

4.3 Case study 3 (CS3 Ireland)

Concept focus	Making informed food choices Developing inquiry skills
Activities implemented	Activity B: Food cards
Inquiry skills	Forming coherent arguments Working collaboratively (debating with peers)
Scientific reasoning and literacy	Not assessed
Assessment methods	Classroom dialogue Student devised materials (group work placemat)
Student group	Grade: lower second level Age: 12-14 years Group composition: mixed ability, single sex (all-girl school); groups of 3 students Prior experience with inquiry: No prior experience with inquiry

One activity from the **Food and food labels** SAILS inquiry and assessment unit was chosen for implementation as a class discussion. The students were given some food labels, and the research question “What do you think junk food is?” was posed. The students’ skills in *forming coherent arguments* and *working collaboratively* were assessed. Students completed a placemat summary sheet in small groups and the teacher engaged in dialogue to ensure all students contributed. Formative feedback was provided through a whole class discussion.

(i) How was the learning sequence adapted?

The **Food and food labels** SAILS unit was introduced to a lower second level science class, to promote student discussion. Activity B: Food cards was modified for implementation as a discussion. Students were given a set of food labels and asked a number of questions. Initially all students (in a whole class discussion) were facilitated to brainstorm on a number of questions:

- What is a nutrient?
- What is in our food?
- Is salt an energy?

Students were then required to work in groups of three to answer the question posed by the teacher:

- What do you think junk food is?

Each group completed a placemat summary sheet with four sections. Each student has a segment to write in on the placemat and then collectively the group decide on a consensus definition for the top segment – this promoted small group debate. The teacher formed the groups based on his/her knowledge of the students (quiet children together, more dominant students together) in participating in group discussions. Groups were not formed on the basis of academic ability or gender (this was an all-girl school). The teacher circulated between the groups asking probing questions to individuals/groups to encourage students to decide on an appropriate scientific definition and encourage appropriate contributions from everyone. Feedback was given in a whole class discussion.

(ii) Which skills were to be assessed?

The main elements of inquiry that this activity addressed were *forming coherent arguments* and *working collaboratively*, in which teacher assessed students’ skill in debating with peers. Placemats were used to capture the individual students’ understanding and ideas, as well as the consensus view of the group in agreeing a definition. The teacher also listened in to group discussions.

(iii) Criteria for judging assessment data

Students' skills in *working collaboratively* can be assessed at different levels during this activity. This is summarised in Figure 1, which reflects:

- Each individual student makes valid/relevant contribution in a small group.
- The whole group makes a justified decision/output based on individual group contributions.

It is important that these contributions are assessed on the basis of:

- Quality of discussion towards *forming coherent arguments*
- Students evaluate relevance/reflect on peer feedback
- Justified (small/whole) group discussion

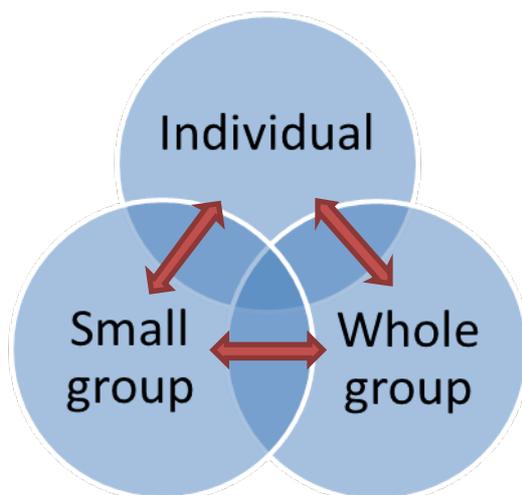


Figure 1: Levels for assessment of skill in working collaboratively

(iv) Evidence collected

Teacher's opinion

The teacher appreciates that this activity needs to be part of a long-term focus (1-3 years) of developing argumentation/discussion skills. Initially teachers need to guide the discussion, but over time can reduce staging/structuring. Teachers need to be aware of individual students' willingness to contribute – this may take time for confidence to develop. For example, in a first year class individual contributions might be made only within a small group.

The teacher felt that the question posed for this peer discussion needs to be focussed as well as open enough to be effective as starting point for an inquiry activity. This ensures that the output of this peer discussion is towards *forming coherent arguments*. It is important to be aware of the benefits to learning of both knowledge and skills.