**ICS3U1 – Unit 1 – Environmental Stewardship**

**PART 1: Negative Effects - Complete the summary sheet as you visit the different learning centres. Not all**

**of the activities provide you with possible solutions: in those cases, research and/or brainstorm solutions.**

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| **Topic** | **Description of the Problem** | **Possible Solutions** |
| E-waste  (1st 5 minutes of the E-waste video) |  |  |
| Unsustainable office practices  (Paperless office article) | **Paper consumption is at an all time high in Canada despite improvement in digital technology. Infact, Canadians use 20,000 sheets of paper per capita each year. Paper production is costly to the environment and costly to the businesses that buy it, leading companies to look for ways to reduce or avoid the amount of paper used. This is challenging, however, since most people are more comfortable with using paper due to habit, instead of switching to digital options.** | **One major step companies are taking is to make paperless options available to employees. For example, a few years ago, Indigo started to offer electronic pay statements. If all employees used this option, 156,000 sheets of paper and envelopes could be saved. Nexonia is a company that helps other companies digitize their timesheets. In this system, employees fill out an online timesheet, which is routed to their supervisors and archived by Nexonia.** |
| Physical Health:  How computers cause physical ailments.  (Ergonomics Website) | **Repetitive stress injuries can occur when a part of the body experiences excessive stress, leading to inflammation, muscle strain, and tissue damage. This stress is caused from repeated physical movements, cumulatively adding to the stress on certain muscle and/or tendons and possibly leading to injury, resulting in symptoms such as pain, swelling, and stiffness, numbing, and tingling. Those who spend a lot of time playing video games and using keyboards, for example, are susceptible to Carpal tunnel syndrome, an injury of the wrist.** | **There are several ways in which susceptibility to repetitive stress injuries can be decreased. Using little force on the keyboard when typing, and keeping the keyboard in close reach results in less stress on the wrists, which are especially susceptible to injnurywhen using a computer. The fingers and wrist should also be kept aligned, and the wrist and forearms should remain at a 90 degree angle. Using the right ergonomically designed equipment, such as an ergonomic keyboard and a trackball, can also reduce stress on the wrists.** |
| Mental Health: How computer usage  affects the brain and lifestyle.  (Addiction video) | **The internet can be highly addictive. 3% of boys and 0.3% of girls aged 12 to 18 are internet dependent. It’s a global problem worsening especially in China and South Korea. Games in particular are addictive, perhaps in part characters increase in value throughout the game based on an award system, encouraging players to continue playing. Individuals who lack successes in their lives are more prone to fall addicted to the successes they experience in games. Such individuals often withdraw from society as a result, even from their parents, in order to feed their addicition of the virtual world.** | **Internet addicts tend to suffer from loneliness, anxiety, and depression, thus being integrated into social life is an effective way of providing a solution to overcome internet dependence. Several websites do this by posting stories of individuals affected and create forums to help them interact with each other to encourage them to share their stories and feel more comfortable with themselves.** |

**PART 2: Positive Effects - Complete the summary sheet as you visit the different learning centres.**

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| **Problem** | **Description of the Problem** | **Description of the Described Solutions** |
| Pests in Agriculture  destroy crops.  (article) | **Locusts have been a devastating pest in regions of Africa for centuries, and they continue to affect crops today. This was seen recently when Tanzania experienced a locust plague which greatly reduced crop yields resulting in devastating health implications in the region.** | **There is a naturally occurring fungus that kills locusts after ingestion. Scientists are attempting to incase the fungi in small spheres made of polymer for protection to keep the fungi alive for longer. The polymer has been doped with an ink to resist UV radiation protecting the fungi and allowing the technology to function for longer. When this is sprayed on crops, the locusts ingest it and die.** |
| Air conditioning places strain on our energy resources.  (website) |  |  |
| People with Asperger’s have difficulty reading social cues.  (video) | **People with Asperger’s are not able to engage in normal conversation due to their relative inability to read facial expressions. They tend to focus on the mouth instead of the eyes and the rest of the face, so they often aren’t able to pick up on a joke, or can’t tell if they are being teased. As a result they have difficulty making friends and understanding facial expressions and gestures.** | **New software technology helps people with Asperger’s to identify other’s facial expressions and create their own emotional responses. The software observes twenty-two points on the face using a camera to recognize different facial expressions and head gestures. The software then uses this information given over time to guess the cognitive state of the person being observed. However, this program is only 60% effective at recognizing facial expression in real world situation, and development is underway to improve its effectiveness and add more facial expressions and gestures that can be recognized.** |

**PART 3: Journaling**

Which of the learning centres had the most impact on you? It could have surprised you, angered you, inspired you, or

amazed you. Write about that learning centre and its impact on you on Moodle.

The article about combatting the locust pest in Africa using a new pesticide presents a solution that could save millions of lives and improve many others. It’s an exciting solution that I believe has great potential, but also one I believe could cause long-term harm if not tested and developed responsibly. Pesticides as a whole are hazardous to human health; they have been strongly linked to an endless list of diseases and ailments ranging from headaches and nausea to cancers and reproductive damage. Recently in 2010, scientists from Harvard and Montreal University released a study showing that pesticide residues on fruits and vegetables (which are supposed to be, and should be, healthy) can double a child’s risk of developing ADHD. Additionally, a study performed by the Public Health Institute in the United States, the California Department of Health Services, and the UC Berkeley School of Public Health observed a sixfold increase in risk for developing autism spectrum disorders for children and women exposed to a group of pesticides called *organochlorines*. Residues of these pesticides are not only found in vegetables and produce, but also in the water systems and the air, where they accumulate. In fact, there are over seventy active ingredients that are allowed for agricultural use that have been shown to cause cancer in animal studies, according to the Environmental Protection Agency in the US.

That being said, there are also pesticides that are safe and have not been shown to pose significant hazards to humans, such as *bacillus thuringiensis* (BT), used in organic farming. Though the fungus being used in the new pesticide to kill locusts is naturally occurring, could there be any adverse effects on humans from consuming the amounts of pesticide residues present in these crops? In addition to the fungus, which is the active ingredient, will the polymer sphere protecting the fungus have any negative effects on our health and environment? These questions are crucial in determining whether this new pesticide is a responsible solution to help farmers make a living and to feed hungry people. I believe this article provides insight into a solution that must be evaluated with care and caution, and not with business interest, to assure the best outcomes are met. After all, we cannot afford another locust plague!