

CARDBOARD BOAT

Objectives



- Understand the concept of displacement
- Model and design a boat that has stability
- Explore the use of cardboard as a construction material
- Have fun!!!!

Introduction

- You and a partner will construct a cardboard boat that will be big enough to hold at least **ONE** person. A race will be held on Comox Lake in June to see who built the best boat.

Parameters

- You can only use standard non-waxed cardboard
- Duct tape is the **ONLY** bonding material allowed – **NO GLUES**
- Paints and lacquers **WILL** be used to seal the boat when done
- **ONE** person must sit inside the boat
- The side walls of the boat **MUST** be at least 30cm high
- The boat **CANNOT** be longer than 2.5m (8ft)
- The school will supply 2 rolls of duct tape per boat.
- You **CANNOT** tape the entire boat. The tape is for the seams **ONLY!**
- Mr. Claassen will supply a limited amount of cardboard.

Procedure:

- On a piece of paper sketch the design of your boat and add dimensions.
- On the computer you will draw a final model of your boat using Inventor and produce a plan for it.
- Using file folder material and clear tape, you will build a 1:10 scale model of the boat. You will use the same construction techniques for the model and the final cardboard boat.
- Test the model in the sink for stability.
- Hand in the sketch, computer drawing and model to the teacher for marking and security. The drawing and model will be used to mark your final product against. (they should look exactly the same and have the same dimensions)
- Begin building your boat. Use the cardboard supplied and begin cutting out the pieces that you need (xacto knife, bandsaw, tablesaw).
- When using the duct tape, make sure you have good joints before taping. Overlap taped joints 2 or 3 times.
- When the boat is complete, paint it with a marine paint or a waterproof sealer, if possible.
- Allow to completely dry before placing it in the water.
- Have it marked

Timeline:

- For this project you have until the last week of June.
- Throughout the course you will complete the project
- Make sure you divide your time evenly between you and your partner as you don't need to ALWAYS work on the same thing.

Assessment

The following criteria will be used for assessment;

- Sketch of the boat /5
- Inventor Drawing of the boat (paper) /15
- Model of the boat (file folder) /10
- Similarity of boat to model /10
- How well the boat was constructed /25
- Appearance of the boat (painting) /10
- Quality of painting /5
- Did it stay together in the 1st race /10
- How well you did in the race /10

Total /100

IF PARTNERS DO NOT SHOW EQUAL AMOUNTS OF WORK ON THE PROJECT, THE PERSON DOING LESS WORK WILL BE GIVEN ONLY A PERCENTAGE OF THE FINAL MARK!!!