



	<b>High School</b>	 	
	<b>Featherlite Coaches</b>		
	<b>Design a Tour Bus Teacher Lesson Plan</b>		
Created by the Florida Advanced Technological Education Center of Excellence, FLATE <a href="http://www.fl-ate.org">www.fl-ate.org</a> • <a href="http://www.madeinflorida.org">www.madeinflorida.org</a>			

<b>NATURE OF LESSON:</b>	<b>Grade Levels</b>
Introduces students to the concept of scaling, mechanical drawing, and engineering design in field of modern manufacturing.	9-12
<b>TARGETED SUBJECT AREA(S)</b>	<b>Manufacturing Level</b>
Computer Technology, Mathematics, Science, and Technical Education	Design
<b>LEARNING OBJECTIVES - UPON COMPLETION STUDENTS WILL BE ABLE:</b>	<b>Time Frame</b>
<ul style="list-style-type: none"> <li>➤ To design the interior layout of a luxury motor coach according to assignment constraints and specifications.</li> <li>➤ To produce a hand-drawn sketch.</li> <li>➤ To produce an innovative design using CAD.</li> <li>➤ To produce accurate, scaled drawings on paper media.</li> </ul>	90 minutes (2 class periods)
<b>MATERIALS</b>	
<u><b>Classroom</b></u> Computers w/ PowerPoint LCD Projector White Board/Flip Chart Computer Aided Drafting (CAD) Software <u><b>Instructor</b></u> Computer – with PowerPoint	<u><b>Students</b></u> Lesson Instructions Design constraints Data sheet Sketch drawing for luxury coach graph paper Pictorial descriptions of design components Scaled drawing worksheet w/object pictures
<b>PROCEDURES</b>	
<b>SET- UP:</b> <ul style="list-style-type: none"> <li>➤ Ensure that you have enough computers to facilitate this exercise. A computer room/lab is the ideal setting. There should be a computer for each student, this is an individual exercise.</li> <li>➤ Review the Featherlite Company Information.</li> <li>➤ If you are using CAD Software, make sure the computers have this program.</li> <li>➤ Make sure you have enough copies of the Students' Materials (see above).</li> </ul>	

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### INSTRUCTIONS:

- Hand out the materials.
- Give the students a brief overview of “who” Featherlite is and “what” they do.
- Talk about the “types” of jobs that Featherlite has and what skills are required.
- Begin CAD Lesson PowerPoint presentation.
- Once you have completed the PowerPoint presentation:
  - ✓ Read over the scenario (Lesson) with the students.
  - ✓ Give students the opportunity to sketch out their design, using the sketch drawing paper.
  - ✓ Review each document: Design Constraint, Data Sheet, Catalog, Scaled Drawing Graph Paper, and Scaled Drawing Worksheet.
- Begin.
- If you would like to increase the difficulty of this lesson, you can have them design a “custom” luxury coach, including things such as a pool, game room, etc.




### DISCUSSION:

- Talk about the design process.
- What Math Skills did they use during this activity?
- What Science skills were used?
- How did Technology play a role in their design? Without technology, what obstacles may they have run into?
- What types of careers do they envision in this field?

A discussion about the career opportunities in manufacturing may follow Lesson completion.

### REVIEW:

- What does Featherlite manufacture?
- What skills are needed in order to design and create a custom Coach for Featherlite?
- Why are math, science, and technology skills so important when it comes to working for Featherlite?
- What types of jobs require these types of skills, other than those for Featherlite?

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## EXTENSIONS & ADDITIONAL RESOURCES

### ADDITIONAL INFORMATION AND RESOURCES ABOUT PRODUCTS [MADE IN FLORIDA](http://www.madeinflorida.org)

1. Made in Florida: <http://www.madeinflorida.org>
  2. Virtual Tours: [http://www.madeinflorida.org/virtual\\_tours.htm](http://www.madeinflorida.org/virtual_tours.htm)
  3. Learning Challenges: <http://webct.hccfl.edu> (username and password required)
  4. Educational Pathways: <http://www.madeinflorida.org/Pathways.htm> (outlines educational options for those interested in Manufacturing Technology.
- \*A plant site visit is a great way to cement taught concepts, to schedule a visit to this or other manufacturing plants in your region please contact FLATE at [mbarger@hccfl.edu](mailto:mbarger@hccfl.edu) for assistance.

### ALIGNMENTS WITH SCIENCE AND TECHNOLOGY STANDARDS

*Exercises in Modern Manufacturing* are aligned with the Florida's Sunshine State Standards for Science and the Curriculum Framework for Technology Education. The Standards being addressed are:

#### **GRADES 9-12 SCIENCE SUNSHINE STATE STANDARDS ADDRESSED**

##### STANDARD 3:

The student understands that science, technology and society are interwoven and interdependent. (SC.H.3.4)

2. Knows that technological problems often create a demand for new scientific knowledge and that new technologies make it possible for scientists to extend their research in a way that advances science.
6. Knows that scientific knowledge is used by those who engage in design and technology to solve practical problems, taking human values and limitations into account.

#### **TECHNOLOGICAL LITERACY STANDARDS ADDRESSED**

- 01.0 Demonstrate an understanding of the characteristics and scope of technology.
- 03.0 Demonstrate an understanding of the relationships among technologies and the connection between technology and other fields of study.
- 04.0 Demonstrate an understanding of the cultural, social, economic, and political effects of technology.
- 09.0 Demonstrate an understanding of engineering design.
- 11.0 Demonstrate the abilities to apply the design process.
- 17.0 Demonstrate an understanding of and be able to select and use information and communications technologies.
- 19.0 Demonstrate an understanding of and be able to select and use manufacturing technologies.
- 23.0 Discuss individual interests, aptitudes, and opportunities as they relate to a career.