Summary of challenges and opportunities in teaching nanoscience.

<table>
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<th>The challenge…</th>
<th>provides the opportunity to…</th>
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| 1              | You will not be able to know all the answers to student (and possibly your own) questions ahead of time. | Model the process scientists use when confronted with new phenomena:  
- Identify and isolate questions to answer  
- Work collectively to search for information using available resources (e.g., textbooks, scientific journals, online resources, scientist interviews)  
- Incorporate new information and revise previous understanding as necessary  
- Generate further questions for investigation |
| 2              | Traditional chemistry and physics concepts may not be applicable at the nanoscale level. | Address the use of models and concepts as scientific tools for describing and predicting chemical behaviour:  
- Identify simplifying assumptions of the model and situations for intended use  
- Discuss the advantages and limitations of using conceptual models in science  
- Integrate new concepts with previous understandings |
| 3              | Some questions may go beyond the boundary of our current understanding as a scientific community. | Involve students in exploring the nature of knowing:  
- How we know what we know  
- The limitations and uncertainties of scientific explanation  
- How science generates new information  
- How we use new information to change our understandings |
| 4              | Nanoscience is a multidisciplinary field and draws on multiple bodies of knowledge from chemistry, biology, and physics. | Engage and value our student knowledge beyond the area of chemistry:  
- Help students create new connections to their existing knowledge from other disciplines  
- Highlight the relationship of different kinds of individual contributions to our collective knowledge about science  
- Explore how different disciplines interact to explain real world phenomena |

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