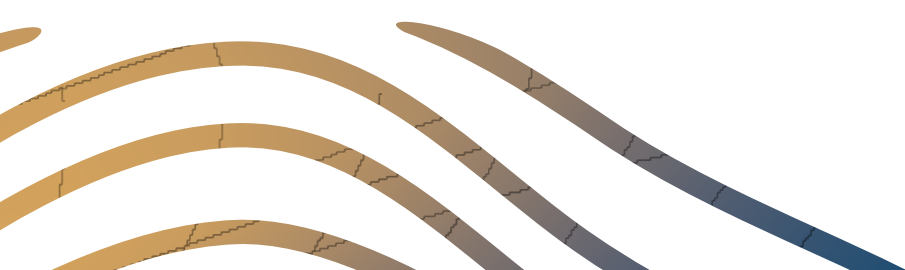




**THE OCEAN SENSES
ACTIVITIES BOOK**



INTRODUCTION

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Welcome to AKMA Ocean Senses!

This booklet consists of 16 interdisciplinary lesson plans and ideas that inspire to learn about the ocean and connect to it via their senses. Teachers from kindergarten to high school- are the primary audience, but this is not only for teachers. We hope people of all ages can be inspired. Parents can try some of the ideas out with their children at home. Some ideas could be tried out in older adults' homes or local youth groups. For example, some of the lessons can be used by older pupils as guides for younger pupils at school or science fairs. All the lesson plans were developed within a research project called Advancing Knowledge about Methane in the Arctic (AKMA Project number 287869). The AKMA project was funded by Norwegian Research Council and led by the UiT - The Arctic University of Norway in Tromsø in collaboration with Woods Hole Oceanographic Institute in the USA.

The AKMA project aimed to advance collective knowledge about methane activity in the seabed, on the seafloor and in the ocean in Arctic regions. The Arctic regions are particularly vulnerable to the effects of climate change, and methane is a highly effective climate gas when it reaches the atmosphere. The project started as a collaboration between UiT and the Woods Hole Oceanographic Institute. As things progressed, we also expanded to include scientists and educators across the world, from South America, Central Asia, Africa, and Europe. One of the flagship activities of the project was the research expedition in May 2022, which we called AKMA2 Ocean Senses (you can find the cruise report here:

<https://doi.org/10.7557/cage.6755>

The AKMA Ocean Senses Research Expedition took place aboard the research vessel Kronprins Håkon to the Barents Sea and the Arctic Ocean between May 11-22 2022, and was endorsed by the UN Decade of Ocean Science for Sustainable Development. The expedition had some important overarching aims. Firstly, we investigated and collected data from extreme environments such as cold seep sites. These sites are areas on the ocean floor where methane, hydrogen sulfide and other hydrocarbons naturally occur and bubble up in the water column. They are also sites where environmental stressors affect biological communities

and produce peculiar seafloor features. Secondly, we wanted to develop a platform for interdisciplinary collaboration to bring AKMA science into the classroom. We aimed to develop different lesson plans to encourage discussion on the ocean and climate change among school pupils and learners of any age. We wanted to spread awareness about the Arctic environment and the potential impact of climate change on the biological communities that live there.

The lesson plans we developed were inspired by an idea to connect the ocean and the ocean floor to students and schools via the “senses”. We wanted to encourage a sense of human-connectedness to this place that most people think of as dark, abstract, and sometimes scary. Encouraging pupils to feel more connected to a place, we hope they will feel encouraged to learn more about it and, hopefully, protect it through their choices. To achieve these ideas, we needed to open the door to influences from people in different disciplines and, most importantly, from people who work as teachers.

During the AKMA2 Ocean Senses expedition, different groups of us co-created different lesson plans. These smaller groups comprised people from very different backgrounds. There were teachers, natural scientists, social scientists, humanities scholars, education practitioners, and artists. The diversity within and between these smaller working groups is reflected in the variety of the resulting lesson plans. Some lesson plans are shorter, inspirational texts, whereas others are much longer and more detailed.

The lesson plans are meant as inspiration. It will be up to you, the teacher, to see how you can adapt these ideas to your class and curriculum. You will find lesson plans that inspire pupils to feel and think about the different aspects of the ocean and ocean floor. Some lesson plans involve artistic activities, whilst others encourage pupils to get outside and experience the world in different ways. Some lesson plans bring the ocean floor to life through smell and sound, whilst others will inspire through activities that involve maps and detective work. The activities can be used as they are for younger children, or they can be used to encourage discussion about more complex issues for older pupils. Some of the lesson plans have been tested in classrooms in Norway, Italy, and Brazil, but not all of them. If you test out some of them, we would love to hear from you.

This booklet results from the exciting and rewarding interdisciplinary collaboration during the AKMA project. We hope that you will find the lesson plans useful, and we hope they will help to inspire learners of all ages to have a closer relationship to the environments on the ocean floor and far beyond. The vision of the UN Decade of Ocean Science for Sustainable Development is to develop the “science we need for the ocean we want”.

We can all be inspired to protect the natural world for future generations.