Nanyang Girls' High School and Hwa Chong Institution
Integrated Programme Conference on Education 2018

Making Thinking Visible in Chemistry:
Classroom Strategies to Identify Misconceptions
in the Central Science

Guiding Questions

1 – Factual Questions

a) What are the three domains of Johnstone's *Chemistry Triangle*, and how are they related?

b) With regards to Chemistry, which topic(s) has the greatest misconceptions? Give some examples of these misconceptions.

c) List some effective ways by which students can make their thinking visible in Chemistry.

2 – Conceptual Questions

a) Why do misconceptions exist in Chemistry?

b) What is it about the nature of Chemistry that makes it difficult to teach / learn?

c) With regards to Johnstone's *Chemistry Triangle*, to what extent can Chemistry be taught effectively using only the *macroscopic* and *representational* domains – with no reference to the *sub-microscopic* domain?

3 – Controversial / Debatable / Provocative Questions

a) What role does a secondary school education in Chemistry have in peoples' everyday lives? Why is it compulsory for most secondary school students around the world to study this rather difficult subject – Chemistry?

b) To what extent are students who are not visual-spatial learners at a disadvantage when learning Chemistry?

c) Can teachers who are unable to help their students imagine / visualise what is happening at a sub-microscopic level help their students to learn Chemistry as effectively as those teachers who can?

4 – Shared Thoughts and Reflections

Please click on the link given below if you have any thoughts or reflections about making thinking visible in teaching and learning Chemistry that you would like to share.

Please click on this link to share your thoughts and reflections.

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