Bristol Public Schools

Office of Teaching & Learning

Department	Career and Technical Education (CTE)
Department Philosophy	Bristol schools believe in providing students with rich opportunities to ensure career and college readiness. These opportunities include development of skills, practices, and exploration within several career clusters and pathways. Each CTE curriculum enables students to acquire and strengthen leadership, literacy, numeracy, decision-making, computer skills, and technology skills through 11 career clusters and pathways: (1) architecture and construction, (2) business management, (3) education and training, (4) finance, (5) health science, (6) hospitality and tourism, (7) information technology, (8) manufacturing, (9) marketing, (10) transportation, distribution and logistics, and (11) STEM. Each career cluster provides students with access to hand-on experiences that will allow for students development of skills that will support successful transition to their post secondary experiences.
Course	Scenic Design & Construction I
Course Description for Program of Studies	This course offers students the ability to learn the design elements and construction components necessary for theater set production. In this introductory course, students learn the basic elements of the design and construction process. Students work with students in Scenic Design and Construction II to support and develop their skills.
Grade Level	9 - 12
Pre-requisites	None
Credit (if applicable)	(0.5 credit)
Pacing	45 Class Meetings per semester; Lessons and project pacing will be driven by the performance schedule. Collaboration with the Theater Director is required each semester to develop pacing for the course.

Course Equipment, Supplies, and Resources	
Required Equipment	Stationary Power Equipment: Scroll saw, band saw, table saw, miter saw, drill press, jointer, planar Portable Power Tools: Dremel, belt sander, palm sander, circular saw, miter saw, coping saw, backsaw, jigsaw, reciprocating saw, cordless screwdriver, cordless drill, corded drill, impact drill, hammer-drill, angle grinder, bench grinder, router (and table), nail gun, air compressor, shop vac, battery chargers Hand Tools: hammers, wrenches, screwdrivers, pliers, saws, levels, measuring squares, crow bar, nail pullers, planars, chisel, utility knife, caulk gun, files, wire brushes Analog Measurement Tools: ruler, tape measure, protractor, caliper, measuring wheels, bubble inclinometer, level, micrometer, angle locator, laser distance measuring tool, compass, pressure gauge, square Digital Measurement Tools: laser distance measuring tool, laser level, micrometer, thermometer, angle gauge, voltage checker, multimeter Storage: toolboxes, tool belts, rolling carts, shelving, locks, flammables cabinet, storage bins Cleaning Supplies: push brooms, pick-up brooms, dust pans, paper towels, sponges, dish soap, Miscellaneous: construction pencils, extension cords, sawhorses, ladders, stools, portable lighting, buckets, utility vises, C clamps, easy clamps, digital camera,
Consumables Lists	Building Materials: Wood, Acrylic, Fasteners (wood screws, self-tapping screws, nails, nuts, bolts, washers, anchors ,rivets) Paints, Adhesives, and Removers: paint and stain (water based where possible; oil if necessary), traditional solvent-based, water-based latex, and polyurethane adhesives (Gorilla Heavy Duty Construction Adhesive,Liquid Nails Extreme Heavy Duty Construction Adhesive) Goof-Off Heavy Duty Adhesive Remover, acetone (remover for oil-base) Safety Equipment: first aid kits, alcohol wipes, construction gloves, disposable gloves, safety glasses, safety goggles, safety goggle cabinet, dust masks, hardhats, hearing protection, aprons, dish wash bins, Dawn dish detergent, hand soap, Goo-Gone Hand Cleaner, paper towels Miscellaneous: sand paper
Digital Resources	A-Level Drama and Theater: Understanding and Designing Theater Sets Teacher Guide Production Skills: Set Design Guide OSHA Hand and Power Tool Safety The Power Tool Institute Power Tool Institute Tool Safety Videos Resources for Design Work: vendors, web sites, catalogs, trade magazines and training

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UNIT 1: Introduction to Set Design I

Set Design and Construction I

Essential Questions

- How do we exhibit professionalism in the construction trades?
- What safety considerations are needed in the workshop?
- How do we know how to build a project?
- How do project designers communicate their ideas?
- How do builders interpret project designs?
- How do we understand the context and settings for a drama, music, or theater production?
- How does collaboration support set design?

Advance CTE Standard	Performance Elements & Learning Targets	Key Concepts/Big Ideas	Academic Vocabulary
ACC09.02 Recognize the responsibilities and personal characteristics to develop individual goals for professionalism.	● Identify responsibilities and personal characteristics used at the workplace. ● Present a professional image in the workplace. ○ I can identify and demonstrate responsibilities and characteristics of a professional craftsperson. ○ I can maintain a safe and organized work environment to maximize productivity.	● Work Habits ● Habits of Mind ● Design Process	Persistence, impulsivity, listening with empathy, flexibility, metacognition, accuracy, questioning, clarity, precision, imagining, innovating, responsible risks, interdependent
ACC10.01 Read, interpret, and use technical drawings, documents, and specifications to plan a project.	● Interpret drawings used in project planning. ● Use the architect's plan, manufacturer's illustrations and other materials to communicate specific data and visualize proposed work. ○ I can recognize elements and symbols of blueprints and drawings. ○ I can sketch/draw/illustrate concepts and ideas. ○ I can draw or sketch a plan/layout to be completed. ○ I can use proper measurements to determine layout.	● General Scene Shop Safety Rules ● Shop Work Areas (table, sawhorses, stools, tool crib, safety gear & equipment, PPE, cleaning) ● Workflow and Layout to Stage (door widths, potential work spaces)	table, sawhorses, stools, tool crib, safety gear, safety equipment, PPE, cleaning, aprons, goggles, safety glasses, dust mask, standards, regulations, codes, work space, width, height, depth
National Core Arts Standards - Theater Anchor Standard 1: Generate and conceptualize artistic ideas and work.	● Apply basic research to construct ideas about the visual composition of a drama/theater work. ● Investigate historical and cultural conventions and their impact on the visual composition of a drama/theater work. ● Synthesize knowledge from a variety of dramatic forms, theatrical conventions, and technologies to create the visual composition of a drama/ theater work. ○ I can describe the roles people play to design and create a set for a theatrical production. ○ I can use terms to describe the stage location. ○ I can compare the types of stages and impact on the audience for each type. ○ I can iInterpret basic set design symbols. ○ I can describe the scene from a white box model. ○ I can analyze a script with peers to discuss set design.	● Role of Set Designer and Crew ● Production Roles: Director, Costume Designer, Actors, Prop Master, Lighting Technician ● Stage Terms and Description ● Types of Stages/Staging & Audience Location ● Set Design Symbols, Vocabulary, and Ground Plans ● White Card Models and Model Boxes ● Read and Analyze the Script	Director, Costume Designer, Actors, Prop Master, Lighting Technician, upstage, center stage, down stage (right, center, left); proscenium staging, arch staging, thrust staging, theater in the round, ground plan, bird's eye view, symbols

Pacing and Implementation	**Math and ELA Standards Connections**
45 Class Meetings per semester; Lessons and project pacing will be driven by the performance schedule. Collaboration with the Theater Director is required each semester to develop pacing for the course. Anticipate **7 - 10 class meetings** for this unit.	CCSS.ELA-LITERACY.RST.9-10.4 ● Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9-10 texts and topics. CCSS.ELA-LITERACY.RST.9-10.7 ● Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.

UNIT 2: Project Planning I

Set Design and Construction I

Essential Questions

- How is math and measurement used in designing and constructing projects?
- How do precision and accuracy in measurement support project designers and builders?
- How do project designers and builders communicate with each other to convey their ideas?
- What can we do to clarify information for designing or building a project?
- What organizations govern safety in construction?
- How do we obtain safety regulations we need to observe in the workshop?
- How do we determine the PPE needed while working on a project?
- How does collaboration support project design and construction?
- How can we ensure a project is completed on time?

Advance CTE Standard	Performance Elements & Learning Targets	Key Concepts/Big Ideas	Academic Vocabulary
ACC01.01 Perform math operations such as estimating and distributing materials and supplies to complete jobsite/workplace tasks.	● Use basic math functions to complete workplace tasks. ● Use geometric formulas to determine areas and volumes of various structures. ● Use appropriate formulas to determine measurements of dimensions, spaces and structures. ○ I can identify whole numbers, decimals, fractions, complex numbers, and polynomials. ○ I can apply basic arithmetic add, subtract, multiply, and divide operations. ○ I can apply relational (equal, not equal, greater than, less than, etc.) and logical operators in a logical expression. ○ I can calculate areas and volumes of structures. ○ I can estimate materials and supplies needed.	● Budgeting ● Design Calculations (volume, area, perimeter, width, depth, height) ● Draw and Render ● Material Selection ● Set Storage and Travel Pathways	Calculation, English units, metric units, precision, accuracy, volume, area, perimeter, width, depth, height, whole numbers, decimals, fractions, complex numbers, and polynomials, estimate, render
ACC02.01 Use vocabulary and visual cues commonly used in design and construction to be successful in workplace/jobsite communications.	● Utilize vocabulary and visual cues in context of design and construction situations. ○ I can use correct terminology to convey verbal and visual. ○ I can confirm understanding of verbal and visual instructions. ○ I can ask questions concerning details of instructions. ○ I can perform assignments as requested.	● Drafting and White Models ● Full-Color, Scale Model or Rendering	Symbols, terminology, draft, white model, full-color model, full-scale model, rendering
ACC05.01 Comply with regulations and applicable codes to establish a legal and safe workplace/jobsite.	● Evaluate workplace activities for compliance with governmental and other applicable safety regulations such as EPA and OSHA. ● Use SDS (Safety Data Sheets) information for the management, use and disposal of materials. ○ I can read and discuss information on OSHA, EPA and other safety regulations. ○ I can obtain, understand and follow SDS (Safety Data Sheets) information.	● Specific Scene Shop Safety Rules & Procedures ● Identification & Proper Use of Tools & Equipment ● Manage paints, adhesives, removers (SDS) ● Selection of PPE	Regulations, regulatory, code, PPE, SDS, EPA, OSHA, NFPA, EPA, DOT

	○ I can select and use appropriate personal protective equipment (PPE).		
ACC05.02 Examine how the roles and responsibilities among trades/professions work in a relationship to complete a project/job.	● Describe how relationships between trades/professions can facilitate smooth workflow and outcome to meet project goals. ○ I can coordinate work between trades and departments.	● Interdepartment Collaboration	Flowchart, collaborators, workflow, outcome, goals
ACC07.01 Establish specific goals to manage project assignments in a timely manner.	● Establish project goals that assist in meeting project specifications and deadlines. ○ I can define and describe project goals. ○ I can identify and list key project activities. ○ I can identify and report activity deadlines.	● Technical Rehearsals and Revisions ● Opening Night and Performances	Technical rehearsal, specification, deadline
Pacing and Implementation *45 Class Meetings per semester; Lessons and project pacing will be driven by the performance schedule. Collaboration with the Theater Director is required each semester to develop pacing for the course.* Anticipate **7 - 10 class meetings** for this unit.		**Math and ELA Standards** CCSS.ELA-LITERACY.RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. CCSS.ELA-LITERACY.WHST.9-10.2.E Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. Math Practices: 1. Model with mathematics. 2. Attend to precision.	

UNIT 3: Project Construction I

Set Design and Construction I

Essential Questions

- How do we plan, organize, and manage a project?
- How can we optimize workflow?
- How can we minimize workplace hazards?
- How do we learn to correctly and safely use specific tools and equipment?
- How do we determine which tools and equipment are required to construct a project?
- How do we manage unexpected events and conditions into our project plan?

Advance CTE Standard	Performance Elements & Learning Targets	Key Concepts/Big Ideas	Academic Vocabulary
ACC03.01 Create and implement project plans considering available resources and requirements of a project/problem to accomplish realistic planning in design and construction situations.	● Plan, organize, schedule and manage a project/job to optimize workflow and outcome. ● Manage the schedule of a project/job. ● Estimate resources/materials required for a specific project or problem. ○ I can report the results of the project/job. ○ I can identify the timeline required to complete a project/job. ○ I can evaluate efficiency and effectiveness of a project/job. ○ I can estimate the correct amount of required resources/materials. ○ I can create a budget.	● Budgeting ● Construction Calculations ● Interdepartment Collaboration ● Set Construction ● Set Storage and Travel Pathways ● Technical Rehearsals and Revisions ● Opening Night and Performances	Workflow, estimates, project report, efficiency, evaluation, resources, budget, collaboration, technical rehearsals, project revisions
ACC06.01 Assess and control the types and sources of workplace hazards to ensure a safe workplace and jobsite.	● Demonstrate methods to correct common design and construction hazards. ● Identify types and sources of workplace hazards common to design and construction situations. ● Demonstrate personal and group health and safety practices. ○ I can identify and describe common hazards in the workplace. ○ I can identify and describe major sources of information about hazards in the workplace (e.g. Safety Data Sheets (SDS), work procedures, exposure control plans, training materials, labels, and signage). ○ I can identify sources of combustible/flammable materials, fire and emergencies to establish a fire safe environment. ○ I can interpret safety signs and symbols. ○ I can demonstrate principles of safe physical movement to avoid slips, trips, and spills. ○ I can inspect and use personal protective equipment (PPE).	● Set Construction ● Set Storage and Travel Pathways ● Recognize Mechanical and Electrical Hazards ● Chemical Hazard Identification ● PPE Inspection, Maintenance, and Replacement ● Technical Rehearsals and Revisions ● Opening Night and Performances	Mechanical, physical, electrical, and chemical hazards; health and safety practices, Safety Data Sheets (SDS), exposure controls, personal protective equipment (PPE), combustible, flammable, safety signs, safety symbols, slips, trips, spill prevention, inspection, maintenance
ACC10.02 Use and maintain appropriate tools, machinery, equipment, and resources to accomplish project goals.	● Select tools, machinery, equipment, and resources to match job requirements. ● Demonstrate use of tools, machinery, equipment and other resources commonly used in design and construction. ○ I can operate tools, machinery and equipment in a safe manner.	● Budgeting ● Set Construction ● Tool Maintenance ● Safe Practices in Construction for Specific Equipment and	Tools, machinery, equipment, maintenance, inspection, efficiency, industry standards, construction technology

	○ I can properly maintain and care for tools, machines and equipment. ○ I can safely use tools, machines, and equipment productively and efficiently in alignment with industry standards.	Tools ● Emerging Construction Technology	
Pacing and Implementation *45 Class Meetings per semester; Lessons and project pacing will be driven by the performance schedule. Collaboration with the Theater Director is required each semester to develop pacing for the course.* ***Anticipate 15 - 20 class meetings for this unit.***		**Math and ELA Standards** CSS.ELA-LITERACY.RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text. CCSS.ELA-LITERACY.WHST.9-10.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically. Math Practices: 1. Make sense of problems and persevere in solving them.	

UNIT 4: Project Deconstruction & Career Development I & II

Set Design and Construction I & II

Essential Questions:

- How do we reflect upon prior experiences to revise and optimize our work?
- How can we minimize project costs?
- What impact does material reclamation have on our space and future work?
- What traits and characteristics are desirable for employment in the construction field?
- How can we improve our teamwork skills?
- What are your personal and professional ethics?
- How does licensure, certifications and credentialing support employability?

Advance CTE Standard	Performance Elements & Learning Targets	Key Concepts/Big Ideas	Academic Vocabulary
ACC03.01 Create and implement project plans considering available resources and requirements of a project/problem to accomplish realistic planning in design and construction situations.	● Use available resources/materials effectively while completing a project or resolving a problem with a project plan. ● Determine alternative solutions for a specific project/problem. ○ I can evaluate waste of resources/materials. ○ I can evaluate the necessity for additional resources/materials. ○ I can evaluate the feasibility of alternative suggestions. ○ I can implement appropriate alternatives. ○ I can suggest improvements to project design and construction that will minimize waste and project cost.	● Material Reclamation: reuse, recycle, & upcycle ● Project Reflection - Small group & Interdependent Departments ● Revision for Future Projects ● Independent/Small Group Project Proposals	Resources, resolution, alternative solution, evaluate, implement, project costs
ESS07 Leadership and Teamwork - Advance CTE Essential Knowledge and Skills (ESS) for Architecture and Construction	● Employ leadership skills to accomplish organizational goals and objectives. ○ I exhibit traits such as empowerment, risk, communication, focusing on results, decision-making, problem solution, and investment in individuals when leading a group in solving a problem. ○ I exhibit traits such as compassion, service, listening, coaching, developing others, team development, and understanding and appreciating others when acting as a manager of others in the workplace. ○ I exhibit traits such as enthusiasm, creativity, conviction, mission, courage, concept, focus, and change when interacting with others. ○ I consider issues related to self, team, community, diversity, environment, and global awareness when leading others. ○ I exhibit traits such as innovation, intuition, adaptation, life-long learning and coachability to develop leadership potential over time. ○ I analyze leadership in relation to trust, positive attitude, integrity, and willingness to accept responsibilities in a work situation.	● Employability Traits ● Leadership Characteristics ● Development of Traits ● Teamwork Skills ● Conflict Management ● Team Performance ● Negotiation Strategies	empowerment, risk, communication, decision-making, problem solution, investment,compassion, service, listening, coaching, developing others, team development, enthusiasm, creativity, conviction, mission, courage, concept, focus, change, innovation, intuition, adaptation, life-long learning, coachability, integrity, conflict management, adapt, negotiate, reflection, evaluation

	○ Employ teamwork skills to achieve collective goals and use team members' talents effectively. ○ I work with others to achieve objectives in a timely manner. ○ I promote the full involvement and use of team member's individual talents and skills. ○ I employ conflict management skills to facilitate solutions. ○ I develop plans to improve team performance. ○ I demonstrate commitment to and a positive attitude toward team goals. ○ I take responsibility for shared group and individual work tasks. ○ I assist team members in completing work. ○ I adapt effectively to changes in projects and work activities. ○ I negotiate effectively to arrive at decisions.		
ESS09 Employability and Career Development - Advance CTE Essential Knowledge and Skills (ESS) for Architecture and Construction	● Identify and demonstrate positive work behaviors and personal qualities needed to be employable. ○ I demonstrate self-discipline, self-worth, positive attitude, and integrity at work. ○ I demonstrate flexibility and willingness to learn new knowledge and skills. ○ I exhibit commitment to the organization. ○ I apply communication strategies when adapting to a culturally diverse environment. ○ I manage project resources (i.e. budget, supplies, computer, etc). ○ Examine licensing, certification and credentialing requirements at the national, state and local levels to maintain compliance with industry requirements. ○ I examine continuing education requirements related to licensing, certification, and credentialing requirements at the local, state and national levels for chosen occupation. ○ I examine the procedures and paperwork involved in maintaining and updating licensure, certification and credentials for chosen occupation.	● Positive Work Behaviors ● Personal Qualities ● Personal Ethics ● Business Ethics ● Communication Strategies ● Licensure ● Certification ● Credentials	self-discipline, self-worth, positive attitude, integrity, flexibility, willingness to learn, commitment, communication skills, adapting, ethics, culturally diverse environment, project resources, licensure, certification, credentials, credentialing,
Pacing and Implementation 45 Class Meetings per semester; Lessons and project pacing will be driven by the performance schedule. Collaboration with the Theater Director is required each semester to develop pacing for the course. **Anticipate 7 - 10 class meetings for this unit.**		**Math and ELA Standards** CCSS.ELA-LITERACY.RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. CCSS.ELA-LITERACY.WHST.9-10.2.F Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).	