THE STANDARD

# Models for Genetic Variation

*Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.*

ANCHORING PHENOMENON

## The Strawberry Patch Puzzle

A single strawberry plant sends out a runner that grows into a new strawberry plant. The new plant is identical to the parent. Same fruit, same leaves, same everything. But if you plant the seeds from a strawberry, the new plants are slightly different. Different size, different flavor, different yield. Same parent plant, two ways of making offspring, two completely different outcomes. Students will keep circling back to this all week.

> DRIVING QUESTION
>
> *"Why does the same plant produce identical offspring one way and varied offspring another way?"*

INVESTIGATIVE 1

### Identical Twins vs. Fraternal Twins

Two pairs of twins. One pair looks exactly alike, same face, same hair, same everything. The other pair looks no more alike than any siblings, different height, different features. Both came from the same two parents in the same pregnancy. Use this one to sharpen the cause-effect lens the anchor is pushing on. The reproductive event was the same. The starting cell was different.

> DRIVING QUESTION
>
> *"How can two pairs of twins from the same parents look so different from each other?"*

INVESTIGATIVE 2

### The Banana Crisis

Every banana sold in a grocery store is a Cavendish. Every Cavendish plant on Earth is a genetic clone of every other one, grown from cuttings instead of seeds. A fungus called Panama disease is sweeping through banana plantations and the plants have no genetic variation to fight back. The same thing happened to the previous variety, the Gros Michel, in the 1950s. Use this one to push on the survival side of variation: what happens when a whole population has no genetic differences.

> DRIVING QUESTION
>
> *"Why is a crop with no genetic variation so vulnerable to a single disease?"*