

SCIENCE SPAZA

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OCEAN'S ECONOMY: TREASURE FROM THE SEA

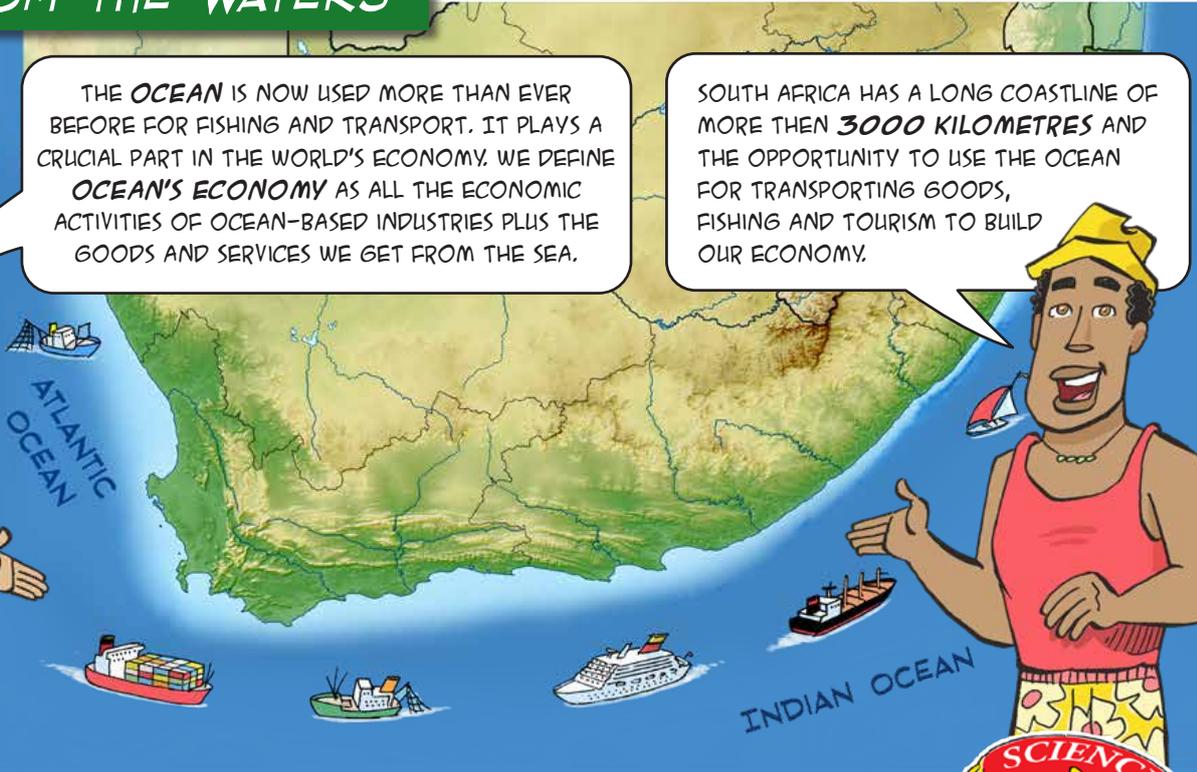


WEALTH FROM THE WATERS

Economics is the meeting of people's needs through buying and selling.

THE OCEAN IS NOW USED MORE THAN EVER BEFORE FOR FISHING AND TRANSPORT. IT PLAYS A CRUCIAL PART IN THE WORLD'S ECONOMY. WE DEFINE OCEAN'S ECONOMY AS ALL THE ECONOMIC ACTIVITIES OF OCEAN-BASED INDUSTRIES PLUS THE GOODS AND SERVICES WE GET FROM THE SEA.

SOUTH AFRICA HAS A LONG COASTLINE OF MORE THEN 3000 KILOMETRES AND THE OPPORTUNITY TO USE THE OCEAN FOR TRANSPORTING GOODS, FISHING AND TOURISM TO BUILD OUR ECONOMY.



Knowledge is Ncah!



LET'S EGGS-PERIMENT: ALL ABOUT OCEAN ACIDIFICATION



YOU WILL NEED:

- TWO JARS
- WATER
- VINEGAR
- EGGSHHELLS
- PEN AND PAPER

1 GENTLY WASH THE EGGSHHELLS. PLACE A COUPLE OF SHELLS IN EACH JAR.



2 FILL ONE JAR WITH WATER ONLY. FILL THE OTHER JAR HALFWAY WITH WATER, AND THEN ADD THE REST OF THE VINEGAR. LABEL THE JARS CLEARLY.



3 LOOK AT THE EGGSHHELLS. DO YOU SEE TINY BUBBLES FORMING IN THE JAR WITH VINEGAR?



4 LEAVE THE JARS OVERNIGHT. REMOVE EGGSHHELLS AND COMPARE.



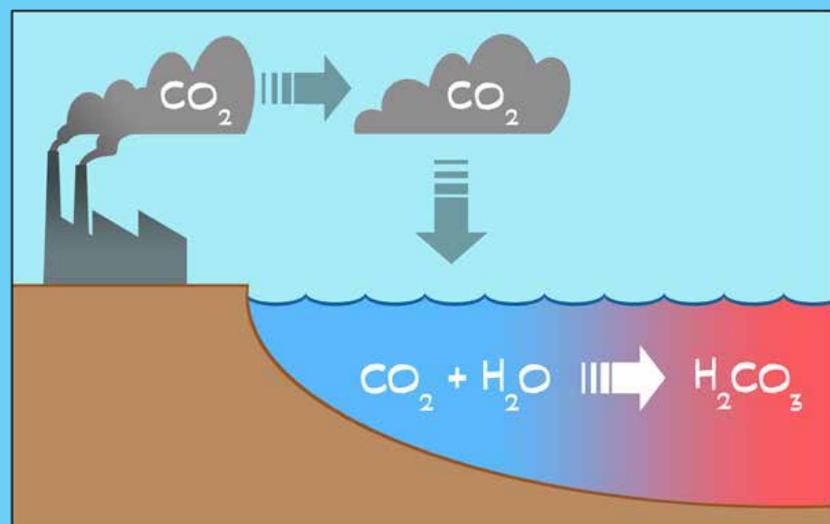
WHAT TO EGG-SPECT?
THE EGGSHHELLS KEPT IN VINEGAR WATER ARE SOFT.



OCEAN ACIDIFICATION

Eggshells, just like the shells of some marine creatures, contain calcium. Vinegar is an acid that reacts with the calcium in the shells to release carbon dioxide (remember the bubbles you saw?). This reaction breaks down the hard part of the shell, leaving only the soft lining.

Ocean acidification happens when high amounts of carbon dioxide from pollution in the air dissolve in seawater, making the ocean more acidic. This is bad news for sea creatures with calcium-rich shells. The change in acidity also affects many of the chemical reactions in the ocean that keep our planet healthy.



MARINE SCIENCE FOR SUSTAINABILITY



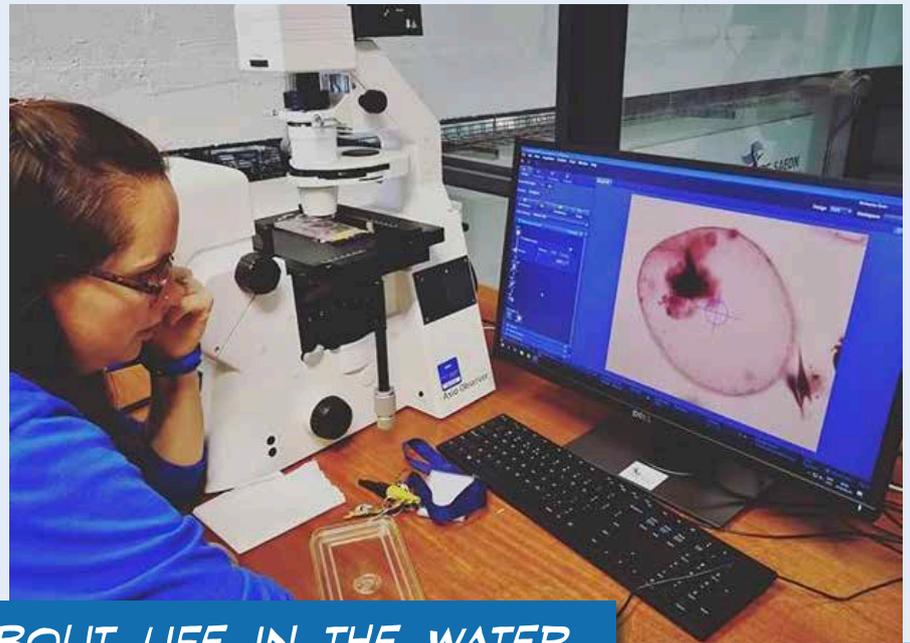
Above: Dr Ross-Lynne Gibb samples water in the Swartkops estuary in the Eastern Cape.

Right: Dr Ross-Lynne Gibb looking at microalgae under the microscope

When pollution from farms and sewage end up in the ocean, it causes microscopic algae to grow faster than normal. This causes harmful algal blooms also known as red tide.

Red tide forms toxins that can kill fish, make shellfish poisonous to eat and turn the water red.

Researchers at the South African Institute for Aquatic Biodiversity (SAIAB), study the causes of harmful algal blooms to better protect the ocean and the people who depend on it.



CAREERS: LEARNING ABOUT LIFE IN THE WATER



Above: Dr Ross-Lynne Gibb

Ross-Lynne Gibb studied plant and animal sciences at university. There she discovered her passion for tiny microscopic plants called microalgae or phytoplankton. Today, Dr Gibb is a phytoplankton ecologist based at the Nelson Mandela University Ocean Science Campus. Her research looks at how fast-growing algae can disrupt entire ecosystems.

CURRICULUM LINKS

- *Natural Science SP Gr 7-9:* Atmosphere, greenhouse effect, acids bases and neutrals.
- *Natural Sciences and Technology IP Gr 4-6:* Surface of Earth
- *Life Sciences FET Gr 10-12:* Human impact on the environment – algal blooms
- *Economic and Management Science SP Gr 7-9:* The economy

TREASURE HUNT TIME!

CAN YOU UNSCRAMBLE THE LETTERS TO FIND THE WORDS THAT WILL LEAD YOU TO THE TREASURE?

ONCE YOU'VE UNSCRAMBLLED ALL THE WORDS, TAKE THE FIRST LETTER OF EACH WORD, FIND THE NUMBER VALUE OF THE LETTER (E.G. A=1, B=2). ADD UP THE VALUES, THEN FIND THE TOTAL NUMBER ON THE MAP AND MARK IT WITH A CROSS - THAT'S WHERE THE TREASURE IS BURIED!

NEYMOOC

ENIRAM ECNSIE

YSASBUINATLLII

ONCAE

WRITE LETTERS HERE →

WRITE THE NUMBERS BELOW, THEN ADD THEM

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26



Answers: Economy; Marine Science; Sustainability; Ocean; 52

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WE WANT YOUR FEEDBACK!

DON'T FORGET TO SEND US A PHOTO OF YOUR EGGS-PERIMENT! WHATSAPP US ON: 076 173 7130



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