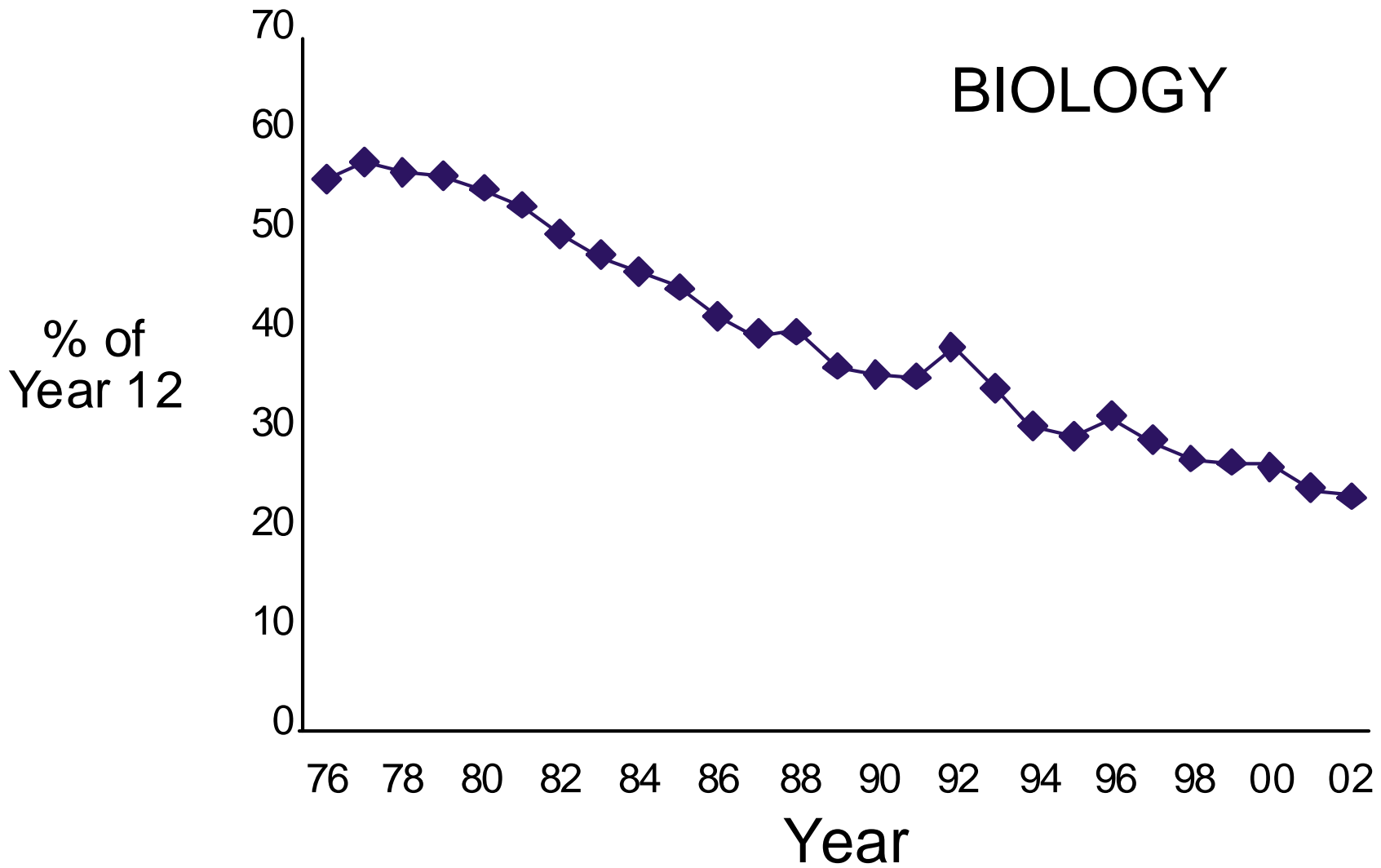



Boosting Science Learning


what will it take?

Geoff N Masters





What would it take to increase
'market share' in the senior
secondary school?



Perhaps we need a *vision* for a new, innovative approach to senior secondary science (ie, "re-imagine" what is possible).



Perhaps we need a *national*
response.

ACT a grade (A, B, C, D, E)

NSW a mark out of 100, placing the student's result in one of six 'bands' (Band 1, Band 2,... Band 6)


QLD an 'achievement level' (Very Limited, Limited, Sound, High, Very High Achievement)

SA/NT *currently:* a score out of 20, placing the student's result in one of five grades (A, B, C, D, E)
proposed: 7 levels (A+, A, B, C, D, E, not yet achieved)


TAS an 'achievement level' (Preliminary, Satisfactory, Commendable, High, Exceptional Achievement)

VIC a score out of 50


WA *currently:* a grade (A, B, C, D, E)
proposed: a 'level' (3, 4, 5, 6, 7, 8) and a 'band' (first/medium/high) within that level



Do we need seven separate
Physics syllabuses/curriculum
frameworks and their associated
examination/assessment
procedures ?



Can we "imagine" a national, rigorous, integrated science course appropriate for the majority of students in the final years of school?



What has this conference
suggested would be desirable
features of such a course?



- base curriculum materials on
research into how students learn

promote conceptual change

develop understanding of facts and
ideas in the context of a conceptual
framework

develop metacognitive skills in
monitoring own learning against goals



- connect science learning to students' interests and priorities

real-world situations with which students can engage

science as a *human* activity



- make better use of community-based opportunities for science learning

broader range of contexts for science learning

addressing the complexities of real phenomena

learning that has meaning and relevance



- focus on ideas, evidence and argument (processes of science)

how evidence is used to construct explanations

how criteria are used to evaluate evidence



- focus on general capabilities
important to the practice of science

communicating with multiple audiences

analytical thinking and problem-solving
skills

working in multidisciplinary teams



- support *teacher learning* through
high-quality curriculum materials

science subject matter

knowledge of instructional models and
strategies

pedagogical content knowledge in
science



- find ways to recognise and reward
excellence in science teaching

standards for highly accomplished
practice

assessment against standards

accreditation; recognition



- adopt a three-pronged approach

high-quality curriculum materials

professional learning and support

underpinning research and evaluation



What practical steps could be taken to introduce re-imagined science curriculum?