

Table of Contents

Table of Contents	pg. 39
How to Use this Packet	pg. 41
Florida Standards Curriculum Alignment	pg. 42
Sounds of the Sea Acknowledgements	pg. 43
Sounds of the Sea Packet Contents	pg. 44
Show Host	pg. 45

Unit 2. Sounds of the Sea

Lesson 1. Introduction to Marine Mammals and Acoustics.....

What is Sound?	pg. 46
Introduction to Basic Acoustics	pg. 47
How does Sound Move?	pg. 47
Why Study Acoustical Oceanography	pg. 49
Introduction to Marine Mammals	pg. 50
How Echolocation Works for Marine Mammals	pg. 51
Activities	
Activity 1-1. How Fast does a Wave Travel?.....	pg. 53
Activity 1-2. How do we Hear?.....	pg. 55
Activity 1-3. Sing Ladies and Gentlemen.....	pg. 56
Student Information Sheet Lesson 1. Introduction to Marine Mammals and Acoustics	pg. 57

Lesson 2. Listening and Looking at Sounds.....

Sound Production	pg. 60
Diagram 2-1. Dolphin Head.....	pg. 61
Sound Reception	pg. 61
Diagram 2-2. Human Ear	pg. 62
How do Marine Mammals (and other organisms) use Sound in the Water?	pg. 62
Activities	
Activity 2-1. Listening Skills.....	pg. 64
Activity 2-2. Mathematical Magnitudes.....	pg. 65
Student Information Sheet Lesson 2. Sound Production and Reception	pg. 67



Lesson 3. Sound Use by Marine Mammals

Functions and Uses of Sound	pg. 69
Applications of Sound in the Ocean	pg. 71
Activities	
Activity 3-1. Target Size	pg. 72
Activity 3-2. Ocean Scramble	pg. 74
Student Information Sheet Lesson 3. Sound Use by Marine Mammals	pg. 75

Lesson 4. Sounds People use to Explore the Oceans

Vessels and Vehicles	pg. 76
• Vessels	pg. 76
• Satellites	pg. 77
• Robots	pg. 78
• Buoys and Probes	pg. 78
Sound Used in Ocean Research	pg. 79
Future of Ocean Research	pg. 80
Activities	
Activity 4-1. Phone a Friend	pg. 81
Activity 4-2. Play the Table Settings	pg. 82
Student Information Sheet Lesson 4. How to Live on a Ship	pg. 83

Lesson 5. Sound Pollution in the Ocean

What is Noise Pollution?	pg. 84
How is Noise Pollution Harmful?	pg. 84
Hearing Loss in Humans and Marine Mammals	pg. 85
Specifics of Hearing	pg. 86
Activities	
Activity 5-1. How Loud is Too Loud?	pg. 87
Activity 5-2. Making Sounds	pg. 88
Student Information Sheet Lesson 5. How Loud is What You Hear?	pg. 90

Lesson 6. Recording Sounds from Wild Marine Mammals

Problems Researchers Face	pg. 91
Tools Developed to Solve Recording Problems	pg. 92
A Deeper Look	pg. 93
Activity	
Activity 6-1. Listen to the Noise	pg. 94
Student Information Sheet Lesson 6. Fun and Interesting Facts about Sound	pg. 95
Vocabulary	pg. 96
References	pg. 99

