Biocubes: Exploring biodiversity in one cubic foot

Michele Weber, Jen Hammock, Chris Meyer, David Liittschwager, Seabird McKeon
National Museum of Natural History and Smithsonian Marine Station at Fort Pierce
mweber@gmail.com

Photographs by Zach Kobrinsky (top and middle) and Chris Meyer (bottom)

“Geeky kid at quios.si.edu/biocube

Biocube exercises stress perception of the environment.

What can we discover in just a cubic foot of Earth? As it turns out, a whole lot! Biocubes – the life in a cubic foot of soil or water over one day – capture enough variation to explore the complexity of entire ecosystems. You don’t have to be a professional wildlife photographer or biologist to investigate and report on a biocube.

How-to at quios.si.edu/biocube

1. Assemble and deploy your biocube in your chosen location.
2. Explore the community in your biocube; observe it from a distance, examine up close and dissect the cube to find all the inhabitants.
3. Photograph and identify as many of your different creatures as you can using online tools, local field guides and naturalists.
4. Upload your photos to iNaturalist and add them to the Biocube Project. Ask the iNat community for help with your identifications.
5. Compare your biocube with other biocubes. Analyze your data and look for patterns.

You have new increased biodiversity knowledge while making valuable data available to the scientific community!

iNaturalist community contributions

As observations from each biocube are uploaded to iNaturalist, the iNat community helps identify the organisms. Online tools that integrate with iNaturalist will support taxon identification, data analysis and delivery of results to naturalists and scientists. Scientists interested in biodiversity data will provide feedback to the students as they incorporate the data into their research projects.

Inquiry-based learning

Using biocubes to make comparisons introduces students to the scientific method and teaches them how to test hypotheses. Teachers are encouraged to think about what kinds of questions they can ask with their biocube.

How do human impacts affect biodiversity?

Do different habitats support different communities?

Does community composition change seasonally?

Do invasive species increase through time?

Are the same pollinators consistently attracted to a particular flower species?

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