**Assessment #1: Catalytic Converters**

Catalytic converters are built into the exhaust systems of many cars and can be retrofitted to older models. The purpose of the converter is to catalyze reactions between pollutant gases and oxygen. The products of the catalyzed reactions are considerably less harmful to the environment when they are released. However, this extra technology does not come without a financial cost. Is it worth the price?

**Learning objectives**

* Conduct research on catalytic converters (CCs)
* Understand how catalytic converters work
* Critically think of arguments for and against mandating CCs
* Consider different stakeholders
* Present scientific information to others in a non-scientific way
* Understand how the environment can be affected by chemical reactions

**You should:**

* Research the design and working of catalytic converters, their benefits and the price of making and installing them.
* Assemble the arguments for and against making catalytic converters compulsory in all vehicles. Decide on your position.
* Interview your parents and get their perspective since they’re the ones that can drive at the moment.
* Put together a presentation (eg. pamphlet, video etc.) to be distributed to people who are about to purchase a used vehicle. In the presentation, outline your position and support it with reasoned arguments and evidence.

**You can:**

* Work with a partner or individually
* Research CCs or choose another chemistry-related technology (eg. DEET insecticide, fluorine in water, CFCs in refrigerators etc.)

**Rubric:**

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|  | **Level 4** | **Level 3** | **Level 2** | **Level 1** | **R** |
| **Back-ground infor-mation** | Thorough investigation, includes information that goes beyond questions posed | Good investigation, includes all the information asked | Adequate investigation, missing research for 1 question | Investigation needs improvement, research missing for 2-3 questions | Investigation missing 3+ pieces of research / did not hand in |
| **Argu-ments** | 1. At least 5 **convincing** arguments for and against mandating catalytic converters.  2. Incorporates 2-3 interview responses | 1. 3-4 **convincing** arguments for and against mandating catalytic converters.  2. Incorporates 1 interview response | 1. Two **convincing** arguments for or against mandating catalytic converters.  2. Interview responses included but not incorporated in argument. | 1. One **convincing** argument for or against mandating catalytic converters.  2. No interview responses incorporated | No **convincing** arguments presented for and against mandating catalytic converters/did not hand in |
| **Position** | Position is extremely well defended, considered at least 5 pieces of solid evidence for argument | Position is well defended, considered 3-4 pieces of solid evidence for argument | Position is somewhat well defended, considered 2 pieces of solid evidence for argument | Position is not well defended, considered 1 piece of solid evidence for argument | Position is not stated/ ambiguous position/ not handed in |
| **Presentation of medium** | Use of colour/actions (if video) and visuals allowed presentation to be extremely effective and engaging | Use of colour/actions (if video) and visuals allowed presentation to be effective and engaging | Use of colour/actions (if video) and visuals allowed presentation to be difficult to follow | Use of colour/actions (if video) and visuals allowed presentation to be distracting and inappropriate | No colour/actions/visuals used. Presentation is not engaging nor effective / not handed in. |
| **Spelling/grammar** | No spelling/  grammar mistakes, wonderful use of language | 1-2 spelling/ grammar mistakes that do not detract from the effectiveness of the presentation | 3-4 spelling/ grammar mistakes that makes presentation less effective | 5-6 spelling/ grammar mistakes that makes presentation hard to follow | 7+ grammar/ spelling mistakes that does not reflect consideration or effort |
| **References** | Correct citation usage of ASC throughout, no errors in reference list | Correct citation usage of ASC throughout, 1-2 errors in reference list | Mostly correct citation usage of ASC throughout, 3-4 errors in reference list | Mostly incorrect citation usage of ASC throughout, 5-6 errors in reference list | Incorrect citation usage of ASC throughout, 7+ errors in reference list |

