THE STANDARD

Inheritance of Desired Traits

Gather and synthesize information about technologies that have changed the way humans influence the inheritance of desired traits in organisms.

DCI
DISCIPLINARY CORE IDEA

LS4.B · Natural Selection

> *In artificial selection, humans have the capacity to influence certain characteristics of organisms by selective breeding. One can choose desired parental traits determined by genes, which are then passed on to offspring.*

Humans have been steering which traits get passed to the next generation for at least 10,000 years. Pick the cow that gives the most milk, breed it. Save seeds from the biggest corn cob, plant those next year. The genes that carry desired traits show up more often in offspring. **Newer technologies do the same job faster and more directly.**

SEP
SCIENCE & ENGINEERING PRACTICE

Obtaining, Evaluating, and Communicating Information

> *Gather, read, and synthesize information from multiple appropriate sources and assess the credibility, accuracy, and possible bias of each publication and methods used, and describe how they are supported or not supported by evidence.*

Students aren't memorizing a list of breeding methods. They're pulling information from multiple sources, weighing how credible each source is, and synthesizing what they find into a clear explanation. **The skill is sorting reliable information from hype, then communicating what the evidence actually says.**

CCC
CROSSCUTTING CONCEPT

Cause and Effect

> *Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability.*

Every technology in this standard is a cause that produces an effect on an organism's traits. Some effects show up in one generation (gene editing). Some take dozens (selective breeding). Some effects are predictable, some are probabilistic. **Students trace each cause to its effect and notice that the size and speed of the effect depend on the technology used.**