# Lesson sequence: Access to freshwater (Science Year 8)

# Evidence for 2.2.1 Working towards graduate

## Introduction to sequence

Year 8D is a mixed-ability class of twenty boys that I have been allocated in the beginning stages of a unit of work called *Access to Freshwater.* Their teacher advised me that they were requiring some work on geographical skills and data interpretation before their exams in week four. During my first three days of observation, it was evident that there were varying abilities and some minor behaviour management issues. My aim in the first evidence set (Appendix 1.0 – 1.7) was to gauge their knowledge of Geography skills content, and then teach to their deficits to prepare them for their upcoming exams. This evidence set begins from my first lesson with the students into the second and third week, which in regards to the unit is two lesson into the unit of *Access to Freshwater* where the students focus on geographical skills.

## Lesson 1: Diagnostic testing and KWL for geographical skills knowledge

With reference to Appendix 1.0, the lesson plan follows a logical sequence when teaching a class for the first time; beginning with an icebreaker, asking them to state their names and, broadly, something that they like. This aimed to gauge their interests and for them to get to know me also; a strategy to begin to form positive teacher-student rapport (Chlup & Collins, 2010). I implemented a diagnostic quiz (excerpt, Appendix 1.6) after referring to the appropriate level according to the syllabus to determine what they knew and what I needed to teach them. My goal was to not repeat content excessively and to see where their strengths and weaknesses lie from the data. As a long term strategy for evidence of learning, I decided to implement a KWL (Appendix 1.7) task as to provide not only a basis to further back up what they know and want to know but to also provide them with a strategy for their own reflective practice and learning satisfaction in eight weeks' time, which will be the end of the unit. Quinton & Smallbone (2010) argue that reflection such as this is vital for a student's learning process.

Marking the test gave me a great insight to what the students knew and what needed to be revised for their upcoming exams, which, along with their observed performance in the first lesson, showed to me that I had met my focus standard 1.2.1. Their results were relatively similar, which made it easier for me to give informal whole class feedback and to then teach to their limitations in the following lesson.

**Appendix 1.0: 8D Lesson plan 1**

[redacted]

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| **Duration** | 50 minutes | **Year:** 8D | [redacted] | All boys, mixed ability |
| **Curriculum area** | Access to freshwater (Skills section) | **Topic :** Access to freshwater | **Date: 12th Oct** | |

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|---|---|
| **Lesson Title/Focus**<br>Intro and diagnostic lesson. | **Outcomes**<br>**GE41, GE42** |

**Lesson Intentions**
By the end of the lesson the students will provide the teacher with data on their knowledge of skills and overall geographical knowledge. This outcome will be achieved via completion of a quiz (25 minutes) and a completed KWL chart (15 minutes).

**Assumed knowledge**
Students will have some prior knowledge of concepts and geographical skills from the beginning of this unit.

**Differentiation**
Students are mixed ability: the lesson aims to grasp what they know in order to differentiate next lesson.

**Resources and WHS**
Students will be given a paper diagnostic test and a KWL chart.

**AITSL Standard:**
1.2 Understand how students learn, 4.1 Support student participation, 4.2 Manage classroom activities, 5.1 Assess student learning.

| Timing | Class Plan: | Assessment & Feedback |
|---|---|---|
| Intro | Introduction and Ice breaker – teacher models first then students (name and something they like).<br><br>Class expectations. Asks students if they agree and think they are fair or would like to add to them. | Getting to know students and their strengths.<br><br>Explicit expectations for preventative C.M. |
| Body | Teacher explains the **diagnostic quiz**: what it's for, emphasising not to stress and giving directions on how to complete.<br><br>Students complete test (25 minutes given). For those with special needs [redacted] and language deficits [redacted], they will be allowed extra time to complete.<br><br>**KWL activity**. Students to complete the K & W sections. Teacher will collect them to give back at the end of the term to complete L. | To inform and differentiate future teaching.<br><br>Differentiation measure.<br><br>Active supervision during tasks.<br><br>KWL strategy to develop students metacognitive and self-reflection skills. |
| Conclusion | Formative assessment: Thumb indication for how they think the test was: (Up, Med, Down – based on how hard the thought it was).<br><br>Teacher advises students that they will receive feedback but no grade to emphasise that it's not a test and to decrease stress. Teacher dismisses class and thanks for their work. | Visual formative assessment tool.<br><br>Positive reinforcement and feedback on their effort. |
| Reflection | Despite the students being somewhat disruptive, even after reiteration of the class expectations, the class received the tasks well. From viewing their results and KWL charts I now have a clearer idea of what content I will focus on in their follow-up skills lesson before their upcoming exams. Getting to know the students will assist in maintaining engagement for their last term after all their assessment is due. I am aware that I am not the student's regular teacher and that they have had a relief teacher lately, therefore their behaviour may be worse due to the lack of continuity in teachers. After making it clear that I will be here for 9 weeks and that there will be repercussions for their actions, I am hoping the students will begin to improve their behaviour. I think I will need to adjust my approach to be somewhat more assertive and structured, however I will also ensure I remain positive in my communication with them, and offer some leniency towards the end of the term if they improve their behaviour. I accidentally omitted the 'Thumb' task however I will be sure to do it at the start of the next lesson. | |

Lesson 2: Direct instruction, teaching to deficits, worked examples and individual work

The second lesson with 8D was a great opportunity for me to deliver geographical skills and data interpretation skills via Direct Instruction, which has been found to be highly effective for student achievement with a positive effect size of 0.59 (Hattie, 2008). Within my Direct Instruction I incorporated my own worked examples on the board, and had students come to the front to then demonstrate the same skill, but with a variation in the content. After this instruction, I showed a small explanatory clip of a mapping skill that I instructed them to complete individually, then I provided extra verbal clarification to ensure they had understood my instructions. After giving them their focus maps to measure against, I asked them to record the answer to the question in their books and write a small reflection on what they thought was important in completing that task accurately (see Appendix 1.8). This evidence shows with their completed answers revealed that my teaching had an impact on their learning for the geographical skills lesson.

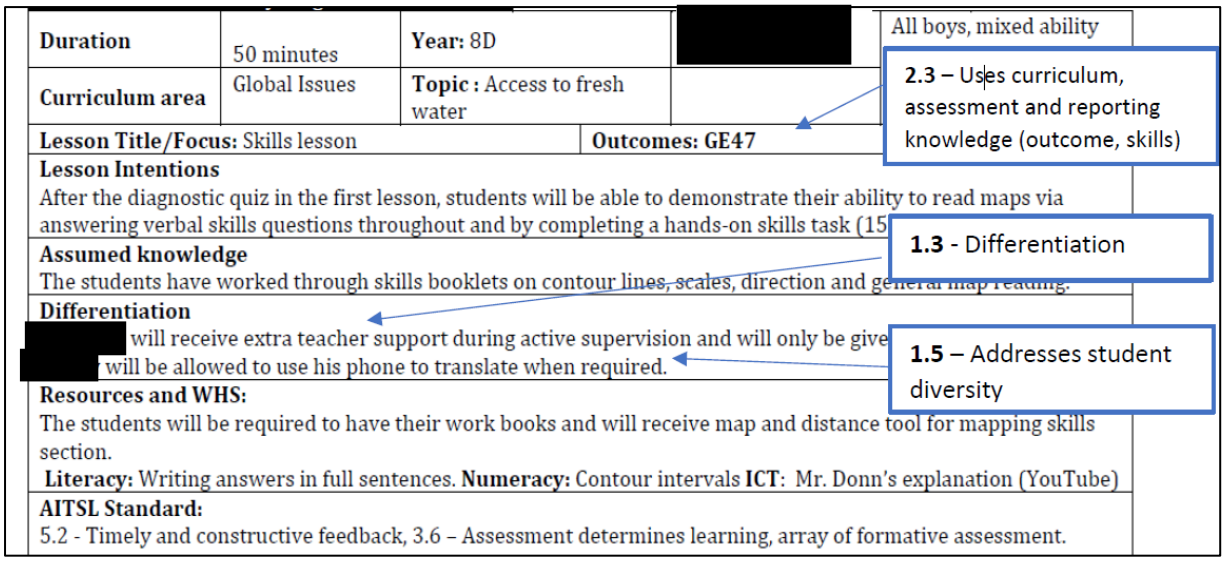
References

Chlup, D. T., & Collins, T. E. (2010). Breaking the ice: Using ice-breakers and re-energizers with adult learnings. *Adult Learning, 21* (3-4), 34-39.

Hattie, J. (2008). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.

Quinton, S., & Smallbone, T. (2010). Feeding forward: Using feedback to promote student reflection and learning – a teaching model. *Innovations in Education and Teaching International, 47*(1), 125-135.

**Appendix 1.1: 8D Lesson plan 2**



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|---|---|---|---|---|
| **Duration** | 50 minutes | **Year:** 8D | [redacted] | All boys, mixed ability |
| **Curriculum area** | Global Issues | **Topic :** Access to fresh water | | |
| **Lesson Title/Focus:** Skills lesson | | **Outcomes: GE47** | | |
| **Lesson Intentions**<br>After the diagnostic quiz in the first lesson, students will be able to demonstrate their ability to read maps via answering verbal skills questions throughout and by completing a hands-on skills task (15 | | | | |
| **Assumed knowledge**<br>The students have worked through skills booklets on contour lines, scales, direction and general map reading. | | | | |
| **Differentiation**<br>[redacted] will receive extra teacher support during active supervision and will only be give<br>[redacted] will be allowed to use his phone to translate when required. | | | | |
| **Resources and WHS:**<br>The students will be required to have their work books and will receive map and distance tool for mapping skills section.<br>**Literacy:** Writing answers in full sentences. **Numeracy:** Contour intervals **ICT**: Mr. Donn's explanation (YouTube) | | | | |
| **AITSL Standard:**<br>5.2 - Timely and constructive feedback, 3.6 – Assessment determines learning, array of formative assessment. | | | | |

**2.3** – Uses curriculum, assessment and reporting knowledge (outcome, skills)

**1.3** - Differentiation

**1.5** – Addresses student diversity

| Timing | Class Plan: | Assessment & Feedback |
|---|---|---|
| Intro | Gives students whole class feedback on their quiz. Points out what needed work and that we will be covering it today (goal explained): Contour lines, BOLTSS, map reading, measuring distances.<br><br>Thumbs indication of perceived level of difficulty for test. | Using data from quiz to determine today's content on skills.<br><br>Formative & metacognitive tool. |
| Body | **Atcitvity 1:** Teacher runs through PowerPoint, explaining why map skills are needed.<br>- BOLTSS, explanation and then select a student to demonstrate on board example.<br>- Contour lines, explanation then select a student to explain on examples the contour intervals and topography of an area.<br>- Types of maps: explanation then whole class answering example types with explanation of their thought process.<br>**Activity 2:**<br>Measuring distances. Teacher explains that measuring distances on curves can be tricky and that there is a technique that makes it easier.<br>- YouTube tutorial – followed by teacher clarification.<br>- Students paired – Partner A & B task for demonstrating how to measure distances. (Given 15 minutes to do)<br>- Two pairs selected to show how A & B were calculated. | Direct instruction, and concreate example involving students to get out of their seats and explain to class (strategy for engagement).<br><br>Mapping skills formative assessment in Pair & Share activity after being showing with a worked example.<br><br>YouTube engaged students and solidifies first explanation.<br><br>Active supervision for opportunity to clarify and assess outcome. |
| Conclusion | Asks students what distances they measured in the second activity and why/how it may vary from another student's answer (emphasising that precision and taking time is key for this activity). | Engaging students in discussion about why they may have got a different answer and to reflect on the purpose of the task. |
| Reflection | Despite some interruptions by the same students as last week, the skills lesson went well and proved to be valuable for the students as I emphasised that it would help greatly in their exams if they listened. The data from the diagnostic test allowed me to spend more time in active supervision with those ([redacted] to try to have them verbally express the outcome and process to see if they responded better with one-on-one. [redacted] seemed to grasp the content well today however, [redacted] was reluctant to talk as he appeared to be having a bad day. I allowed him to sit quietly and listen to music as he was totally disengaging and I didn't want him to disrupt anyone else. I held back [redacted] for a discussion, giving them their first warning towards an orange form, in order to improve their disruptive behaviour. I will ensure they are sat apart for the next few lessons. | |

Lesson 3: Transfer of data skills knowledge to current topic (Access to Freshwater)

**Appendix 1.2 – 8D Lesson plan 3**

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|---|---|---|---|---|
| **Duration** | 50 minutes | **Year:** 8D | | All boys, mixed ability |
| **Curriculum area** | Global Issues | **Topic :** Access to fresh water | **24/10/2017** | |
| **Lesson Title/Focus:** Spatial Distribution of AFW | | **Outcomes:** **GE43, GE45** | | |
| **Lesson Intentions** By the end of the lesson students will be able to explain the distribution of freshwater access globally from interpreting a map a and the factors influencing the issue. Students will demonstrate knowledge via answering questions in their books and sharing answers verbally over a fifteen minute time allocation. | | | | |
| **Assumed knowledge** The students have done a class on the nature of the issue of freshwater and have learned about pollution of freshwater. | | | | |
| **Differentiation** Students known to struggle [redacted] with content will be asked to answer lower order thinking questions. Competent students will be asked to answer all questions. | | | | |
| **Resources and WHS:** The students will be required to have their work books. The blogpost and documentary clip will require smartboard access. **Literacy:** Expanding vocabulary (pre/teach) **Numeracy:** Skills –percentages of AFW countries, **ICT** – exposure to blogs. | | | | |
| **AITSL Standard:** 3.5 Verbal & non-verbal strategies, 3.4 ICT strategies, 3.3 Range of strategies [redacted] | | | | |

| Timing | Class Plan: | Assessment & Feedback |
|---|---|---|
| Intro | Asks students two things they remember from nature of access to freshwater.<br><br>Explains the content of the lesson and the goal, advising how it will be met. | Activating prior knowledge.<br><br>Calls upon students who do not normally answer. |
| Body | 1. Pre-teach Vocab: Spatial distribution, Scarcity, unsanitary. Students to write into books to refer back to.<br><br>2. After explanation of how map/data is used, Students analyse and answer questions in structured think-pair-share format in relation to spatial distribution. Teacher supervising while writing will determine if goal is met. Class read through answers together, teacher asks students to elaborate on other students inputs.<br><br>3. Students read through blog on factors of scarcity and write answers individually (comprehension)<br><br>4. Students watch documentary clip on issues in Africa. Must answer three questions. | Teacher ensures pausing time is sufficient, questioning evokes extended answer, circulates to check spelling of answers.<br><br>Encouraging participation which assessing outcome.<br><br>Outcome assessed by checking questions during active supervision.<br><br>Varies learning tasks to suit different learners and to maintain engagement. |
| Conclusion | After discussion on meaning of consumer habits: verbal reflection on ways as an individual can restrict consumer habits.<br><br>Praises students for efforts, allows to be dismissed once questions checked for completion in books. | Informal formative assessment tool. Visiting each student during discussion to check for understanding. [redacted] |
| Reflection | I have taken onboard critique from both [redacted] in terms of what works best with this particular class in terms of lesson structure and behaviour. [redacted] advice helped, as I altered my teaching style to be more structured and to pause for longer to gain attention. I have discussed with [redacted] my short-term goal for next lesson to have the students be able to work in groups effectively by providing explicit structure. This lesson in terms of behaviour was a huge improvement, which allowed me to get through all of the content, although the clip didn't work right through to the end, which forced me to think on my feet and allow them to only answer the first two questions but to discuss the last one (teacher-led) which they did respond well to. | |