

POINTS TO PONDER WHEN DESIGNING ROVS

STRUCTURE

The structure is the frame and keeps the ROV together

- Bigger ≠ Better
- Think of what the ROV must do to accomplish the tasks
- Distribute weight evenly

PURPOSE

- What are the specific tasks of the challenge?
- What shapes/attachments/tools does your ROV need to accomplish the tasks?
- Where in the water column does your ROV need to operate (at the surface or down in the water?)

MOTOR PLACEMENT

- Attach motors with zip ties
- The propellers should not be able to hit a wall or floor
- Motors must be underwater when the ROV is at the surface
- Up/down motor is best placed as close to the center of the ROV as possible
- Side motors can be placed at front, middle or back of ROV
- Test motors so you know which way they spin before attaching them to the frame

BUOYANCY

- You will use foam insulation for floatation
- Attach floatation with zip ties
- The top of the ROV should float level just at the surface
- Think of where your weight is
 - You want floatation over the weight
 - Balance floatation so ROV doesn't tilt or point up/down
- You can attach ballast (additional weight) if needed

OPERATION

- You will be by water – **you are not to go into the water**
- Tether Manager controls tether for the ROV Operator. Operator will pass the control box to Tether Manager when his/her turn is up. The next person in line will become Tether Manager, etc.
- Keep batteries away from water
- Do not drop control box in water

“Points to Ponder” adapted from “What works, what won't: 10 rules for designing a sub” in Build Your Own Underwater Robot by Harry Bohm and Vickie Jensen.