



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

ESF Project 1.228

# 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

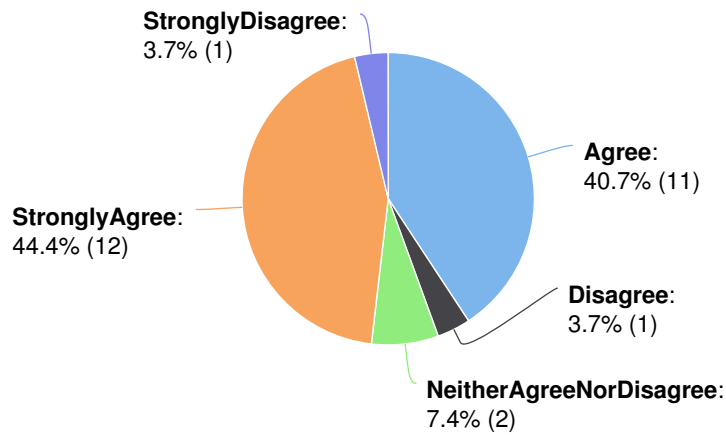


*Investing in Your Future*

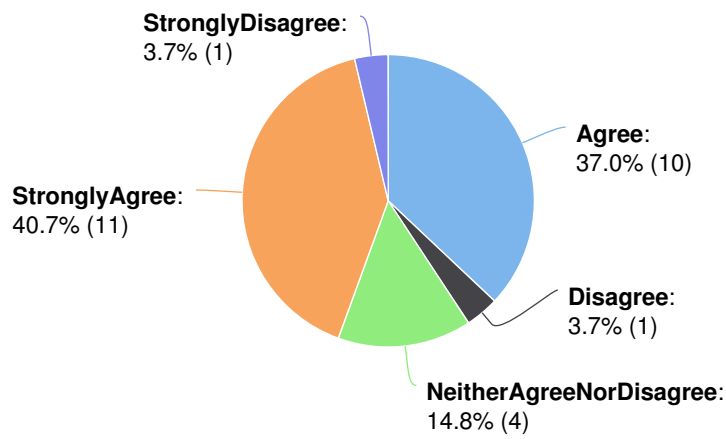
## Number of respondents

Education Officers	0
Head / Assistant Head of school / Deputy Heads	1
Head Of Departments	1
Inclusion Coordinators	0
Learning Support Assistants	0
Other	0
Subject Specialists	2
Teachers	23
University Lecturers	0
Vocational Education Training Lecturers	0

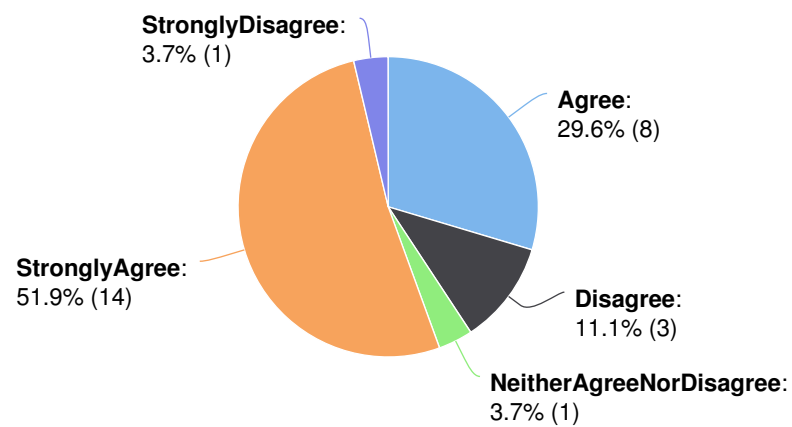
## Focused on the learner



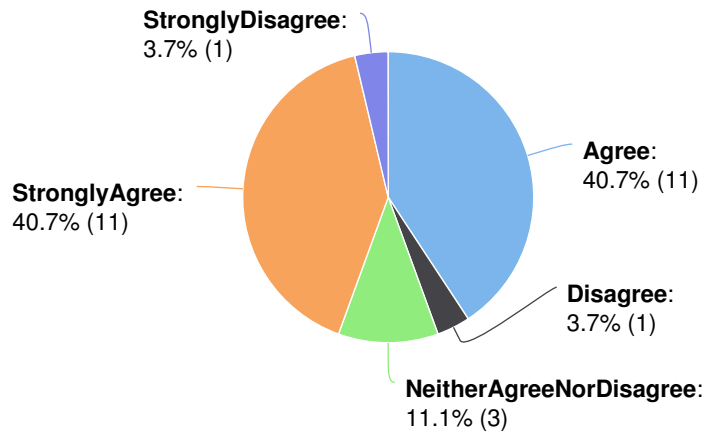
## Comprehensive



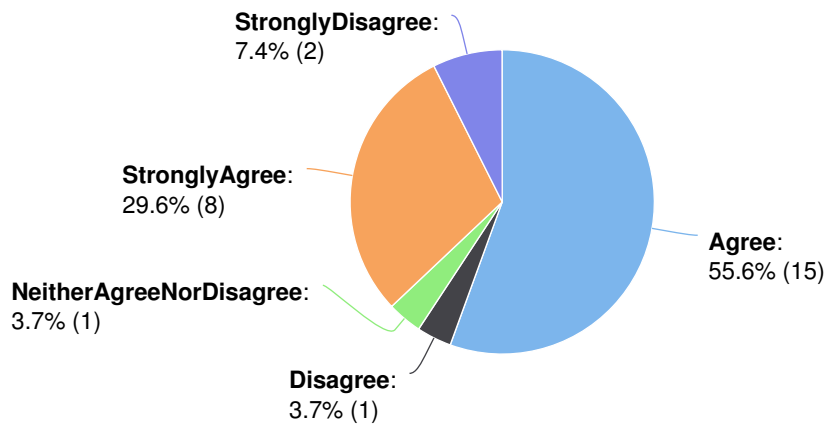
## Clear



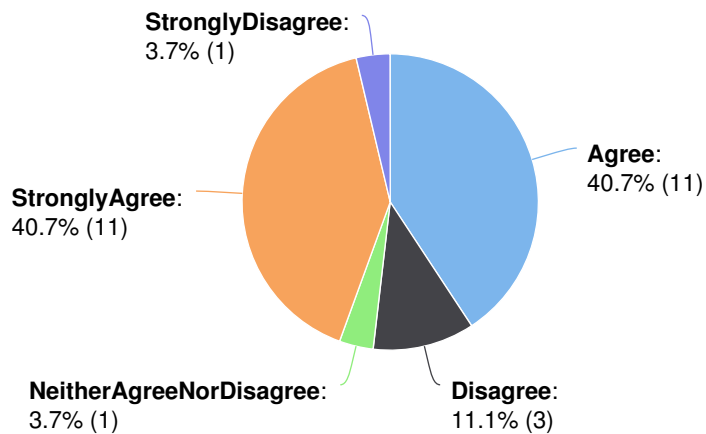
### Articulate



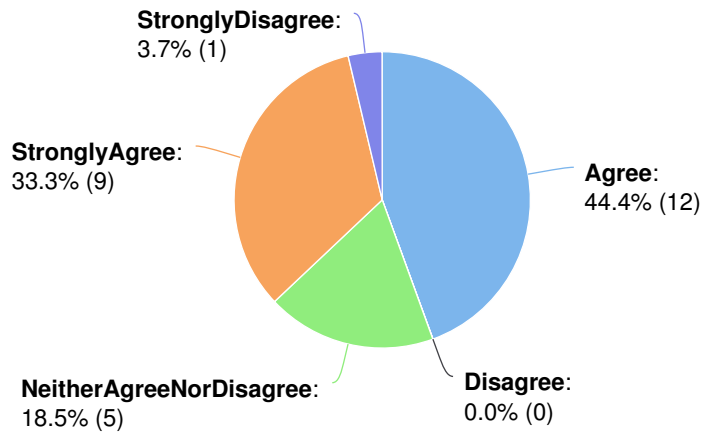
### Good for providing direction for learning activities



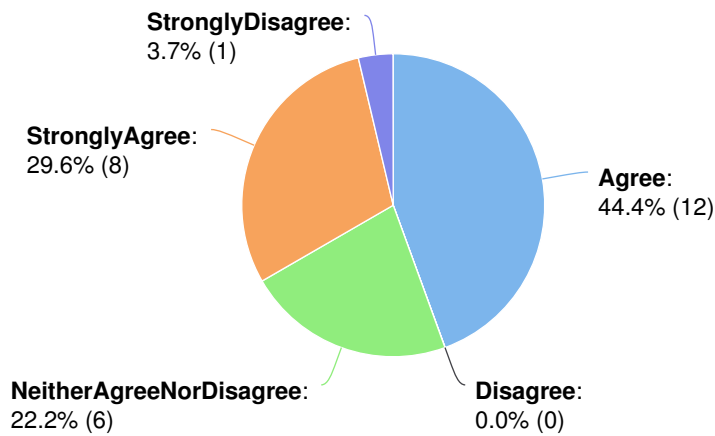
### Good guidelines for teaching and assessment



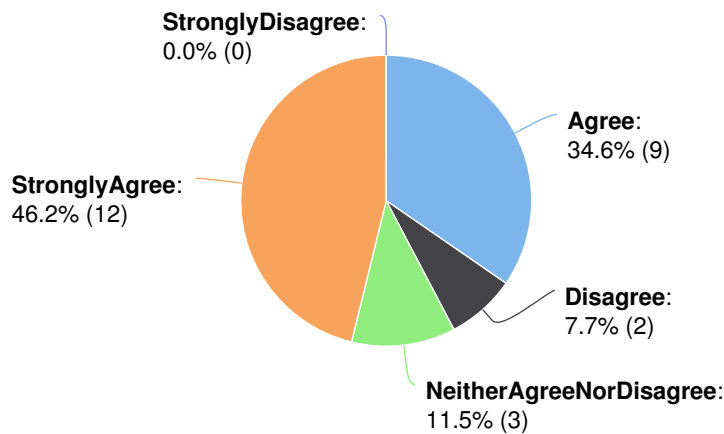
### Measurable



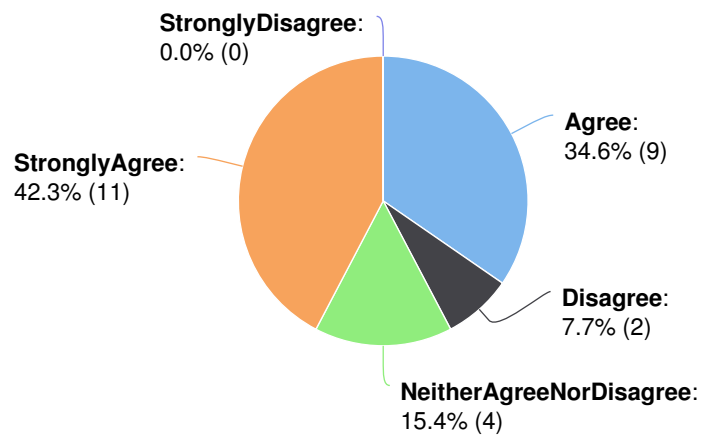
### Suitable for providing progression



### 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

---

#583

teacher None primary church\_school

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

Sometimes expensive equipment is required in order to conduct certain experiments. Such equipment is not always available in our school. Moreover we do not have a science teacher and so the class teacher has to do all the research herself in order to come up with the proper experiment for each topic. This is very stressful for the class teacher.

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

How do we stay alive? Number 12 - Year 3 pupils too young for these topic.  
What is energy? Numbers 8, 10, 11

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

---

#584

teacher None primary church\_school

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

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

Subject Focus: What do scientists do? Too many for one scholastic year, some topics need coverage over more than jus one lesson.

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

---

#586

teacher None primary church\_school

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

It gave me a clear picture of what the aims and intentions should be. I find them very helpful in knowing what I need to teach in class. They are also very simple for the boys to understand when i write them on the board.

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

I did not come across any that I feel the need to remove.

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

---

#589

teacher None primary church\_school

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

Some topics/ concepts are difficult for eight year old children to comprehend. At this age, most children are not conscious of these concepts in everyday life, thus it is difficult to assess the learning outcomes.

At present there are no science books catering for all the learning outcomes. A teacher's resource book together with a teacher's guide as well as workbooks for the children would facilitate learning.

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

Most learning outcomes are very interesting but there are too many topics to cover in two years at the pace of this age group.

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

#590

head\_assistant\_head\_of\_school\_deputy\_head None church\_school

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

1. Unfortunately, not enough time dedicated to science in schools to cover these outcomes although the NCF proposes much more time. 2. Few teachers in the primary are competent to teach science. When this is taught it ends up an information lesson or mere reading from a text book. An inquiry based teaching approach should be adopted. However for this to be done we need to invest in either intensive primary teacher training or specialised science teachers in the primary schools. As this situation stands now few teachers will be providing this scientific approach to our students. Our school has provided teachers with training in inquiry based teaching approach. Yet I still find some members of staff who find teaching science difficult for them.

3. These outcomes are a great effort to help students broaden their scientific knowledge thus becoming aware of the world around them.

*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.*

#591

teacher None primary church\_school

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

I think primary (non-peripatetic) teachers need more support and education in the science department. Personally, I would have to re-study certain subjects like electricity and space. Teachers who do not have a scientific background would need to learn everything from scratch. University does not give us that type of education unfortunately.

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

All are really interesting! Hopefully the outcomes are fully implemented in all schools.

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

Separating materials especially to explain the difference between dissolving and melting (jinhall) and that we might retrieve materials which would have dissolved in water. Also, experiments should be included to show children how we can retrieve materials from a dissolved substance which could link to information about Maltese salt pans and how salt is retrieved with this method. It is also important that children know that we cannot retrieve certain materials from mixtures especially after a chemical reaction has occurred (baking a cake, forming a syrup/caramel). Use of magnets can also be used to show how mixtures can be separated. Eventually, children would have the knowledge to identify mixtures and how to separate them.

#592

teacher None primary church\_school

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

Some topics and concepts are quite difficult for eight year old children to comprehend. At this age most children are not conscious of these concepts in everyday life, they are not aware, thus it is difficult for us teachers to assess the learning outcomes.

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

Most Learning Outcomes are very interesting but there are many topics to cover in two years at the pace of this age group.

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

#594

teacher science primary state\_school



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

Re: What do scientists do? Statement number 7 - I can describe what I did and what happened by talking about it or by drawing a diagram. I strongly believe that the exclusion of the possibility of writing from this statement will continue to perpetuate the idea among a good number of teachers including primary science peripatetic teachers that writing should not form part of the science program.

To keep in line with: Promote the integration of the skills of oracy, reading and writing - as suggested by The National Literacy Strategy - we should make it explicit that writing is also one of the options of describing what happened in an investigation. From experience, this help students regard writing as a tool, writing for a purpose. It will help them see relevance in writing.

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

Not really

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

Not really

#599

teacher religion primary church\_school

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

Science should be fun and not taught as an academic subject.

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

No as they are all useful and meaningful for both the teacher and the student.

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

No. They are all straight to the point.

#601

teacher science primary church\_school

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

There is too much material to be covered in grades 3 and 4. There will be too much pressure on both the teacher to cover all material, and on the students to understand and study it all!

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

"I can identify different types of fuel." The concept of "fuel" might be too complex for a number of level 5 students.

"I can identify energy saving devices and explain their importance in our daily lives". Better suited for level 7, than level 5.

Food chains should be constrained to level 6 rather than level 5.

"I can recognise some common plants which grow in my local area."

and "I can identify which plants are grown in Malta for food and when the best time to grow them is", should not be examinable.

"I can find out about Isaac Newton and his gravitational theories." Should not be tackled in too much details, these are still level 5 students.

Air resistance and friction are too difficult to tackle at level 5, these should be done at level 6.

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

#602

teacher science primary church\_school

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

There is too much material to be covered over grade 5 and 6. This will put too much pressure on the teacher to cover it all in time, and the students to understand, and study it all. There should be less material, and more time available for inquiry based learning, presentations, activities etc. Us teacher have no information on how these new outcomes will be implemented. Please provide us with more information.

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

(1) "I can name the main forms of energy, including stored, movement, heat, electrical, light and sound." Too abstract for primary students. (2) "I can use measuring instruments to measure mass and volume of various objects." Students at this level have not yet learned volume in maths, and might find this too complex. (3) "I can name some acids and alkalis found in everyday life." Too difficult. (4) "I can find out about the most important natural resources of Malta, and compare these to other countries." Too difficult. (5) "I can describe which plants that are important for food are not grown in Malta, and find out where they come from." Too much detail, more suited for geography. (6) "I can explain the difference between tap water and sea water" and "I can identify potable water sources." Too difficult. (7) "I can interpret basic weather charts and the symbols used". This is geography, not science.

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

#604

teacher None primary church\_school

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

N/A

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

No

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

All is included already.

#605

teacher None primary church\_school

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

On the whole, I tend to agree with the outcomes as they are interesting and reachable.

**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.**

#608

teacher None primary church\_school

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

I teach a Year 4 class and the students simply love Science. Infact they fare well during homework, assessments and exams. Each lesson is interesting and the students participate actively. Science is a subject where even I as a teacher am learning all the time!!

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

No they are all suitable.

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

Maybe any learning outstanding outcome from a particular student during a lesson. The way the students perceive Science is a mystery in itself. They live in a world surrounded by so many phenomena.

#609

teacher None primary church\_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.*

#615

teacher None primary church\_school

*General comments or concerns about the subject:*

I have basically the same comments for Level 5 and Level 6.

As the level covers two years of primary schooling, I would appreciate a distinct and clearer indication as to which learning outcomes should be tackled in which years - eg level 6 learning outcomes - whether in year 5 or in year 6

tk's and regards  
Roberta

*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.*

#618

teacher core-science primary state\_school

*General comments or concerns about the subject:*

I hope that the sections "personal learning, learning to do, planning and reflecting, reading and understanding" and so on, would pertain to all outcomes and all subsections.

The outcome on "what scientists do" should pervade all subsections of the other outcomes as this is the scientific research process in action.

*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.*

#629

teacher None primary church\_school

*General comments or concerns about the subject:*

Science more than any other subject covered in the primary school is best learnt through hands-on-activities and simple experiments but this science syllabus is too vast to allow enough time for hands-on-activities which are very effective but also time consuming.

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

The learning area outcomes presented in this framework should be maintained in my opinion but their number should be lessened. Just a reference and very basic knowledge would be enough and space should be made for the learning outcomes mentioned below.

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

I would include deeper and broader knowledge built on a priori knowledge about electricity and electrical devices, heat and its effects and the generation of energy because these are current issues that our life depends on.

#631

head\_of\_department core-science secondary church\_school

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

Students in Years 3 and 4 are presented with a wide range of science concepts. Primary class teachers have to ensure that they integrate these concepts within the teachings of the other subjects as otherwise I doubt they would manage to cover all the content presented in these LOs. They also have to make sure that they provide as many hands on activities as possible to ensure that the targets of these LOs are achieved.

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

- Using the terms “organs and organ systems” rather than “cells” when stating what living things are made up of. “Cells” are too abstract for these young students.
- Using an alternative term to “elements” needed for proper plant growth.
- Using the “eat well plate” rather than the food pyramid.
- Role of power station in producing electricity might be difficult at this level. It should be moved to levels 7 or 8.

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

- What about including a reference to how the eyes are naturally protected, i.e. reference to eyelashes and tears?
- Including a reference to habitats in Maltese islands (marine, coastal, woodland, garigue) rather than those around the world. The students will need an awareness of their immediate environment.
- Including a reference to animals apart from solely plants when studying their local area.

#634

teacher None primary church\_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.**

#637

teacher None primary church\_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.**

#638

subject\_specialist science primary state\_school

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

I like the way each learning outcome is written as 'I can...'. This shows a focus more on competencies and skills rather than content.

Topics can be integrated with other subject areas and educational programmes such as EkoSkola and Dinja Wahda.

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

How do things move?

6] I can identify some simple machines, which make it easier to do work. - I think we can do without this learning outcome.

How does planet Earth support life?

11] I can investigate gravity by doing simple experiments with different objects. - repetition of 'How do things move?' 2nd learning outcome.

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

What do scientists do?

4) I can carry out a simple practical investigation to identify relationships with the help of the teacher and/or peer/s. Peers can be of great help during investigations. Thus giving more importance to the children rather than portraying the teacher as the sole expert.

Also to include: I can talk about the works of famous scientists in relation to an investigation carried out.

How do we keep fit and healthy?

I can find out about Louis Pasteur and his discoveries about pasteurization, vaccines and germ theory.

How do our senses help us gather information?

I can find out about Alexander Graham Bell and his invention of the telephone.

I think that it is very important that children have a basic idea of important scientific discoveries which they can relate to hands-on investigations - learning is structured in context.

#639

subject\_specialist science primary state\_school

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

I believe that classroom teachers would need guidance in relation to these learning outcomes. Resources (as in online resources and also physical resources) have to be available to teachers. A list of science resources should be drawn up and made available in each school. (This applies for Primary level science - Level 5 & 6)

An 'Inquiry process checklist' should also be provided to teachers to ensure that teaching and learning is inquiry-based.

As a general comment I would also include that more focus should be on children representing and communicating their findings and more importantly on reflecting on their learning.

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

How do we stay alive?

Amend: 5] I can sketch (or observe) or describe the different stages in the life of a flowering plant (or bean plant).

Take out: 9] I can describe and explain the changes that happen to girls and boys during puberty. - This is a sensitive topic which is already done during PSCD lessons.

How do we keep fit and healthy?

Take out: 1] I can develop a story about healthy eating, identifying foods that should not be consumed in excess.

How does planet earth support life?

Amend: 3] I can explain the importance of the 3Rs (4Rs): reduce, reuse and recycle (repair).

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

What do scientists do?

Include: I can choose the best way to represent my findings. - Children should be exposed to different ways of presenting their findings (table, graph, drawings, photos etc.) and then decide on the most appropriate way of presenting their findings.

How do we keep fit and healthy?

Include: I can look up nutritional information on food packaging and compare such information with the Healthy Eating Lifestyle Plan (HELP, Ministry of Education, 2007).

---

#644

teacher core-science primary 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.*

---

#645

teacher core-science primary 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.*

---

#646

teacher science primary 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.*

---

#648

teacher science secondary church\_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.*

I think that there should be additional levels to cater for higher level concepts. For example, what about the law of energy conservation? The students may be given a problem to apply this law using an energy flow diagram with known input energy value and unknown output energy.

Another example is noting simple differences between the properties of series and parallel electrical circuits.

---