Assessment

Salt – the good, the bad, and the tasty

Assessment criteria

The assessment of this Task can be based on a number of student assessment tools. Note that formative assessment is more appropriate for practical activities and group work. Summative assessment here concerns mainly the theoretical concepts of: ions, ionic conductivity, electrolytes, electrolysis, ionic bonding, crystals and crystal structure.

The following tables provide criteria for further assessing the students' work. Each of tables 1 to 4 provides criteria for assessing separately each phase. Table 5 has criteria for assessing the at home preparation for in-class discussions and activities. Finally, Tables 6 and 7 list the criteria for assessing students' attitudes and interest toward the performed activities (Table 6) , and toward the theoretical concepts and science in general (Table 7). Students can be asked to add their comments for improving the activity. Needless to comment that the proposed student assessment tools are mere suggestions. Teachers can include their own criteria for assessment.

Table 1 – Criteria for collective class assessment of **Phase 1** of the Salt module. (i) In class discussion about the origin of salt; (ii) student participation and explanation of the electrolysis experiment; (iii) student involvement in the introduction of the ionic bond concept. Student interest is also evaluated.

In class discussion about the origin of salt	The students had responded successfully	The students had responded in part	The students had limited involvement	The students were not involved at all
Student participation and explanation of the electrolysis experiment	The students had responded successfully	The students had responded in part	The students had limited involvement	The students were not involved at all
Student involvement in the introduction of the ionic bond concept.	The students had responded successfully	The students had responded in part	The students had limited involvement	The students were not involved at all

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Table 2 – Criteria for assessing execution of practical work (Phase 2).[1] Student interest is also evaluated.

Study of crystallisation	Excellent	Adequate	Limited	Poor
Study of re-crystallisation	Excellent	Adequate	Limited	Poor
Growing of large crystal	Excellent	Adequate	Limited	Poor

Table 3 – Criteria for assessing in-class discussion during phase 3 (study of crystal structure, industrial and everyday uses of salt). Student interest is also evaluated.

Study of crystal structure	The students had responded successfully	The students had responded in part	The students had limited involvement	The students were not involved at all
Industrial and everyday uses of salt	The students had responded successfully	The students had responded in part	The students had limited involvement	The students were not involved at all

Table 4 – Criteria for assessing in-class discussion during phase 4 (study of salt additives and substitutes, effect of salt on human health). Student interest is also evaluated.

Study of salt additives and substitutes	Excellent	Adequate	Limited	Poor
Effect of salt on human health	Excellent	Adequate	Limited	Poor

[1] Kempa (1986) has considered that the following qualities should be taken into account in schemes for the assessment of practical abilities: (a) recognition and formulation of a problem (NOT APPLICABLE HERE); (b) design and planning of experimental procedures (NOT APPLICABLE); (c) setting-up and execution of experimental work (manipulation); (d) observational and measuring skills (including the recording of data and observations); (e) interpretation and evaluation of experimental data and observations.

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Table 5 – Criteria for assessing the at home preparation for in-class discussions and activities.

Preparation for study of salt additives and, substitutes	The student has responded successfully	The student has responded in part	The student has done limited work	The student did not produce any work
Preparation for study of effect of salt on health	The student has responded successfully	The student has responded in part	The student has done limited work	The student did not produce any work
Preparation for study of ionic bonding	The student has responded successfully	The student has responded in part	The student has done limited work	The student did not produce any work

Table 6– Criteria for assessing students' attitudes and interest toward the performed activities.

In class discussion about the origin of salt	High	Average	Low
Student participation and explanation of the electrolysis experiment	High	Average	Low
Student involvement in the introduction of the ionic bond concept.	High	Average	Low
Study of crystallisation and re-crystallisation	High	Average	Low
Growing of large crystal	High	Average	Low
In comparison with traditional practical activities the activities were	Much better	About the same	Worse
Study of crystal structure	High	Average	Low
Effect of salt on human health	High	Average	Low
The activity has contributed to increased knowledge of the effect of salt on health	Yes a lot	Yes a little	No

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Table 7 – Criteria for assessing students' attitudes and interest toward the theoretical concepts and science in general.

The activities have contributed to increased knowledge and understanding about ionic bond	Yes a lot	Yes a little	No
The activities have contributed to increased knowledge and understanding about crystal structure	Yes a lot	Yes a little	No
The activity has contributed to increased knowledge and understanding of science	Yes a lot	Yes a little	No
Arrange in order of importance/usefulness the following studies*	Origin of salt	Growing of crystals	Ions and ionic conductivity
	Ionic bond	Crystal structure	Effect of salt on health
Arrange in order of interest the following studies**	Origin of salt	Growing of crystals	Ions and ionic conductivity
	Ionic bond	Crystal structure	Effect of salt on health

* From 1 (most important/useful), to 6 (least important/useful).
** From 1 (most interesting), to 6 (least interesting).

Bibliography

Kempa R. (1986). *Assessment in science* (Ch. 5). Cambridge: Cambridge University Press.

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