ARCTIC OCEAN
SCIENTIFIC ADVENTURES

EDUCATIONNAL PACKAGE NO.08

Studying Arctic Ocean with new in situ technologies

GENERAL MOTIONS

List two reasons why new technologies are indispensible for studying the Arctic Ocean:

1. 1. They permit continuous observation of the Arctic Ocean
2. 2. They can be used in areas that are inaccessible to humans (under the ice, at depth etc.)

What distinguishes autonomous platforms from other instruments that are used to explore the Arctic Ocean?

They are instruments that function autonomously. They are programmed by scientists before being deployed and continue to carry out measurements throughout their active lives. Conventional instruments are used for punctual sampling.

A MIX OF TECHNOLOGIES

Scientists have many instruments that they use to explore the Arctic Ocean at the ice camp and aboard the icebreaker.

Can you associate the instruments with their images and definitions?

NISKIN

ROSETTE

GLIDER

ROV

LOKI

PROFILING BOAT

IFCB

I consist of a framework of bottles that permits seawater to be sampled at multiple depths during the same deployment

I navigate the ocean in a zig-zag pattern, measuring seawater parameters deployment

Combining techniques, I can photograph phytoplankton as small as a tenth of a millimetre

I am a small vehicle that is remotely piloted in real time. I survey the seabed and film all that I see

Named for my inventor, I am a bottle used for collecting seawater samples at prescribed depths

I can sample and photograph zooplankton that I capture in my nets

Equipped with sensors, I descend to depths of 2000 metres then resurface to transmit the data

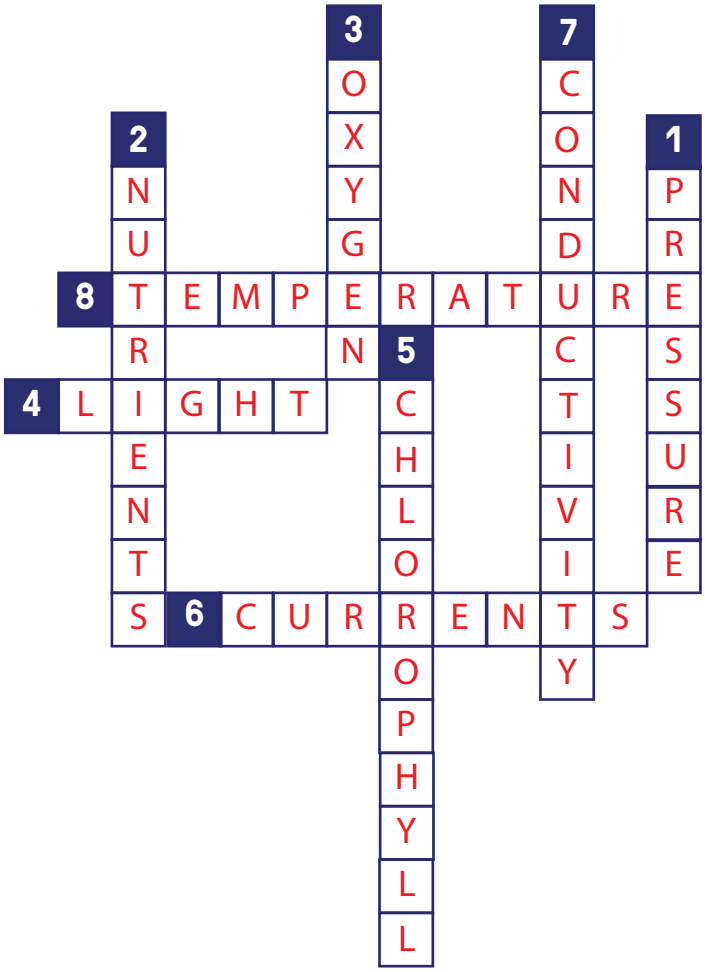
EDUCATIONNAL PACKAGE NO.08

Studying Arctic Ocean with new in situ technologies

WHAT DO SENSORS MEASURE?

The instruments used for exploring the Arctic Ocean are equipped with sensors that measure different physical, biological and geochemical parameters in the water.

Using the definitions provided, try to find the parameters and complete this cross-word puzzle:



1. I am a physical force that increases with depth.

2. I am the microscopic compounds dissolved in seawater that serve as food for phytoplankton.

3. I am a molecule that is essential for life, produced by photosynthesis.

4. Emitted as rays, I have difficulty penetrating the water column.

5. I am a pigment typically found in phytoplankton.

6. I represent the movement of water masses.

7. I am measure of electrical diffusion, that is indirectly used to quantify salinity.

8. I am the principal factor that determines the physical state of water.