



P.O. Box 787  
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## Life on the Rock: Explanations for Marine Invertebrate Observations

*Individual micro and macro invertebrates from a community that live on live rocks found in Key Largo inshore waters will be displayed. With guidance from the MarineLab instructor, students practice the art of close scientific observation and using these observations to create explanations. Plenty of time will be allotted for close viewing of the entire live rock community (i.e. brittle stars, amphipods, snails, crabs, isopods, sea spiders, sponges, etc.) \*\*For those of you that have visited us on-site, this is a virtual version of our classic “rock shake” lab \*\**

**Grade Level:** 4-12

**Timing:** 45-60 minutes

**Materials:** worksheet (or a blank piece of paper) and pencil

### STANDARDS SUPPORTED

#### Next Generation Science Standards:

Featured Science Practice → constructing explanations

Featured Cross Cutting Concept → structure and function

Disciplinary Core Ideas → LS1A Structure and Function, LS2A Interdependent Relationships in Ecosystems, LS4C Adaptation

4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

MS-LS-1. Use argument 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.

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MS-LS1-5 Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms

HS-LS4-4. Construct an explanation based on evidence for how natural selection leads to adaptation of populations

**Next Generation Sunshine State Standards:**

SC.4.N.1.1 Raise questions about the natural world, use appropriate reference materials that support understanding to obtain information (identifying the source), conduct both individual and team investigations through free exploration and systematic investigations, and generate appropriate explanations based on those explorations

SC.4.N.1.2 Compare the observations made by different groups using multiple tools and seek reasons to explain the differences across groups.

SC.4.N.1.6 Keep records that describe observations made, carefully distinguishing actual observations from ideas and inferences about the observations

SC.4.N.1.7 Recognize and explain that scientists base their explanations on evidence

SC.5.N.1.6 Recognize and explain the difference between personal opinion/interpretation and verified observation.

SC.5.L.14.2 Compare and contrast the function of organs and other physical structures of plants and animals, including humans, for example: some animals have skeletons for support -- some with internal skeletons others with exoskeletons -- while some plants have stems for support

SC.5.L.17.1 Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycles variations, animal behaviors and physical characteristics.

SC.5.N.2.1 Recognize and explain that science is grounded in empirical observations that are testable; explanation must always be linked with evidence.

SC.8.N.1.6 Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected evidence.

SC.912.N.1.6 Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.



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SC.912.N.1.7 Recognize the role of creativity in constructing scientific questions, methods and explanations.

**Ocean Literacy Principles:**

5d: Ocean biology provides many unique examples of life cycles, adaptations and important relationships among organisms (symbiosis, predator-prey dynamics, and energy transfer) that do not occur on land.