



# Nobel laureate urges science tests in school

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West Australian Nobel prize-winning scientist Barry Marshall has criticised the draft national science curriculum for proposing teachers put less emphasis on testing students' scientific knowledge.

Professor Marshall, who won science's top prize in 2005 with colleague Robin Warren for research into stomach ulcers, said yesterday science education in Australia had become "a bit soft".

A paper outlining the broad structure of the course for students from kindergarten to Year 12, released on Monday, called for a science curriculum that was not "knowledge-heavy" or too dependent on "pencil and paper testing".

Professor Marshall said the curriculum appeared to be moving in the right direction. "But the testing of science skills needs to be part of it and not downgraded just to keep everybody with this false level of confidence that they know it when in fact they don't," he said.

"If you have it set up so that everybody thinks they know it, can do it and they think that it's very easy and it doesn't really matter if they don't learn it, then it just doesn't get done. You have to have some measurement process."

He agreed it was unnecessary for students to memorise reams of scientific terms to show understanding, but that did not mean less emphasis should be put on tests. Tests were also needed to show schools taught science adequately compared with other schools or States.

"I'm not one of these people who

think it's a strain on kids to be testing them," he said. "I think there has to be some testing otherwise there's no objective way of measuring whether some kids are good at science or not."

Professor Marshall said he was pleased the document called for a curriculum that would encourage students to be sceptical, because he was concerned that fewer Australians were looking for the evidence to support opinions.

"There needs to be a general understanding of science and in my opinion at the moment it's flagged a bit in Australia," he said. He also welcomed moves to make science education more relevant to students' everyday lives. "I think every kid in primary school should know approximately how all the things in his house work," he said.

Professor Marshall said he experimented with magnets, batteries and bits of wire as a seven-year-old. "A lot of kids just don't get that exposure in the home, so it has to be done at school," he said.

The Science Teachers Association of WA said any shift away from more traditional forms of assessment would require resources and training.

"It would also be important to maintain academic rigour in these assessment tasks," STAWA curriculum chairman Geoff Quinton said. "However, tasks that require students to use high-order thinking and real problem-solving skills can often be assessed more rigorously by using a variety of assessment techniques,

not just pen and paper tests."

Mr Quinton agreed that current curriculums were too "knowledge-heavy". Forcing teachers and students to cover too much content reduced the possibility of gaining deep understanding of important science topics, he said.

Curtin University institute of theoretical physics director Igor Bray said the advice paper was too generic to be useful. "Science is about precision, detail and depth — these documents don't lead to effective action," he said.



**Testing, testing: Barry Marshall says tests are needed to assess learning.**