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|  | 6.2 Pose questions that invite critical reflection | Critically assess your growth in science this term. What worked and what didn’t?  What helped and what hindered your learning in science this term?  Where have we come from? Where are we now? Where are we going? (Howard Gardner)  What are the truly big ideas in Science?  What is science? How do we know what to believe in science  How is scientific knowledge generated and validated?  What makes the study of the Scientific Method universal? |
| Level 6: At this level, students can pose questions to critically analyse complex issues and abstract ideas (Year 10) | 6.1 Pose questions about concepts and generalisations that invite critical analysis and evaluation | What science concepts does this problem connect to?  What keeps happening…? Why?  Will it always work…? Explain.  What is the big idea?  Is it ever false that …? (always true that …?)  What changes and what stays the same when…?  What are the causes and effects of…….? |
|  | 5.2 Pose speculative and creative questions, for example, what if? what might? | What might happen if ...?  What do think comes next? Why?  What if …?  Predict what will happen to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is changed  Describe the events that might occur if…………?  What would the world be like if…………?  Can you think of any time that our theory is not true?  Using a principle of science, how can we find……………….?  How would you design an experiment to test…?  A hypothesis is like a \_\_\_\_\_\_\_\_\_ because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(Three reasons)  Science is like \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ because\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(Three reasons)  The answer is \_\_\_\_\_\_\_\_\_\_\_\_\_. What are the questions? |
| Level 5: At this level, students pose questions to probe assumptions and investigate complex issues (Year 8) | 5.1 Pose questions that address propositions and invite an argument | Debate the following topic: “The invention of the microscope is the most significant invention in medical history”  “Healthy cells mean a healthy body.” Do you agree? Why? Why not?  Human activity is the main cause of climate global change.” Do you agree/ Argue your case. |
|  | 4.2 Pose evaluative questions, for example, To what extent? How far? that invite an argument | To what extent is the evidence compelling for you?  To what extent is this experiment ethical?  What is the significance of this experiment to the subject you are learning?  What do you think is the most important idea from today’s Science lesson?  How far do your conclusions support your hypothesis? |
| Level 4: At this level, students pose questions to clarify and interpret information and probe for causes and consequences (Year 6) | 4.1 Pose analysis questions that compare things, information, issues and perspectives. | What strategy worked and what strategy didn’t?  How does … compare to …..?  How does …. contrast with ……?  Use a Venn Diagram to show how two topics are the same and different.  What problem solving approach was effective and what wasn’t?  What are the pros and cons of ………….?  What evidence supports or contradicts the idea that…?  Machines: Beneficial or detrimental?  Bacteria: Helpful or harmful?  Genetic Engineering: Beneficial or dangerous? |
| Level 3: At this level, students pose questions to expand their knowledge of the world (Year 4) | 3.1 Pose inquiry/research questions with the emphasis on Why? and How? | Why does this happen….?  Why is it important that … ..?  How are you going to find out…….  How does…?  How can you use the idea of \_\_\_\_\_\_\_\_\_\_\_\_ to explain….?  How can you design an investigation to find out…….?  Why is classification such an important part of our lives?  Why are carbohydrates important for your body? |
| Level 2: At this level, students pose questions to identify and clarify issues, and compare information in their world (Year 2) | 2.1 Pose questions that ask for identification of similarities or differences | What’s the same about …?  What’s different about …?  What is the main idea? |
|  | 1.2 Pose questions that begin with Is, Did, Can, Would, Will, Might, Should? (The Question Matrix is a valuable resource here). | Can you tell me what’s wrong with…..?  Can you list…?  Is there a way to record what you've found that might help us see more patterns?  Is the human body a machine?  Should we stop using plastics?  Is sugar healthy?  Can you identify all the planets in the solar system? |
| Level 1: At this level, students pose factual and exploratory questions based on personal interests and experiences (F) | 1.1 Pose questions that begin with What, When, Where, Why, Which, Who, How?  (The Question Matrix is a valuable resource here). | What information is given…..?  What are you being asked to find out?  What might you change so that…?  What do you notice….?  What happens when….?  What does \_\_\_\_\_\_\_\_mean?  Who was/were…?  How can you classify…?  How might you write/draw/ record what you are doing? |
| **Level (derived from the Learning Continuum of the General Capability of Critical and Creative Thinking)** | **Indicative Behaviour** Please note that this is not prescriptive and it is not comprehensive. There are many more types of questions that can be asked at each level. | **Scientific context**  Questions apply across the Content Strands**.**  Some questions, especially creative questions, can be asked at any level. Other questions may be developmental. |

J. Farrall, August 2018

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