**Design Brief**

***Scenario****:* You are working for our school to design and produce a small container for bug collection and observation. Because our school is located in the heart of the Recreational Vehicle Industry we are calling our containers Bug RVs. The Bug RV will be used by elementary school students to collect bugs, transport and observe their behavior. The bugs must be unharmed in the whole process so they can be released back to nature when the observations are over.

***Your Task****:* You and your research team of Biology students are required to research bug habitat. Where do bugs want to live and why. The team will design several bug collection containers that allow the bugs to survive the RV experience. You will need to document your research and come up with a fresh idea for the bug RV habitat.

***Where do you begin?*** You team needs to brainstorm ideas for a good Bug RV. The RV will need to allow the bugs to go in, but not come out. You will also need to provide a structure inside the RV for bugs to climb on while using the RV. You will also need to include some type of viewing window so students can see the bugs in the bug RV. The RV must be very durable because it is going to be used with elementary students. It needs to be sized so small children can carry the RV easily. Specific design constraints are on the next page.

***Design Constraints***:

1. The Bug RV must keep bugs in. Tolerances for gaps cannot exceed 1 mm.
2. The Bug RV must keep bugs alive.
3. To ensure durability, no tape can be used. The fastening mechanism that holds the pieces together must be built into the design.
4. The Bug RV must contain at least two clear plastic windows or screens for viewing.
5. The Bug RV must contain a fixed (not moving) climbing structure suitable for bugs. This structure should block the view as little as possible.
6. Bug RV needs to be made from 6 or fewer 3D printed parts UNLESS more parts approved by a teacher. Each part cannot exceed 6” x 6” x 6”.
7. Additional materials (that were not printed) can be used, but cannot exceed 1/3 of the total product.
8. Walls to the Bug RV cannot exceed .1” (2.54 mm).
9. The Bug RV should have some kind of handle or carrying strap.
10. The final product should have no sharp or dangerous edges.