

CLIL Lesson Plan – Grade 5 Unit 3 Lesson 3

Subject:	Science
teachers	Lance Pohl, 黃鈺雯(co-teacher)
Time:	40
Theme:	Aqueous/Water/Acid/Alkaline Solutions
Lesson:	Lesson 3 of 4 lessons
Learning objectives:	<ul style="list-style-type: none"> ● Students will be able to understand that different indicators have a different color spectrum. ● Students will understand that phenol is only used as an alkaline indicator only (the color change will be from colorless to dark pink). ● Students will understand that vinegar is acid and bleach is alkaline and when using Phenol as an indicator, the solution added together is colorless. ● Students are able to understand the difference between acidic ph. 1.0 - 6.9 and alkaline ph.7.1 - 14.0 water solutions. ● Students are able to understand that a neutral water solution has a “ph.” of 7. ● Students will be able to understand that the more alkaline the solution, the darker the test color (pink to dark pink). ● Students will understand that acid added to alkaline will produce a neutral ph. (colorless liquid).
Learning outcomes:	<p><u>Students will be able to:</u></p> <ul style="list-style-type: none"> ● Students will be able to understand that different indicators have a different color spectrum. ● Students will understand that phenol is only used as an alkaline indicator only (the color change will be from colorless to dark pink). ● Students will understand that vinegar is acid and bleach is alkaline and when using Phenol as an indicator, the solution added together is colorless. ● Students are able to understand the difference between acidic ph. 1.0 - 6.9 and alkaline ph.7.1 - 14.0 water solutions. ● Students are able to understand that a neutral water

	<p>solution has a “ph.” of 7.</p> <ul style="list-style-type: none"> ● Students will be able to understand that the more alkaline the solution, the darker the test color (pink to dark pink). ● Students will understand that acid added to alkaline will produce a neutral ph. (colorless liquid).
Cognitive skills:	logic, reasoning, attentive, sequencing, working memory
Language function:	<p>Add water into cup one, what do you see? Add the contents of cup one into cup two, what do you see? Add the contents of cup 3 into cup 4 what do you see? Try and duplicate what I have done using the dropper bottles given to you.</p> <p>Why did your experiment fail? Why did your experiment succeed? Please show the class how you did it?</p> <p>Can you explain what happened?</p>
Key language:	<p>Vocabulary:</p> <ul style="list-style-type: none"> - pH, Alkaline, acidic, basic, bleach, vinegar, dropper bottle, bucket. - indicator, food, distilled water, cups, drops, colorless, <p>Verbs:</p> <ul style="list-style-type: none"> - Drop by drop, add, watch, see, discuss. <p>Language structure:</p> <ul style="list-style-type: none"> - Watch me closely and try to duplicate my experiment. - In your dropper bottles are phenol (an indicator), bleach (an alkaline) and vinegar (an acid). - To see which solutions are stronger than other we use a color test and this is done by using an indicator, which shows us how strong or how weak a solution is according to its color we can tell what its pH is and how strong/weak an acid it is or how strong/weak an alkaline it is. Let’s see what color the solutions in the cup turn? So what would you say I have added an acid or an alkaline? - Use the liquids in your dropper bottles sparingly, as you will not be given more solutions to work with! - Record everything you do, because if you succeed you may be called to duplicate your experiment in front of

	the class.
Materials:	Computer, projector, worksheets.
Assessment tool:	Brainstorming, repetition, accuracy, worksheets.
Procedure – Lesson 3/4:	
1. Lead-in (5 mins)	<ol style="list-style-type: none"> 1. Students are told to focus on the teacher and the experiment that we will show them, as their task will be to duplicate his experiment. 2. Students are shown 4 cups and three dropper bottles {with three different solutions in them, marked Phenol (an indicator) bleach and the third is vinegar}. 3. Students are reminded that in the first lesson they were told that different indicators have different functions. The first indicator tested and showed acid and alkaline solutions, the indicator today is different from the first lesson.
2. Task 1 (5 mins)	<ol style="list-style-type: none"> 4. Teacher places the 4 cups in front of him and adds water to the first cup. (<u>Before class started teacher had added 10 drops of phenol into the cup</u>). 5. Into the first cup I add a little liquid (water). (No color change). 6. Into the second cup {<u>I had, before the class started added about 5 drops of bleach (alkaline)</u> Students are <u>not told or shown this</u>}. I add the contents of the first cup, (the color turns pink). 7. Into the third cup I add the contents of the second cup. (Into the third cup (<u>before class started, I had added 2 drops of vinegar (acid) into the third cup, students are not told or shown this</u>)). (The color turns colorless). 8. Into the fourth cup, I add the contents of the third cup. {<u>I had, before the class started added 15 drops of bleach (alkaline) into the fourth cup, students are not told or shown this</u>}. (The color changes back to pink).
3. Task 2 (15 mins) 4. Task 3 (7 mins)	<ol style="list-style-type: none"> 9. Students are given the four liquids (labelled on each bottle) + an indicator and asked to try and duplicate the experiment. 10. The first group to succeed will come up to the front to demonstrate their successful experiment. 11. If none of the groups succeed in the allotted time,

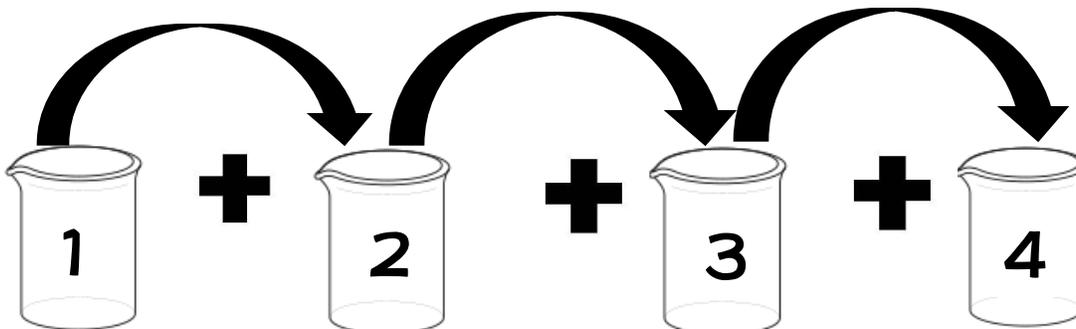
5. Task 4 (6 min)	teacher will show the students the experiment. 12. If students run out of chemicals, the experiment for that group is counted as unsuccessful. 13. After which the other groups discuss why their experiments were unsuccessful.
1. Wrap-up (2 mins)	14. Clean - up and return the chemicals and equipment back to the teacher.

Name: _____ Number: _____ Class: _____

Experiment by using an indicator + an acid + an alkaline.

Part A: Record your experiment

Word bank: water, indicator, bleach, vinegar, colorless, pink



cup				
liquid				
how many drops				
color				

Part B: Discussion

Success

Fail

Why? _____
