

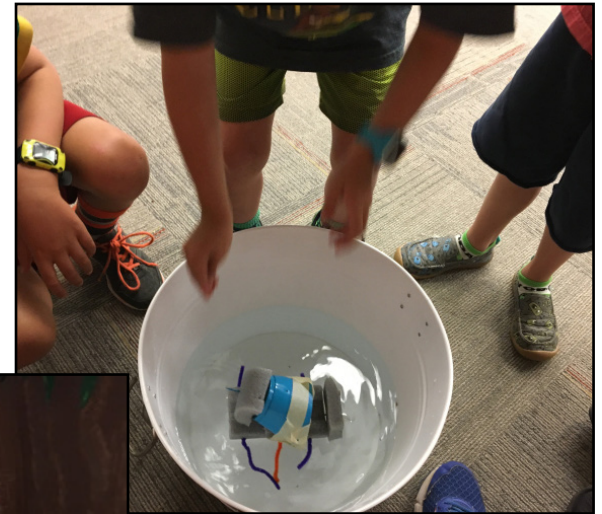
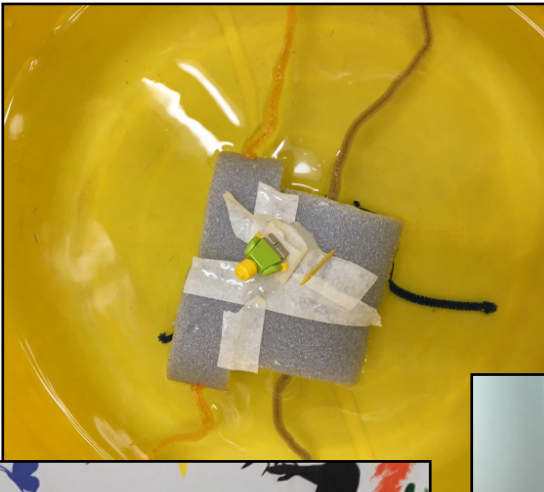
Bug Biomimicry Teacher's Guide



Room Setup:

- This program requires an open space large enough for the entire class to gather in and four to five tables (or clusters of desks) for teams of about 4 to meet, with one chair per student. These four to five tables will have a little water splashed on them during the course of the program.
- At the end of the program we will test out each team's boat using a large yellow bucket that we'll bring. We will need access to a sink, ideally one with a deep basin, to fill up our large bucket enough to test the boats.
- Students will need access to their Observation Sheets from their pre-visit activity.
- If possible we would like to be able to set up about 10 - 20 minutes before the program starts.

A program overview can be found on the second page of this guide.



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Program Overview:

Activity	Time	How You Can Help
Introductions and Getting Settled	5 minutes	General classroom management, gathering kids together and helping them to be good listeners.
Holding and Observing Cockroaches	10 minutes	General classroom management, especially keeping an eye out for dangerous behavior that might result in a dropped or injured roach. Feel free to ask your own questions about the roaches. Questions from teachers often spark follow-up questions from students. Don't worry if you are not a fan of roaches, you won't be asked to hold or touch them. We have found though, that students will model teacher reactions to the animals so being curious and asking questions, even if a little nervous, is very helpful.
Robot Roach Example	5 minutes	General classroom management, gathering kids together and helping them to be good listeners.
Sharing Their Water Strider Observations.	10 minutes	Help students to access their Observation Sheets from the day that you watched the videos. Participate in the discussion, helping to encourage the students to share their observations of studying the water striders or memories of seeing them in the wild.
Engineering Challenge	20 minutes	This is the largest block of activity in the program. Students will be working on a design challenge with two to three other students. Each team will be making one model of a boat inspired by water striders. Having teachers checking on teams to see both their progress with the design as well as their teamwork is very helpful. It is not uncommon to have at least one team struggle with classic teamwork challenges: "But he won't let anyone else use the materials!" or "She isn't listening to my ideas!" Keeping an eye out for potential flare-ups of this nature will be very helpful. The program leader will count off to create teams unless you prefer to assign teams if you know of guaranteed troubles if certain students end up on a team together.
Boat Building Debrief	5 minutes	General classroom management, gathering kids together and helping them to be good listeners.