

**FORM 400****CURRICULUM PROPOSAL**

Fern Ridge School District 28J

1. Name of Course or Activity: **Marine Biology**School Department: **FRMS**

2. Check One: Change in old course

**New Course**3. Implementation Dates: **Beginning Fall 2026**4. Target Group: **7<sup>th</sup> and 8<sup>th</sup> Grade Students at FRMS; students who like the ocean and want to know more about the animals and other life living in it,**

5. Course Description: See attached completed "Planned Course Statement".

6. Rationale: (What problem or need will this proposal resolve? How will this goal be accomplished? Use additional pages if necessary.)

This course expands for students who are interested in learning about oceans and ocean life. Students will also learn to apply scientific concepts to real world situations as they learn about habitats, biodiversity, human impact, and current issues related to our environment and our oceans. Adding Marine Biology to our available electives at FRMS helps us to continue to provide electives that student are interested by and engaged in.

**Budget Estimate:**

	Amount	Explanation
Personnel	_____	_____
Supplies	_____	_____
Equipment	_____	_____
Travel	_____	_____
Other	_____	_____
Total	_____	

Initiator(s) **Garren Piccolo**  
 School **Fern Ridge Middle School**

Position: **Teacher**  
 Date **4-9-26**

**FORM 401**

SIGNATURES REQUIRED FOR A PROPOSED CHANGE IN THE CURRICULUM

Fern Ridge School District

PROPOSAL IDENTIFICATION: Marine Biology

INITIATOR: Barbara Piccolo

1. Submitted to: \_\_\_\_\_ Date: \_\_\_\_\_  
(Curriculum Associate)

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

2. Submitted to: Olivia Johnson Date: 4-9-26  
(Supervising Administrator)

Signature: [Signature] Date: 4-9-26

3. Submitted to: Michelle Marshall Date: 4/14/26  
(Curriculum Council Chairperson)

Recommendations of the Curriculum Council: Approved pending  
Supt. & Board approval

Signature: Michelle Marshall Date: 4/14/26

4. Submitted to: \_\_\_\_\_  
(Superintendent)

Final action taken: \_\_\_\_\_ Implementation as submitted is authorized  
\_\_\_\_\_ Implementation with specified modification is authorized  
\_\_\_\_\_ Implementation is not authorized

Explanation: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

# Proposed Elective: Marine Biology

**Instructor:** Garren Piccolo

**Length:** One Semester (18 Weeks)

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## Course Overview

Marine Biology is a semester-long elective that introduces students to the organisms, ecosystems, and environmental issues of the ocean. Students will explore marine food webs, habitats, biodiversity, adaptations, human impacts, and current issues in ocean science.

The course emphasizes hands-on learning, observation, reading, discussion, and project-based activities. Whenever possible, the class will connect learning to Oregon's coastal ecosystems and may include a field trip opportunity to the Oregon Coast, such as the Newport Aquarium and/or Hatfield Marine Science Center, to give students direct exposure to marine science in action.

This course supports student curiosity about life science while building scientific literacy, environmental awareness, and understanding of how ocean systems affect life on Earth.

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## Scope & Sequence (18 Weeks)

### Unit 1: Introduction to Marine Biology (Weeks 1–2)

- What is marine biology?
- Why oceans matter
- Overview of ocean zones and marine environments
- The ocean's role in climate, oxygen production, and food systems

### Unit 2: Ocean Ecosystems & Habitats (Weeks 3–5)

- Intertidal zones
- Coral reefs
- Open ocean
- Deep sea

- Estuaries and kelp forests
- Comparison of marine habitats and the organisms that live there

### **Unit 3: Marine Organisms & Adaptations (Weeks 6–8)**

- Invertebrates, fish, marine mammals, reptiles, and plankton
- Structural and behavioral adaptations
- Camouflage, bioluminescence, migration, and survival strategies
- Classification and biodiversity

### **Unit 4: Food Webs, Energy, and Ecosystem Relationships (Weeks 9–11)**

- Producers, consumers, decomposers
- Predator-prey relationships
- Food chains and food webs
- Energy flow in marine ecosystems
- Keystone species and ecosystem balance

### **Unit 5: Human Impact on the Ocean (Weeks 12–14)**

- Pollution and plastics
- Overfishing
- Climate change and ocean warming
- Acidification
- Habitat destruction
- Conservation efforts and stewardship

### **Unit 6: Oregon Coast & Applied Marine Science (Weeks 15–16)**

- Oregon coastal ecosystems
- Local marine species
- Research, aquariums, and marine science careers
- Preparation for potential field trip connections to Newport Aquarium and Hatfield Marine Science Center

### **Unit 7: Final Project & Presentation (Weeks 17–18)**

- Student research project, model, poster, slideshow, or field guide
  - Presentation on a marine organism, habitat, or ocean issue
  - Reflection on marine conservation and scientific learning
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# Standards Alignment (Prioritized Content Standards)

This elective supports key Oregon middle school science standards, along with literacy standards connected to reading, writing, and communicating scientific ideas.

## Science (Middle School Life Science / Earth & Space Science Emphasis)

- **MS-LS1: From Molecules to Organisms**  
Students examine structures, functions, and adaptations of marine organisms.
- **MS-LS2: Ecosystems: Interactions, Energy, and Dynamics**  
Students investigate food webs, ecosystem relationships, and population balance in marine environments.
- **MS-LS4: Biological Evolution: Unity and Diversity**  
Students explore biodiversity, survival, and adaptation in ocean life.
- **MS-ESS2: Earth's Systems**  
Students study the role oceans play in Earth's systems, including climate and water movement.
- **MS-ESS3: Earth and Human Activity**  
Students examine human impacts on the ocean and possible conservation solutions.

## English Language Arts Connections

- **Reading Informational Text**  
Students read and interpret scientific articles, diagrams, and informational texts.
  - **Writing**  
Students write explanations, reflections, and research-based responses.
  - **Speaking & Listening**  
Students participate in discussion and present marine science topics clearly.
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## Course Goals

Students will:

- Understand the importance of oceans and marine ecosystems.
- Identify major marine habitats and the organisms that live in them.

- Explain how marine organisms are adapted to survive in different environments.
  - Analyze food webs and energy flow in ocean systems.
  - Investigate how humans impact marine ecosystems.
  - Explore Oregon coastal ecosystems and marine science careers.
  - Communicate scientific understanding through projects, discussion, and presentations.
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# Course Syllabus Overview

## Major Topics

- Ocean zones and habitats
- Marine organisms and biodiversity
- Adaptations for survival
- Food webs and energy transfer
- Human impact and conservation
- Oregon coast ecosystems
- Marine science careers and research

## Learning Activities

- Class discussions
- Reading and note-taking
- Videos and short research tasks
- Interactive models and diagrams
- Small group activities
- Creative and scientific projects
- Final presentation or product

## Grading Components

- Participation & Engagement
- Class Assignments / Notes / Activities
- Projects / Research Tasks
- Final Project / Presentation

Assessment will focus on understanding, effort, participation, and growth.

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# Materials & Budget

If additional funds or support are available, they may be used for:

- Marine biology books or reference materials
  - Supplies for models or labs
  - Transportation or support for a field trip experience
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# Educational Value

Marine Biology gives students a highly engaging way to explore life science through real-world ecosystems and environmental issues. The course encourages curiosity, scientific observation, and awareness of Oregon's connection to the Pacific Ocean. It also provides students with opportunities to explore marine science careers and understand the importance of conservation and stewardship.

This elective supports science learning in an engaging format while connecting classroom concepts to authentic environments and possible field experiences.