

COURSE: General Fabrication Methods

UNIT: 12 – Composite Applications

TOPIC: Composite Applications

TIME: 5 – 8 hours

OBJECTIVES:

At the completion of this lesson, students will be able to:

- Design a shape for the hull of the boat.
- Identify materials to be used.
- Identify equipment to be used for project.
- Develop a procedure for completing the project.
- Construct the Styrofoam plug.
- Demonstrate process for laying up fiberglass mat and resin.
- Assess the quality of the finished project.
- Evaluate the ability of the boat to float under a load.

RESOURCES:

- Internet access
- Lesson Activity: Fiberglass Freighter Activity (MOODLE)
- Worksheet: Fiberglass Freighter Activity Worksheet
- Tools, Materials, and Equipment:
 1. Bondo Knife
 2. Palm Sander
 3. Surform
 4. Utility Knife
 5. Scissors
 6. Hacksaw
 7. Combination Square
 8. Marker
 9. Measuring Tape
 10. Marbles
 11. Scrap Paper

12. Fiberglass Matting
13. Resin
14. Styrofoam
15. Release Agent
16. Brushes
17. Mixing Cup
18. Gloves
19. Stir Stick
20. Safety Glasses

STANDARDS:

Science:

Math: 4B

Technology: 2E, 2H, 11B, 12A, 19B, 19C, 19E

ABET: C, K

OUTLINE:

1. <Set Induction>
2. Worksheet
3. Activity

LEARNING EXPERIENCES:

1. **<Set Induction>** Have the tools, materials, and equipment out for students to look at and touch. Ask students what each of the tools and pieces of equipment are and what uses they serve. If available, show the final product to the students. Inform students of the objectives for the lesson.
2. Worksheet: Fiberglass Freighter Activity Worksheet is available online. The worksheet works as a study guide for the quiz. It evaluates whether or not the student accessed the lesson activity online.
3. The online lesson activity entitled “Fiberglass Freighter Activity” walks students through the process of making the project. It is important for students to preview the content before working on the project as computer access may be limited when the project is being worked on. **Encourage students to use their**

engineering notebooks to write the directions of the activity down in their own words.

EVALUATION:

- Class participation
- Worksheet Completion
- Online Test
- Project Completion