



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  
indispensable for  
studying the Arctic  
Ocean:

1.	2.

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


## A MIX OF TECHNOLOGIES

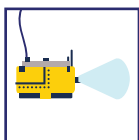
Scientists have many  
instruments that they  
use to explore the  
Arctic Ocean at the ice  
camp and aboard the  
icebreaker.

Can you associate the  
instruments with their  
images and definitions?



■ NISKIN ■

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



■ ROSETTE ■

I navigate the ocean in a  
■ zig-zag pattern, measuring  
seawater parameters deploy-  
ment



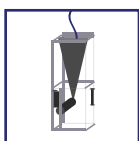
■ GLIDER ■

Combining techniques, I can  
■ photograph phytoplankton as  
small as a tenth of a millime-  
tre



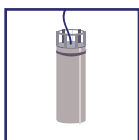
■ ROV ■

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



■ LOKI ■

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



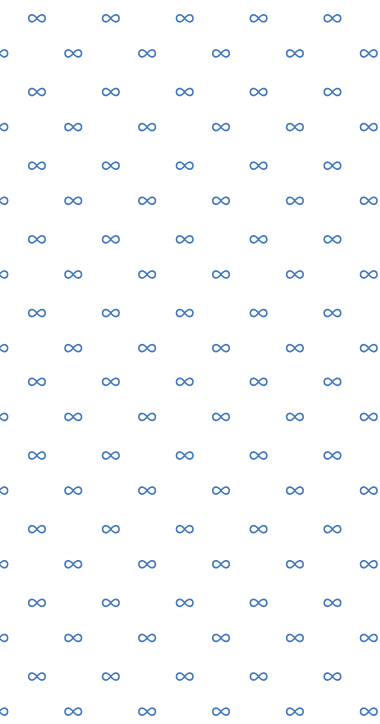
■ PROFILING  
BOAT ■

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



■ IFCB ■

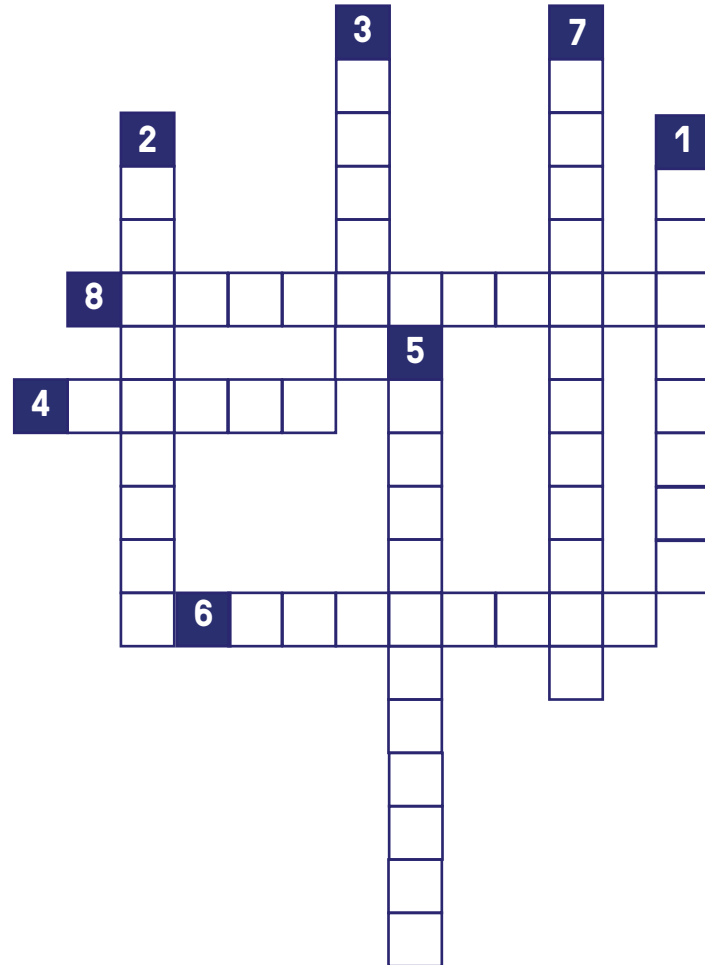
Equipped with sensors, I  
■ descend to depths of 2000  
metres then resurface to  
transmit the data



## 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.

