

# Motivating Students to Study Chemistry: Some Irish Initiatives

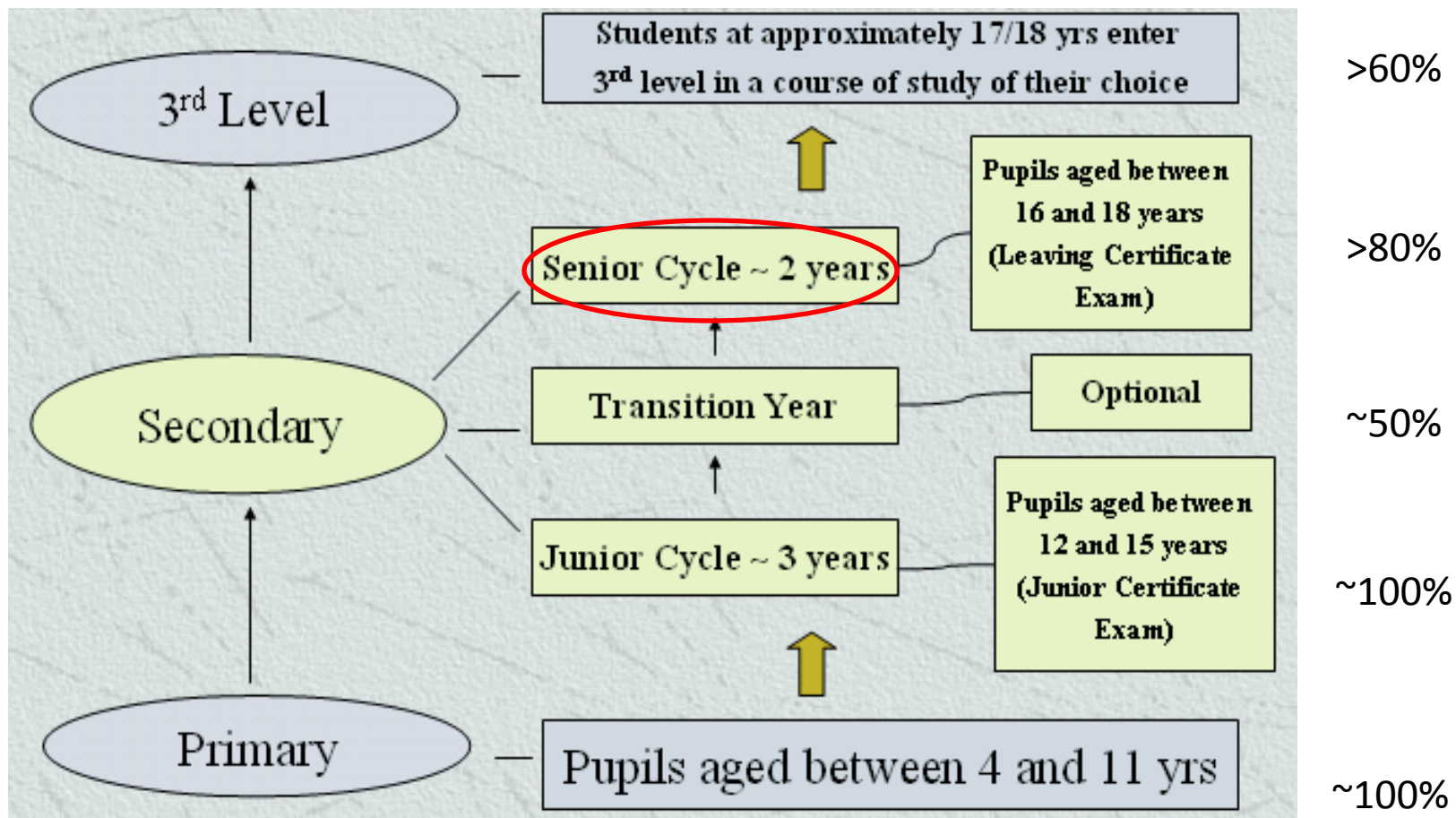


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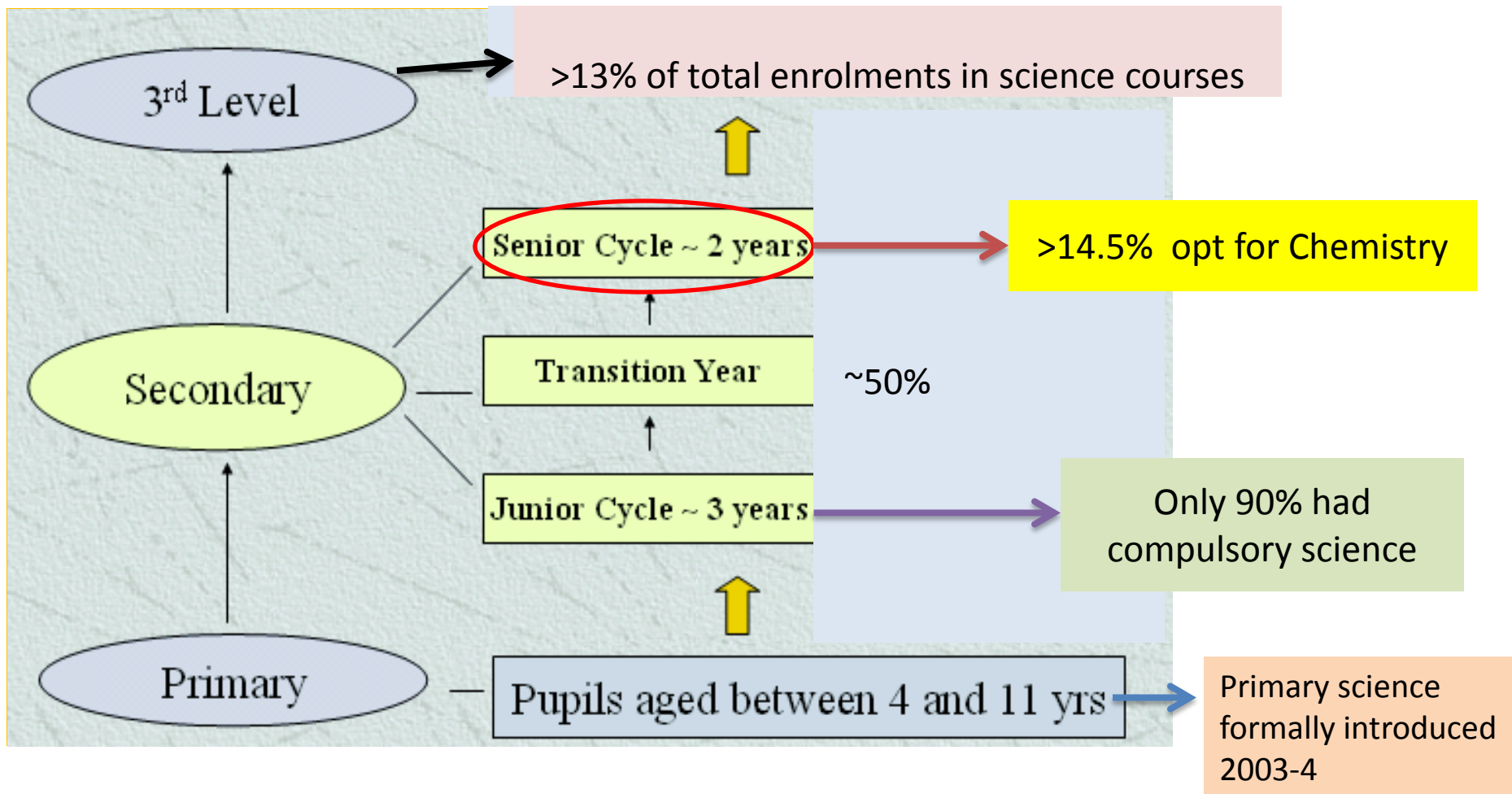


Education and Culture DG

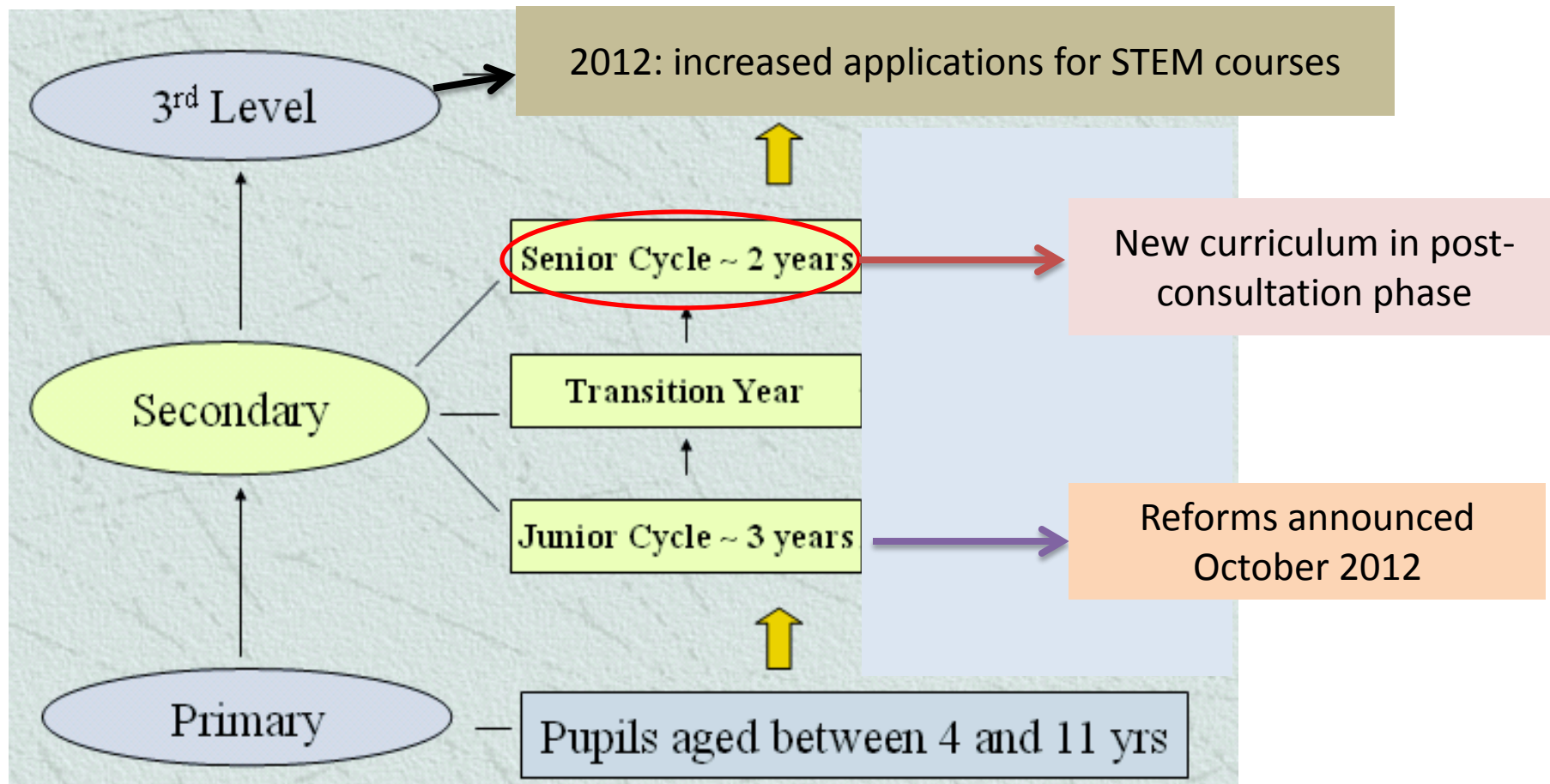
# The Irish Education System



# Science/Chemistry in The Irish System



# Science/Chemistry – a time of curriculum reform





# Science/Chemistry: De-Motivation

- only 29% of science teachers have Chemistry to degree level.
- c.25% of schools in some regions **forced** to drop Leaving Certificate Science subjects due to teacher cuts.
- Quality and quantity of laboratory equipment.
- Technical support.
- Poor implementation of new curricula – inadequate CPD, lack of resources, lack of piloting, assessment an afterthought, no evaluation.

# Science/Chemistry: In 'recovery'?

*“Today’s students are very savvy and are taking into consideration the areas where the **best career opportunities** lie...encouraging to see the **higher uptake of students** who have been offered and will undertake technology and **science courses** this year.*

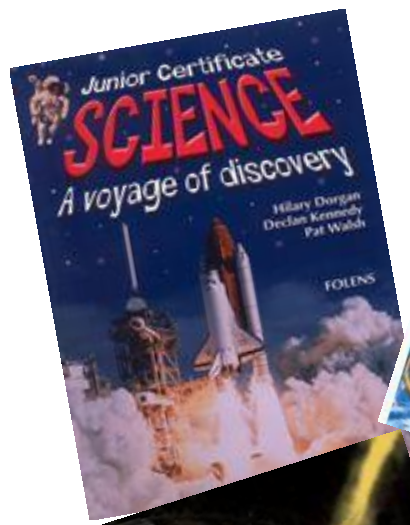
*... a **growing demand for graduates** in these areas as they **continue to thrive** in Ireland and working in these industries offers graduates **vast and exciting opportunities.**”*

Dr Graham Love  
Director Discover Science & Engineering  
August 2012

# Science/Chemistry: Motivation

Curriculum reform at Junior Secondary level (ISCED 2): what it means for motivation of students:

- New approach to assessment: **student-centred**
- Developing a wide range of **skills** - critical thinking skills, numeracy and literacy.
- Encouraging to value the role and contribution of science and technology to **society** - personal, social and global importance
- Use appropriate technologies in meeting a design challenge.
- **Inquiry-based** learning will underpin elements of the coursework.
- From 2016 standardised testing in Science for all students





# Science/Chemistry: Motivation

Curriculum reform at Senior Secondary level (ISCED 3): what it means for motivation of students:

Chemistry for Chemistry's sake?

*'...the syllabus is designed for all learners; the skills developed will form part of their **lifelong learning** and prepare them both for the workplace or for further studies in chemistry..'*

# Science/Chemistry: Motivation

Curriculum reform at Senior Secondary level (ISCED 3): **what it means for teachers:**

- need to utilise Information and Communications Technology (ICT) to enhance the visualisation and computation needed for STEM subjects.
- Research has shown a **positive correlation** between the use of ICT and academic performance.
- Reported benefits are gains in student achievement, **increased student motivation**, improvements in students' higher order thinking and problem solving abilities and the development of students' ability to work collaboratively.

Childs, P. and Sheehan, M. (2009) 'What's difficult about chemistry? An Irish perspective' *Chemical Education Research and Practice*, 10, 204

# Science/Chemistry: Motivation

Curriculum reform at Senior Secondary level (ISCED 3): **what it means for teacher trainers:**

*‘Science is a subject that is constantly changing and evolving...*

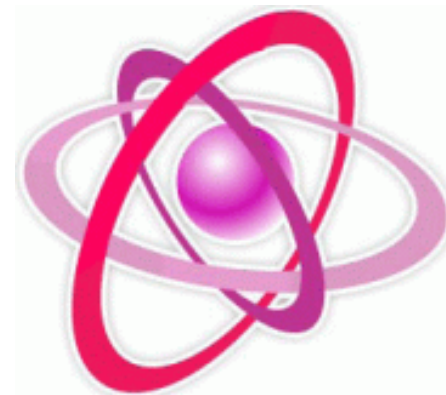
*.....If teachers are unable to appreciate and adapt to this, their students may be left with an unrealistic view and understanding of the value and use of science in our everyday lives.’*

Hayes, S. Childs, P. (2011), Teaching teachers how to teach: implementing research in the science classroom, Flexible Learning Conference Proceedings, Dublin

# Supports for Teachers as key actors in Student Motivation

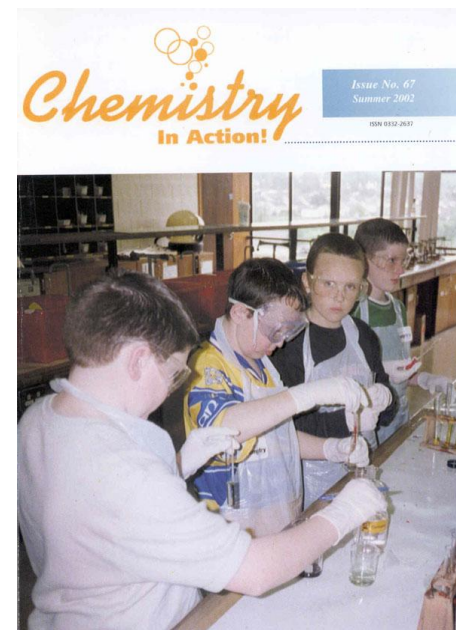
## Continuous Professional Development

- Chemistry teachers are supported by The Professional Development Service for Teachers (PDST).
- Offers induction and continuous development training at a local and national level.
- *iChemistry* is a web-based resource portal which was also made available to in-service training sessions in CD-rom format.



# Supports for Teachers as key actors in student motivation

- Irish Science Teachers Association (ISTA)
- National Centre for Excellence in Maths and Science Teaching & Learning
- Chemistry in Action! Magazine
- Schools Information Centre on the Irish Chemical Industry (SICICI)
- ChemEd-Ireland annual conference





# Motivating students to motivate themselves: Public Understanding of Science Programmes



[www.science.ie](http://www.science.ie)

**Discover**  
Science + Engineering

[www.discover-science.ie](http://www.discover-science.ie)



# Motivating students to motivate themselves: Public Understanding of Science Programmes

- BT Young Scientist competition
- SciFest
- Salters Festivals of Chemistry
- workshops
- science magic shows
- interactive lectures
- industrial visits.



# Motivating students to motivate themselves: Public Understanding of Science Programmes

Science Week each November



Everyday Experimenting





# Final words....

*‘Student motivation is an essential element that is necessary for quality education.*

*How do we know when students are motivated?*

*They pay attention, they begin working on tasks immediately, they ask questions and volunteer answers, and they appear to be happy and eager.*

Palmer, D. (2007). What Is the Best Way to Motivate Students in Science?  
Teaching Science-The Journal of the Australian Science Teachers Association, 53(1), 38-42

<http://www.youtube.com/watch?v=cy7UXeNRGfA>

# Thank you for your attention

Marie Walsh

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