

## Witnessing a Schema Form – Even Covid Has a Silver Lining! Opening up the mind of an 8-year-old through George Clarke’s Amazing Spaces

by Nathan Morland

Conversation	Her thought processes...	My thought processes...
<p><b>Me</b> – ‘Look at how amazing the moon looks’. <b>Daughter</b> – ‘Dad what makes those (gesturing with her hands in a cupping shape) on the moon? (Craters)</p>	<p>What can make such big shapes on the moon? I do not know. I have never thought about the causes before.</p>	<p>She is hooked - don’t just give the answer. How can I get her to think about it and link it to what she knows already? What knowledge does she already have that I can tap into? What analogies can I use that will make her think?</p>
<p><b>Me</b> – ‘What do you think makes them?’ Met with a blank face... ‘Ok, when we made scones the other day, what made the marks in the scone mix when we were rolling it out?’</p>	<p>She made a gesture with her hands pushing down with her fingers outstretched and said, ‘me pushing down. My fingers’</p>	<p>An example of how we use concrete (known) examples (baking) to abstract (new) concepts (causes of crater formation).<sup>1</sup></p>
<p><b>Me</b> – ‘So what do you think could have pushed down that much to make that shape on the surface of the moon, it wasn’t fingers was it? It had to be something hard. What could it have been? What could have pushed down and caused pressure on the moon?’ I used the word pressure alongside the gesture of pushing down I added, ‘What could be flying around in space to cause them?’</p>	<p>She said (with a face that suggested she was not sure) ‘Er...Rrrrrrocks?’</p>	<p>Adaptive teaching, combining rephrasing the question and clueing<sup>2</sup> to form an additional scaffold and encourage thinking.</p>
<p><b>Me</b> – ‘That’s right! Well done. They are called Craters and they are caused by asteroids. Rocks in space that can crash into planets and moons.’</p>	<p>Craters &amp; asteroids – I have heard of those words before? Where?</p>	<p>Confidence massively growing – the motivation in learning is fuelled by a sense of knowing and feeling of success.</p>
<p><b>Daughter</b> – Craters, like the lost world? Is that what killed the dinosaurs?</p>	<p>They were in the film The Lost World. So, are asteroids really dangerous?</p>	<p>Where did that come from? Wow - great thinking, maybe watching films is not so bad after all!</p> <p>Schema formation. By retrieving prior knowledge and assimilating new learning she is beginning to form a novice schema, turning isolated chunks of knowledge into a web of understanding.<sup>4</sup></p> <p>The more you know and understand, the more you can know and understand – considering the difference between ‘novice’ v ‘expert’ learners and their schema.<sup>3</sup></p>
<p><b>Me</b> – ‘What do you think would happen if a huge asteroid hit the earth?’</p> <p>We then had a conversation about dust thrown up into the air and I linked it back to some learning we attempted on volcanoes and a video we watched on ash clouds.</p>	<p>She was a bit blank at this stage.</p>	<p>I have played ‘guess what’s in the teachers’ head’ with my question. I should have known and phrased it better.</p> <p>Getting too technical, I need to link it back to what she knows and recall of prior learning on plants and volcanoes.</p>
<p><b>Me</b> – ‘Well we don’t know for sure what killed them, but can you remember what plants need to grow?’</p>	<p><b>Daughter</b> – (Recall/retrieval of) ‘light, space, nutrients, water’... from KS2 science curriculum learning, earlier in lockdown.</p>	<p>Excellent! I thought ‘lockdown learning’ wasn’t really ‘going in’ but she was learning. Now I don’t feel so bad after all. Her confidence growing still!</p>
<p><b>Me</b> – ‘Excellent, so if an asteroid hit earth and lots of dust was thrown up into the atmosphere (a term she knew from the water cycle work), which one of these would plants possibly no longer have?’</p>	<p>Which one could dust have an impact on? Water, nutrients, air, light or space? <b>Daughter</b> – ‘light?’</p>	<p>Cause and effect. Comparing the components and linking dust to blocking out sun light – which she did correctly.</p>
<p><b>Me</b> – ‘So can you link that back to when you learned about food chains? If the sunlight is blocked and plants couldn’t grow, what would happen...?’</p>	<p>I know this. Plants, growth, animals, volcanoes, asteroids, the moon, baking... It makes sense. Maybe I can explain what I see on the tv. I am getting it right...it feels good to know ‘stuff’ – look how dad reacts!!</p>	<p>Cue more retrieval practice. Assimilation of new information into this schema – linking food chains into plant life and (possible) extinction and connecting with her schemata on plant life and volcanoes. I thought home learning wasn’t working and the new knowledge wasn’t ‘going-in’, but the key understanding learning is retrieval practice and the power of ‘getting it out’ is what reinforces the memory and strengthens retrieval.</p> <p>Next time we bake scones, we must have a conversation about the moon and dinosaurs!</p>