	Work productively in teams while using cultural global competence.
Interdisciplinary Connections	
Standard x.x	
Integration of Technology	
Standard x.x	
CPI #	Cumulative Progress Indicator (CPI)

Instructional Focus

Enduring Understandings

- The general design of a structure is interpreted through several basic architectural plans.
- The design process is an ever evolving process where an end point is determined only when you stop working.
- There is no one right answer to a design problem.
- Architects require specialized training and licenses by their state.

Essential Questions

- How do traffic patterns affect the placement of light switches and receptacles?
- How do we correctly read a set of electrcial plans?
- What are the legal documents required by the building process?
- What drafting concepts are needed for effective communication?
- Why is the ability to measure accurately essential in the construction trades?

Evidence of Learning (Assessments)

Successful completion of Capstone project (Electrical Plan)

Objectives

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Students will know:

- proper sizing and labeling of various electrical components: switches (single pole, 3-way, 4-way, dimmer), outlets (120v and 240v), lighting fixtures
- the difference and application of standard and GFCI outlets
- the difference and application of various switches
- National Electrical Code - distance between outlets along a wall, over countertops, long hallways, garage/non-living spaces
- National Electrical Code - location of lights and lighting requirements for living spaces
- how to calculate power consumption for breaker sizing
- proper tool selection and usage
- National Electric Code
- how to wire various components

Students will be able to:

- draw an electrical plan on an existing floor plan to include: electrical outletes, GFCI/AFCI, switches (SPST, 3-way, Dimmer), 220v wiring, light fixtures
- utilize Ohm's Law to calculate power consumption for establishing appropriate breaker sizes in a panel
- how to self evaluate
- how to appropriately manage time
- complete a rubric

Integration

Technology Integration

Writing Integration

Competencies

Suggested Resources

Nutley Public Schools

Residential Architecture

Grades: 10-12

Unit 4: Elevation and Sectional Views	
Summary and Rationale	
An elevation is a view of a building seen from one side, a flat representation of one façade. This is the most common view used to describe the external appearance of a building. Each elevation is labelled in relation to the compass direction it faces, e.g. the north elevation of a building is the side that most closely faces north. Buildings are rarely a simple rectangular shape in plan, so a typical elevation may show all the parts of the building that are seen from a particular direction. Geometrically, an elevation is a horizontal orthographic projection of a building on to a vertical plane, the vertical plane normally being parallel to one side of the building. A cross section, also simply called a section, represents a vertical plane cut through the object. In the section view, everything cut by the section plane is shown as a bold line, often with a solid fill to show objects that are cut through, and anything seen beyond generally shown in a thinner line. Sections are used to describe the relationship between different levels of a building. A sectional elevation is a combination of a cross section, with elevations of other parts of the building seen beyond the section plane to show relationships that would be difficult to understand from plans alone. Geometrically, a cross section is a horizontal orthographic projection of a building on to a vertical plane, with the vertical plane cutting through the building.	
Recommended Pacing	
6 weeks	
Standards	
Career and Technical Education 9.3	
9.3.12.AC.1	Use vocabulary, symbols and formulas common to architecture and construction.
9.3.12.AC.2	Use architecture and construction skills to create and manage a project.
9.3.12.AC.3	Comply with regulations and applicable codes to establish and manage a legal and safe workplace.
9.3.12.AC.4	Evaluate the nature and scope of the Architecture & Construction Career Cluster and the role of architecture and construction in society and the economy.
9.3.12.AC.5	Describe the roles, responsibilities, and relationships found in the architecture and construction trades and professions, including labor/management relationships.
9.3.12.AC.6	Read, interpret and use technical drawings, documents and specifications to plan a project.
9.3.12.AC-CST.1	Describe contractual relationships between all parties involved in the building process.
9.3.12.AC-CST.2	Describe the approval procedures required for successful completion of a construction project.
9.3.12.AC-CST.3	Implement testing and inspection procedures to ensure successful completion of a construction project.
9.3.12.AC-CST.4	Apply scheduling practices to ensure the successful completion of a construction project.
9.3.12.AC-CST.6	Manage relationships with internal and external parties to successfully complete construction projects.
9.3.12.AC-CST.7	Compare and contrast the building systems and components required for a construction

	project.
9.3.12.AC-CST.8	Demonstrate the construction crafts required for each phase of a construction project.
9.3.12.AC-DES.1	Justify design solutions through the use of research documentation and analysis of data.
9.3.12.AC-DES.2	Use effective communication skills and strategies (listening, speaking, reading, writing and graphic communications) to work with clients and colleagues.
9.3.12.AC-DES.4	Apply building codes, laws and rules in the project design.
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9.3.12.AC-DES.6	Apply the techniques and skills of modern drafting, design, engineering and construction to projects.
9.3.12.AC-DES.7	Employ appropriate representational media to communicate concepts and project design.
9.3.ST-ET.3	Apply processes and concepts for the use of technological tools in STEM.
9.3.ST-ET.4	Apply the elements of the design process.
9.3.ST-SM.2	Apply science and mathematics concepts to the development of plans, processes and projects that address real world problems.
Career Ready Practices	
CRP1.	Act as a responsible and contributing citizen and employee.
CRP2.	Apply appropriate academic and technical skills.
CRP4.	Communicate clearly and effectively and with reason.
CRP5.	Consider the environmental, social and economic impacts of decisions.
CRP6.	Demonstrate creativity and innovation.
CRP7.	Employ valid and reliable research strategies.
CRP8.	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP10.	Plan education and career paths aligned to personal goals.
CRP11.	Use technology to enhance productivity.
CRP12.	Work productively in teams while using cultural global competence.
Interdisciplinary Connections	
Standard x.x	
Integration of Technology	
Standard x.x	
CPI #	Cumulative Progress Indicator (CPI)

Instructional Focus

Enduring Understandings

- Scale and perception affect a client's understanding of a product.
- The general design of a structure is interpreted through several basic architectural plans.
- The design process is an ever evolving process where an end point is determined only when you stop working.
- There is no one right answer to a design problem.

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Essential Questions
• What drafting concepts are needed for effective communication? • How will your proposed construction project look after landscaping and construction? • What design alteration do you need to implement, in order to achieve the desired look and outcomes for your construction project? • How will you communicate a detailed and clear visualization of your project to the clients?
Evidence of Learning (Assessments)
Successful completion of: • Sectional View Labeling Quiz • Capstone project (Sectional View Plan, and 4 elevation Plans [Front, Rear, Left, and Right])
Objectives
Students will know: • the relationship between structural members of different floors • the anatomy of a foundation: footings, rebar, stone fill, concrete slabs, expansion joints, mortar joints, concrete block, parging, termite shield, sill plate, anchor bolts, vapor barrier, French drain • the anatomy of a wall: sole plate, studs, top/cap plates, insulation, interior/exterior sheathings (drywall/plywood), base/crown molding (as needed), building paper, siding/wall covering • the anatomy of an attic space/roof/ceiling: ceiling joists, roof rafters, collar tie, ridge board, sheathing, roofing felt, shingles, bird's mouth cut, fascia, soffit, nailer, pitch marker • the positioning, purpose and interaction of gutters, leader pipes, and drains • how to self evaluate • how to appropriately manage time Students will be able to: • draw, and label sectional plan • draw front elevation plan • draw left elevation plan • draw right elevation plan • draw rear elevation plan • complete a rubric • follow procedural calendar to stay on task and track their progress
Integration
Technology Integration
Writing Integration
Competencies

Residential Architecture

Grade: 10-12

Unit 5: Modeling

Summary and Rationale

Architectural 3D modeling provides a realistic, detailed 'as built' view of a building, thus allowing improved communication of the proposed design to developers, engineers, fabricators, architects, and clients. Conventionally design documentation provided by architects and engineers includes site plans, working drawings and architectural drafts. These 2D drawings can be converted into 3D floor plans, and detailed 3D models of buildings with complete details of exterior and interior design.

Benefits of Architectural 3D modeling

- Well rendered 3D models can help interior designers, furniture designers and architects coordinate the interior design, exterior and landscaping, while also providing a detailed look at surface finishing, flooring, walls, furnishings and furniture placement within the interior spaces.
- 3D models can be animated for creating walkthroughs for client presentations. Effective client presentations can in turn lead to fast and easy approvals.
- Any changes or design alterations can be reflected across the 3D model in a fast and effective manner.
- Well rendered architectural 3D models can be used as an effective marketing tool. Developers and real estate firms can use 3D models for various marketing collaterals like brochures, flyers, catalogs etc.

Use of 3D modeling and rendering has seen a tremendous growth in recent years. Architectural 3D modeling service providers can help builders, developers and real estate firms by creating the best quality 3D building models replete with realistic rendering and animations.

Recommended Pacing

10 weeks

Standards

Career and Technical Education 9.3	
9.3.12.AC.1	Use vocabulary, symbols and formulas common to architecture and construction.
9.3.12.AC.2	Use architecture and construction skills to create and manage a project.
9.3.12.AC.3	Comply with regulations and applicable codes to establish and manage a legal and safe workplace.
9.3.12.AC.4	Evaluate the nature and scope of the Architecture & Construction Career Cluster and the role of architecture and construction in society and the economy.
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9.3.12.AC-CST.7	Compare and contrast the building systems and components required for a construction project.
9.3.12.AC-CST.8	Demonstrate the construction crafts required for each phase of a construction project.

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9.3.12.AC-DES.1	Justify design solutions through the use of research documentation and analysis of data.
9.3.12.AC-DES.2	Use effective communication skills and strategies (listening, speaking, reading, writing and graphic communications) to work with clients and colleagues.
9.3.12.AC-DES.4	Apply building codes, laws and rules in the project design.
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9.3.ST-ET.3	Apply processes and concepts for the use of technological tools in STEM.
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9.3.ST-SM.2	Apply science and mathematics concepts to the development of plans, processes and projects that address real world problems.
Career Ready Practices	
CRP1.	Act as a responsible and contributing citizen and employee.
CRP2.	Apply appropriate academic and technical skills.
CRP4.	Communicate clearly and effectively and with reason.
CRP5.	Consider the environmental, social and economic impacts of decisions.
CRP6.	Demonstrate creativity and innovation.
CRP7.	Employ valid and reliable research strategies.
CRP8.	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP10.	Plan education and career paths aligned to personal goals.
CRP11.	Use technology to enhance productivity.
CRP12.	Work productively in teams while using cultural global competence.
Interdisciplinary Connections	
Standard x.x	
Integration of Technology	
Standard x.x	
CPI #	Cumulative Progress Indicator (CPI)

Instructional Focus

Enduring Understandings

- Scale and perception affect a client's understanding of a product.
- how solid modeling software has changed the design world.
- the importance of communication for engineers and architects.

Essential Questions

- What drafting concepts are needed for effective communication?
- How will your proposed construction project look after landscaping and construction?
- What design alteration do you need to implement, in order to achieve the desired look and outcomes for your construction project?

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• How will you communicate a detailed and clear visualization of your project to the clients?
Evidence of Learning (Assessments)
Successful completion of: Capstone project (3d printed models [Entry Door, Garage Door, Windows], Darby Board Model Home
Objectives
Students will know: • the primary function tools of Inventor CAD modeling program • how to solve problems logically • how to operate a 3D printer • how to self evaluate • how to appropriately manage time Students will be able to: • use draw and modify tools: line, circle, text, move, rotate, trim, extrend offset, copy, erase, mirror • use modeling tools: extrude, revolve, loft, sweep, fillet, chamfer • import elevation views for modeling • create and format dimensions: linear, angular, radii, diameter dimensions • setup appropriate 3d printer specifications • complete a rubric
Integration
Technology Integration
Writing Integration
Competencies
Suggested Resources