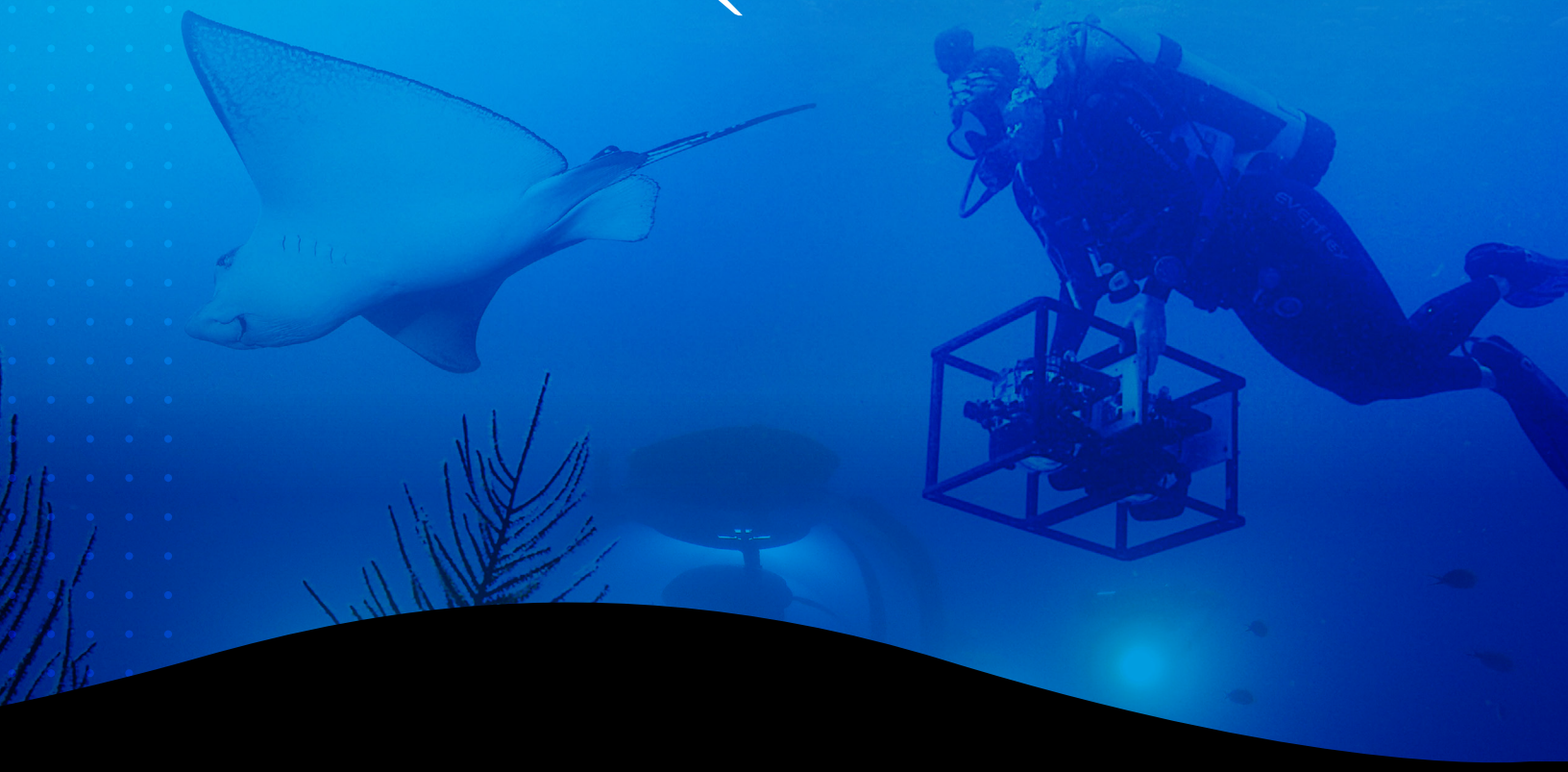
OCEANX

FLYING FISH

OCEANXPERIENCE



INSTRUCTIONAL SEQUENCE

OCEAN LIFE: WHAT MAKES IT "ALIVE"

Living vs. Nonliving Things

GRADE LEVEL: PP–2

ARIZONA SCIENCE CENTER

Never stop wondering.
Never stop imagining.™

Presented for Australian audience by:

WAM WESTERN AUSTRALIAN MUSEUM

PURPOSE

Early childhood students have a natural interest in the world around them including understanding the classification of living and nonliving things. Students first need to know what characteristics living things have and then they can explore what living things need in order to survive. As they explore this concept they will consider the overall question of "how are living and nonliving things different?"

EXHIBITION LEARNING GOAL

Visitors learn about the Xplorers, their research, and are left with a curious appetite to learn more.

OBJECTIVE

Students will develop a definition of what makes something living/nonliving by observing and analyzing the characteristics of things found in the ocean.

PRE-PRIMARY

SCIENCE

Science Understanding - Biological Science:
WAPSSUB1 - Plants and animals have basic needs that are met by the places they live.

Science Inquiry – Communicating:
WAPSSICM1 - Share questions, predictions, observations and ideas with others.

Science Inquiry - Collaborating and applying:
WAPSSICL1 - Use the senses to learn about the natural and physical world and develop scientific ideas.

YEAR 1

SCIENCE

Science Understanding - Biological Science:
WA1SSUB1 – Plants and animals have external features that serve a purpose and by which they can be grouped.

Science Inquiry - Questioning and predicting:
WA1SSIQ1 - Pose questions and make predictions based on knowledge and experiences.

Science Inquiry - Planning and conducting:
WA1SSIPL1 - Engage in guided investigations to answer questions, test predictions, and assess risks.

WA1SSIPL2 - Make and record observations, including informal measurements.

YEAR 2

SCIENCE

Science Inquiry - Questioning and predicting:
WA1SSIQ1 - Pose questions and make predictions based on knowledge and experiences.

Science Inquiry - Planning and conducting:
WA2SSIPL1 - Engage in guided investigations to answer questions, test predictions, and assess risks.

WA2SSIPL2 - Make and record observations, including informal measurements.

Science Inquiry - Communicating:
WA2SSICM1 - Communicate observations, ideas, and findings using everyday and scientific vocabulary.

YEAR 3

SCIENCE

Science Understanding - Biological Science:
WA3SSUB1 - Living things can be distinguished from non-living and once-living things, and grouped by their characteristics.

VOCABULARY

LIVING
Grow, take in nutrients (that means food and water), and reproduce (which means they make more living things like themselves)

NON-LIVING
Do not grow, need nutrients or reproduce

CHARACTERISTICS
A feature of someone or something

SURVIVAL
The act of living or continuing longer than another person or thing

ENERGY
The power or ability to make something work or be active

TEMPERATURE
A measure of how hot or cold something is

MATERIALS

1 ROCK FOR EACH GROUP

1 SEASHELL FOR EACH GROUP

1 SMALL CUP OF SAND FOR EACH GROUP

POSTER PAPER

SCISSORS

GLUE

COPIES OF THE SORT SHEET

ONLINE RESOURCES

OCEAN ANIMALS VIDEO

OCEAN PLANTS VIDEO

LITERARY CONNECTIONS

Living and Nonliving in the Ocean by Rebecca Rissman

Living Things and Nonliving Things: A Compare and Contrast Book by Kevin Kurtz

Living and Nonliving by Carol K. Lindeen

ENGAGE

LIVING VS. NONLIVING FORMATIVE ASSESSMENT SORT

Today we are going to investigate the different characteristics of living and nonliving things.

Hand out a sorting sheet and the images to cut and glue. Point out which word is living and which is nonliving, and that there is an extra spot at the bottom to draw their own idea after they finish sorting.

Once students have completed their sorts, have them come together with the whole group. Hold up an image and ask- Is this living or nonliving? Why? Have students raise their hand and share for each image. Do not confirm or deny any ideas. If there are disagreements, tell the students we will investigate to find out!

EXPLORE

INVESTIGATION #1: OCEAN ANIMALS

View a **video** of different ocean animals- pause the video after two minutes to hear student's observations of how that animal is surviving in their environment, and record their thoughts on a whiteboard or chart paper. Fast forward to a new animal and repeat- choose animals that will elicit comments about a need for air (whale blow hole video), energy (animal eating), water (deep tail slapping), and ideal temperatures (sea cucumber).

Have students look at their responses to make a class list of what animals need to survive.

Students should be able to identify:

Water

Energy (food)

Further investigate our questions about the role of air and temperature, let's investigate sea plants.

INVESTIGATION #2: OCEAN PLANTS

View the **ocean plants video** and have students listen for specific evidence of the role of air and temperature on ocean life. After the video, have students share their discoveries.

Return to the list of survival needs:
Students should be ready to add air and certain temperature conditions to the list.

INVESTIGATION #3: ROCKS, SHELLS & SAND

Give each group of students a rock, seashell, and cup of sand. Have them share observations. Then ask students to evaluate whether these three objects need energy, air, water, and certain temperatures to survive. Have students come to a conclusion based on these thoughts to determine a definition for the term "nonliving".

EXPLAIN

Based on the student's list of survival needs and their newfound definition of nonliving, have students now make a definition of living in their small groups. Once each group has had time to brainstorm, have each group record their thoughts on poster paper, with images drawn for evidence support.

EXTEND

Read the book, *Living and Nonliving in the Ocean* by Rebecca Rissman. When each animal, plant, or object is introduced, have students shout "living" or "nonliving" before reading the answer and explanation, and use chart paper to sort the majority.

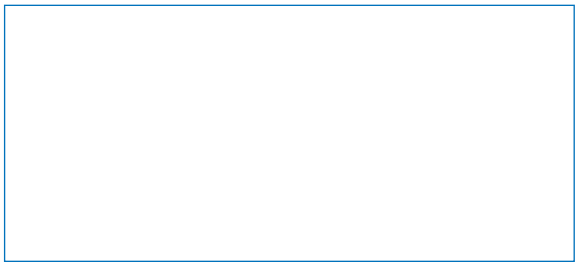
Have students pick their own ocean animal and explain the needs of that animal for survival to the class, along with a labeled image of the animal and its habitat.

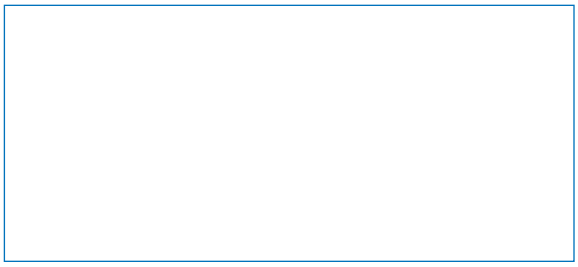
EVALUATE

Have students look at their original sort and draw arrows to images that they would like to shift. Once they have a chance to evaluate their thinking, have them come together with the whole group to vote on each object and its category. Make a final whole-class sort.

LIVING	NONLIVING

CAN YOU DRAW ONE MORE?





CUT ALONG THE DOTTED LINES


WHALE


ROCK


KELP


SAND


FISH


WATER


CRAB


SHELL


WHALE


ROCK


KELP


SAND


FISH


WATER


CRAB


SHELL


WHALE


ROCK


KELP


SAND


FISH


WATER


CRAB


SHELL

OCEANXPERIENCE

THIS GUIDE IS INTENDED FOR THE USE OF EDUCATORS, GROUP LEADERS, AND FAMILIES IN CONJUNCTION WITH THE *OCEANXPERIENCE* EXHIBITION. IT IS PROVIDED ON AN "AS IS" BASIS, AND FLYING FISH AND OCEANX DISCLAIM ALL WARRANTIES, WHETHER EXPRESS OR IMPLIED, REGARDING THE GUIDE. BY UTILIZING THIS GUIDE YOU RELEASE FLYING FISH AND OCEANX, ALONG WITH THEIR OFFICERS, EMPLOYEES, DIRECTORS, TRUSTEES, AGENTS, AND VOLUNTEERS, FROM ANY AND ALL LIABILITY, CLAIMS, ACTIONS, COSTS, EXPENSES, DAMAGES, ATTORNEY FEES, BREACH OF CONTRACT ACTIONS, AND ANY OTHER CAUSES OF ACTION THAT YOU MAY CURRENTLY HAVE OR MAY ACQUIRE IN THE FUTURE. THIS RELEASE PERTAINS TO ANY LOSS, DAMAGE, OR INJURY THAT MAY OCCUR TO YOU, THE INDIVIDUALS YOU ARE EDUCATING, OR ANY PROPERTY ASSOCIATED WITH YOU OR THE INDIVIDUALS YOU ARE EDUCATING AS A RESULT OF USING THE GUIDE. THE EXHIBITION, BASED ON A FORTHCOMING TELEVISION SERIES PRODUCED BY BBC STUDIOS NATURAL HISTORY UNIT AND OCEANX IN ASSOCIATION WITH EARTHSHIP PRODUCTIONS FOR NATIONAL GEOGRAPHIC, IS CREATED AND TOURED INTERNATIONALLY BY FLYING FISH.