**Passion Project – Initial Project Proposal (2018-19)**

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| Goal of the Passion Project:  To mitigate some health problems caused by nasal pathogenesis. |
| Mention any 2 subjects/disciplines whose knowledge you will use for researching about your project. How is your project going to be interdisciplinary? Explain briefly. (Eg. - Languages, the Arts, Sciences, Humanities etc..)  Physics, Design Technology. |
| Research question/title of report:  Research on portable nasal heating devices |
| Explanation of why you have chosen this goal and research question:   1. When taking in a sudden gust of cold air in the winter, people’s vessels contract more dramatically. Consequently, old people, like my grandma, have more chances to be caught in even higher blood pressure and coronary heart diseases. 2. Rhinitis or even nasosinusitis and sphagitis bring more trouble to trouble when cold air is taken in. 3. Low temperature causes blood capillary to constrict, resulting in less blood traveling through, reducing immunity. 4. People rarely felt the gradual decrease in the temperature of noses until they touch them with hands. 5. Specific type of mask or other devices for nasal heating is rarely seen.   Concluding what is stated above, I decided to do research on a special nasal heating device. |
| Ideas of research methodology (i.e. sources of primary and secondary data, experiments and materials needed, etc.):   1. Knowledge on materials science. (what material to use to heat up?) 2. What to design for the nasal heater? A mask? A hollow stick which people can breathe from one side? Or a sticky patch like the band-aid? 3. How to heat? Using electricity or some kind of one-off method? 4. How to fix the device to face? 5. How to minimize the influence on appearance? 6. How to adjust temperature? 7. How to maximize the heating efficiency? 8. Should I add something to humidify if allowed? |
| How do you propose to include the ‘Design Thinking Process’ while working on your project?  (EMPATHISE, DEFINE, IDEATE, PROTOTYPE, TEST)  Emphasize: I come down with nasosinusitis and pharyngitis which can be triggered really bad when catching a cold. My grandma is suffering from high blood pressure. We need a way to decrease the chance of getting “ignited”,  Define: the device I want to make is a convenient breath heater causing smallest impact on people’s appearance and help specifically about the air heating  Ideate: a mask covering only nose using thin iron wires, a band-aid-like patch, a hollow stick, |
| Questions that you need to ask your supervisor to support you in developing your Passion Project:  Nearly all of the knowledge. |