# Black tide – oil in the water

Oil in our waters – cleaning up our mess!

# SAILS inquiry and assessment unit overview

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| **Name** | Black tide – oil in the water |
| **Key content/concepts** | * The effects of an oil spill on our coast * Chemical mixtures (behaviour of oil in water) * Equilibrium of ecosystems |
| **Level** | * Lower second level |
| **Inquiry skills assessed** | * Planning investigations * Developing hypotheses * Forming coherent arguments * Working collaboratively |
| **Assessment of scientific reasoning and scientific literacy** | * Scientific reasoning (defining variables) |
| **Assessment methods** | * Classroom dialogue * Teacher observation * Peer-assessment * Self-assessment * Worksheets * Student devised materials (investigation plan, photographs of investigations) * Presentations |

**Purpose:** During this activity, it is intended that students will learn the scientific content associated with the behaviour of oil in water and the effect of oil spills on ecosystems, as outlined in the unit. This unit allows students to develop several inquiry skills; however, for the data collection about the assessment process it will be focused on *planning investigations* (and carrying out an investigation).

**Teacher actions**

1. Before class
   1. Build an assessment instrument for the inquiry skill(s) to be assessed. For example, Table 1 details a rubric for use where the main focus is the assessment of students’ skills in *planning investigations* and carrying out an investigation.
   2. Adapt the task for your students and for the context.

Table 1: Assessment tool for planning investigations

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| --- | --- | --- | --- |
| **Actions** | **1** | **2** | **3** |
| **Define goals** | Does not define coherent goals according to the proposed problem. | Defines some coherent goals according to the proposed problem. | Defines coherent goals according to the proposed problem. |
| Does not operationally define the variables. | Defines, with some difficulty, the variables of study. | Operationally defines the variables of study. |
| **Define strategies and procedures** | Does not define the necessary strategies and procedures to achieve the goal. | Defines, with some difficulty, the necessary strategies and procedures to achieve the goals. | Defines the necessary strategies and procedures to achieve the goals. |
| Unclear planning requiring reformulation. | Planning well presented but requiring reformulation. | Clear, concise and complete planning. |
| **Choice and use of resources** | Does not select adequate resources according to the goals and strategies. | Selects some resources that are adequate for the goals and strategies. | Selects the resources that are adequate for the goals and strategies. |

1. In class
   1. At the beginning of the process, clarify the assessment criteria (in particular those relating to the chosen inquiry skills).
   2. At the end of the process, apply a semantic differential to students for identification of their perceptions related to the assessment process.
2. After class
   1. Assess students’ artefacts (worksheets, experimental plans), having regard to the assessment tool developed and produce written formative feedback,
   2. Reflect on the assessment process.

Note: Evidence collected can include student artefacts, classroom video recording (optional) or other evidence.