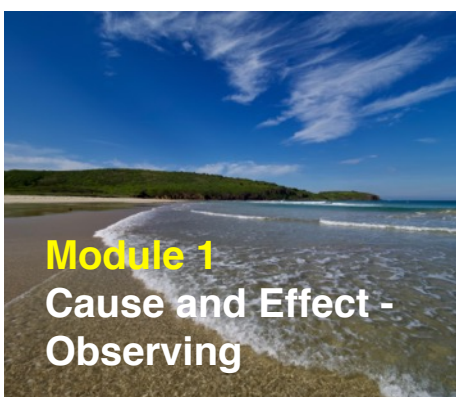


Stage 6 Investigating Science Inspired by **AUSMAP**





Stage 6 Investigating Science

Module 1: Cause and Effect - Observing

The Australian Microplastic Assessment Project AUSMAP has partnered with NSW Department of Education Environmental and Zoo Education Centres to support the implementation of the AUSMAP citizen science investigation for secondary students.

The AUSMAP scientific investigation enables teachers to model guided inquiry to address each of the S6 Investigating Science Working Scientifically outcomes and inquiry questions for Module 1: Cause and Effect - Observing. This creates a brilliant opportunity for a depth study!

The treatment of content includes secondary data describing observations that have motivated scientists to ask questions about the causes and effects of macroplastics and microplastics. Interpretation of the secondary data supports students' collection of accurate quantitative and qualitative primary data for analysis, creative and critical application of knowledge through problem solving and subsequent communication.

In addition to the AUSMAP investigation the resources include other related research opportunities for teacher led and/or student centred inquiry.

Pt 1 Questioning and Predicting

Secondary sources are used by scientists to access existing knowledge to inform and inspire new inquiry questions and hypotheses.

Pt 2 Planning Investigations

Collection of primary data through fieldwork requires thorough planning of methods and equipment to be used.

To view and/or copy the student guide/journal for Part 1 Questioning and Predicting and Part 2 Planning an investigation follow this link.

MICROPLASTICS

Australian Microplastics Assessment Project - AUSMAP



Name: _____

Stage 6 Investigating Science
Module 1 Cause and Effect - Observing
Part 1 Questioning and Predicting
Part 2 Planning Investigations

Environmental and Zoo
Education Centres NSW



MICROPLASTICS

Australian Microplastics Assessment Project - AUSMAP



Name: _____

Stage 6 Investigating Science
Module 1 Cause and Effect - Observing
Part 3 Conducting Investigations

Environmental and Zoo
Education Centres NSW



Pt 3 Conducting Investigations

Fieldwork enables collection of primary qualitative and quantitative data.

To view and/or copy the student fieldwork journal Part 3 Conducting Investigations follow this link.

To access the micro plastics photo-guide follow this link

Youtube Dr Scott Wilson demonstrates AUSMAP methodology

Pt 4 Processing Data and Information

Selecting and processing qualitative and quantitative data requires different digital technologies and media.

To view and/or copy the sample micro plastics spreadsheet follow this link.

Sample macroplastics and microplastics spreadsheet.

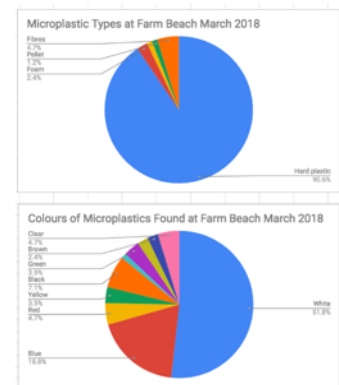
Pt 5 Analysing Data and Information

Data analysis clarifies trends, patterns and relationships determined through a valid, accurate and reliable process.

To view and/or copy the student guide/journal for Part 4 Processing data and Information and Part 5 Analysing data and Information follow this link.

MICROPLASTICS

Australian Microplastics Assessment Project - AUSMAP



Name: _____

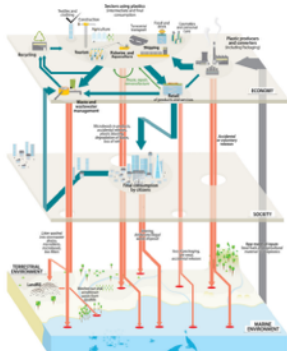
Stage 6 Investigating Science
Module 1 Cause and Effect - Observing
Part 4 Processing data and Information
Part 5 Analysing data and Information

Environmental and Zoo
Education Centres NSW



MICROPLASTICS

Australian Microplastics Assessment Project - AUSMAP



Name: _____

Stage 6 Investigating Science
Module 1 Cause and Effect - Observing
Part 6 Problem Solving

Environmental and Zoo
Education Centres NSW



Pt 6 Problem Solving

Apply and evaluate models to make predictions and solve problems, in this instance problems relating to causes and effects of micro plastics pollution upon aquatic environments.

To view and/or copy the student guide journal for Part 6 Problem Solving follow this link.

Pt 7 Communicating

Communication is an imperative of scientific investigation. Scientists use a variety of forms to communicate their work.

To view and/or copy the template for a scientific report follow this link.

Other ideas for communicating include: students writing a letter to the local mayor; write a letter to the editor of the local paper; work in groups to prepare a mini documentary; prepare a Powerpoint presentation, use Prezi, podcast, iMovie

CONTENTS



Questioning & Predicting

1.1 Background Information (include relevant scientific concept(s))
1.2 Inquiry Questions
1.3 Hypotheses
1.4 Background information including scientific media and texts.

.01

Planning

2.1 Risks and ethical issues
2.2 Study sites
2.3 Methods and materials
2.4 Variables and controls

.02



Conducting AUSMAP research

3.1 Risk assessment and working ethically
3.2 Reliable & valid qualitative data
3.3 Reliable & accurate quantitative data

.03

Role of Observations - follow this link to access other materials prepared to support teaching Module 1: Cause and Effect syllabus points below with a focus on questioning and predicting.

- assess ways in which Aboriginal and Torres Strait Islander Peoples use observation to develop an understanding of Country and Place to create innovative ways of managing the natural environment
- carry out a practical investigation to record both quantitative and qualitative data from observations
- discuss and evaluate the characteristics of observations made compared to inferences drawn in respect of the practical investigation
- research how observation has instigated experimentation to investigate cause and effect in an historical example, seabirds and indigestible plastics

Observations - follow this link to access/copy materials supporting Module 1: Cause and Effect syllabus points below with a focus on planning investigations.

- carry out a practical activity to qualitatively and quantitatively describe, in this instance characteristics of different sands sourced from different shorelines
- analyse the quantitative data from the digital images and graphs of results obtained from sieving sand to determine composition based upon particle size and mass
- evaluate the differences between qualitative and quantitative observations and data and where these are used

Sample Formal Assessment of a Depth Study: Observing Causes and Effects of Microplastic Pollution

S6 Investigating Science Template/Sample Program Microplastics