

## Lesson\_Plan\_5

<b>Subject:</b>	Chemistry
<b>Level:</b>	Sec 3
<b>Topic:</b>	Mole concepts
<b>Learning Outcome(s):</b>	a) calculate stoichiometric reacting mass (from formulae and equations) and volumes of gases; calculations involving the idea of limiting reactants b) deduce stoichiometric relationships from calculations such as those in (a) c) apply the concept of solution concentrations to process the results of volumetric experiments and to solve simple problems d) apply limiting reactants to real life examples
<b>Students' Pre-requisites</b>	Completed all topics on Mole Concepts
<b>Total Duration of Lesson:</b>	60 min Parallel Curriculum – Curriculum of Identity
<b>ICT tools used:</b>	Google site: <a href="https://sites.google.com/site/molever2/">https://sites.google.com/site/molever2/</a> Google doc Garfield & Friends : <a href="http://www.dan-dare.org/FreeFun/Games/CartoonsMoviesTV/Garfield.htm">http://www.dan-dare.org/FreeFun/Games/CartoonsMoviesTV/Garfield.htm</a> Domo : <a href="http://domo.goanimate.com/">http://domo.goanimate.com/</a> ToonDoo : <a href="http://www.toondoo.com/">http://www.toondoo.com/</a> Pixton : <a href="http://www.pixton.com/uk/">http://www.pixton.com/uk/</a>

	Description	Duration	Resources	Aspects of SDL and CoL
1.	<ul style="list-style-type: none"> <li>▪ Teacher directs students to the home site on mole concepts.</li> <li>▪ Teacher directs students to the short video on F1 Night Race.</li> <li>▪ Teacher reiterates the instructions by informing students that today they are all Chief Designers for a race cars company.</li> <li>▪ Given the constraints of headlights and tyres, teacher wants students to spend 20 min to reflect on how many cars can they come out with and what are some other constraints which they will have.</li> <li>▪ Teacher want students to enter their reflections in the google form.</li> </ul>	5min	<ul style="list-style-type: none"> <li>▪ Personal laptops</li> <li>▪ <a href="https://sites.google.com/site/molever2/">https://sites.google.com/site/molever2/</a></li> <li>▪ Google doc</li> </ul>	<ul style="list-style-type: none"> <li>▪ SDL(teacher): conditions for students' self-management and monitoring of their learning</li> </ul>
2.	<ul style="list-style-type: none"> <li>▪ Students discuss among themselves by asking questions.</li> <li>▪ Student asks how many headlights do the race cars have.</li> <li>▪ Student replies that race cars have no headlights.</li> <li>▪ Student asks whether they have</li> </ul>	20min	<ul style="list-style-type: none"> <li>▪ Personal laptops</li> <li>▪ <a href="https://sites.google.com/site/molever2/">https://sites.google.com/site/molever2/</a></li> <li>▪ Google doc</li> </ul>	<ul style="list-style-type: none"> <li>▪ CoL(students) : Effective group processes</li> <li>▪ SDL(students) : management and monitoring</li> </ul>

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	<p>to include pit stops.</p> <ul style="list-style-type: none"> <li>▪ Teacher asks students how many pit stops would there be for each race car.</li> <li>▪ Student replies with 3 pit stops.</li> <li>▪ Student also suggests that each pit stop 4 tyres will have to be changed.</li> <li>▪ Teacher walks around the classroom while students are engaged in their reflections and pair/group discussion.</li> </ul>			of own learning
3.	<ul style="list-style-type: none"> <li>▪ After all students have keyed in their reflections, teacher opens google document and goes through some inputs from students.</li> <li>▪ Teacher brings out the point that most student had chosen the usual "4 tyres+2 headlights=1 car" equation.</li> <li>▪ Teacher shows some other views from students who did not have the same formula as mentioned.</li> </ul>	5min	<ul style="list-style-type: none"> <li>▪ Google doc</li> </ul>	<ul style="list-style-type: none"> <li>▪ SDL(students) : ownership of learning</li> </ul>
4.	<ul style="list-style-type: none"> <li>▪ Teacher wants students to come out with examples to sum up their understanding on 'limiting reactants' by expressing their understanding in the form of comic.</li> <li>▪ Teacher reminds students that their examples may not be on race cars.</li> <li>▪ Teacher walks around the classroom to assist students who may be having difficulties using tools in respective cartoon making tools.</li> <li>▪ Teacher reminds students to upload completed work onto the google site.</li> </ul>	25min	<ul style="list-style-type: none"> <li>▪ Garfield &amp; Friends :<a href="http://www.dan-dare.org/FreeFun/Games/CartoonsMoviesTV/Garfield.htm">http://www.dan-dare.org/FreeFun/Games/CartoonsMoviesTV/Garfield.htm</a></li> <li>▪ Domo : <a href="http://domo.goanimate.com/">http://domo.goanimate.com/</a></li> <li>▪ ToonDoo : <a href="http://www.toondoo.com/">http://www.toondoo.com/</a></li> <li>▪ Pixton : <a href="http://www.pixton.com/uk/">http://www.pixton.com/uk/</a></li> <li>▪ <a href="https://sites.google.com/site/molever2/">https://sites.google.com/site/molever2/</a></li> </ul>	<ul style="list-style-type: none"> <li>▪ SDL(students) : ownership of learning</li> </ul>
5.	<ul style="list-style-type: none"> <li>▪ Teacher closes the lesson by informing students that limiting reactants are always present in daily lives.</li> <li>▪ Teacher shows one animation and one cartoon submitted by students.</li> </ul>	5min	<ul style="list-style-type: none"> <li>▪</li> </ul>	

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Description	Duration	Resources	Aspects of SDL and CoL
<ul style="list-style-type: none"><li>▪ Teacher praises students for their creativity for today's lesson.</li><li>▪ Teacher reminds students on the mole concept test in the following week.</li></ul>			