ChickQuest Lessons at a Glance

Lesson	Next Generation Science Standard*	STEM Abilities	Life Skill	Success Indicator
1. Welcome to ChickQuest: Prepare the Chick Habitat	3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, come survive less well, and some cannot survive at all. (From Interdependent Relationships in Ecosystems)	Observe, compare, troubleshoot, hypothesize, measure, use tools	Keeping records, critical thinking	List what animals need to survive in a habitat or environment and, specifically, what eggs need in an incubator as habitat
2. Investigating the Inside of an Egg	3-LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all in common birth, growth, reproduction, and death. (From Inheritance and Variation of Traits: Life Cycles and Traits)	Observe, evaluate, collaborate	Keeping records, critical thinking	Label parts of an egg in a diagram; identify life cycle of a chicken; explain that grocery store egg is not fertilized
3. Investigating How Scientists Work	3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. (From Engineering Design)	Predict, collect data, collaborate, communicate, observe, hypothesize, plan investigation	Keeping records, planning and organizing, contributing to group efforts, cooperation, teamwork	Record accurate data on a logbook page; plan and design a science investigation
4. Investigating Scientific Measurement	K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object of tool. (From Engineering Design)	Collect date, compare, measure, observe, predict, use tools	Teamwork, critical thinking, keeping records, communication	Measure and record data using a tape measure, spring scale, and graduated cylinder
5. Investigating Eggshells	4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. (From Structure, Function, and Information Processing)	Observe, use tools, collect data, test hypothesis, infer	Keeping records, planning and organizing, critical thinking	Observe and record data from investigations; explain how eggshells are porous

6. Investigating Egg Structure and Design	4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. (From Structure, Function, and Information Processing) 3-PS2-1. Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object. (From Forces and Interactions)	Observe, communicate and demonstrate, evaluate, hypothesize, compare, organize, predict	Communication, critical thinking	Record and share observations; list functions of eggshells and explain how oval structure is a beneficial shape
7. Investigating Other Egg-laying Animals	3-LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all in common birth, growth, reproduction, and death. (From Inheritance and Variation of Traits: Life Cycles and Traits)	Organize, order, classify, compare	Communication, critical thinking, organizing	Read and record specific information about egg-laying creatures on cards; listen, compare, sort, and rank-order information
8. Investigating Scientific Classification	3-LS3-1. Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variations of these traits exist in a group of similar organisms. (From Inheritance and Variation of Traits: Life Cycles and Traits)	Observe, categorize and order, classify, compare, organize	Critical thinking, problem solving, accepting difference, organizing, communication	Use a dichotomous key to sort and classify animals
9. Investigating Scientific Contributions	5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. (From Earth's Systems)	Collect data, communicate, order and organize, question, summarize	Critical thinking, organizing, communication	Read science text about a scientist and record facts on a graphic organizer
10. Investigating Egg Physics	3-PS2-1. Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object. (From Forces and Interactions)	Observe, compare, evaluate, hypothesize, interpret and analyze, infer, predict, test, communicate	Critical thinking, problem solving, communication	Describe the results of physics experiments to distinguish between a hard-boiled egg and a raw egg
11. Investigating How Scientists Use Technology	4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. (From Structure, Function, and Information Processing) 5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. (From Earth's Systems)	Observe, interpret and analyze, infer, communicate, collaborate, troubleshoot, predict	Keeping records, critical thinking, problem solving, communication	Describe how technology prevents incubator and habitat problems and how careful record keeping is important for troubleshooting

12. Investigating How Birds Build Nests	3-LS3-2. Use evidence to support the explanation that traits can be influenced by the environment. (From Structure, Function, and Information Processing) 3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types and animals that live there may change. (From Interdependent Relationships in Ecosystems)	Compare, categorize, classify, collaborate, model build and construct	Communication, critical thinking	Design and build a model bird's nest
13. Investigating the Engineering and Design Process (Part 1)	5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. (From Earth's Systems)	Build and construct, collaborate, draw and design, optimize, problem solve, test, troubleshoot	Teamwork, cooperation, communication, planning and organizing, problem solving	Use the engineering design process to build an egg catcher
14. Investigating the Engineering and Design Process (Part 2)	3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	Analyze, collaborate, communicate, optimize, problem solve, redesign, test	Teamwork, cooperation, communication, planning and organizing, problem solving	Apply the Engineering Design Process to improve and retest the egg catcher
15. Investigating the Engineering and Design Process (Part 3)	5-PS1-4. Conduct an investigation to determine whether mixing of two or more substances results in new substances. (From Structure and Properties of Matter)	Collaborate, communicate, draw and design, optimize, state problems, invent solutions	Teamwork, cooperation, communication, planning and organizing, problem solving	Create a product from the leftover eggshells; explain how science can solve an environmental problem
16. Investigating How to Communicate Findings	3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	Organize, collect data, summarize, infer, communicate	Planning and organizing, communication	Create and present an advertising plan for an egg carton based on survey data
17. Investigating Science, Engineering and Technology Careers	5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. (From Earth's Systems)	Categorize, communicate, collaborate	Communication, planning and organizing	List possible careers in science, technology, engineering, and math
18. Investigating Next Steps	3-LS3-1. Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variations of these traits exist in a group of similar organisms. (From Inheritance and Variation of Traits: Life Cycles and Traits)	Collect data, compare, observe	Keeping records, organizing, communication	Observe and record observations; pose new questions for research
* The educational standards cited here are from the Next Generation Science Standards (2013). Only those standards reflected in the activities are cited. They are available in their entirety at nextgenscience.org.				