THE STANDARD

Influencing Organism Growth

Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.

ANCHORING PHENOMENON

The Great Dane and the Chihuahua

Two dogs in a photo. One is a Great Dane, head almost level with the kitchen counter. The other is a Chihuahua, small enough to fit in a coat pocket. Both are descended from the same ancestor (the wolf). Both eat dog food, drink water, and live in houses. Same species, same basic needs, wildly different sizes. Students will keep circling back to this all week.

> DRIVING QUESTION
>
> *"How can two animals of the same species end up so different in size, and what would happen if you raised them in opposite conditions?"*

INVESTIGATIVE 1

Same Seed Packet, Two Very Different Plants

Two radish plants, both grown from seeds out of the same packet. One is tall and dark green. One is short, pale, and leaning sideways. The only difference: where they grew. The tall one sat on a sunny windowsill. The short one sat on a desk in a back corner. Use this to sharpen the environment-as-cause lens the anchor is pushing on, with the genetic factor held constant.

> DRIVING QUESTION
>
> *"If two seeds had identical starting instructions, why did they end up so different, and what does that say about which factor mattered more here?"*

INVESTIGATIVE 2

The Pond Fish Size Mystery

Two ponds, both stocked with the same species of fish at the same time. Five years later, the fish in the big pond are nearly twice the size of the fish in the small pond. Same species. Same starting genetics. Different space, different available food. Use this one to extend the environmental-factor reasoning to a non-plant organism so students see the pattern holds across living things.

> DRIVING QUESTION
>
> *"Why do the same kind of fish grow to different sizes in different ponds, and what does that tell us about the limits of genetics?"*