

CARDBOARD BOAT PROJECT

DESIGN CHALLENGE

- PART 1** You must individually carry out research, produce 3 preliminary design sketches, build 3 scale model mock-ups out of similar materials, test the mock-ups, choose a final design and produce a finished ACAD drawing in full detail including a cut-out pattern.
- PART 2** You must find a partner and build and test either one of the final boat designs and together produce a final project report.

MATERIALS

The following list of approved materials are the only ones allowed for this project.

SCALED MOCK-UP

CARDBOARD BOAT

- | | | |
|----|--------------------------------|--|
| 1) | 2-4"x8" cardboard sheets | 2- 4'x8' sheets of double walled board |
| 2) | 45 ml of wood glue | 500 ml of Lepages contact cement |
| 3) | 100" of 1/4" wide masking tape | 1 roll of 2" wide duct tape (60 yds) |
| 4) | 25" of string | 25' of strong butcher's cord |
| 5) | 1- small paper clip | 1- large paper clip |

EVALUATION

1) **INDIVIDUAL PROJECT PORTION – 50%**

- a) Preliminary research on boats (Internet/library) - 5%
- b) 3 preliminary design sketches - 10%
- c) Building/testing 3 scale model mock-ups - 15%
- d) Drafting final design on ACAD - 20%

2) **FINAL BOAT CONSTRUCTION – 20%**

- a) Boat build to design specifications - 15%
- b) Boat decorations (streamers, flags, artwork, etc.) - 5%

3) **TESTING OF BOAT IN THE POOL – 20%**

- a) Time required to travel 25m with a maximum of two people sitting or kneeling in the boat including the time it takes to get into the boat. - 10%
- b) Total weight held by the boat for 2 minutes in a static position in the pool. - 10%

***** You get 10 marks just for showing up and sinking!!**

4) **PROJECT REPORT – 10%**

- a) One project report required per group, see attached report requirements.

DESIGN AND TECHNOLOGY
TDJ3M1/TDJ4M1

CARDBOARD BOAT DESIGN REPORT FORMAT

1. **Title page:** Includes a short, descriptive title, the student's name, the teacher's name, the course code, and the date the report is due. 5
2. **Table of contents:** Use subheadings if required. Include item numbers and page numbers. 5
3. **Introduction:** Describe the project, stating what it is, how it operates and it's overall construction. 10
4. **Material equipment list:** An itemized list of all the tools and material which were used in the manufacture of the project. Be specific with respect to shape and size. 10
5. **ACAD drawing:** A fully dimensioned orthographic drawing of the boat including a cutout pattern. 25
6. **Procedure:** A numbered, step by step process of how the project was completed. This section should be written in the third person, past tense cover all stages of the project. 15
7. **Conclusions:** A summary of all of the strengths and weaknesses of your cardboard boat project. State any recommendations about what you would do differently if you were able to do the project again. 10
8. **Technical problems:** A description of the most difficult technical problems you had to overcome, either during the design/drawing stage or in the manufacturing stage of the project. 10
9. **Knowledge gained:** Outline what you learned from this project. 10