THE STANDARD

Designs for Biodiversity

Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

ANCHORING PHENOMENON

The Vanishing Monarchs

Monarch butterfly populations migrating to Mexico have dropped more than 80% over 30 years. The reasons aren't simple: pesticide use, loss of milkweed (the only plant monarch caterpillars eat), climate shifts along the migration route, and habitat loss in overwintering forests. No single cause, no single fix. Students keep coming back to this all week because every solution they propose hits one piece of the problem and misses another.

> **DRIVING QUESTION**
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> *"Which solution actually saves the monarchs, and how would we know if it's working?"*

INVESTIGATIVE 1

The Beavers Came Back

When beavers were reintroduced to certain western watersheds, the change was bigger than anyone expected. Their dams slowed water down, which let groundwater recharge, which kept streams cool and flowing in summer. Native fish came back. Wildfires in beaver-dammed areas burned cooler. One species engineered an entire system shift. Use this one to sharpen the cascade lens the anchor is pushing on: small change, big system effect.

> **DRIVING QUESTION**
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> *"How can adding one species change a whole watershed, and could the same trick work somewhere else?"*

INVESTIGATIVE 2

Bleached Coral, Warm Water

Coral reefs across the world are bleaching, turning ghostly white when ocean temperatures spike. The corals expel the algae that feed them, and if temperatures don't drop, they starve. Reefs support roughly a quarter of all marine species and protect coasts from storm surges. Use this one to sharpen the services lens: when the reef goes, the fishing goes, the tourism goes, and the storm wall goes.

> **DRIVING QUESTION**
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> *"What's a design solution for an ecosystem we can't directly cool down?"*