

## Title

Squid Dissection Lab Mini Lesson

## Grade Level

Fifth

## Student Target

### Fifth Grade Science Benchmarks

- SC.5.N.1.2 Explain the difference between an experiment and other types of scientific investigation.
- SC.5.N.1.6 Recognize and explain that 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.15.1 Describe how, when the environment changes, differences between individuals allow some plants and animals to survive and reproduce while others die or move to new locations.
- 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.P.13.1 Identify familiar forces that cause objects to move, such as pushes or pulls, including gravity acting on falling objects.

### Fifth Grade Florida Core Standards Language Arts

LAFS.5.L.3  
LAFS.5.RI.1  
LAFS.5.RI.2  
LAFS.5.RI.3  
LAFS.5.RL.1  
LAFS.5.RL.3  
LAFS.5.RF.3  
LAFS.5.SL.1  
LAFS.5.SL.2  
LAFS.5.W.2  
LAFS.5.W.3  
LAFS.5.W.4

### Fifth Grade Florida Core Standards Math

MAFS.5.G.1  
MAFS.5.G.2  
MAFS.5.MD.1  
MAFS.5.MD.2  
MAFS.5.OA.2

## Materials

Teacher

- Research Material for Cephalopods
- Computer
- Projection screen

Student

- Journal
- Pencil
- Computer access

- Research materials

## Warm-up

Have students gather information on the amazing natural history and diversity of mollusks, cephalopods, and in particular squid around the world. Learn about the squid's life cycle and some different species. There are hundreds of species of cephalopods ranging in length from three-fourths of an inch to the 60-foot giant squid found in every ocean!

## Main Lesson – In Search of... The Giant Squid!!!!

1. Have students use the web and other sources to track the adventure of marine scientists trying to learn more about giant squids.
2. Have your students create a fictional journal about the activities, technologies, and adventures common to squid research.
3. Be sure they include a page imagining the day on which scientists finally discover a live giant squid.

## Reflection

Shared their journal experiences with the class

- What technology did you invent to help find the giant squid? What ocean or sea did they capture the giant squid? What was the squid doing, describe its habitat, what it was eating? What did it look like and how was it behaving?

## Assessment

- Participation in the activity

## Attachments

- Information packet about the Loxahatchee River Center
- Map of the Loxahatchee River
- Squid Dissection Regular Lesson
- References (See below)

Cephalopods: <http://www.bbc.co.uk/nature/life/Cephalopod>

Humboldt Squid: [http://www.bbc.co.uk/nature/life/Humboldt\\_Squid](http://www.bbc.co.uk/nature/life/Humboldt_Squid)

Common Cuttlefish: [http://www.bbc.co.uk/nature/life/Common\\_Cuttlefish](http://www.bbc.co.uk/nature/life/Common_Cuttlefish)

Octopuses: <http://www.bbc.co.uk/nature/life/Octopus>

Nautilus: <http://www.bbc.co.uk/nature/life/Nautilida>

Giant squid video [www.teamorca.org](http://www.teamorca.org)

## Title

Squid Dissection Lab Main Lesson

## Grade Level

Fifth

## Student Target

### 7<sup>th</sup> Grade Benchmarks

- SC.7.E.6.6 Identify the impact that humans have had on the Earth, such as deforestation, urbanization, desertification, erosion, air and water quality, changing the flow of water.
- SC.7.L.15.3 Explore the scientific theory of evolution by relating how the inability of a species to adapt within a changing environment may contribute to the extinction of that species.
- SC.7.L.17.1 Explain and illustrate the roles of and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web.
- SC.7.L.17.2 Compare and contrast the relationships among organisms such as mutualism, predation, parasitism, competition, and commensalism.
- SC.7.L.17.3 Describe and investigate various limiting factors in the local ecosystem and their impact on native populations, including food, shelter, water, space, disease, parasitism, predation, and nesting sites.
- SC.7.N.1.6 Explain that empirical evidence is the cumulative body of observations of a natural phenomenon on which scientific explanations are based.

## Materials of Pre-Post Lessons

Teacher

- Research Material
- Computer access
- Giant Squid resources and references
- River Center Packet
- Squid Dissection Mini Lesson

Student

- Journal
- Pencil
- Computer access
- Research materials

## Pre-visit Warm-up Lesson (Completed in classroom before visiting)

- Review the information in the Loxahatchee River Center packet with your students.
- Complete optional mini lesson provided by River Center education staff upon field trip registration confirmation
- Review interactive website activity <http://loxahatcheeriver.org/rivercenterflash/index.html>

## Main Lesson (Completed during visit with River Center staff)

1. Welcome, Introduction to the River Center, overview of today's field trip, and safety/rules talk
2. Divide the students into 2 groups to rotate through 3 different activities
  - a. Lovin' the Loxahatchee River Tour – focusing on habitats, species identification and adaptations, and watershed ecosystems
  - b. Squid Dissection hands-on activity: See below (classroom)
  - c. Water resources discussion – Where our water comes from, how we use water, where it goes once it's down the drain, water conservation
3. Touch tank demonstration

## Squid Dissection Main Lesson (Completed during visit with River Center staff)

1. Students will be working in pairs performing a scientific dissection of a squid
2. Students will learn the classification of squid, characteristics, and adaptations
3. Students will use dissection tools to identify different organs of the squid including mantle, fins, eye lens, arms, tentacles, beak, gills, ink sac, shell or pen, etc.
4. Students will get the opportunity to watch their dissected squid be used to feed aquarium species at the River Center (if time allows)

### **Post-visit Reflection Lesson** (Completed in classroom after visiting) Legends of “The Beast”

- What is 60 feet long from the tips of its long arms to the top of the mantle, has eyes the size of volleyballs, and was only been seen alive on camera in its deep-sea habitat in 2012? The incredible giant squid! Most of us know the giant squid only through novels and science fiction movies. Scientists know them from carcasses washed up on shore, floating in the sea, hauled up in fishing nets, remains found in the stomachs of their main predator, the sperm whale, and just recently in photographs and videos.
- Have your student read and analyze ancient myths, contemporary fiction, and movies about giant squids.
  - How do these sources characterize this rare creature?
  - Do you think these accounts are accurate?
  - What was your favorite myth or legend you found in your research?
- Write about your experiences at the Loxahatchee River Center

### **Assessment**

Participation in the activity

### **Attachments**

- Information packet about the Loxahatchee River Center
- Resources (see below)

Octopus and squid by James C. Hunt, Monterey Bay Aquarium, 1997

The Search for the Giant Squid by Richard Ellis. Penhuin, 1999

In Search for the Giant Squid (Smithsonian Institute) <http://ocean.si.edu/giant-squid>

National Museum of Natural History [http://www.mnh.si.edu/exhibits/ocean\\_hall/squid.html](http://www.mnh.si.edu/exhibits/ocean_hall/squid.html)

Giant Squid video [www.teamorca.org](http://www.teamorca.org)

## Title

Squid Dissection Lab Mini Lesson

## Grade Level

Seventh

## Student Target

### 7<sup>th</sup> Grade Benchmarks

- SC7.E.6.6 Identify the impact that humans have had on the Earth, such as deforestation, urbanization, desertification, erosion, air and water quality, changing the flow of water.
- SC.7.L.15.3 Explore the scientific theory of evolution by relating how the inability of a species to adapt within a changing environment may contribute to the extinction of that species.
- SC.7.L.17.1 Explain and illustrate the roles of and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web.
- SC.7.L.17.2 Compare and contrast the relationships among organisms such as mutualism, predation, parasitism, competition, and commensalism.
- SC.7.L.17.3 Describe and investigate various limiting factors in the local ecosystem and their impact on native populations, including food, shelter, water, space, disease, parasitism, predation, and nesting sites.
- SC.7.N.1.6 Explain that empirical evidence is the cumulative body of observations of a natural phenomenon on which scientific explanations are based.

## Materials

Teacher

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Student

- Journal
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- Research materials

## Warm-up

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## Main Lesson – In Search of... The Giant Squid!!!!

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3. Be sure they include a page imagining the day on which scientists finally discover a live giant squid.

## Reflection

Shared their journal experiences with the class

- What technology did you invent to help find the giant squid? What ocean or sea did they capture the giant squid? What was the squid doing, describe its habitat, what it was eating? What did it look like and how was it behaving?

## Assessment

- Participation in the activity

## Attachments

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- Map of the Loxahatchee River
- Squid Dissection Regular Lesson
- References (See below)

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Octopuses: <http://www.bbc.co.uk/nature/life/Octopus>

Nautilus: <http://www.bbc.co.uk/nature/life/Nautilida>

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## Title

Squid Dissection Lab Regular Lesson

## Grade Level

Fifth

## Student Target

### Fifth Grade Science Benchmarks

- SC.5.N.1.2 Explain the difference between an experiment and other types of scientific investigation.
- SC.5.N.1.6 Recognize and explain that 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.
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LAFS.5.SL.1  
LAFS.5.SL.2  
LAFS.5.W.2  
LAFS.5.W.3  
LAFS.5.W.4

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MAFS.5.G.2  
MAFS.5.MD.1  
MAFS.5.MD.2  
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## Materials of Pre-Post Lessons

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Student

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Giant Squid video [www.teamorca.org](http://www.teamorca.org)

## **Creating STEM Connections – Squid Dissection 5<sup>th</sup> Grade**

Science

- See standards above

Technology

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Engineering

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Mathematics

- See standards above