

THIS IS NOT EARTH

OFFICIAL SCRIPT

Table of contents

Introduction	2
Opening Credits	3
Context and Waste:	
Transportation	4
Energy Consumption	6
Food	8
Transition 01	10
Segment: Britannia Mine	11
Transition 02	12
Solutions:	
Transportation	13
Energy Consumption	14
Food	15
Conclusion	16
End Credits	17

Introduction

What comes to mind when you hear the word “Earth”? Some say it is our home, entitling themselves to its resources. But its tenants often ignore obligations of protection and maintenance.

Ideally, life should be flourishing across our planet to create a breathtaking, stunning sphere of existence. So serene, so beautiful that human life can find no other rival to this geosphere in the entirety of the universe. Naturally self-sustaining, with uninterrupted peace, balance, and beauty... This should be Earth.

But what do we have instead?

Poisoned, suffocated, trampled, and destroyed by us humans. We are the infection that has dismembered the planet, and only have the decency to wrap it with bandages of concrete and metal. Only some of us recognize how we have terrorized our planet, so it is time for more of us to awaken from this nightmare. Wake up before the fever, caused by the infection that is us, burns the Earth to ashes.

This is not Earth, not the Earth it should be.

Never before have we had such an urgency to save and protect this planet, our only home. Its inhabitants have proven to be quite the handful, as populations rise to more than 7 billion, and counting. We, as humans, have the achievements of remarkable cognitive intelligence, evolution, language, and technological advancements proudly under our belts, but what is our biggest flaw?

Waste.

No other species on this planet generates as much waste as we do. They’ve lived as they have for millions of years, adapting to the ever-changing environment; rarely taking more than they need. Humans terminate anything that does not fit into their blueprints, but if we want the Earth to be habitable in the decades, or even centuries ahead, we need to make changes to our habits now. The planet we call “home” is dying faster than we think. Whether it’s to stop or just delay this ticking time-bomb, we’ve hit our peak, and anything is worth the effort from this point on.

Rather than renovating our planet, extracting from its very essence, it is time to redevelop the hard-wired mindset of our entire population. Sustainability is what we should strive for. How we move, what we use, and what we consume; the problems that our activities cause and how we can fix them. This is our message, because this is not Earth.

Opening Credits

IB Students from Churchill Secondary and Richmond Secondary present

This Is Not Earth

Transportation: Context + waste

It's no secret that we have a desire to match the pace of our accelerating world. The need to feel connected and accessible to each other has become a vital factor for the cohesive nature of modern society.

With the development of gas-fueled motor vehicles, train systems, and aircrafts, humans have found more efficient ways of getting from place to place. What would have taken weeks or months a hundred years ago only takes a matter of hours to get to today. Along with transportation methods, the routes that map out paths of travel also attract urbanization and development. Due to the appeal of accessibility and reduced distance to business centres, civilization tends to expand as far as transportation will allow us to go. Which means, we are everywhere.

Sadly, this entails that the dirt on our shoes leave our footprints everywhere as well.

In Canada, transportation remains to be the "single largest source of air pollution and greenhouse gas emissions". The sheer number of gas vehicles on roads today represents how rarely we see willingness to walk or bike to a destination that can be driven to, and this is majorly due to convenience and the luxury that comes with it.

Social and economic expansion leads to privately owned vehicles multiplying on our roads. Urban development promotes these car-dependent communities, and so distant travels have become a daily regimen for many, but difficult to perform sustainably for most. Business centres, where most people work, are often also where land is valued the highest— according to the Bid-rent theory— which means that most of the population finds it easier to live further away from city centres. Although this may be beneficial financially for individuals, the environment still suffers, as there are millions of cars emitting harmful gases going miles and miles every single day for hours at a time.

This perplexing, yet seemingly unavoidable, need for every single person to own and drive their own cars is the sad reality. Congestion worsens as populations continue to grow past the threshold of the land, and the quality of the environment suffers for it. The air, rain, water, and soil turns impure and grimy with pollutants. With it, all the living organisms dependent on natural habitats live and die in misery; innocently, without being at fault for their own deaths.

But why can't we just limit the number of vehicles if they're such a big issue? Old habits stick with you, so if this has been the way of life for humans for generations, we can't just expect 7.6 billion people to have a change of heart overnight. Not only that, but factors we can't control as individual consumers have to be considered as well. A land's geophysics, such as mountains and rivers; distances from city to city; and money the country has available to spend on transport innovations are all obstacles that we have to overcome. Without the proper incentives and funding, we are looking at a problem that is much deeper than how often your family drives to go grocery shopping.

Anyone who has ever seen a city's roads will know that these concrete jungles extend as vines that twist underground, on the surface, and even into the skies. Swarming these concrete vines and infecting our atmosphere with their toxic gas emissions are millions of cars, trucks, and other transport vehicles.

Pollution is everywhere.

Our air blinds and suffocates us, our water poisons us, and the noises deafen us.

Going for a walk? A ride? Strolling around the hectic city? Or just staying at home with the windows open?

Guess what? You're not getting away from pollution, and neither are the wildlife. Air pollution in particular can worsen asthma symptoms, induce lung cancer, lead to heart disease, and many other health issues in humans. Children are especially susceptible to developing asthma and other respiratory illnesses under the polluted conditions during their developmental stages, where their bodies are unable to process and get rid of pathogens. The World Health Organization estimates that around 4.6 million people die each year due to air pollution alone, so if these conditions don't change soon, these numbers are bound to get worse.

Any automobile that burns gas will emit and leave oils, grease, harmful metals, and other contaminants that may eventually wash from our streets into our water. And since a lot of these substances, especially oil, are not water-soluble, they will spread over vast bodies of water without dissolving until unfortunate animals and humans end up consuming it. Every year, oil spills release millions of litres of harmful hydrocarbon gases across hundreds of square kilometers of oceans, and a single oil spill can take years for ecosystems to recover from.

Not many think of noise pollution as an issue. However, it has been a growing concern as more and more vehicles enter our already polluted world. Some studies have even shown correlations between the non-stop annoying background noises and serious health issues, such as hearing loss, hypertension, high stress levels, sleep disturbances, and even reduced cognitive abilities. How appealing does that sound? To animals, especially those who have more sensitive hearing and depend on it for survival, face even more devastating consequences. Predators that hunt by ear often starve because our cities drown out the sounds of their prey. Passing ships can interfere with marine animals' sonar and navigation systems in a way that it may cause them to get separated from their kin, lose sense of direction, and even lose the ability to hear over time.

For the sake of our own health, and the health of every other living thing sharing this planet with us, we should consider more sustainable ways to get around.

Energy consumption: context + waste

Be it small devices, light bulbs, display signs, or larger appliances like washing machines, heaters, refrigerators or even cars, we're using energy at any given moment. Electricity powers almost anything that we consider as essentials to our lives today. In more economically developed countries especially, electronics are so accessible to us that we never give them a second glance. When was the last time you went a day without using any electricity or fuel? It's unlikely that such a day will pop into mind.

The sad reality is that people are not conscious of the amount of energy they constantly consume, meaning that they are also unaware of how much is wasted. Chances are that you aren't even aware of how much power is required to play this documentary! In the 4 kilowatts that it takes to watch the full screening of this documentary, you could have run through five cycles of your drying machine! (Don't turn it off though, we still have a point to make!)

* prank the audience and have like 5 seconds of black screen, play static*

Speaking truthfully, it would be difficult to change the habits of the billions contributing to this problem. We take advantage of what we have without bothering to consider what life would be like without them. Imagine a life without electrical energy. This screen would be black, nights would truly be dark, our climate would not be interfered with air conditioners and heaters, and you would probably have to cook with an open flame.

So why is using so much energy a concern?

According to global energy statistics, Canada alone consumed 287 Mtoe (Million tonnes of oil equivalent) in 2017, which is approximately 3.3 Trillion kwh. How many documentaries could you watch with that?! 34% of that energy was the consumption of oil, 35% from gas, 21% from electricity, 6% from coal, and 4% from biomass. Though Canada only consumed about 9% of China's total consumption, we consumed 3.5 times more energy per capita in the same year. This means that the amount of energy sustaining one person in Canada is more than enough to support 3 in China!

Driving the car everywhere you go, leaving the lights on in an empty room, and leaving the heater or air con on all day contributes to this number, and actually results in a lot of the energy going to waste. The consequence of having to generate so much excess electricity is the increase of greenhouse gas emissions. The combustion of fossil fuels, such as the oil, gas, and coal that made up 75% of Canada's energy consumption in 2017 are also leading factors to the copious amounts of carbon dioxide, methane gas, and nitrous oxide being released and trapped in the atmosphere every year.

We, as individuals need to change our daily habits if we want to save the environment; and we, as a country, need to rethink how we should approach energy consumption and production for the bigger picture.

FOOD CONTEXT + WASTE

Bacon and eggs for breakfast with a glass of milk; a family at a dinner table munching on tenderloins and sausages, making a trip to your local fast food restaurant to grab a burger and chicken nuggets on the side - we stuff our mouths with whatever food we like without batting an eye. Disassociating ourselves with the food we consume is common, because we don't perceive food to be a topic to be contemplated upon. We eat for pleasure. However, what many of us fail to recognize is the tremendous impact the process required to cultivate our food- specifically animal agriculture- and the material we use to eat our food from disposable forks to knives- has on the environment.

Animal agriculture is one of the largest contributors to greenhouse gas emissions. It solely accounts for 18% of all greenhouse gas emissions while the transportation leg of this food operation is responsible for 13% of the total. It is undeniable that with the continuous growth of the human population comes an increasing demand for animal products, and it is about time that we take responsibility for our environmental damage.

The stress that animal agriculture imposes on our society and environment is incredulous. Responsible for 91% of the amazon forest destruction, using 34-76 trillion gallons of water annually, and taking up 45% of the earth's total land, this is what impact the animal agriculture industry has. To produce a pound of beef, it takes around 1800 gallons of water whereas a pound of corn only takes about 147 gallons, meaning beef takes roughly 12 times more water to raise than it takes for corn to grow. Industries have been more than willing to use up precious resources like water to satiate increasing demands for these products.

What we eat changes our planet's destiny. We can make a vast difference just by making more sustainable diet choices.

This is not the only way we are eating up our planet's resources.

Plastic is dominating over paper, a place where the production of plastics is cheaper than paper, and a universe where single-use plastic is virtually everywhere: from plastic bags, plastic knives, forks, and spoons, plastic straws, plastic water bottles, bubble tea cups, styrofoam, and more. Just by taking a walk on a beach, anywhere around the world, you will always find some sort of plastic waste. Tons of plastic debris, containers, microscopic plastic pellets are discarded into the ocean annually, affecting more than 100 000 marine animals while additionally polluting lands, rivers, coasts, and oceans.

Why is plastic so appealing and convenient to us? Plastic is versatile, flexible, lightweight, waterproof, strong & rigid and it is *cheap*. These attractive qualities of plastic perpetuates the cycle of companies favouring plastic over paper. Although paper bags and other biodegradable options may be a little more costly than products made with plastic, plastic cannot beat paper's recyclability and its environmental friendliness. The long term effects of plastic will eventually outweigh the cost of paper – pollution is *expensive*.

Plastic is evil. It is the cause of death of many marine, and land animals, the environment, and humans, as chemical toxins produced by plastic are carcinogenic. Therefore it's important that we make an effort to stray away from plastic, and replace them with eco-friendly paper or other biodegradable alternatives which will fulfil our needs but limit the damage on mother nature.

This information shows us but a glimpse of how many resources are used up in both the production and the consumption of food.

Transition 01

Knowing that we're causing so many problems to this planet and to ourselves, how should we proceed? The destruction happening all around us... anyone can predict that this will eventually lead to a devastating end. Maybe it already has, and now we have to suffer the consequences. So many issues are arising from the topics we've brought up, so is there anything we can do to salvage what's left?

Good news is that we still have a chance at saving what we have and prevent further decay. The only obstacle that really exists is human will... but when hope is actually put into works, the results are amazing.

Segment on Britannia Mine

Since the mid 19th Century, British Columbia had one of the world's leading mine industries- mining for metals, minerals, and coal were the province's largest economy for decades.

For seventy years, starting in 1904, the Britannia Mine in BC extracted ore from the rich deposits in the Britannia Mountains. Its high success rates made them the largest copper production in the British Commonwealth, and the largest mine known to the British Empire.

Despite the fact that they were commendable for mining 17% of the world's copper, they also produced far more waste. Massive quantities of metal sulphides released from mining reacted with water and oxygen to form Acid Rock Drainage. Though this also occurs in nature, the vast quantities generated by unsustainable mining resulted in the devastating pollution of neighbouring bodies of water, including creeks and Howe Sound's extensive network of fjords. Britannia became one of the worst polluters in North America.

According to Britannia Mine Museum, only 2 pennies worth of copper dissolved in a swimming pool is enough to harm marine life, but the mine was releasing about 69 pennies worth of copper into the oceans every minute. Back then, ignorance towards sustainability meant there was not much effort being made to protect the land. Any attempts to reduce the amount of pollutants reaching water were only for economic purposes, not environmental.

After its closure, mine owners installed an outflow pipe to redirect all the polluted water away from the majority of the marine life into deeper oceans. A dam was also later installed to keep the water out of the creeks; however, neither of these two solutions were sustainable and the dam ended up failing in the late 1900s.

Today, the mine water is treated at the EPCOR Britannia Mine water Treatment Plant. The locals along with the surrounding aquatic life, can rest comfortably, since all water now flows down into a single portal where plug and outlet pipes control the water's exit to Howe Sound.

To go from being one of Canada's worst sources of pollution to sustaining a completely healthy environment more than a century later, the Britannia Mine should be seen as inspiring and admirable. Their efforts exemplify that we need to start putting in effort to improve the state of our planet.

Transition 02

That's your proof. Solutions do exist! They just need to be understood and put into action, and that responsibility lies on the shoulders of everyone. Though this planet is big, to make a significant impact isn't as hard as you think. We have 7.6 billion pairs of hands to make change happen, and we're going to give some ideas to kickstart this movement.

Solutions for transportation

Staying mobile and connected plays such a vital role in today's modern lifestyle that it would be illogical to advocate for a complete ban on current transportation methods. After all, there were over 34 million registered motor vehicles in Canada in 2017. That's a lot...and the number is still growing!

That being said, we should encourage a more sustainable way to get around. Both small habit changes, and initiatives at the global level can alter the impact made by us on the environment.

How many times have you been advised to walk or bike more, carpool, or take public transportation? Possibly more than you can count. However, you may not realize the difference that these small, easy steps can make on our environment. According to the United States Environmental Protection Agency, "A typical passenger vehicle emits about 4.6 metric tons of carbon dioxide per year", which, to put into perspective, is equivalent to approximately 4600 bottles of soda, or 92 octopuses. This is only the amount of carbon dioxide produced by a single person. Now imagine how much carbon dioxide would be released into the environment if all 7.6 billion people on this planet also drove cars- that would be the equivalent of 699.2 billion octopuses!

Just by reducing their use of a private motor vehicle, if one individual can make this big of an impact, imagine how much of a difference we CAN make together! Carpooling and taking public transportation are two of the simplest solutions that most of us can accomplish, and even if we can't prohibit people from owning a private vehicle, there still exists alternative solutions like transitioning from gasoline-powered vehicles to electric cars!

Electrical engineering professor Olivier Trescases said in an interview with Global News that, "drivers won't have to pay for gas" when using electric vehicles, and this means that you can save yourself a lot of money, while reducing your carbon footprint on our environment simultaneously. Isn't this a win-win situation?

We had the opportunity to speak with a representative from TransLink's Sustainability department. TransLink is a company whose projects include operating the world-renowned SkyTrain, Seabus, and Public Bus systems in Metro Vancouver.

Solutions for energy consumption

With energy playing such a huge role in our everyday lives, there are actually many ways we can change our consumption habits!

On the larger scale, possible solutions for reducing energy waste is simply to start implementing innovative technology that's targeted at improving the efficiency of our devices! Improving efficiency means that we need to minimize the amount of energy we input, while still somehow maximizing the end products. A common example that you might be thinking of is the usage of lightbulbs. The traditional incandescent light bulbs' efficiency is between 10~20% while LEDs achieve values between 40~50%. Though this means that there is a 50-60% heat loss, it is still significantly more efficient and can last for 25 times longer than a incandescent light bulb.

We, of course, can't leave out the fact that most of us forget to stay conscious of our usage of our electronic devices. How often do you leave your laptop or phone chargers plugged in even when they don't need to be? When was the last time you reminded yourself to unplug all the electronics not in use at home? See, we've been hearing our teachers encouraging these habits since elementary school, but most of us never take these suggestions to heart! There is truth to what they say, and if all of us just listen to the advice, we could actually make a huge difference with just this small change of habit.

For example, you should unplug your computers and laptops. Even when the computer itself is turned off, the combined power draw of a cable, a wireless router, and a computer printer can exceed 50 watts. (which is enough energy to light a bright incandescent light bulb!)

Think about it, do all of us REALLY need to leave our computer monitors, microwaves, printers, and televisions plugged in and running all the time?! All of these devices use up stand-by power when plugged in, even when they're turned off! Standby power alone contributes to approximately 10% of the electricity used in Canadian homes. Wouldn't your electricity bills cause less headaches if you could take out \$100 out of every \$1000 dollars on your bill from just simply unplugging devices that aren't in use? You would be saving both energy and your hard-earned money!

It really is so, so easy to reduce the energy we use just from changing small habits alone. If you alone could reduce 10% of the energy you consume, how huge of an impact can be made if everyone committed to these changes together? A little food for thought the next time you charge your phone.

Solutions for food waste

Luckily, as for the plastic waste, Metro Vancouver's recent law to ban plastic straws, polystyrene foam cups and take-out containers has passed and will go into effect on June 1st, 2019. Although not all plastic will be eliminated and banned from use, this is a monumental step towards attaining a plastic-free city.

As individuals, we can also take steps such as limiting our use of plastic by bringing our own bags to grocery stores, bringing our own cups to cafes, and using our own containers. But of course, a systematic change would be much effective in the elimination of plastic, as we cannot avoid living our lives without coming across this material.

The Green Ambassadors program, partnered with City of Richmond & the Richmond school district, is where students with passion for environmentalism gather to volunteer and promote environmental sustainability. As a few of us production team members are partaking in this program, we are proud to say we've expanded our knowledge on sustainability and our environment; and we still continue to learn and grow every day! Recently we learned through one of the meetings that starting on June 1st, 2018, Recycle BC is introducing a project to collect **Other Flexible Plastic Packaging!** Flexible Plastic Packaging is one of the fastest growing packaging types on the market and the largest category of packaging. With more accessible options available for us to sustainably dispose of our plastic items, this offers a much easier path towards environmental health. So make sure you start recycling those grocery bags you have lying around!

The David Suzuki Foundation provides us with further suggestions on tackling the food waste issue.

The organization believes that this issue can be approached by taking small steps. Starting with something as simple as a meal plan can make a huge difference in how much food is consumed vs wasted. The David Suzuki Foundation advises us to buy the food we need now, and eat the food we plan to eat. In their words, "You'll be rewarded with a clean conscience, a healthier planet and a fatter wallet".

In addition to controlling food waste, *what* we eat requires attention too. As previously mentioned, animal agriculture plays a huge role in the CO₂ greenhouse gas emissions, and is responsible for major energy waste and water consumption. Let's get some numbers in here to put all this in perspective. According to studies done by Cornell University, Meat production consumes copious amounts of energy to produce small quantities of product. The ratio of energy consumed to protein output for chicken meat is 4:1; 13.1 for turkey; 14:1 for milk; 17:1 for pork; 26:1 for eggs; 50:1 for lamb; and a whopping 54:1 for beef. Wow...

Hearing this, we can see that reducing meat consumption will significantly diminish our carbon and ecological footprint, along with removing the demands for such products and preventing further production. The idea of resorting to a more plant-based diet may seem daunting and impossible in the beginning, but this is why taking small steps and gradually

making our way up to eliminating the need for mass meat production is crucial. It is about doing what we can while we still have the time.

Conclusion

From what we consume, to what we produce- food, plastic, greenhouse gases- our smallest to biggest choices determine how we impact the environment. This planet is OUR planet, but this ownership also comes with the responsibilities and obligations of protection and maintenance. It's resources are here for us to consume wisely, its beauty is ours to cherish, and the natural environment is ours to sustain.

In the time that we have spent together, we've discussed some of the most significant human activities that harm the environment; specifically, transportation, energy consumption, food and plastic production. We've heard from passionate individuals from our communities who have shared their keen insight, and expertise with us. Looking at the bigger picture, there are so many ways in which we can each contribute to a more sustainable lifestyle.

In the end, the message comes down to this: the way we are now, this is not earth. Our home can be so much more than what we have reduced it to- a mere playground for us to toy with destruction on.

This is our home, our environment, our responsibility. Let's own up to the mistakes that we've made as a species.

This is our earth.

End credits

Presented to you by

Sir Winston Churchill Secondary IB Students
Richmond Secondary IB Students

Project supervisor

Mr. Denis Lejay

Featuring

Patricia Lightburn, David Suzuki Foundation
Dr. Natasha Mrkic-Subotic, Langara College
Jason Pang, Richmond Green Ambassadors
Leo Li, Sir Winston Churchill Secondary School

Special Thanks

Britannia Mine Museum
Richmond Green Ambassadors

Outreach Ambassador

Sandra Radic

Art Directors and Researchers

Brina Li
Carina Bi
Carol Shen
Rajan Dhaliwal

Cinematographers

Ben Du
Carina Bi
David Holcer

Production Designers and Screenwriters

Danica Peng
Wonhak Choi

Editors

Ben Du
David Holcer

Director and Dabblers

Vedanshi Vala