



## TechFest 2018 Competitive Event Playbook

Competition Title: Think or Sink

Competition Sponsor:



USSI

### Competition Summary:

Each student team will design, build, and test a small boat with the materials provided (aluminum foil, cardboard, etc.). Teams of four will be divided into pairs, with each pair working independently for the bulk of the competition. After a brief team strategy discussion, the first pair will design, prototype and document the boat design. This design documentation (without the prototype) will then be provided to the second pair and they will build and test a second boat based solely on the documentation they receive from the first pair.

The goals of the competition are:

- 1) Build the test boat as close to the prototype as possible
- 2) Support the desired ballast (without sinking) to maximize ballast points

### Competition Details:

Build kits, simple tools and a work surface will be provided to each team. No additional construction materials or tools are permitted. Teams should bring materials (graph paper, rulers, pencil, etc.) to document the design. No electronics (laptop, cell phone, calculator, etc.) are permitted.

Teams will have 10 minutes to discuss the strategy of the project prior to splitting into pairs.

In Phase 1 (80 minutes), the Design Pair will develop the design for the boat, build a prototype and document the prototype. The prototype will be submitted to the judges. The Build Pair members are not present for Phase 1.

In Phase 2 (60 minutes), the Build Pair is provided the prototype documentation from Phase 1. With only this documentation (and not the Phase 1 prototype), the Build Pair will construct the boat, place it in a tub of water and add ballast to maximize the ballast point total without sinking.

**Individual Team Size:** 4 students divided into pairs – Design Pair and Build Pair

**School Points Awarded for Gold, Silver, Bronze:** 5,000, 3,000, 1,000 points, respectively

**Scoring Rubric:** Each team will be evaluated on:

- 1) Consistency between the prototype and test boats
- 2) Quality of documentation developed to build the boat
- 3) Ballast points earned during demonstration test



USSI

---

**Materials/Supplies Provided:** One boat building kit

**Materials/Supplies Required:**

Teams should bring materials (graph paper, rulers, pencil, etc.) to document the design. No electronics (laptop, cell phone, calculator, etc.) are permitted.

**Information to be provided to competing teams:**

Build instructions and guidelines for ballast testing of the boat

**Pre-Work Required:** N/A