Discussion about assessment design and practice in Mathematics

Transcript

This video is available for viewing at www.qsa.qld.edu.au/26934.html

Leah Liddell: Teacher

School-based assessment gives me the opportunity to tailor assessment instruments to best suit the needs of my students. I'm the one who's taught them. I've prepared the learning experiences for them, so it makes sense that I can also prepare the assessment instruments that I use to judge them against the demands of the syllabus.

Bevan Penrose: State Review Panel Chair

Before we look at a unit and what we're going to be doing in that unit, we should always be thinking about how we're going to assess it. And that assessment has got to match the sorts of things that the students are doing in the unit. Now during that there's going to be places where students can do simple drill and activities well, substitution of a formula or whatever it might be — straightforward graphing — and then, of course, you start to move into ideas where they're going to take that and apply it in ways they've seen before and ways they haven't seen before.

Leah Liddell: Teacher

In Mathematics C we assess using pen-and-paper tests, as well as assignments, extended modelling and problem-solving tasks a number of times throughout the course of study.

Bevan Penrose: State Review Panel Chair

I'm really interested in what you think about this assessment item. It's for an upcoming unit on matrices and transformations in Year 11 Maths C. And what I've tried to do with this item — the extended modelling and problem-solving task — is to make sure that I've given students the opportunities to meet the general objectives, and also that range of standards. Would you mind having a look at it for me to see what you think?

Leah Liddell: Teacher

Yeah, well as we know it's really important to write effective assessment tasks that do give students those opportunities. And I can see here that your early questions are certainly giving students the opportunity to demonstrate, in the general objective of knowledge and procedures, a numerical sense, spatial sense, algebraic facility. And these routines are simple and routine. These questions are simple and routine. Then when you get to these other ones here, that's becoming simple and non-routine, and then through to some that are becoming complex and non-routine. So certainly you are able to show a range of abilities in that one question. And the other thing I like about this, is you've managed to address the communication and justification objective by asking them to provide supporting arguments, in the form of proof. So that's another strength of that question.
The key is writing good assessment tasks and making sure that we can match the things in our tasks with the objectives, and when I look here I can see that you have in fact got some of these questions here that will allow students the opportunity to identify assumptions and their associated effects, which is great.

Bevan Penrose:  
State Review Panel Chair  
That one is tricky in Year 11 because often the students aren't quite sophisticated enough to identify the assumptions so I've given them the assumption but I'm after, for them, to identify the associated effects which we'll build on in Year 12 when they move into that. So that's great if you think that does that — that question does that. And I've taken it down so it becomes more general and more algebraic, but still allows students to use the technology, the graphing techniques, the number and spatial concepts that are required here. Do you think that I'm doing that with that sort of series of questions there?

Leah Liddell:  
Teacher  
Well that one question does bring out a lot of the points in Standard A as well as some of those in Standard C. So in the modelling and problem solving and in the knowledge and procedures objectives, we're addressing or giving students a lot of opportunities there.

Bevan Penrose:  
State Review Panel Chair  
Oh look that's really pleasing, because you know that's something I really want to make sure that they can all get that opportunity. One of the issues that comes up a lot is the idea of the non-routine questions. So I just wondered what you thought of this one. I've taken them through some work on Eigen values and Eigenvectors, and it leads through where I've shown them how they could find them for themselves. Then I've given them one to do and then I've finished with this one. Now do you think that we're meeting that idea of the non-routine complex task with that three-by-three matrix question there?

Leah Liddell:  
Teacher  
Well certainly I can see that this is a complex and non-routine task, so there is opportunity for your best students to achieve at an A standard there. But you've also got entry level for the less able students here. So I think that's ideal.

When we're preparing assessment instruments we match the questions with the general objectives from the syllabus, and make sure that students have opportunities to address those objectives.