Using ordered multiple choice for diagnostic assessment in CER

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1. Construct Map
   - Upper Anchor
   - L3
   - L2
   - L1
   - Lower Anchor
   - L0

   Interpretation of data is an important aspect of modeling recognition of the role of the modeler.
   - Data is important in modeling recognition of the role of data in modeling, but data is the main focus, not the modeler.
   - Scientific models are visual representations that are useful for teaching and learning about scientific phenomena.
   - Scientific models are the products of pre-defined procedures like the scientific method or trial-and-error.

2. Items Design
   - A framework for designing tasks
   - Each answer option is linked to a developmental level from the construct map

   A scientist has developed a scientific model and wants to know if it’s a good model. Which of the following best describes how she would know whether the model they developed is good?

   - L0. They would ask other scientists in their department to see if they could prove the model based on their own experiments.
   - L1. They would make sure that the model is clear, detailed, and easy for other people to understand.
   - L2. They would experimentally test the model to make sure it produced repeatable, accurate results.
   - L3. They would evaluate the model based on how accurately it predicts experimental results.

3. Outcome Space
   - Translate scores back to the developmental progression
   - Rasch modeling (Partial credit) has been shown to be useful for psychometric modeling of OMC assessments

4. Measurement Model
   - Translate a set of responses to scores
   - Because of the explicit alignment of item answer options with the construct map, the scoring of OMC items is straight-forward

OMC assessments
   - Offer reliability advantages over open-ended assessments and can be scored quickly
   - Can provide the rich, diagnostic information about learners’ levels of understanding equally as well as open-ended assessments