

Design a habitat that would actually work

Grades 9 to 12, ages 14 to 18. Three to four sessions, or a term-long project.

Students survey a real site at school, calculate what it could support, choose regionally appropriate species with reasons, cost it, and present a plan to somebody who could authorize it. Some of these get built.



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What students will be able to do

- Survey a site for aspect, drainage, soil and existing use.
- Select species using range, moisture and light data rather than preference.
- Produce a costed, defensible proposal with a maintenance plan.

Materials

- Tape measures, a compass or phone compass, a trowel
- This site's state page and species filters
- Supplier price lists
- Graph paper or plan software

How it runs

1. Survey: measure the area, record which way it faces, how many hours of sun it gets, and whether water sits after rain. Dig a small hole and describe the soil.
2. Constrain: use the state page to list species native to the state, then filter by the moisture and light the site actually has. This step kills most of the students' first choices, which is the point.
3. Design for the season, not the moment. Require something in flower from April to October, including late nectar, since fall migration needs fuel more than it needs host plants.
4. Quantity: at least ten milkweed stems in one group, and nectar species in blocks of three or more. Calculate plants needed from spacing and area.
5. Cost it two ways: seed sown in the fall, and plugs planted in spring. The difference is usually an order of magnitude and makes the trade-off concrete.
6. Write the maintenance plan. Who waters it in year one, who does not mow it in September, and who explains it to the groundskeeper. Most schoolyard habitats fail here rather than in the design.
7. Present to somebody real: a facilities manager, a head teacher, a parent-teacher group.

Discussion questions

- Which constraint eliminated the most species, and were you surprised by it?
- Where is the boundary between a habitat and something that looks neglected, and how would you manage the perception?
- What would you measure in three years to know whether it worked?

Taking it further

Register a completed planting as a Monarch Waystation and submit observations to the Monarch Larva Monitoring Project. Real data, collected by students, used by researchers.

Safety

Site survey supervision, gloves for soil work, and the usual milkweed sap precautions once plants are in.

NGSS alignment

Code	Performance expectation
HS-LS2-7	Design, evaluate and refine a solution for reducing the impacts of human activities on the environment and biodiversity.
HS-LS2-2	Use mathematical representations to support and revise explanations about factors affecting biodiversity and populations.
HS-ETS1-3	Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs.

<https://milkweedusa.com/learn/design-a-habitat/>