Middle-level CTE Learning Experience Title: Tiny Houses Educator: Monique Gale-Messina, Eldred JSHS; Mary Ellen Reynolds, Livingston Manor CSD Length of Lesson: 14 days (40 minute periods) Grade Level: 8	CTE Area: Family and Consumer Sciences CTE Theme: Problem Solving and Innovation CTE Content: Environmental design and Management Date Created: March 28, 2109

PLANNING	
Curriculum Goal	Students research the concept of tiny houses to develop a list of common features of tiny houses. In small groups, design tiny houses that incorporate the generated list of features using graph paper or design software. Participate in a gallery walk to analyze and critique designs of classmates, designating design elements they admire and proposing alternatives for areas of concern.
Essential Question(s)	What knowledge and skills are necessary to demonstrate introductory understanding of the application of problem-solving processes and the acquisition, evaluation, and application of the products of research for informed decision making? What knowledge and skills are necessary for designing and managing living spaces to ensure safety, practicality, conserve natural resources, and achieve personal expression in the tiny house?
National Standards	Common Career Technical Core Standards Career Ready Practices https://www.careertech.org/career-ready-practices 2. Apply appropriate and academic and technical skills 5. Consider environmental, social, and economic impacts of decisions 6. Demonstrate creativity and innovation 7. Employ valid and reliable research strategies 8. Utilize critical thinking to make sense of problems and persevere in solving them 10. Plan education and career paths aligned to personal goals 11. Use technology to enhance productivity 12. Work productively in teams while using cultural global competence National Family and Consumer Sciences Standards https://www.nasafacs.org/national-standards-and-competencies.html 2.0 Consumer and Family Resources Evaluate management practices related to the human, economic, and environmental resources in a global context 3.0 Consumer Services Integrate knowledge, skills, and practices needed for careers in consumer services 11.0 Housing and Interior Design Integrate knowledge, skills, and practices required for careers in housing and interior design

	11.1 Analyze career paths within the housing, interior design, and furnishings industry 11.2 Evaluate housing and design theories and concepts, including sustainability and universal design, in relation to available resources and options 11.3 Apply interior design knowledge, skills, and processes to meet specific design needs
NYS Standards	New York State Career Development and Occupational Studies (CDOS) Standards Intermediate Level http://www.p12.nysed.gov/cte/ Standard 1: Career Development Students will be knowledgeable about the world of work, explore career options, and relate personal skills, aptitudes, and abilities to future career decisions. Standard 2: Integrated Learning Students will demonstrate how academic knowledge and skills are applied in the workplace and other settings. Standard 3a: Universal Foundation Skills Students will demonstrate mastery of the foundation skills and competencies essential for success in the workplace.
Learning Objectives	Problem Solving and Innovation 2. Design Process (Proactive) Students will a) Implement a formal design process to solve a given problem by a. Defining the problem being addressed b. Defining criteria that must be met through the finished design c. Defining constraints that must be adhered to d. Brainstorming and examining possible solutions e. Selecting the best solution for evaluation f. Developing and constructing a prototype or model of the selected design i. Evaluating their use of the design process and how it impacted their final solutions b) Demonstrate personal development of design skills through practice of these skills in a variety of classroom applications Environmental Design and Management 1. Healthy, Safe, Sustainable Living Spaces Students will: a) Recognize that family, school, work, and community settings are all part of the individual's broader living space. 2. Environment and Interior Design Students will: a) Design shared environments in a tiny house. b) Create a floor plan designed to meet the needs of individuals in a tiny house. c) Incorporate the elements and principles of design into a design plan.

<table>
<tr><td></td><td colspan="2">3. Consumer Resources and Finance
Students will:
a) Construct a budget for implementation of a tiny house floor plan.
b) Use consumer skills to select household items for a tiny house.

4. Career Pathways
Students will:
a) Explain roles and functions of individuals engaged in environment, housing, and interior design careers for tiny houses.
b) Investigate education and training requirements and opportunities for career paths in environment, housing, and interior design fields</td></tr>
<tr><td>Vocabulary</td><td>Academic:
delineate, emphasis, , prototype,
specifications, modifications, ordinances</td><td>Content:
symmetrical balance, asymmetrical balance,
background, functional furniture, multifunctional furniture,
traffic pattern, tiny house, eco-friendly,
square footage, green technology, mortgage,
stucco</td></tr>
<tr><td>Materials and Resources</td><td colspan="2">Materials Needed
Graph paper
Computer paper
Markers, construction paper, glue, tape, crayons, colored pencils and scissors
Samples such as wall coverings, floor coverings, and fabric
Magazines
Equipment Needed
Computers (for students to complete project)
Projector
Instructional Aids
Student handouts
Grading rubric
Internet

What is a Tiny House? (Do-Now)
https://www.youtube.com/watch?v=BVovCDwrEn4&scrlybrkr=21276579
Tiny House Design Ideas (Do-Now)
https://www.youtube.com/watch?v=FqLwSOC_cfg</td></tr>
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	Build a Tiny House: Project-based Learning Area, Perimeter, and Geometry (Days 2-13) Note: This is the site for the plans referenced throughout this learning experience. https://witrylibrarypages.weebly.com/uploads/3/8/6/3/38635991/buildatinyhouseprojectbasedlearningactivityapbl__1_.pdf Note: These are alternative sites for plans for building tiny house models. Tiny House Plans https://www.txcte.org/resource/lesson-plan-practicum-interior-design-tiny-houses Green Tiny House Challenge https://assist.ncsu.edu/wordpress/wp-content/uploads/2016/08/Green-Tiny-House-Challenge-Using-EDP.pdf Tiny House Plans Grades 5 and 6 https://www.nahb.org/en/research/nahb-priorities/workforce-development/~/media/717A0D4517BE4FA7B0DD808D3799D59B Tiny House Design https://orise.orau.gov/stem/documents/k-12/lesson-plans/tiny-house.pdf		
INSTRUCTION	What will the teacher do?	What will the students do?	How much time for each activity?
Pre-assessment	Teacher will pose the following questions: How big is your house? Would you like to live in a big or small house and why? Have you ever heard of a Tiny House? What is a Tiny House? Who lives in Tiny Houses? Why do you think people choose to live in a Tiny House? Who can be involved in building a tiny house?	Students will answer the questions to the best of their ability.	20 Minutes during the class period prior to Day 1
Do-now/Hook	Day 1- Teacher introduces the concept of tiny houses: " If you've been watching TV or reading magazines, chances are you have seen a tiny house. These little homes are popping up everywhere. People seem to love them. They	Day 1 -	40 Minutes 5min

	cost less than regular homes and they can be moved around. There are even TV shows where buyers pick tiny homes that will fit their needs the best." Teacher provides students with focus questions: • What qualifies as a tiny house? • What are 3 reasons people chose to buy a tiny house? • What are 3 positive features of a tiny house? • What are 3 negative features of a tiny house? • Teacher shows: What is a Tiny House? https://www.youtube.com/watch?v=BVovCDwrEn4&scrlybrkr=21276579 Tiny House Design Ideas https://www.youtube.com/watch?v=FqLwSOC_cfg Teacher will review the questions with the class and show examples of tiny house project.	Students will view video on tiny houses and tiny house projects. Student will take notes about tiny houses, why people live in tiny houses, and cost of tiny houses. Students will answer the focus questions: • What qualifies as a tiny house? • What are 3 reasons people chose to buy a tiny house? • What are 3 positive features of a tiny house? • What are 3 negative features of a tiny house? Students will revise their answers to the questions based on class review.	20min 15min
Procedure for Instruction/ Learning Activities	Day 2- Teacher will direct students to the link for instructions on how to build a per-based tiny house model, at "Build a Tiny House: Project-based Learning Area, Perimeter, and Geometry" (https://witrylibrarypages.weebly.com/uploads/3/8/6/3/38635991/buildatinyhouseprojectbasedlearninga	Day 2- Students must read ALL the directions in " Build a Tiny House: Project-based Learning Area, Perimeter, and Geometry." For each section, students write a main idea statement.	40 Minutes 30min

	ctivityapbl__1_.pdf) Notes: This learning experience follows the project plans found at the site above. The site recommends that the teacher build a tiny house along with the students, to model the steps. Teacher will review the sections of the instructions and ask students to share main idea statements. Teacher will emphasize main ideas that are crucial for student success on this project	Students will share their main idea statements during the class review. Students will highlight and/or add crucial ideas to their notes.	10min
	Day 3 and 4- Teacher will review the TINY HOUSE PARTS SECTION and ROUGH DRAFT INSTRUCTIONS of the project. Teacher will facilitate students' creation of the rough drafts of their tiny houses. Teacher may model a rough draft.	Day 3 and 4- Students will create a rough draft of their tiny house and include all items on the requirement list.	40 min x 2 days
	Day 5 and 6- Teacher will review the FINAL VERSION SECTION of the project. Teacher may model the base floor plan, walls, roof and ceiling of their tiny house.	Day 5 and 6- Students will complete requirement list, base floor plan, walls, and roof and ceiling of their tiny house.	40 min x 2 days
	Day 7-9- Teacher will review the SPEC HOME SECTION of tiny house parts. Teacher may model tiny house HOME 1 and HOME 2 specification.	Day 7-9- Students will complete their tiny house HOME 1 and HOME 2 specification.	40min x 3 days

	Day 10 and 11- Teacher will review MAKING A TINY HOUSE showing how students will assemble their tiny houses. Teacher may model this process.	Day 10 and 11 Students will cut out each of their house sections and fit them together.	40 x 2 days
	Day 12- Teacher will discuss the EXTERIOR DESIGN SECTION, emphasizing what is found on the exterior of a tiny house. This will include windows, doors and siding. Teacher may model exterior design and decoration.	Day 12- Students will design and decorate the outside of their houses.	40 Minutes
	Day 13- Teacher will review the requirements of the STUDENT REFLECTION sheet.	Day 13- Students will complete their reflection sheets.	40 min
	Day 14-15 Teacher will guide students to develop their tiny house design presentation. It must include style of house, model, dimensions, explanation of design, and furniture. Each presentation should be under 5 minutes.	Day 14-15	40 min x 2 days 15min
		Students will create a presentation of their tiny house following teacher's guidelines. They will prepare to present it to practice partner and to a real world audience.	Day 14-25min; Day 15-5min
	Teacher arranges students into	Students practice their presentations with their partners. Students provide feedback to their partners.	Day 15-35min

	pairs as presentation practice partners	Students revise their presentations based on partner's comments.	
	Day 16- Teacher invites an authentic audience to students' presentations of their tiny houses. Authentic audience could include (tiny) house architects, residential builders, technology educators, BOCES residential construction students, post-secondary educators representing architecture or building programs, etc. Teachers may also wish to invite school leaders and parents. Teacher encourages the authentic audience to provide students with feedback on their projects.	Day 16- Students present their tiny houses to real-world authentic audience. The professionals will give constructive feedback and feasibility of their tiny house to the students. Students will write a JIST statement about how they might revise their house plan based on the authentic feedback.	40min Out-of-class assignment
Differentiation	Teachers will provide support at the level where it is needed by student. Students who have physical disabilities will be accommodated. Students who are meeting all of the expectorations will be challenged to go above and beyond the basic project (example building 3D furniture).		
Closure	Presenting tiny house projects to real world authentic audience. Students will write a JIST statement about how they might revise their house plan based on the authentic feedback.		
ASSESSMENT			
College, Career, and Life Readiness Skills	See below Based on Middle-level Life/Career Rubrics available at https://nyctecenter.org/middle-level-life-career-rubric-database/rubrics		

Performance Measure	Exemplary	Proficient	Developing	Beginning
Manages Time to Complete Tasks by Deadline	Completes work ahead of schedule by creating a plan to finish early.	Completes work on time by using time management skills.	Completes work on time with reminders and supervision.	Rarely completes work on time; fails to use time management skills.

Sets and Meets Goals	Sets measurable goals and action steps to accomplish them.	Defines and meets goals using the strategies.	Defines goals and strategies but has not met goals.	Has goals but no strategies to achieve them.
Reads and Interprets Workplace Documents	Reads, interprets, and applies workplace documents correctly and with ease (e.g., instructional manuals, work orders, invoices, memorandums).	Reads, interprets, and applies workplace documents (e.g., instructional manuals, work orders, invoices, memorandums).	Reads but misinterprets and misapplies workplace documents (e.g., instructional manuals, work orders, invoices, memorandums).	Incorrectly reads, interprets, and applies workplace documents (e.g., instructional manuals, work orders, invoices, memorandums).
Uses Technology to Locate and Evaluate Information	Effectively and consistently uses multiple technology tools to collect, organize, evaluate, and/or communicate information.	Uses technology effectively as a tool to collect, organize, evaluate, and/or communicate information.	Uses popular technology tools to collect and/or communicate information.	Attempts to use technology to collect and/or communicate information are ineffective.
Analyzes Critical Information	Thoroughly evaluates the reliability of the source and the information researched using internal and external validation.	Thoroughly evaluates information researched using internal and external validation.	Evaluates information researched but not thoroughly.	Does not evaluate information.
Demonstrates Originality and Inventiveness	Consistently demonstrates creativity in new situations.	Demonstrates creativity in many new situations.	Demonstrates creativity but does not always understand how to express it.	Does not demonstrate creativity.
Maintains Focus to Completion of the Project	Stays focused consistently, prioritizes tasks, recognizes time constraints of projects, and avoids distractions while meeting deadlines.	Develops a timeline for the work to be completed and stays focused throughout the project.	Is occasionally off task in regards to accomplishing the project, thus only a portion of it is completed.	Is often off task and does not complete the project.
Resolves Problems that Arise in Completing Tasks	Easily and quickly identifies resources that may help solve a specific problem and applies critical thinking to using those resources effectively.	Identifies resources that may help solve a specific problem and applies critical thinking to using that resources correctly.	Sometimes identifies resources that may help solve a specific problem but does not apply critical thinking to using that resources.	Neither identifies resources that may help solve a specific problem nor applies critical thinking to aid in problem-solving.