

3-LS3-1 Heredity: Inheritance and Variation of Traits

Students who demonstrate understanding can:

- 3-LS3-1. Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.** [Clarification Statement: Patterns are the similarities and differences in traits shared between offspring and their parents, or among siblings. Emphasis is on organisms other than humans.] [Assessment Boundary: Assessment does not include genetic mechanisms of inheritance and prediction of traits. Assessment is limited to non-human examples.]

The performance expectation above was developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Analyzing and Interpreting Data

Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used.

- Analyze and interpret data to make sense of phenomena using logical reasoning.

Disciplinary Core Ideas

LS3.A: Inheritance of Traits

- Many characteristics of organisms are inherited from their parents.

LS3.B: Variation of Traits

- Different organisms vary in how they look and function because they have different inherited information.

Crosscutting Concepts

Patterns

- Similarities and differences in patterns can be used to sort and classify natural phenomena.

Observable features of the student performance by the end of the grade:

1	Organizing data
a	Students organize the data (e.g., from students' previous work, grade-appropriate existing datasets) using graphical displays (e.g., table, chart, graph). The organized data include: <ol style="list-style-type: none"> Traits of plant and animal parents. Traits of plant and animal offspring. Variations in similar traits in a grouping of similar organisms.
2	Identifying relationships
a	Students identify and describe* patterns in the data, including: <ol style="list-style-type: none"> Similarities in the traits of a parent and the traits of an offspring (e.g., tall plants typically have tall offspring). Similarities in traits among siblings (e.g., siblings often resemble each other). Differences in traits in a group of similar organisms (e.g., dogs come in many shapes and sizes, a field of corn plants have plants of different heights). Differences in traits of parents and offspring (e.g., offspring do not look exactly like their parents). Differences in traits among siblings (e.g., kittens from the same mother may not look exactly like their mother).
3	Interpreting data
a	Students describe* that the pattern of similarities in traits between parents and offspring, and between siblings, provides evidence that traits are inherited.
b	Students describe* that the pattern of differences in traits between parents and offspring, and between siblings, provides evidence that inherited traits can vary.
c	Students describe* that the variation in inherited traits results in a pattern of variation in traits in groups of organisms that are of a similar type.