



## Design of learning Outcomes Framework, Associated Learning and Assessment Programmes

ESF Project 1.228

# Materials Science

educators feedback



Operational Programme II - Cohesion Policy 2007-2013  
*Empowering People for More Jobs and a Better Quality of Life*  
Project part-financed by the European Union  
European Social Fund  
Co-financing rate: 85% EU Funds; 15% National Funds

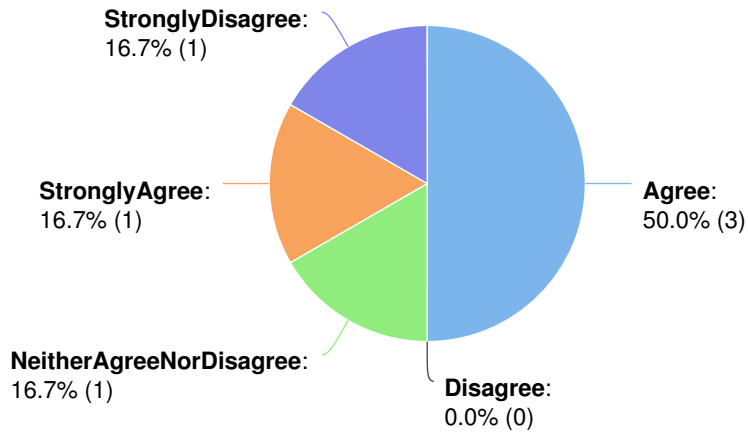


*Investing in Your Future*

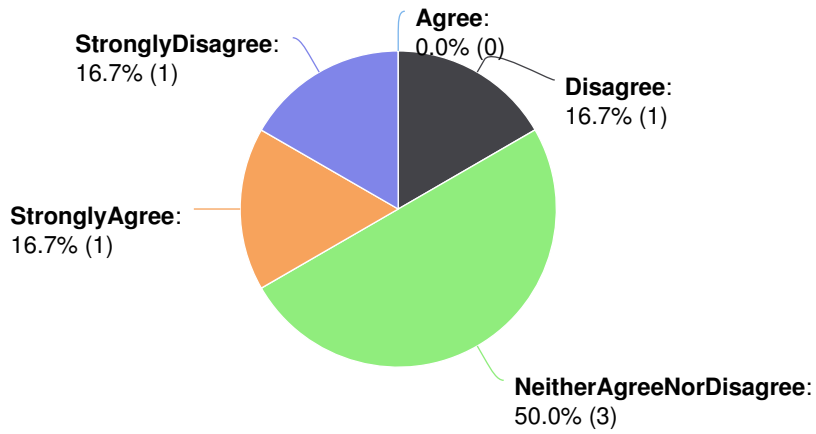
## Number of respondents

Education Officers	1
Head / Assistant Head of school / Deputy Heads	0
Head Of Departments	0
Inclusion Coordinators	0
Learning Support Assistants	0
Other	0
Subject Specialists	0
Teachers	4
University Lecturers	1
Vocational Education Training Lecturers	0

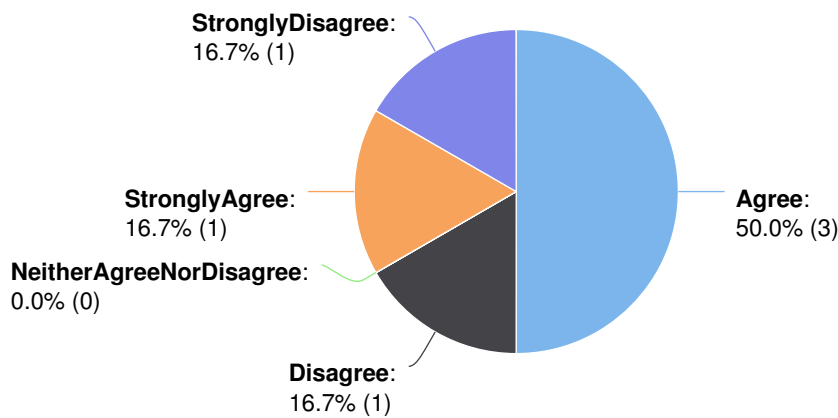
## Focused on the learner



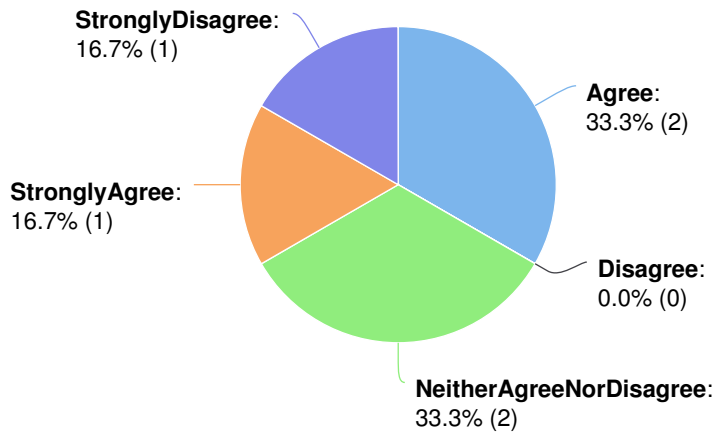
## Comprehensive



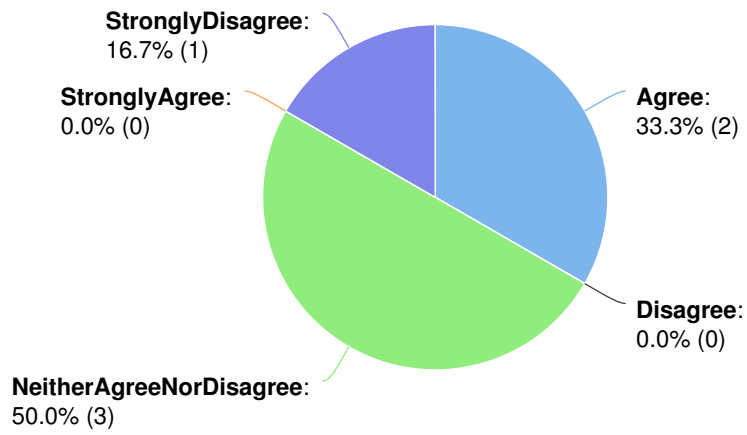
## Clear



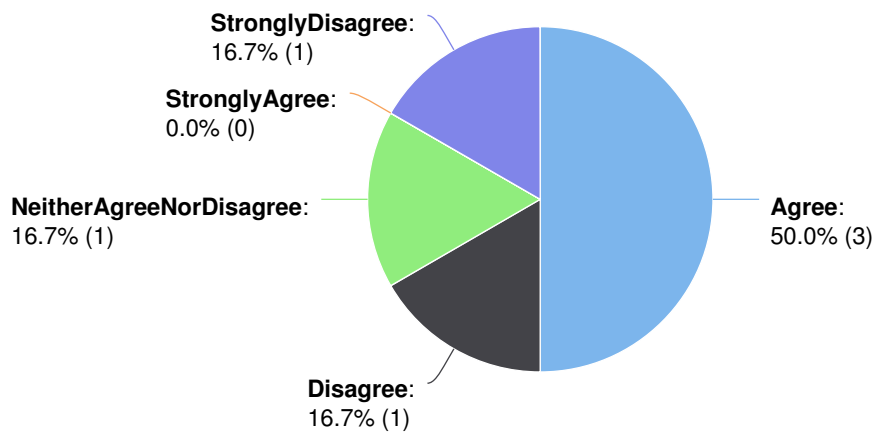
### Articulate



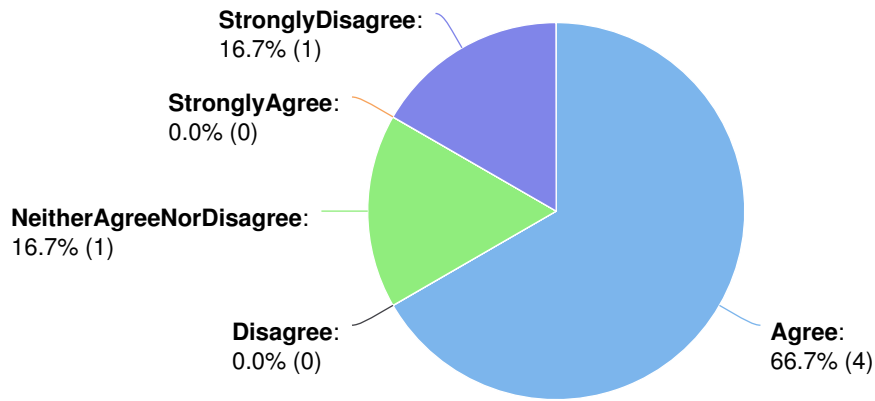
### Good for providing direction for learning activities



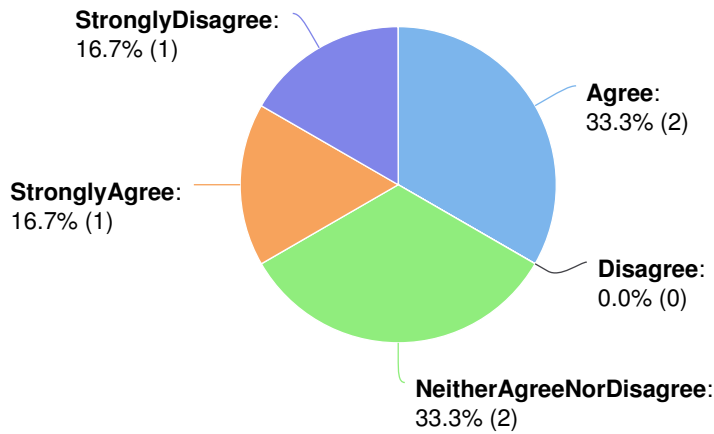
### Good guidelines for teaching and assessment



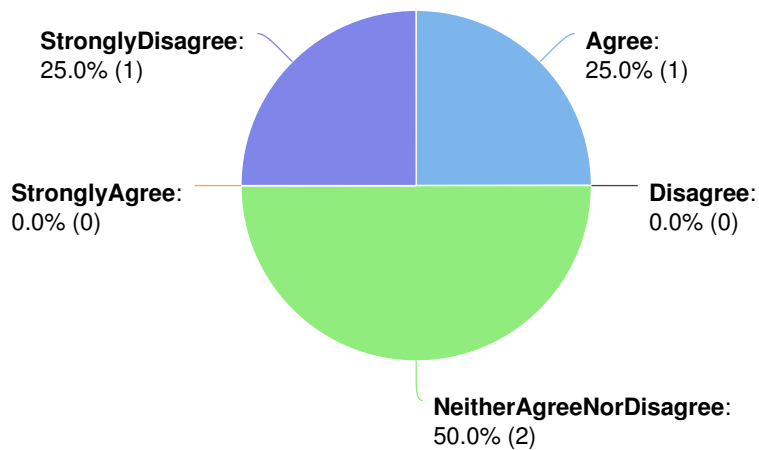
### Measurable



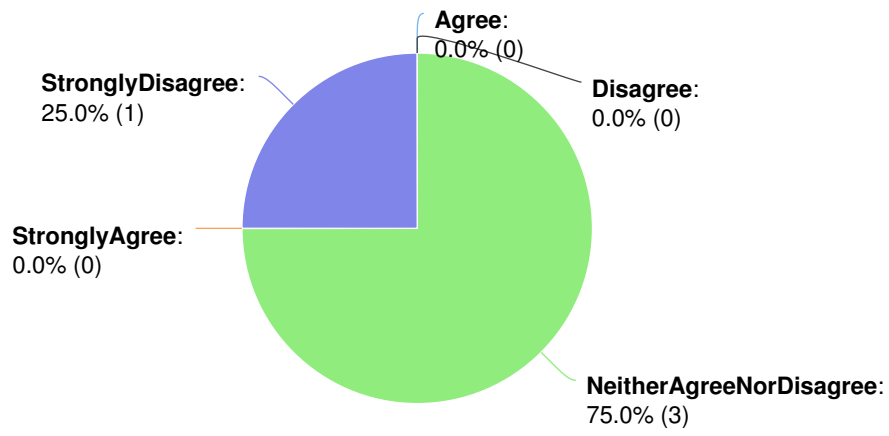
### Suitable for providing progression



### I feel that the Learning Outcomes approach will help me in my teaching



I feel that the Learning Outcomes approach will enhance my teaching practice



# Feedback

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#488

teacher materials-science secondary church\_school

*General comments or concerns about the subject:*

Ultimately the Matsec Board must issue a new syllabus content in line with the learning outcomes on each and every subject so that educators have clear and well-defined guidelines as to which topics remain, are eliminated or not specified in the learning outcomes (Contact process), are re-introduced (electrolysis of brine) or new topics. One way of clarifying doubts educators have vis-a-vis these changes, is by organizing training sessions per subject.

*Are there any Learning Outcomes you (respondants) would take out? Specify which and why.*

*Are there any Learning Outcomes you (respondants) would include? Specify which and why.*

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#528

teacher materials-science secondary church\_school

*General comments or concerns about the subject:*

Level 8 contains a lot of material and skills that can be developed at a later stage. At this stage students must be reassured in what material science deals with. Reference to general areas of economics and geography very difficult for secondary school students to appreciate at this stage.

*Are there any Learning Outcomes you (respondants) would take out? Specify which and why.*

The sea (sea): Points 7-9

The land : Point 1-4 and 9

Making new materials point 8-13 moved to level 9

*Are there any Learning Outcomes you (respondants) would include? Specify which and why.*

The relevance of studying material science and related jobs

Working in a laboratory and teamwork

Projects on developing areas eg nanotechnology and Maltese related areas (like hardness of water and reverse osmosis sites)

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#530

teacher materials-science secondary state\_school

*General comments or concerns about the subject:*

*Are there any Learning Outcomes you (respondants) would take out? Specify which and why.*

*Are there any Learning Outcomes you (respondants) would include? Specify which and why.*

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#544

university\_lecturer physical-science

*General comments or concerns about the subject:*

I would like to register my strong disagreement with the use of the descriptor "Materials science" instead of "chemistry". The term refers to an area within engineering concerning the synthesis or development of (usually new) materials to serve some engineering function. It is NOT a "sexy" term for chemistry! Why do we want to confuse minds and attract justified and predictable criticism?

I have looked at the LO's and notice some glaring mistakes or serious insufficiencies: e.g. in level 8 atmosphere nos. 9, 10 (mistakes); in level 8 The seE(a)(!), LO 18: preparation of soluble or insoluble or both types of salts from different materials? LO 5 is, to my mind, too ambitious for young learners (and the science is anyway still dodgy).

We really need to get this right first time round: please give it the attention it deserves. Sorry for not being more optimistic.

*Are there any Learning Outcomes you (respondants) would take out? Specify which and why.*

*Are there any Learning Outcomes you (respondants) would include? Specify which and why.*

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#549

teacher materials-science secondary state\_school

**General comments or concerns about the subject:**

1. Why was the name of the subject changed? Material science is usually used at University level for specific courses.
2. Very vague and haphazard LOF. Not a clear indication of the level the teacher should discuss with the students
3. Is everything going to be prepared by us? Internet activities.. inquiry questions.. assessment. TIME CONSUMING
4. With these LOF we have to change ALL our resources again?? Does this make sense?
5. Topics like Atomic structure and periodicity should be covered at the beginning so that the students will be able to understand other topics which need suitable knowledge to be discussed?
6. ONLY positive feedback is that some topics were removed!!

*Are there any Learning Outcomes you (respondants) would take out? Specify which and why.*

*Are there any Learning Outcomes you (respondants) would include? Specify which and why.*

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#561

education\_officer materials-science secondary state\_school

**General comments or concerns about the subject:**



- The idea of having three subject foci on Materials from the Earth (The Atmosphere, The Sea and The Land) makes sense.
- The reduction in syllabus content is welcome especially where inorganic chemistry is involved.
- However there are parts where I fail to follow the sequence of outcomes. At times it feels like they are haphazardly placed.
- There is no mention of separating techniques and the Kinetic theory which I think are an essential component for Chemistry.

So I would propose the following learning outcomes:

I am able to decide which separating technique/s I can use to separate the components of a mixture.

and

I can use the Kinetic theory of matter to explain changes of state etc.

- It would have been a good idea to stress the need for health and safety measures.
- In view of the above point, the learning outcome: "I am able to describe the extraction of iodine and bromine from seawater" is uncalled for especially considering that both iodine and bromine are poisonous substances. The skill of extraction of a resource from common materials can be easily conveyed via other chemical pathways!
- There is no direct mention to the topic of action of heat on materials which in my opinion is an important aspect of chemical analysis.
- I propose that the items left out intentionally in the LOF for Levels 8 and 9 should be included in Level 10.
- No mention of giant covalent and ionic structures has been made in the LOFs.
- No mention of ionic equations omitting spectator ions.
- I feel that students should be familiar with laboratory techniques for generating, drying and collecting gases.
- In Level 9, Subject Focus, The Sea, Point 1: "I can identify the ions present in sea water and in other solutions by experimenting", does this mean that the students will analyse for a mixture of ions?
- Finally, the Learning Area Outcome should be addressed to the Learning Area of the LOF that is Science and Technology. The Learning Area Outcome as stated should be included with the rest of the learning outcomes of the LOF for Materials Science. I imagined that a Learning Area Outcome for Science and Technology had already been decided. But after taking a look at LOFs for other Science and Technology subjects, it seems that coherence is lacking. Personally, I like the one for the Physical Sciences which states:

"I can use the inquiry process and skills of science and creative processes of technology to address the needs of society and design appropriate solutions to relevant issues for me as a citizen."

***Are there any Learning Outcomes you (respondants) would take out? Specify which and why.***

***Are there any Learning Outcomes you (respondants) would include? Specify which and why.***

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