

Burrowing Crayfish – Scientific thinking approaches

6. Community Monitoring – data collection.



Where do we find Burrowing Crayfish?
What do we look for?
How can we help?
What is community monitoring?

Lesson Overview:

This session provides the students with an opportunity to help in assisting Nature Glenelg Trust in actively contributing to science research. The focus is to record the distribution of Burrowing Crayfish communities. Students become involved in developing their own monitoring programs and developing scientific tools to collect and collate information and data recorded in the field. This innovative program can be coordinated with bus routes so students are actively collecting data on their bus routes or independently while travelling in the region.

Key concepts: Development of scientific tools (tables and monitoring sheets), recording of scientific data, interpretation of data to provide a distribution map, identification of habitat using burrows as indicators of occurrence.

Teaching strategies: Turn and Talk, Brainstorm, Whole group sharing and Small group collaborative work.

Equipment & Resources: Maps, iPads, monitoring sheets, 8 pieces of poster paper (monitoring sheet plans).

AUSVELS Curriculum Linkages: Biological Science foundation to level 9.

Activity Sequence:

1 hour

1. **Engage:** Developing science research skills are important. Using area maps of the catchment region the students begin to explore an aerial view of the landscape. Finding your local town is a good place to start, local areas of interest. Mapping in the school bus route and other main roads.
2. **Explore:** How do scientists collect information (data) over a large area.
 - **Turn and talk:** How would scientist do this? I think that the scientists could.....
 - Ask the students to share their ideas: Record detailed responses onto the board.
3. **Explain:** What tools can scientists use to learn about a particular species: What is the main way the scientist can observe if burrowing crayfish are present? (i.e Presence of burrow chimneys) What tools could they use to look at (monitor) this area? How are they going to measure their results? How will they start? Discuss these questions as a large group, use the Turn and Talk method.
4. **Elaborate:** Encourage a discussion about what types of information might be good on a monitoring sheet:
Dates, locations places, sites, maps, is it easier to enter information in a table etc.
 - **Making a monitoring sheet:** In small collaborative teams, (3) students develop their own monitoring sheet. Students need to investigate: What do we need to record down? How are we going to record this information and how will the information collected be used.
5. **Evaluate:** Each groups shares the monitoring sheet they have developed to the class. Collect the common ideas that the students are suggesting and begin to make a 'whole class monitoring sheet' on the board. Reflect on the monitoring sheet, discuss and refine the sheet as a whole group. Make sure the essential elements of a monitoring sheet are included (refer to teacher work sample for details)
6. **Use the monitoring sheet as your data collection sheet.** Nominate students bus routes, roads to their home etc. Put up a large map of the region and have students mark in where they have seen burrowing crayfish evidence. Remind the students that this is real scientific research that needs to be validated (checked to see if

it is correct) it is a real project. Make a copy of the monitoring sheet for each student to take with them using the science tool on bus routes and as individuals.

Teachers working example:

This session uses whole class discussions, small group work and collaboration to develop a monitoring sheet for Burrowing Crayfish. This process enables the students to be connected to the process of data collection and development of scientific research tools. It also provides them with the opportunity to be involved in real scientific research and to have shared ownership over the development of the monitoring sheet.

Take time to read 'The Burrowing Crayfish monitoring sheet' before beginning the activity. This will provide you with the knowledge of the type of monitoring sheet that could be created as a result of this process.

The aim of the session is to provide an active way of discussing science as a human endeavour (What do scientists do?) and create scientific inquiry thinking skills.

Teaching strategies:

Turn and talk:

Turn and talk is a way to involve all students in the classroom. It allows for each student to participate in class discussions. The questions are to be answered by the students in partners or small groups (no more than 3). As the teacher your role is to listen to the responses to summarise what you have heard as the students discuss their thoughts. Moving around the group really helps the students engage in their discussion and can give you time to help students that are stuck. It is ok to 'not know' or have 'no' response, however in the act of the discussion students usually contribute after the other group members have shared their ideas. The summary is shared back to the class 'I heard students talking about...'

Small group collaborative work:

By arranging the students in small teams the collaboration process opens discussion into planning a shared piece of work. Ensure that the groups structure will facilitate good outcomes.

Burrowing crayfish burrow

Chimney stack

Dirt mound created by the Burrowing Crayfish at the entrance of the burrow.

Can be up to 5 - 30 cm high.

Made by the burrowing crayfish from the mud from underground burrow systems.

Photo taken in the field Port Fairy district.



Burrowing Crayfish

Burrowing crayfish specimen found in Southwest Victoria.

Approximately 6 cm in length
Measured from tail to claw tip.

Note the different sized claws.

