

# SOUTH CAROLINA SCIENCE STANDARDS ALIGNMENT

## Fishing Cat: Zoo Minutes Video Lesson Series — Complete Standards Reference

*South Carolina College- and Career-Ready Science Standards 2021*

This document consolidates the South Carolina science standards addressed across the grade-band lessons built around the Fishing Cat: Zoo Minutes video and its 360 Habitat Tour: Grades K–2 (Built for the Water and Who Eats Whom?), Grades 3–5 (Built for the Water and Who Eats Whom?), Grades 6–8 (Adaptation and Conservation), and High School Biology 1 & 2 (Adaptation and Conservation, with the Expert-Level Quiz). In total, the series addresses 25 performance expectations spanning Kindergarten through Biology 2, plus a short list of additional connections that could be developed.

### At a Glance

- **Grades K–2:** 5 standards (Kindergarten, Grade 1, Grade 2)
- **Grades 3–5:** 6 standards (Grade 3, Grade 4, Grade 5)
- **Grades 6–8:** 4 standards (Grade 7, Grade 8). Grade 6 is not addressed: SC's 2021 Grade 6 life science standards focus on cells and body systems, and the ecology and natural selection content in this lesson sits in Grades 7–8.
- **High School:** 10 standards (7 in Biology 1, 3 in Biology 2)

### Grades K–2 — Built for the Water & Who Eats Whom?

*Focus: what animals and plants need to survive, how baby animals learn survival behaviors from their parents, what plants need to grow, and how life differs across habitats.*

| Grade | Standard        | Performance Expectation                                                                                                                 | Where It Appears                                                                                   |
|-------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| K     | <b>K-LS1-1</b>  | Use observations to describe patterns of what plants and animals (including humans) need to survive.                                    | Both K–2 lessons; Food Chain K–2 (what plants, fish, and cats need)                                |
| K     | <b>K-ESS3-1</b> | Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live. | Wetland habitat discussion; Be the Chain model; 360 Habitat Tour                                   |
| 1     | <b>1-LS1-2</b>  | Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.                        | Viewing guide: how baby fishing cats learn to hunt                                                 |
| 2     | <b>2-LS2-1</b>  | Plan and conduct an investigation to determine what plants need to grow.                                                                | Food Chain K–2: Plant Needs mini-investigation (Extension)                                         |
| 2     | <b>2-LS4-1</b>  | Make observations of plants and animals to compare patterns of diversity within different habitats.                                     | Built for the Water: comparing the fishing cat's wetland with a house cat's home; 360 Habitat Tour |

## Grades 3–5 — Built for the Water & Who Eats Whom?

*Focus: how trait variation helps survival, how habitats support or fail organisms, how structures help animals catch food, and how energy moves through food chains and food webs.*

| Grade | Standard       | Performance Expectation                                                                                                                                                      | Where It Appears                                                                  |
|-------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| 3     | <b>3-LS4-2</b> | Use evidence to construct an explanation for how the variations in traits among individuals of the same species may provide advantages in surviving and producing offspring. | Built for the Water: adaptations and learned hunting; T-chart activity            |
| 3     | <b>3-LS4-3</b> | Construct an argument with evidence that in a particular habitat some organisms can thrive, struggle to survive, or fail to survive.                                         | Food Chain 3–5: Remove a Card; wetland habitat discussion                         |
| 3     | <b>3-LS4-4</b> | Make a claim about the effectiveness of a solution to a problem caused when the environment changes and affects organisms living there.                                      | Food Chain 3–5: Protect the Web mural (Extension)                                 |
| 4     | <b>4-LS1-1</b> | Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.                   | Built for the Water (paws, head shape); Food Chain 3–5 (how the cat catches prey) |
| 5     | <b>5-PS3-1</b> | Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.                        | Food Chain 3–5: food chain cards, exit ticket                                     |
| 5     | <b>5-LS2-1</b> | Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.                                                                  | Food Chain 3–5: food web model with decomposers                                   |

## Grades 6–8 — Adaptation and Conservation

*Focus: resource availability and population effects, patterns of predator-prey interaction, how behaviors and structures affect survival and reproduction, and how genetic variation helps individuals survive.*

| Grade | Standard       | Performance Expectation                                                                                                                                                                                                                                       | Where It Appears                                                        |
|-------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| 7     | <b>7-LS2-1</b> | Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.                                                                                                            | MS lesson: prey availability and limiting factors; Research Guide       |
| 7     | <b>7-LS2-2</b> | Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.                                                                                                                                                   | MS lesson: predator-prey and wetland comparisons                        |
| 8     | <b>8-LS1-4</b> | Use arguments, based on empirical evidence and scientific reasoning, to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively. | MS lesson: learned hunting behavior; CER on webbed paws                 |
| 8     | <b>8-LS4-4</b> | Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.                                                     | MS lesson: why genetic diversity matters in the Prague breeding program |

## High School — Adaptation and Conservation (Biology 1 & 2)

*Focus: natural selection and adaptation, carrying capacity, genetic variation, human impact on biodiversity, extinction risk, stable populations, and group behavior.*

| Course    | Standard       | Performance Expectation                                                                                                                                                                                                                                                            | Where It Appears                                                                                                              |
|-----------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Biology 1 | <b>B-LS2-1</b> | Use mathematical and/or computational representations to support explanations of biotic and abiotic factors that affect carrying capacity of ecosystems at different scales.                                                                                                       | Expert-Level Quiz Q9                                                                                                          |
| Biology 1 | <b>B-LS2-7</b> | Design, evaluate, and refine a solution for reducing the impacts of human activities on biodiversity and ecosystem health.                                                                                                                                                         | Research Guide prompts 1, 2, 4; Habitat Tour and Studbook extensions. Best Biology 1 match for the captive breeding storyline |
| Biology 1 | <b>B-LS3-2</b> | Make and defend a claim based on evidence that inheritable genetic variations may result from (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors.                                  | Research Guide prompt 2 (studbooks); Quiz Q3 (genetic diversity)                                                              |
| Biology 1 | <b>B-LS4-1</b> | Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.                                                                                                                                            | Quiz Q4 (convergent evolution); Research Guide prompt 3                                                                       |
| Biology 1 | <b>B-LS4-2</b> | Construct an explanation based on evidence that evolution primarily results from four factors: potential for a species to increase in number, heritable genetic variation, competition for limited resources, and proliferation of organisms better able to survive and reproduce. | Quiz Q6 (how natural selection produced webbed paws)                                                                          |
| Biology 1 | <b>B-LS4-4</b> | Construct an explanation based on evidence for how natural selection leads to adaptation of populations.                                                                                                                                                                           | HS lesson CER; Quiz Q1, Q6, Q8                                                                                                |
| Biology 1 | <b>B-LS4-5</b> | Evaluate the evidence supporting claims that changes in environmental conditions may result in (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.                                    | Research Guide prompt 1 (IUCN status and threats); Quiz Q7                                                                    |
| Biology 2 | <b>B-LS2-6</b> | Evaluate claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.                                                    | HS lesson: wetland stability and habitat loss                                                                                 |
| Biology 2 | <b>B-LS2-8</b> | Evaluate evidence for the role of group behavior on individual and species' chances to survive and reproduce.                                                                                                                                                                      | Quiz Q10 (solitary ambush hunting vs. group hunting); HS lesson                                                               |
| Biology 2 | <b>B-LS4-6</b> | Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.                                                                                                                                                                    | Possible extension: model a breeding or habitat-protection scenario                                                           |

## Additional Connections (Not Yet Built Into a Lesson)

*These standards connect to the fishing cat content but are not currently a main focus of any lesson. Each could be developed with a short activity.*

- **1-LS1-1:** A design task that mimics how the fishing cat's webbed paws or streamlined head work would fully meet this design-based standard (SC's wording: use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts).
- **5-LS1-1:** Plants obtain materials they need for growth mainly from air and water (background for the food chain's producer link).
- **8-LS4-6:** Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations (would fit a population graph activity).
- **B-LS3-3:** Apply statistics and probability to explain variation and distribution of expressed traits in a population (could support a studbook data analysis).

## Full Standards List (Alphanumeric)

*For quick reference or copy/paste into a curriculum map:*

- K-LS1-1, K-ESS3-1
- 1-LS1-2
- 2-LS2-1, 2-LS4-1
- 3-LS4-2, 3-LS4-3, 3-LS4-4
- 4-LS1-1
- 5-PS3-1, 5-LS2-1
- 7-LS2-1, 7-LS2-2
- 8-LS1-4, 8-LS4-4
- Biology 1: B-LS2-1, B-LS2-7, B-LS3-2, B-LS4-1, B-LS4-2, B-LS4-4, B-LS4-5
- Biology 2: B-LS2-6, B-LS2-8, B-LS4-6