

## WATERCRAFT

### Task:

Engineer and construct a watercraft (i.e. airboat, paddleboat, outboard, inboard, inboard-outboard, jet-drive, submarine) that will cross a body of water that is at least 25 feet long utilizing a teacher supplied motor. The watercraft cannot “veer” more than five feet in either direction. The watercraft must be placed in the water by the engineer and released. No means of guidance control by engineer allowed (i.e. remote control, string, tunnel, etc.).

### Proof of Task Completion:

The student will submit a video clip of the completed task to the teacher via e-mail. The completed task is worth 90 points. The watercraft must be “visually pleasing” in order to obtain the final 10 point for a total of 100 points. Visually pleasing means making the watercraft looking like a finished (store bought) item. This would include, but not limited to, painting, decals, figures, etc. The watercraft will be handed in to the teacher. Failure to hand in the watercraft or video at the due time will result in a 10 point per day reduction in score.

### Required parts:

Each student will be supplied a motor (Kelvin Educational 850647) and AA battery and AA battery holder. These are the only means of propulsion that can and must be used.

### Remainder of parts for Watercraft:

The teacher has different propellers, shafts, gears, motor mounts, and other items available for propulsion. The hull can be constructed of various types of materials (foam, plastic, wood, etc.). Students may design different parts in programs such as AutoCad and SolidWorks and have them 3D printed. Paint, decals, etc. will be supplied by the student.

3D printed parts take time, so plan accordingly.

Understand that you are an engineer and your first design (prototype) will NOT work . Don't get disheartened. This is the real world.

Mr. Strasser will “help” each student as needed to make sure each student achieves success.

## WATERCRAFT REPORT

Your report will be organized utilizing the following sections:

- Task (Make a boat that will cross the school pond)
- Original Design Idea (explain and include drawings)
- Construction materials and descriptions
- First Test results (First time trying boat)
- Re-engineering to correct negative test results
- Second Test Results
- Re-engineering to correct negative test results
- Third Test Results
- Conclusion (What worked well and what could have been done differently to design, etc.)

Introduction: Explain and give details about the style of your boat and the motor of your boat. Make sure you have a final drawing of this...Do you have a computer drawing of it?

Part 2: Describe how the boat is fastened together. List all of the materials you used to make this boat.

Part 3: First Test Results. What happened the first time you tried floating the boat? How did the boat do? What did the boat do?

Part 4: How and what did you do to the boat to correct the problems that it had?

Part 5: Second Test Results. What happened the second time you tried floating the boat? How did the boat do? What did the boat do?

Part 6: How and what did you do to the boat to correct the problems that it had?

Part 7: Third Test Results. What happened the third time you tried floating the boat? How did the boat do? What did the boat do?

Part 8: How and what did you do to the boat to correct the problems that it had?

Part 9: Conclusion: In this paragraph write about what worked well with the boat on Friday. What could have been done differently to the design? List any other things that you noticed that would've improved your boat.