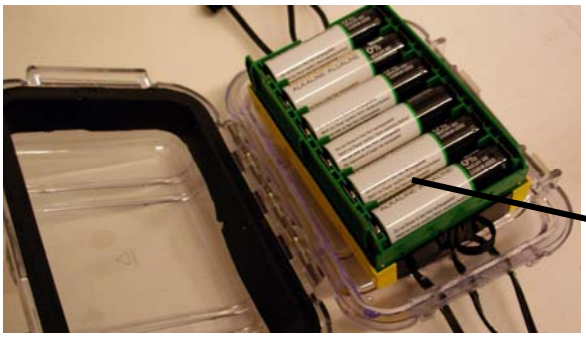
AUV Tips

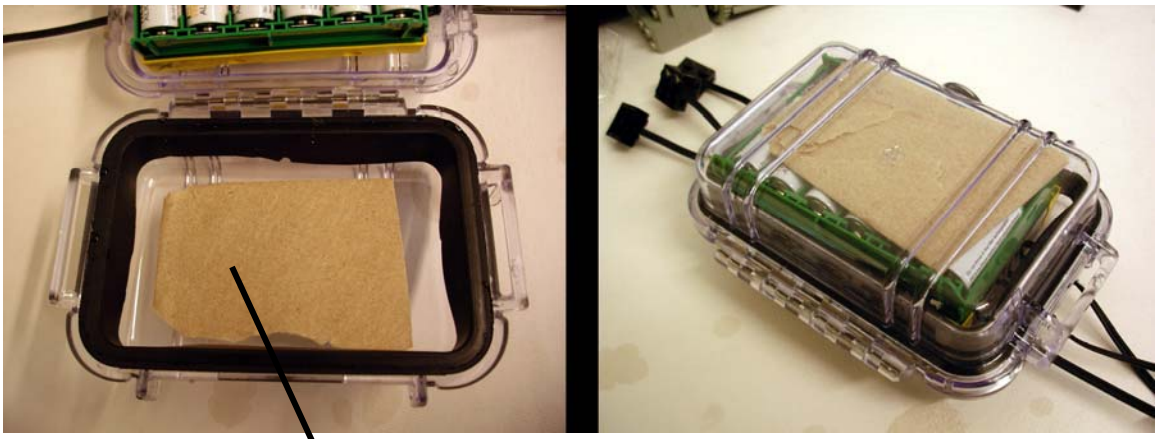
When closing the pelican case make sure that you do not need to force it closed. If you need to push down hard on it to make it close, then chances are there will be gaps in the rubber seal and water will leak in.



Take off the battery cover of the RCX, it adds extra room on top for wires on top of the RCX, and makes the case easier to close.

No battery cover

Put a piece of tissue paper on the bottom of the pelican case. It helps keep water off your RCX and also tells you if water is leaking into the case, since the tissue paper changes color when it gets wet.



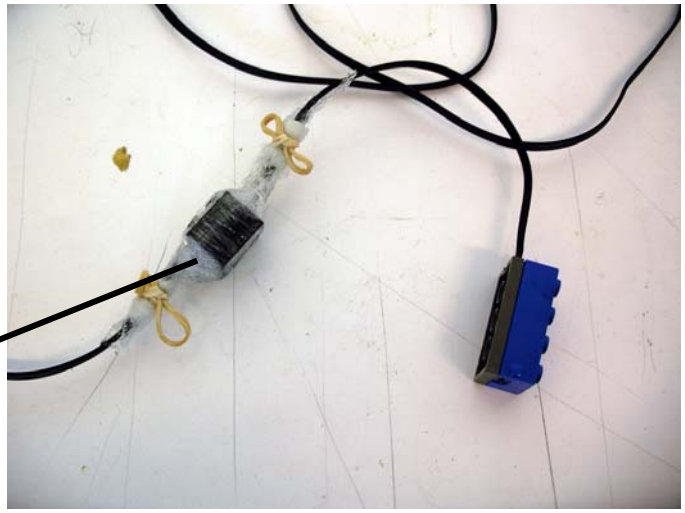
Tissue paper

You can put weights inside the pelican case. The pelican case with an RCX inside is buoyant by itself and will probably cause trouble for your robot. Putting weights inside the pelican case will help you make it sink without the need for external weights.

Weight inside the case

Keep all wire connections leading to a light senor water proofed. Light sensors are waterproof but the connecting wires are not, they must be waterproofed as well to get correct data from the light sensor.

Waterproofed connection



You can make a water sensor that will detect if it is submerged or not out of a single Lego wire. Just attach the wire to an input on the RCX and treat the wire like a light sensor in RoboLab. When the free end of the wire is submerged in water, the RCX will read a very high value of light, somewhere around 90%. When you take the wire out of the water, the RCX will read a low value of light that is somewhere around 10%.

(Why does this work? The light sensor works by changing its internal resistance according to the amount of light it sees. The RCX reads the data from the light sensor by measuring the resistance across it. Water has its own resistance to electricity, which is much less then that of air. If you tell the RCX to measure resistance across a plain lego wire, you'll be able to detect when the wire is in water and when its not.)

Put buoyant material on top of your robot and heavy material to the bottom. If your robot is top light and bottom heavy it will always remain right side up and stable while floating underwater.

You can upload programs to the RCX even when it is underwater - assuming you didn't block the black window on the RCX with anything. You might also want to set the RCX auto-off timer to something longer then the default 5 minutes.

If you ever get your RCX wet, shut it off and remove the batteries as quickly as possible. Inform a TA and they will put it to dry.

Do not pick at the glue covering the wires entering the pelican case. The glue creates a seal around the wires so that they do not leak water.