

20 August 2021

## **Statement from the New Zealand Institute of Physics on release of Phase 2 NCEA Level 1 Physics and Earth & Space Science material**

The New Zealand Institute of Physics (NZIP) aims to promote physics within Aotearoa | New Zealand across the full breadth of society. As such, NZIP has an interest in the Review of Achievement Standards (RAS) for NCEA, and is committed to ensuring that the outcome from the RAS process is beneficial for all learners.

We acknowledge that NCEA Level 1 is intended to be broad and foundational and accessible to everyone, and as such the scope and depth of the physics covered in it will necessarily be limited.

We are pleased to see that the 'Big Ideas' for the subject capture well the essence of what physics is and does in practice and demonstrates that this can be approached from the perspective of te ao Māori as well as western viewpoints.

However, we do not see these excellent 'Big Ideas' being worked-out in the lower-level detail of the Phase 2 draft material. Specifically:

1. There is no physics investigation in the assessment standards. Investigations, be they observation, hypothesis testing, application or measurement, approached from either Mātauranga Māori, Western Science or other methodologies, are a cornerstone of physics. Learning physics content knowledge is only part of learning physics; limiting the material to content only risks ākonga developing an incorrect understanding of what physics is about.
2. The external standard 1.4 is restricted in scope, and risks suggesting that the scope of physics is limited to mechanics. While a focus on mechanics is helpful for those pursuing a pathway towards engineering, such specialization is not appropriate at level 1. Moreover, there are many other fundamental areas of physics that risk being left out of level 1 teaching. We acknowledge that assessment standards that are too broad can create difficulties for ākonga and their kaiako, NZQA and others, but we must also ensure that ākonga develop a balanced perspective of what physics is.
3. The example internal assessment activities in 1.2 have not been written by physicists or teachers of physics. The terminology is confused and misleading and must be tidied up.

We encourage and look forward to further constructive dialogue regarding NCEA, especially as the Review of Achievement Standards progresses into Level 2 and Level 3.

New Zealand Institute of Physics