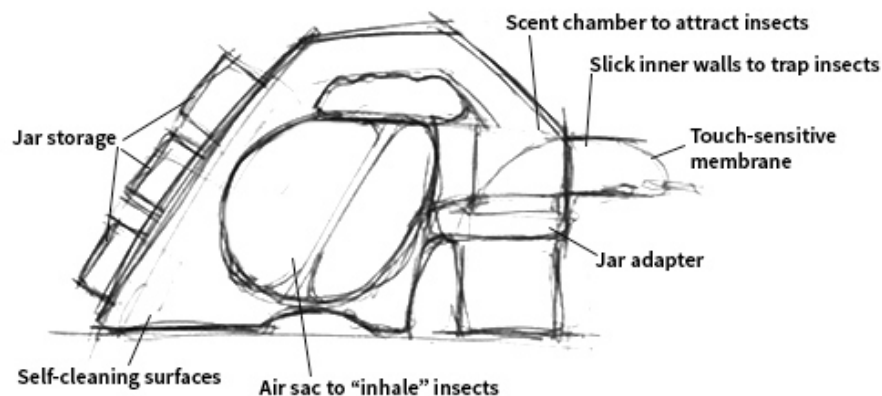


- The purpose of this report
 - This report is to evaluate the Biospire Insect Catcher against Life's Principles.
- The name and a short description of the design
 - The Biospire Insect Catcher is a bug catcher for kids that allows kids to take part in observing and participating nature without encouraging them to disrupt it.
 - It will help them capture, study, and release bugs safely and in a way that doesn't harm the insects.
 - It may or may not have electrical components. It should have a magnifying component so that kids can see the insects up close and personal.
 - It should come in a kit with accessories for different kinds of bugs or different kinds of situations.
 - The accessories should not be floating but should nest or attach to the main body of the insect catcher.
 - The insect catcher should be rugged enough to use and be left outside. It should be easy to clean, and all components that could possibly contain an insect should be completely see-through so that supervising adults can be sure that the catcher is empty before storing it away.
- The one-page illustration of your design (from last week's report)



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- Descriptions of how the design does and does not reflect each Life's Principles

Does the design adapt and evolve?

Is the design locally attuned and responsive?

- *Does it leverage feedback loops*
 - To a degree, yes, the Biospire Insect Catcher does leverage feedback loops—primarily in the way it only “inhales” as much air as it can hold. Once the flexible lung has returned to its original form, it will not

inhale any more air. Other than that, it does not act according to feedback loops

- *When it uses materials, are the materials locally available and abundant?*
 - This detail is not yet known, as the materials have not been identified. The ability to use local jars could be considered an application of this point, however, the original manufacturing materials could be considered further for local sourcing.
- *Recommendations:*
 - Select a material that is locally sourced and abundant. This could mean that the product is really a set of DIY templates and instructions that parents and children can assemble on their own, making the bug catcher out of whatever they have in their house already (cereal cardboard, packaging plastic, etc.).

Does the design integrate cyclical processes?

- *Are processes cyclical?*
 - The product doesn't consume any resources in its use, though the insects are caught and released, and the product and the bug catching jars can be reused indefinitely. Once the product is discarded, it is yet unknown if the manufacturing process can be cyclical.
- *Does it integrate local feedback loops?*
 - Because of the touch-sensitive membrane blocking the air passage on the front end of the product, the product responds locally to any nearby insects that come in contact with the product
- *Recommendations:*
 - Design the product to integrate into a take-back system that could keep the product and the materials used in a large scale resource cycle.

Is the design resilient?

- *Can it withstand disturbance while maintaining function?*
 - Possibly. Also, the product almost depends upon disturbance to function (via the disturbance of the touch-sensitive membrane). But—it is not yet clear if the product's function or structure can be disturbed and still maintain function.
- *Does it heal after disturbance?*
 - No, and this is a point of serious consideration.
- *Are there opportunities for cross-pollination and mutation?*
 - There could be opportunities to make the design of the product "open source" and allow consumers to hack and customize the product to their needs. Also, some of the components could be modular, which could allow for the consumers to grow or adapt the product as they wish.
- *Recommendations*

- Include flexibility within the design of the product so consumers can adjust and adapt the design to their needs.

Does the design create conditions conducive to life?

Does the design optimize rather than maximize?

- *Does it integrate multiple functions?*
 - Yes. The product captures insects using two different bio-inspired methods, and the included jars keep the insects safe and immobile, and they also magnify the captured specimen to enhance detail.
- *Does it recycle materials? Is it recyclable?*
 - Depending upon the construction materials, yes, the product could be recyclable. However, materials have not been finalized, so this is not yet for certain.
- *Does it perform functions with minimal material and energy?*
 - Yes. The product does not require any electrical components and captures insects with naturally occurring suction as a result of the semi-rigid lung inflating.
- *Recommendations:*
 - Select materials that are recyclable (or allow consumers to construct their own product out of recyclable materials)

Does the design use benign manufacturing?

- *Is it made from life-friendly materials?*
 - This aspect is uncertain, as the final materials are not yet known
- *Is chemistry done in water?*
 - This as well is unknown.
- *Are processes done at ambient/local temperatures and pressures?*
 - Again, this is not yet known.
- *Recommendations:*
 - Select a final material that can be processed in water and at local temperatures and pressures

Does the design leverage its interdependence in the system?

- *Does it foster symbiotic, cooperative, community-based relationships?*
 - The product fosters a healthy relationship between the user and nature in the way it allows users to study insects.
- *Does it foster emergent relationships?*
 - The product does not yet foster emergent relationships, though the combination of the individual components into an overall bug catching product could be considered an emergent relationship.
- *Recommendations:*
 - Create a network for other bug catchers to discuss local insects, share hacks, and trade parts.

Recommendation Summary:

This product is well on its way to honoring each of Life's Principles. The two areas in which it could most improve are the materials and the relationships: product to product, product to user, and user to user relationships. Proposed solutions are to sell the product as a DIY template that allows users to use household materials to manufacture and assemble the product using household items. Biospire could sell the self-inflating lung, and then the users could create and adjust the other features of the product based on their needs. The inclusion of a social network aspect of this product could also encourage more user/user relationships that would allow the product to be a springboard for a deeper connections with others/nature.