

## Science - SNC2DE

### Solutions to Climate Change-Integrative Thinking Activity

#### Day 1

<b>Time</b>	<b>Task</b>	<b>Materials</b>
10 min	<b>Set Up and Introduction</b>	
10 min	<p><b>Define the Models:</b></p> <p>Students have been given the competing models, but it is important they make explicit, and agree upon, what each actually means:</p> <p>On the top of each sheet of chart paper, write the name of the model i.e. <i>Business as Usual</i> or <i>Everyone on the Bus</i> (it helps to express it as a catchy slogan);</p> <p>Immediately below, the groups are to describe exactly what each model involves. There are no value judgements made at this point; it's simply so that everyone understands what the two models actually involve, so that <i>Business as Usual</i> means: no limit on number of private vehicles on the street; individuals buy, lease or rent their own private automobiles; people pay to license, insure, and maintain their own cars; gas is purchased from privately run gas stations; a certain amount of space is allocated to accommodate parking of cars (in private driveways and garages, parking lots, on streets, &amp;c.). Students do the same thing for model B.</p>	<ul style="list-style-type: none"><li>• Chart paper - 2 sheets/group</li><li>• Markers</li></ul>
10 min	<p><b>Identify the Stakeholders:</b></p> <p>Students identify 2 or 3 groups of the most important groups common to both models who “matter” in coming up with a new solution. They list them across the chart paper immediately below the definition of the model.</p> <p>It is possible that in real life an individual might fall into multiple groups, but the important thing here is to identify multiple and potentially competing perspectives on the problem. For example: commuters, retail business owners, city government.</p>	

25 min	<p><b>Specify the Benefits (<i>Pro-Pro Chart</i>):</b></p> <p>For each group of stakeholders, students identify the benefits and the mechanism by which it is obtained.</p> <p>For example, a <u>Benefit</u> to commuters in <i>Business as Usual</i> might be “freedom of movement” and the <u>How it Works</u> is “individuals have 24-hour on-demand access to their own vehicles: they are not limited by public transit routes and timetables and can go where they want when they want.” If students identify a drawback of one model, they should endeavour to express it as a benefit of the other. For example, one disadvantage of private ownership is the high costs associated with purchasing, licensing, insuring, maintaining, fuelling, parking, &amp;c. “Low Cost to Individual” is then a <u>Benefit</u> of public transit and <u>How it Works</u> is by government owning everything, purchasing vehicles and services in bulk and spreading costs across all the taxpayers and users.</p> <p>Note that multiple benefits might accrue to different stakeholders from the same mechanism: both “faster commuting times” and “lower road maintenance costs” might be results of having fewer vehicles on the roads, for instance.</p> <p>At a <b>minimum</b>, students should try to come up with three solid benefits and mechanisms per stakeholder per model.</p>	<ul style="list-style-type: none"> <li>• Benefit slips</li> <li>• Masking Tape</li> </ul>
10 min	<p><b>Select the Benefits:</b></p> <p>Looking at the 18 or so benefits they have identified, the students select those they feel <b>must</b> be included in a new solution. That’s not to say that others might not be possible, but the goal here is to settle on the critical needs that must be met by the new model and that could not be met by simply choosing one over the other. There is no magic number here, but obviously the fewer there are, the easier the task of integrating them. Students take the benefit slips of the benefits they’ve selected and place them on a clean sheet of chart paper.</p>	<ul style="list-style-type: none"> <li>• Chart paper</li> </ul>
5 min	<p><b>Reframe the Question:</b></p> <p>Considering the benefits they’ve selected, students ask “How might we...?” in the context of their challenge. It’s possible to ask “How might we develop a transit plan that includes both freedom and low cost?” but a more interesting framing of the question looks at the mechanisms as well: “How might we develop a transit plan where freedom is obtained through common ownership?”</p> <p>This question will form the basis of the brainstorming in the next class. It’s also possible that students may not settle on a question right at this point and will want to think about it, discuss it, and revise it before day 2.</p>	<ul style="list-style-type: none"> <li>• Chart paper</li> <li>• Markers</li> </ul>
5 min	<b>Wrap Up and Clean Up</b>	