

Grade Level: 3rd

Time Allotment: Two 45 minute sessions

Learning Objective: The student will design and create a device that floats to save Edward when he falls into the ocean from the ship.

Teacher Information:

1. Read The Miraculous Journey of Edward Tulane by Kate DiCamillo in a whole group setting. Discuss the main character, his personality, and the problems he faces. Discuss if his problems would have occurred if he could have been rescued after falling off the *Queen Mary* and into the ocean. Review objects that sink and float. Tell students that they will have the opportunity to try to save Edward.
2. Group the children in 4's.
3. Hand out design brief and read over together. Discuss materials that may be used. Discuss safe use of tools. Answer questions about materials and directions.
4. Show rubric to students and explain the various sections.
5. Hand out portfolios and have students brainstorm and fill them in.
6. Students will begin their designs. Remind them to refer to their portfolios and rubrics.
7. After everyone finishes their designs, test them to see if they will help Edward float.

Tools: Scissors, plastic tub (for teacher)

Materials: 10 craft sticks, glue, 12 inches of masking tape, unlimited recycled materials such as cardboard tubes, chip cans, plastic drink bottles, 1 8.5x11 sheet of aluminum foil, 12 inches of yarn, 2 chenille stems, 1 rock, clay, water (for teacher)

VA SOLS: Science

3.1 The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which

- a) observations are made and are repeated to ensure accuracy;
- b) predictions are formulated using a variety of sources of information;
- j) inferences are made and conclusions are drawn;
- l) models are designed and built; and
- m) current applications are used to reinforce science concepts.

K.5 The student will investigate and understand that water flows and has properties that can be observed and tested. Key concepts include

- c) some materials float in water, while others sink.

English

3.1 The student will use effective communication skills in group activities.

- a) Listen attentively by making eye contact, facing the speaker, asking questions, and summarizing what is said.
- b) Ask and respond to questions from teachers and other group members.
- c) Explain what has been learned.
- d) Use language appropriate for context.
- e) Increase listening and speaking vocabularies.

3.5 The student will read and demonstrate comprehension of fictional text and poetry.

- c) Make, confirm, or revise predictions
- d) Compare and contrast settings, characters, and events.
- g) Draw conclusions about text.
- h) Identify the problem and solution

STL Standards:

Standard 8: Students will develop an understanding of the attributes of design.

3-5 Benchmarks

C. The design process is a purposeful method of planning practical solutions to problems.

D. Requirements for a design include such factors as the desired elements and features of a product or system or the limits that are placed on the design.

Standard 9: Students will develop an understanding of engineering design.

3-5 Benchmarks

C. The engineering design process involves defining a problem, generating ideas, selecting a solution, testing the solution(s), making the item, evaluating it, and presenting the results.

D. When designing an object, it is important to be creative and consider all ideas.

E. Models are used to communicate and test design ideas and processes.

Standard 10: Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.

3-5 Benchmarks

- C. Troubleshooting is a way of finding out why something does not work so that it can be fixed.
- D. Invention and innovation are creative ways to turn ideas into real things.
- E. The process of experimentation, which is common in science, can also be used to solve technological problems.

Standard 11: Students will develop the abilities to apply the design process.

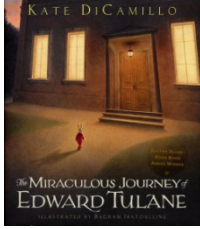
3-5 Benchmarks

- D. Identify and collect information about everyday problems that can be solved by technology, and generate ideas and requirements of solving a problem.
- E. The process of designing involves presenting some possible solutions in visual form and then selecting the best solutions from many.
- F. Test and evaluate the solutions for the design process.
- G. Improve the design solutions.

Standard 12: Students will develop the abilities to use and maintain technological products and systems.

3-5 Benchmarks

- D. Follow step-by-step directions to assemble a product.
- E. Select and safely use tools, products, and systems for specific tasks.
- G. Use common symbols, such as numbers and words, to communicate key ideas.



Save Edward!

The Miraculous Journey of Edward Tulane Design brief

Jacki Dull

Background: Poor Edward! He has fallen off the ship, and we know that the little china rabbit can't swim! If only Abilene could toss something to him so that he could float. He would be saved, and his future might be very different. Your rock is Edward. You may draw a face on it but do not spend any longer than 2 minutes on Edward's face.

Challenge: You have the opportunity to design and create something to help Edward float so that he can be rescued. Remember he needs to get back on the ship so the device needs something so that the sailors can hoist him back on board. He also must float for 3 minutes and have all of himself in the device.

Criteria: Must float for 3 minutes

Must hold all of Edward (you don't want the sharks to get his toes!)

Must have something that helps the sailors get him back on board

Materials: 10 craft sticks, glue, 12 inches of masking tape, unlimited recycled materials such as cardboard tubes, chip cans, plastic drink bottles, 1 8.5x11 sheet of aluminum foil, 12 inches of yarn, 2 chenille stems, 1 rock, clay

Tools: Scissors

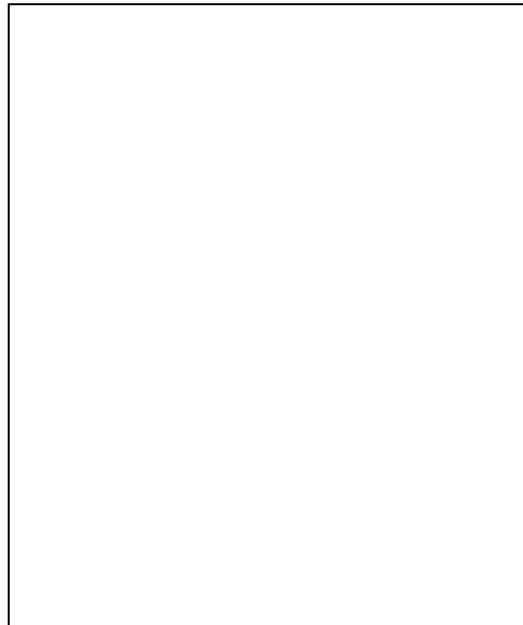
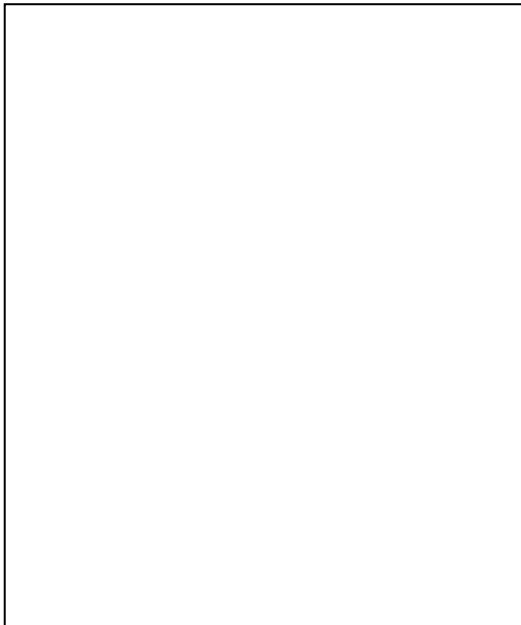
Standards: Science 3.1 and K.5, English 3.1 and 3.5, STL 8-12

Team Members: _____, _____,

_____ , _____

1. What is the problem in your own words? _____

2. Brainstorm and sketch 2 of your ideas in the boxes below.



3. Decide with your group which solution is best and create it.

4. Test your design and answer these questions

Did you use only the provided materials?	Yes	No
Will it hold all of Edward?	Yes	No
Does it float for 3 minutes?	Yes	No
Does it have something so the sailors can hoist it on board?	Yes	No

5. Evaluate your solution and tell me if you would change any of it. Why or why not?

6. Do you think Edward would have changed in the story if he could have been rescued? What do you think would have happened to him then?

Rubric for **Save Edward!**

Jacki Dull

Criteria Assessed	4-Meets criteria	3-Almost there! Meets most of criteria	2-Needs improvement Meets some of the criteria	1-Attempted but we need to talk
Restates problem				
Sketches 2 ideas				
Evaluated solution				
Wrote prediction				
Polite to team members				
Gave members a chance to express opinions				
Helped create and build design				
Must float for 3 minutes				
Must hold all of Edward				
Must have something to help sailors				
Must be able to explain design to class				
Share something that was difficult about design with class				
Share changes that were made with class				