

# Unit 3: Module 5 - Nautical Science (5)

Content Area: **Social Studies**  
Course(s):  
Time Period: **June**  
Length: **5 blocks**  
Status: **Published**

## Enduring Understandings

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Demonstrate an understanding of Physical Science

## Essential Questions

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What are the two main topics in the field of physical science?

What are the six steps in the scientific method approach?

What is the differences in a theory and a law

Why do objects float?

## Content

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18 Motion, Force, and Aerodynamics NS2-M3C18S1 – Motion, Force, and Aerodynamics

19 Buoyancy NS2-M3C19S1 – Buoyancy

23 Sound and Sonar NS2-M3C23S1 – The Essence of Sound

NS2-M3C23S2 – The Doppler Shift

## Skills

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- State the two main topics in the field of physical science
- The six steps in the scientific method approach
- State the differences in a theory and a law
- Newton's three laws of motion
- Bernoulli's theorem
- How Mach numbers are derived

- Archimedes Law
- How objects float
- How a submarine floats and submerges
- Stability in a ship and its importance
- The effects that density and temperature have on sound
- How the ear detects sound
- The Doppler shift
- The characteristics of sound in seawater
- Sonar and its characteristics

## Resources

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<http://www.njrotc.navy.mil/curriculum.html>

Naval Science II Maritime History, Leadership, and Nautical Sciences for the NJROTC 3rd Edition

## Standards

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Reading: Informational Text

RI.9-10.1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly...

Writing

W.9-10.2. Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately...

W.9-10.7. Conduct short as well as more sustained research projects to answer a question or solve a problem...

W.9-10.9. Draw evidence from literary or informational texts to support analysis, reflection, and research.

Speaking & Listening

SL.9-10.1. Initiate and participate effectively in a range of collaborative discussions...

SL.9-10.2. Integrate multiple sources of information presented in diverse media or formats ...

SL.9-10.6. Adapt speech to a variety of contexts and tasks...

Language

L.9-10.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

L.9-10.4. Determine or clarify the meaning of unknown and multiple-meaning words and...

L.9-10.6. Acquire and use accurately general academic and domain-specific words and phrases...

Next Generation Science Standards (NGSS)

HS.Forces and Interactions

HS-PS2-1. Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS.Waves and Electromagnetic Radiation

HS-PS4-1. Use mathematical representations to support a claim regarding relationships