

Inquiry Project Plan: SEL Cohort

Teachers:

UBC Student Teacher #1

UBC Student Teacher #2

Classroom Description:

Our main class for the inquiry project plan was a grade 2/3 split class. Within the class there were 25 students all aged 7 or 8. The class consisted of students from a variety of different cultural backgrounds, but no students in the class appeared to be beginner English language learners. All students within the class were very capable learners and they all consistently understood lesson instructions and correctly engaged with the activities provided.

Classroom management in this particular class was fantastic and all students, for the most part, listened to and followed instructions very well, stayed on task, and were respectful towards both each other and us (UBC Student Teacher #1 and UBC Student Teacher #2) as new teachers within the classroom. Within the class there was one high-functioning autistic learner who periodically called out during instructional parts of the lesson. Although at times this particular learner's ill-timed input was slightly disruptive within the class, for the most part the disruption was very minimal and he was extremely enthusiastic about the topic being taught, was well-engaged in all the activities, and produced amazing work and observations.

Physically, the structure of the classroom consisted of a large carpet area in the front of the classroom where all the students could easily gather together to participate in whole-class activities. Behind the carpet the desks were arranged in groups of 4 across and were 3 rows deep. To the right side of the classroom there was a large circular art table which was great for some of our group-work activities. Additionally, the classroom was equipped with smart board technology, a projector screen, a computer, a sound system, and a fully functioning sink area, all of which we made use of at some point within our 4 lessons on toilets.

Brief Overview of Project Plan

We asked the students in our class to come up with that inquiry topic that they all collectively wanted to learn more about. The topic that the class chose was: Toilets. After learning that the class was interested in learning about toilets, we created a 4-lesson unit plan all about toilets. The 4 lessons focused on the following key topics: different toilets that exist around the world, the history of toilets and historical sewage systems, water and sanitation cycles of modern day toilets, and the mechanical functions of the toilet itself. As a team, we decided to start big, and over the weeks, narrow our focus down to a single toilet in the final lesson. Although there were many important student take-aways in each individual lesson, the main take-away of the whole entire unit was: *'Toilets have a very complex history and the toilet itself is an incredibly important piece of technology in both our culture and our everyday lives.'*

Resource Critique

Resources from Lesson #1

Two websites:

<http://whenonearth.net/different-types-toilets-youll-see-around-world/>

<https://en.wikipedia.org/wiki/Toilet>

One Map: <http://www.outline-world-map.com/blank-world-maps-solid>

These websites were good for providing the information we needed. They had a wealth of information about many various countries and the toilets they have, even providing external links to more in-depth topics. One caution about these two resources for this lesson is that you will need to do a lot of fine combing through the mass of information to pick out the important details (time consuming). The map is a good blank template for this lesson. Both strength and caution: you must add your own countries to the map.

Resources from Lesson #2

YouTube video: <https://www.youtube.com/watch?v=Us8FsyWw29k>

Village template: <http://www.imagesbot.com/City-Outline-Png>

The video was a good resource for its humorous images and portrayal of the history of toilets. One caution is that some of the terminology about toilets used in the video might be difficult for the children to understand. You might need to clarify some vocabulary afterwards or do some new vocabulary work before. Additionally, make sure to preview the entire video first so that it is appropriate for the class's age level. The village template was great but difficult to find. It was descriptive enough but also simple for students to manipulate or add to.

Resources from Lesson #3

YouTube Video: <https://www.youtube.com/watch?v=oaXth88i7rk>

Experiment: http://www.h2ouniversity.org/html/3-5_sci_clean_water.html

The video was a good resource for describing the filtration processes that we use today, and although it takes place in Detroit City, we have similar facilities in Vancouver. Cautions: you must make sure to view the video first to make sure that it's appropriate for the student ages and you may need to explain that this process occurs multiple times and not always in the same order (depending on the treatment plant). Overall the vocabulary is simple enough for grades 2/3 to understand.

The experiment was fun and full of teachable moments. Since it takes time for the processes to happen, it allows for the students and teacher to have on-going discussion about what is occurring. Cautions are that it is very time consuming to prepare the materials and to locate them. Some of the materials do cost a little bit of money (20\$ total), but you will also have leftover materials. Also this activity is quite messy!

Resources from Lesson #4

Toilet Parts/Diagrams: Found @ Home Depot,

<http://www.familyhandyman.com/plumbing/toilet-repair/parts-of-a-toilet/view-all>

<https://www.plumbingsupply.com/images/fluidmaster-400a-whole-tank-fill-valve-how-to.png>

The toilet parts were expensive (100\$) but you will be able to return these after you are finished teaching the lesson. Both the diagrams are were very useful for students to make comparisons and contrasts upon. Additionally, both diagrams are very accurate to what the students will later see inside a real, modern toilet tank. Cautions are that the diagrams have more parts and labels than needed for a grade 2/3 student to grasp the basic understanding of a toilets function.

LESSON PLAN : Toilets #1

SCHOOL: Elementary

INSTRUCTOR: UBC Student Teachers

SUBJECT: Toilet's & Social Studies

GRADE: 2/3

THEME: Socials/mapping

Curriculum Competencies/ Big Ideas/ Learning Standards

- Sequence objects, images, events and explain why some objects change and other remain the same.
- Explain why people, events and places are significant to various individuals and groups.
- Explain why people belief, values, world view, experiences and roles give them different perspectives on people's places, issues and events.

Rationale: (Why this lesson at this time)

- To give students an introduction to a functional object that they might know is different around the world.
- Although there are different cultures and different toilets around the world, we are all the same when it comes to our need for toilets.

Lesson Hook:

- What is a toilet? Who has used a toilet today? (Large group questions).
- Hand out "mystery bags".

Time:

5 mins

Teacher, Student Activity/Response:

- Part 1: Toilet Mapping Activity, students will be given envelopes with a picture of toilet from around the world and 4 clues as to what country that toilet is used. Their job will be to use the clues to try and guess which toilet matches which country! Students will then rotate to each mystery envelope in small groups.
- Part 2: Place the toilets on the big map at front of class
- Part 3: As a class discuss the reasons why there are different toilets in different locations around the world

Time:

35 mins

<p>Assessment:</p> <ul style="list-style-type: none"> ➤ Whether students can correctly locate and pair countries with toilets. ➤ Correctly match the some of the reasons why toilets differ amongst different countries and cultures to their map location. 	
<p>Plan for Early Finishers/ Adaptations or Modifications for Individual Students:</p> <ul style="list-style-type: none"> ➤ Mystery toilet (space toilet) 	
<p>Lesson Closure:</p> <ul style="list-style-type: none"> ➤ As a large group, we will discuss the importance of toilets in everyone’s life around the world and how that connects us all. 	<p>Time: 5 mins</p>
<p>Transition:</p> <ul style="list-style-type: none"> ➤ “Now that we have discussed different toilets around the world and how everyone has toilets of some form, let’s all think about for next week what people did before toilets were invented”. ➤ (next week lesson two will focus on the history and origins of toilets, and what humans did before them) 	
<p>Materials: We will bring all of this.</p> <ul style="list-style-type: none"> ➤ Big map, for front of class ➤ Five small maps for small groups ➤ 5 mystery envelope’s ➤ 6 toilet photos with 4 toilet clues each (also photos) ➤ 5 reasons why these toilets are located where they are (will be written on white board) 	
<p>Adaptations, Revisions, and Reflections:</p> <ul style="list-style-type: none"> - We could have given the students more challenging clues and more challenging countries as we discovered quite quickly that the students in the class were more capable then we expected. - Write out the 5 different reasons to why there are different toilets in different countries on large pieces of poster paper, rather than on the white board, so the kids can build on the idea and manipulate them. - Make sure to provide clear class instructions before starting any activity - Perception check to make sure all students understand the task 	

LESSON PLAN : Toilets #2

SCHOOL: Elementary

INSTRUCTOR: UBC Student Teachers

SUBJECT: Social Studies/History

GRADE: 2/3

THEME: Toilets (Before There Were Toilets)

Curriculum Competencies/ Big Ideas/ Learning Standards

- > Sequence objects, images, and events, and explain why some aspects change and others stay the same.
- > Recognize the causes and consequences of events, decisions, and developments

Rationale: (Why this lesson at this time)

- > To help students understand that toilets are part of a larger technological advancement that humans have developed across many years in a response to many problems.
- > To help students understand that toilets are developed out of the necessity for proper sanitation, which comes from environmental/health issues created by the problem of human waste.

Lesson Hook:

- > What did people do before the invention of toilets and plumbing systems? (Large group questions).

Time
5 Min

<p>Teacher, Student Activity/Response</p> <p>Activity 1: Ancient Civilizations and Flushing out the poop. Students will each be given a very basic template of a village and their job will be to brainstorm ideas for removing waste without using flush-toilets or pipes. On the paper, they must draw in their own solution to remove the waste from the city. Ask if a few students to share their ideas with the class. (20 min)</p> <p>Activity 2: > Show this 3 minute youtube video about toilet history: https://www.youtube.com/watch?v=Us8FsyWw29k</p> <p>>As a class, brainstorm ideas and issues that the video brought up. Go over some key ideas and vocabulary. (10 min)</p> <p>Activity 3: On the back of their drawings, get the students to add problems with their own ideas that they realized after watching the video. (5-10 min)</p>	<p>Time 40 min</p>
<p>Assessment:</p> <ul style="list-style-type: none"> - Engage with the drawing activity and show creative solutions to historical (and current) real world problems. - Whether students are able to draw on concepts displayed in the video to expand on their own work. 	
<p>Plan for Early Finishers/ Adaptations or Modifications for Individual Students</p> <ul style="list-style-type: none"> - Draw a second solution to village waste removal 	
<p>Lesson Closure</p> <ul style="list-style-type: none"> - Talk about and recognize that there is still a lot of technological diversity across the world, yet where we live we have flush toilets. Next week we will look at the impact, function, and workings of toilets in our environment “our village” 	<p>Time 2 Min</p>
<p>Transition:</p> <ul style="list-style-type: none"> > Next weeks lesson will focus on two major ideas: <ol style="list-style-type: none"> 1. Where does the poo go? 2. Toilet water and the Water Cycle. 	

Materials:

- 50 Village Templates to draw on
- Laptop
- Projector Screen
- Speakers
- White Board Pens

Adaptations, Revisions, and Reflections:

- Provide a spot on the worksheet for the student to write their name. Since there was no designated spot, many students forgot to write their names on their work.
- Provide more explicit instructions for the 3rd activity in which students had to reflect and write down some possible problems with their sewage system designs.
- Possibly provide some 'response questions' for students to show their thinking and understanding in a different way.
- More time would have improved some of the responses from the students who need longer periods of time to complete work.
- Overall, we were very happy with how this lesson went.

LESSON PLAN : Toilets # 3

SCHOOL: Elementary

INSTRUCTOR: UBC Student Teachers

SUBJECT: Science

GRADE: 2/3

THEME: Where does the poop go? An Introduction to the water cycle.

Curriculum Competencies

- Communication, Thinking, Personal & Social

Big Ideas

- Materials can be changed through physical and chemical processes.
- Water is essential to all living things, and it cycles through the environment.

Learning Standards

- Safely manipulate materials to test ideas and predictions
- Compare observations with predictions through discussion
- Consider some environmental consequences of their actions

Rationale: (Why this lesson at this time)

- To help students understand the full process of toilets, waste removal, and its effect on the natural world.

Lesson Hook:

- Ask the class ‘Where does the poop go?’
- Take a few responses, write up on board.

Time
3 min

Teacher, Student Activity/Response	Time
<p>Activity 1:</p> <ul style="list-style-type: none"> - Bring students to front of class and show first half of video about waste water. <https://www.youtube.com/watch?v=oaXth88i7rk> - Pause at 4:10. 	5 Min
<p>Activity 2:</p> <ul style="list-style-type: none"> - Explain to class that before we finish the video and see how (some) water treatment plants around the world process and treat waste-water, that we are going to perform our own experiment to treat water. - Teachers perform short demo of the experiment and explain instructions to students. - Hand out worksheets (teacher activity), students will then return to a desk with their partner (partners will be pre-determined). - Students answer prediction question on worksheet. - We hand out experiment materials once students at a desk with their partner. 	10 Min
<p>Activity 3:</p> <ul style="list-style-type: none"> - Students perform experiment and record observations - Once completed, one partner may empty the ‘waste water’ into large mop bucket at the front of the classroom. 	15-20 Min
<p>Activity 4:</p> <ul style="list-style-type: none"> - Bring students back to front of the classroom. - Finish second half of video (beginning at 4:10) - Debrief video. - (Lesson Closure included in this part) 	10 Min
<p>Assessment</p> <ul style="list-style-type: none"> - worksheet predictions and observations. - student engagement with experiment. 	
<p>Plan for Early Finishers/ Adaptations or Modifications for Individual Students</p> <ul style="list-style-type: none"> - Bonus question. (How do you think we can get this filtered water even cleaner?) 	
<p>Lesson Closure</p> <ul style="list-style-type: none"> - Video debrief and class bonus question - Emphasize the importance of water treatment 	

Transition:

- The toilet.

Materials:

- 30 Zip-lock bags with 'waste materials'
- 15 2-litre bottles
- 30 Cups
- 30 coffee filters
- kitchen cloths/paper towel
- dish-soap
- 1 big mop bucket
- cooking oil
- 50 Worksheets

Adaptations, Revisions, and Reflections:

- One adaptation we would make to this lesson is that it would have been great to have more time to set up, clean up, and for the students to conduct the experiment.
- Adding in specific stop times for the whole class to record their observations instead of us requesting ongoing observations.
- This lesson was well received by the students and they were very engaged with the hands-on experiment.

LESSON PLAN : Toilet Lesson # 4	
SCHOOL: Elementary	
INSTRUCTOR: UBC Student Teachers	
SUBJECT: Social Studies, Science & Applied Design, Skills, and Technology	GRADE: 2/3
THEME: Toilets: An Up-Close and Personal Look at.... The Toilet	
Curriculum Competencies:	
<ul style="list-style-type: none"> - Communication, Thinking, Personal, and Social 	
Big Ideas:	
<ul style="list-style-type: none"> - Water is essential to all living things, and it cycles through the environment. - Forces influence the motion of an object. 	
Learning Standards:	
<ul style="list-style-type: none"> - Ask questions about familiar objects and events - Communicate observations and ideas using oral or written language, drawing, or role-play - Use Social Studies inquiry processes and skills to: ask questions; gather, interpret, and analyze ideas; and communicate findings and decisions 	
Applied Design, Skills, and Technologies Framework (New Curriculum)	
<ul style="list-style-type: none"> - Students will be given opportunities to develop foundational skills in technologies through purposeful play - Students will have opportunities to develop foundational skills in activities that have a practical and real-life focus 	
Rationale:	
<ul style="list-style-type: none"> - To provide students with a basic understanding of how the inner mechanics of a toilet work. To provide students with an understanding about a technology that is so important in our everyday lives. 	
Lesson Hook: Mystery Toilet Parts Puzzle; Building the inside of a toilet.	

Teacher-Student Activity/Response	Time
<p>Activity 1: Toilet Parts Puzzle</p> <ul style="list-style-type: none"> - Students will first be split into two large groups. There will be group 1 and group 2. Once students are separated into the two groups, they will partner up with someone in their group. - Each group will be given a ‘mystery bag’ with all the parts of a toilet inside, and worksheets. Each pair of partners will choose 1 of the toilet pieces of out of the bag and predict and discuss what their part may do inside the toilet. Students will also fill out the first part of the worksheet (predicting what their part does inside the toilet/how it helps the toilet work). 	10 Min
<p>Activity 2: A Field Trip to the Toilet</p> <ul style="list-style-type: none"> - Once students have predicted what their part does, teachers will announce to the class that we will be taking a class field trip....to the toilets! We will then line the class up, and walk them down to the resource bathroom in POD-4. The bathroom is very large, so students will easily be able to enter. Students will be able to look into the back of the toilet tanks and see first hand how their specific part, and all the other parts, work together to ‘flush’ water down the toilet and bring clean water in. - Afterwards students will then be walked back to class. 	15 Min
<p>Activity 3: Understanding the inner function of a toilet</p> <ul style="list-style-type: none"> - After seeing first hand how the inside of a toilet works, students will then go back into their groups (group 1 and group 2) and collaboratively work together to try and replicate how all their toilet parts work together inside the toilet. - Teachers will project a diagram of the toilet parts onto the smart board to help students with the task. - Students will also complete the rest of their worksheet questions about toilet functions. 	15 Min
<p>Activity 4: Class Debrief on The Unit Plan on Toilets</p> <ul style="list-style-type: none"> - Call students to the front of class; ask them to hand in their worksheets. - As a class, go over the diagram on the smart board - Briefly debrief the entire Unit on toilets and the purpose for learning about them. Students should now understand the importance of toilets in our culture and our lives and their complex history. 	5 Min

<p>Assessment:</p> <ul style="list-style-type: none"> - Student engagement with Toilet Parts Puzzle - Student Participation on ‘Class Field Trip to the Toilet’ - Worksheet of predictions, observations, and comprehension of inner toilet parts and technology 	
<p>Plan for Early Finishers/ Adaptations or Modifications for Individual Students</p> <ul style="list-style-type: none"> - On the back of the worksheet, get students to write down some interesting things they learned about toilets during the past couple months. 	
<p>Lesson Closure</p> <ul style="list-style-type: none"> - Debrief the Toilet technology lesson and entire unit plan on toilets - Included in activity #4 	
<p>Transition:</p> <ul style="list-style-type: none"> - Debrief the entire Unit on toilets and the purpose for learning about them. Students should now understand the importance of toilets in our culture and our lives and their complex history. 	
<p>Materials:</p> <ul style="list-style-type: none"> - 50 Worksheets - 2 Full Sets of Toilet Parts - 2 Bags to put the toilet parts into - Keys to the resource washroom 	
<p>Adaptations, Revisions, and Reflections:</p> <ul style="list-style-type: none"> - Looking back, it would have been better to provide the names of the toilet parts and a bit more scaffolding about what the toilet parts were at the beginning of the lesson. - It would be helpful to have more multiples of the same toilet parts so more students can play with and manipulate the parts during larger group work. - Having our own set of keys for the resource washroom would have been very useful. Instead we had to borrow them right beforehand which created a bit of stress. 	