

Sustainable transport for the *XXX (school)* community

MYP Personal Project 2012-2013

Student's name
Year 10

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Introduction

As part of the process of completing my Middle Years Programme of the International Baccalaureate I must complete an independent project called the Personal Project in grade 10th. For my Personal Project, I have decided to inquire about the transport facilities in the XX school community and how can we achieve a more sustainable transport. I have resolved this as my project because we are currently living in a state of crisis in which we are destroying the environment that surrounds us and we must do whatever it takes to amend our mistakes before it is too late.

← Goal: Highly Challenging!
Personal interests
Ai

I specifically chose this topic because I truly believe that we can all help and do something about it; maybe, not all of us cut down the trees, not in a direct way, but we do have to use transport somehow. My personal project is focused on a way in which we can relate to it and gain awareness of the situation. I developed the project within this specific community because I wanted to highlight the problem of our city, country and world among my peers in order to show them that we are not far away from the issue and that on the contrary we are contributing to it. However, we can still, do something about it.

This personal project, which I am developing, is directly related to the Global Context: "Scientific and technical innovation because it addresses the following question: *How do we understand the worlds in which we live?* Among other issues this context invites us to explore the interaction between people and the natural world; how humans use their understanding of scientific principles; the impact of scientific and technological advances on communities and environments; the impact of environments on human activity; how humans adapt environments to their needs. With this project I propose to develop some solutions to mitigate the effects of modern transport.

Global Context Connection
Ai

In order to fulfill my expectations and the expectations of my supervisor, coordinators and every person involved in the project I had to overcome obstacles, follow orders, lead groups and others. All this will be later explained in this report.

1.01 What is the Personal Project?

Before I start presenting my Personal Project it is essential to explain further what does a Personal Project actually mean? According to the IB, the Personal Project is "a significant piece of work that is the product of the student's own initiative and creativity". In spite of the fact that I completely agree with this definition I would also like to offer my own definition of the personal project, after I have experienced it at first hand.

← Personal Interest
Ai

After these few months that I have spent working and developing my Personal Project, after long nights, lengthy researches, heavy schedules and hard deadlines, I can proudly affirm that a Personal Project is not just a significant piece of work that comes directly from the student's creativity. A Personal Project, I believe, is more about the process and enjoying the journey, than the product and destination itself. A Personal Project is a challenging procedure, which one can embrace or let it kill you. The Personal Project should be an excellent and enriching experience if you wish to; everything you do in it, you take from it, you learn from it, will be up to you.

Personal Reflection

Dii
&
Diii
Biii

I came to the conclusion that a personal project is a way to know myself better. It is a way to test myself and see how far I get. During your personal project everything that you get will be a result of what you do. You will have the supervisor and the coordinator, but they are not pushing you, they are not punishing you, they are not running behind you, you are the one with that responsibility. At the end is you and only you the one to blame. A personal project is an individual and independent experience.

Investigating

1. What is sustainable transport?

Because everything in my Personal Project revolves around the concept of sustainability and sustainable transport it is really important to understand what these are in order to have a better and complete comprehension of my project.

First of all sustainability, is the capacity of creating a balance between humans and the environment, in how they can coexist in harmony. At the same time this balance must allow the social, economical and other types of necessities for this and future generations. *Research Aiii*

Every attempt to create and facilitate sustainability via the transport of people, goods and animals is then called sustainable transport (Including roads, railways, airways and waterways, etc). This method arises from the concern of people to repair the damage we have done to the planet. Therefore sustainable transport has a positive effect not only to the environment but also in the social and economical sustainability of the community it impacts. *Cii*

2. Identifying a goal for my Personal Project

When I first started working on my Personal Project I thought about changing the whole transport system of xx (City), that making it more eco-friendly was the only way of generating a positive impact on the environment and the citizens of XX (City). When I first started developing my project and inquiring about the topic I found out that the quality of this city's air was below the average that is permitted by the law. Therefore the city had to do something; and I thought I could do it. When I first started elaborating my Personal Project I was convinced that it was easy to accomplish something of that magnitude. Now I know that there is nothing wrong in thinking that, but I also know, to make big things one must start from the small and important things. That is the reason why at the middle of the process, I decided to focus my Personal Project on the school community. *Self-Management Biii*

While doing my Personal Project I realized, with the help of my supervisor and coordinator, that I was being way too ambitious and that changing the transport of the city was something that wouldn't happen, at least not now, and there was nothing I could do about it. I finally got to understand that if I truly wanted to help the environment by changing the transport, I had to change my goal, I had to think of something more achievable. I decided to work on the community I have the strongest relationship with, my school. *Research Aiii*

When I decided this, I understood that creating an impact does not solely mean BIG impacts; I understood that small impacts count as well, and from small things, big things start to build up. Since all the research I have done, until that point, was about sustainable transport, and since I liked the topic I decided to stick with sustainable transport. So I started to think of possible changes for this new stage of my Personal Project. *Ciii Communication Social*

That being said, my goal for the personal project is to make a proposal to my school directors and community so that our school would consider making a change to modify the current buses that the school owns and implement technologies to make them more eco-friendly. *Highly Challenging goal*

After all the research I have done, one specific alternative called my attention, and after several comparisons I finally decided that the Hybrid Electric Vehicles were the best option in terms of environment and effectiveness. However, I had learnt to think realistically. Therefore I started to inquire about other options that did not involve the complete change of the buses, since the school might not have the available fund to do that. *Thinking Skills Cii*

Hybrid Electric Vehicles, work with two sources of energy. The first and primary source is the same as any other car: an internal combustion engine. The second is a battery that drives an electric motor; this battery lends a helping hand to the gas engine (as for example when starting) in order to avoid fuel being wasted. The benefits include high fuel economy and lower emissions, all this without *Research Aiii*

In general here,
You can see the use of
prior knowledge learning,
Subject-specific
Knowledge
Aii

affecting the effectiveness of the vehicles. They are often more expensive than similar conventional vehicles, however, some costs may be recovered through fuel savings.

A:ii
Prior knowledge

Once I gathered all of my options, I started connecting the dots and remembered that in the first period, during chemistry lessons, the teacher taught us about the Catalytic Converter and the benefits it generated for the environment. I thought this was a very good option since it wasn't as expensive as the hybrid electric vehicles, but still it had a positive impact on the environment. Once I collected all the information, I presented my proposal to the headmaster.

Communication / social
C:iii

A:ii
Research / Prior knowledge / Subject-specific

A catalytic converter is an emission control device; it makes sure that the toxics, which are released by a car, are converted into less toxic material. For example, CO is transformed in CO₂, NO is converted into Nitrogen and Oxygen and hydrocarbons are released as Hydrogen. This works thanks to chemical reactions that help to increase the combustion of these gases.

What I wanted to achieve was not only the environmental and health benefits. I wished to create a sense of belonging for the school among the other generations. I wanted to encourage people to work for their school and think for others. We must remember that we do not live in a bubble, that we coexist with another 7 billion people in the world and every action has a reaction. We are not immune to global warming, to the green house effects and to the natural disasters; we are all exposed to them and it is our job to take care of one another.

D:iii - IB learner reflection

Planning B:ii is found in supporting documents more than the report

1. Creating criteria for the personal project

Once I settled my goal, I had certain things to think about. The form, the function, the audience and the costs of my product were relevant details that I couldn't just avoid and pass over. I started thinking and wrote down the following criteria:

B:ii
He presents these in the presentation
his headmaster uses the "pitch" with buses and coordinator.

Form: Basically what my project involves is a Catalytic Converter, which exists already on the market. A converter is not too big and it is placed between the engine of the car and the exhaust pipe of it. A professional mechanic must do the conversion. Most common catalytic converters are made of platinum and rhodium.

Function: The purpose of a catalytic converter is to transform the emission released by a car into less toxic emissions. The main gases that a car emits are carbon monoxide, unburned hydrocarbons and oxides of nitrogen. With a catalytic converter the first two undergo catalytic combustion and are changed to carbon dioxide and hydrogen and the last one is reduced back to nitrogen. When these gasses undergo the conversion the environment and the society are benefit from it. Carbon monoxide and nitrogen oxide are the principal causes of acid rain, if we are able to minimise the production of this toxic emission we are going to be able to save everything that this phenomenon threatens: the fish in the oceans, the majestic monuments, and the human being.

Is it "rigorous"??
reduce pollution
(reasonable)

Audience: This product is addressed to the whole school community, to people who use the school service but also for those who don't. However, the impact doesn't stop there, the community of the city and global population will benefit from this small actions.

Cost: The price of a catalytic converter varies according to the model. There are different options and it also depends on the car you want to put the catalytic converter in. The prices range from 200 - 300 USD. The benefits can be seen in a future improved air quality and lower gas consumption.

he can't buy it, must get approval for plan from school

2. Selection of sources and application of information

*Resources
Research
A:ii*

Throughout the personal project I had to use a variety of sources to base my research on and to guide my path. I think that all along I had varied and really good resources, which clarified certain points and strengthened previous information. Research played an important role in my personal project since my knowledge about cars and eco-cars was almost non-existent. Everything I know now is thanks to my personal project and the information I gathered.

*Communication
Social
C:ii*

I believe that the first resource that I collected which helped me draw the path that guided my Project, was the interview. I think that there is nothing better than listening to someone who has experience and that is why I opened my project with an interview. It was really useful because he was the first person to mention to me the existence of hybrid electric cars. That immediately got my attention and I started inquiring a lot about the topic.

The person I interviewed was R J, a manager that has been in the business of transport for 30 years now. When talking about the different problems that the current transport system held, a lot of doubts were resolved and I got to know that the MIO is an eco-friendly system which has improved the city's air quality. For a future he is hoping for a complete system with greener technology and he sees it as a very possible option.

One thing I learnt thanks to my personal project is that newspapers write about everything. When I started my project I thought I wouldn't be able to find any articles on this topic. When I started reading and asking my parents for help, I realized that the one who seeks, finds. It turned out that there are millions of articles related to my project and which have helped me. An article that especially caught my attention was one from (name of newspaper). It had information about the city's air quality, and how 90% of the pollution came from vehicles.

Surveys were also important in my research. Since I do not use the school transportation system, these answers helped me to visualize better what were the points of view, and what people thought about this service. After I read all the answers I was able to tell what people disliked about their bus and if they cared or not about the pollution that these vehicles generate.

*Prior Knowledge
A:ii*

When looking an alternative to the hybrids, a more viable one, a source that helped me a lot was my chemistry class from the first period. Remembering what we learnt, the notes, and an article that the teacher gave us, was really important to get to the decision that the second best option was the catalytic converters. It was useful to have previous knowledge about the topic and rewarding to use something that I learnt a long time ago for my Personal Project.

Throughout my Personal Project I tried to be really careful with the information I read and gathered. I was conscious that the Internet has loads of websites but I couldn't rely on anyone of them. That is why I tried just to use the articles, reports, books, documentaries, etc that I knew were trustworthy, from governmental pages to serious. I truly think that all the information I got to collect is reliable and after making my final conclusion I knew I had made the best proposal to meet my goal

*Considers source validity!
A:ii
"Excellent research SK:14"*

Taking action

Challenging

The main point of my personal project is to achieve a sustainable transport system in the school. The problem is that this goal depends a lot on the decisions of others and completely on my work. Obviously I had to get involved, make a proposal but at the end, the headmaster and the school board, who will either accept or deny the proposal, make the decision. My part of the job has been done. It will be subject to what these people consider to be best for the school's budget and community.

*- This is the product
C:i*

However, my goal was to present the headmaster and the buses coordinator the best option. For me that was the catalytic converters along with hybrid electric vehicles. I schedule a meeting with Mr XX and XX. I made a power point presentation and a speech with all the relevant information I needed. I knew that presenting to them, the option of HEV wouldn't make any difference. I knew that this was

** Part of criteria?
If his project is not approved, should that impact his grade?*

*Communication / Social
C:iii*

not a viable option but I presented this option because I wanted to leave it on the table as a future option. Maybe they would like it as much as I do and later they can implement this technology on our buses. I have learnt during the Personal Project, that things are not only evaluated by the result but as well for the things you do in the journey.

Dii + Diii
Reflection as a learner

When I presented the proposal I believed I gave all the necessary information, I believed that modifying the buses was a good idea that parents and students would like, but a modification of this magnitude is not that easy to achieve. It is complicated and just because you ask for does not mean you will get it.

As part of my personal project I also created some posters, which I pasted around the secondary section and the cafeteria. The posters included some tips to save gasoline and to keep the car in good condition. I thought that this was very important due to the fact that students in my school start driving from 9th grade so this kind of information would be useful for them and their budget. I came up with this idea when I was trying to find ways in which I could approach the younger audience of my school. Since the objective of my project was to create a sustainable transport for the whole school community, changing the way in which people drive (not only the buses) and this would benefit everyone.

Thinking
Cii

Global Context: scientific and technical innovation

According to the IB in relation to this Global Context "Students will explore the natural world and its laws; the interaction between people and the natural world; how humans use their understanding of scientific principles; the impact of scientific and technological advances on communities and environments; the impact of environments on human activity; how humans adapt environments to their needs."

Begins to evaluate product against criteria

I believe that my product reflects completely the impact of this global context on my personal project. Throughout the project, product and action I have created certain awareness and I have come to inform people how they can apply their understanding to invent and create inventions that will impact people's lives. This global context is all about sustainable innovation and that is what I had showed. I think that I have demonstrated that we, as humans, have certain dependency upon environmental factors and in order to make our human ingenuity shine we must take in account the environment first.

Reflection
Dii + Diii

This global context joins technology, community and sustainability and how we must connect our local actions with our surrounding. I know that everything I have done in this time reflects perfectly the intention of the chosen global context, I specifically chose this one because I believe is important that in the current conditions, people and nature learn to live together in harmony. I consider that my product could be considered as a success. It may not be real yet, but the message that I sent through it is still an impact if the project is accepted or not.

IB learner
Diii

SEE Criteria → Di

Reflecting

After completing this process I can say that I am proud of what I have achieved. If the project passes or not I feel that I have grown as a person in the last few months. I have learnt from the articles, interviews, surveys but I have also learnt about myself. I now know the challenges I can go through, the stress I can work with, and that I am able to produce something in spite of the obstacles that stand in my path. I can now tell that if I truly wish to make a change I can make it.

Learner Reflections
Dii + Diii

The most important thing that I have learnt during this process is the importance of taking care of the environment. I know that every action has a reaction and therefore I must think about my actions wisely not thinking solely about myself but others as well. I am more conscious now of the fact that I live in a single planet with more than 7 billion people, and the resources in this home are for every one of us and the babies that aren't yet born.

I also learnt that we play a highly important role in the environment and since we are the creatures who are destroying it, we must be the ones who repair it. I have learnt that this problem, of an

injured planet, affects us all and if we don't take care of the planet then, who will? We must take responsibility for the consequences of our action and we must make sure that those consequences can be as positive as possible.

Last but not least, I have learnt that we can all make changes even though we don't believe it. small actions build big ones. We can all work together, as a whole in order to create a better world. we can all contribute something: knowledge, experience, anything can help to build a better and connected place to live in. I have learnt that it is not too late to start the change.

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Research

A:iii

Appendix A

Questionnaires

**Survey questionnaire given to students
School Buses**

Thinking (Aii)
Research (Aii)
Communication / Social (Bii)

In the following questions please answer according to your own opinion. If you don't use the school buses please don't answer the questions, only for students who use and know the system.

*Compulsory

| | |
|--|--|
| Which is your bus number? * | |
| Rate the comfort of your bus * | Very Good Good Normal Bad Very Bad |
| Do you feel your bus is too small? * There is a larger quantity of people using the vehicle than they should be | Yes No |
| Is there something you wish to change from your bus? * | |
| Are you aware of the levels of contamination the school buses generate? * | Yes No I have thought about it I don't care |
| Would you like the school to change the buses for more eco-friendly ones? * | Yes No I don't care |
| Have you heard about "Hybrid" or "Hybrid Electric" vehicles? * | Yes No |
| If yes, what do you think about them? | |

**Survey questionnaire given to parents
Colectivos del colegio**

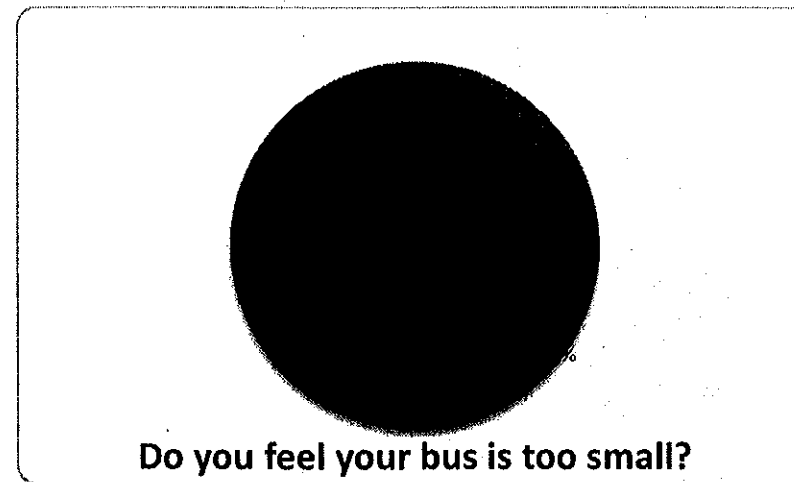
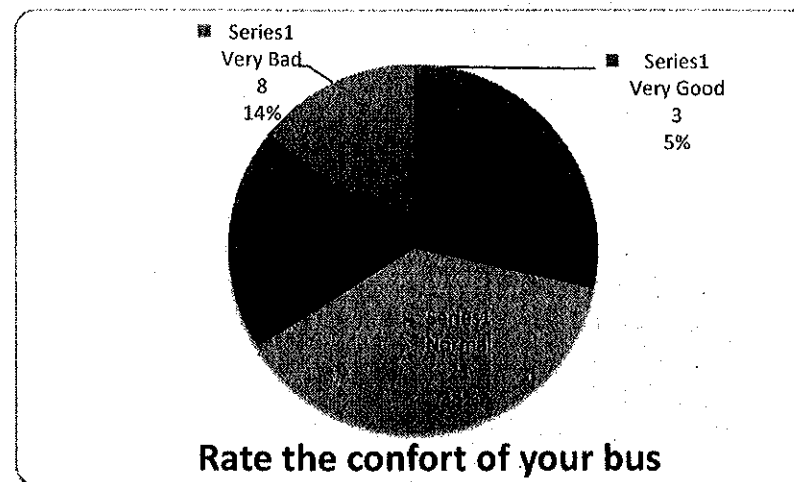
Como parte de mi Proyecto Personal quise preguntarle a los papas, profesores, y en general los alumnos del colegio, qué piensan sobre el transporte escolar del colegio. *Obligatorio

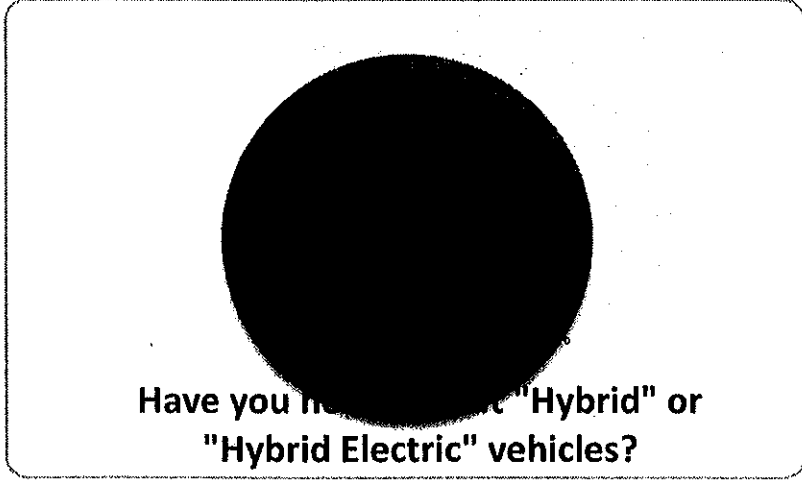
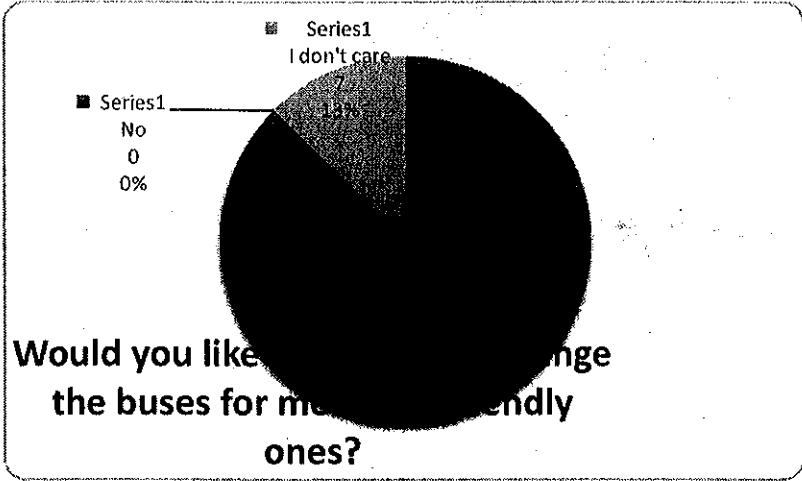
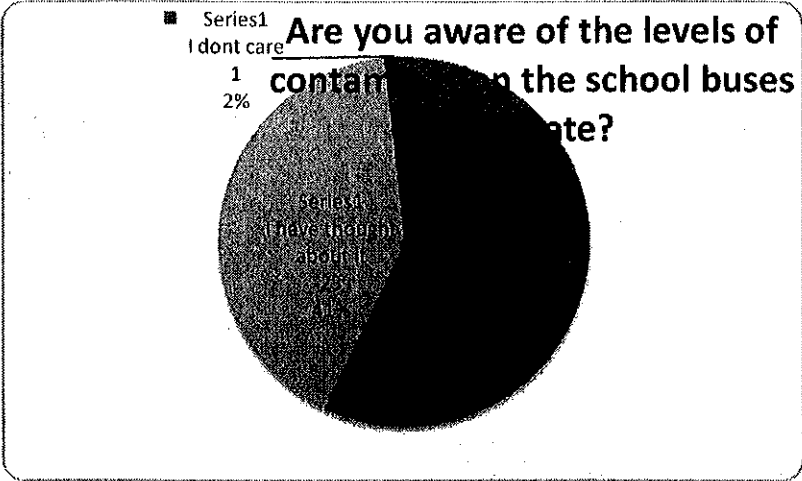
| | |
|---|--|
| <p>¿Qué piensa usted sobre los buses del colegio? *</p> <p>En pocas palabras escriba su primera impresión ante el sistema de transporte escolar</p> | |
| <p>¿Le parece a usted, que los buses escolares emiten altos niveles de gases tóxicos? *</p> <p>Ejemplo: Óxido de Nitrógeno, Monóxido de Carbono, etc?</p> | <p>Si No No sabría responder</p> |
| <p>¿Le gustaría que se cambiaran los buses actuales por buses más amables con el medio ambiente? *</p> <p>El cambio se puede referir a un cambio completo del bus, o simplemente a la adquisición de un accesorio que ayude a contrarrestar la emisión de gases tóxicos.</p> | <p>Si No No veo la necesidad</p> |
| <p>¿Estaría usted dispuesto a pagar una cuota por el cambio de estos buses? *</p> | <p>Si No</p> |
| <p>¿Sabe usted que son los vehículos "Híbridos"? *</p> | <p>Si No</p> |
| <p>Si si ha escuchado, que piensa al respecto?</p> | |
| <p>De las siguientes opciones, cual le parece a usted la mas ecológica y obtenible? *</p> | <p>Motores híbridos Motor rotativos Vehículos de aire comprimido Hidrogeno como sistema de propulsión Vehículos movidos por gasolina, alcohol y gas.</p> |

Appendix B

*Research
Aiii*

Answers to survey Graphs





PROCESS JOURNAL

Examples of MYP personal projects: Example 1B

EXTRACTS

Plan + Record of Process
 (A:)

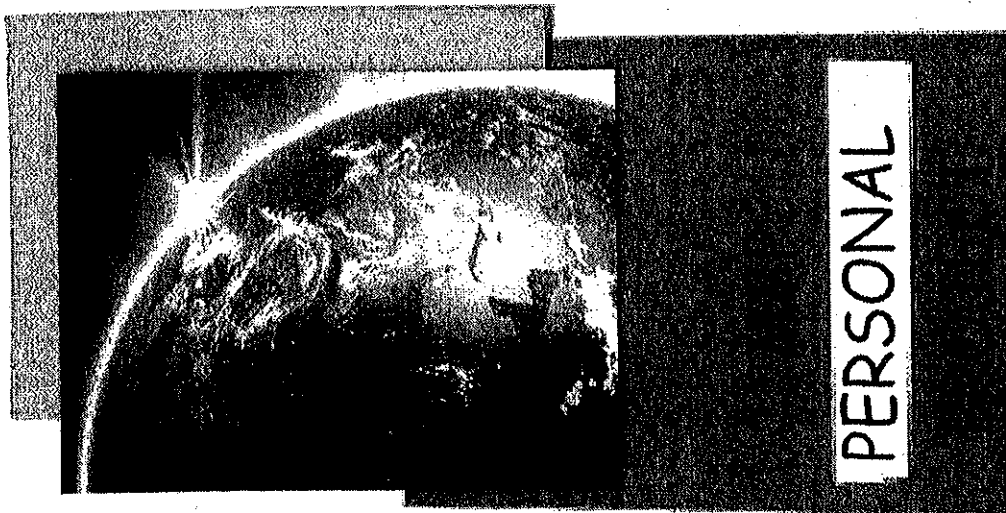
* Use only to support what's in the report.

Time Line

| November - December | January - February | March - April | May |
|---|--|--|---|
| INQUIRING | PLANNING | EVALUATING THE PRODUCT | |
| <ul style="list-style-type: none"> ➤ Outline of Topic. Formulate a goal and context ➤ Research period. Select relevant resources ➤ Transfer and apply the results of inquiry | <ul style="list-style-type: none"> ➤ Assigned supervisor ➤ Analysis of information and design or product/outcome ➤ Evaluate and select sources of information ➤ Demonstration of Critical thinking, communication and self-management skills | <ul style="list-style-type: none"> ➤ Design of product ➤ Develop criteria ➤ Evaluate the quality of the product against the developed criteria ➤ Evaluate the impact of the product ➤ Explain how the project works | <ul style="list-style-type: none"> ➤ Consider the extension of the topic and context ➤ Reflect on the personal learning and experiences ➤ Explain the opportunity for action ➤ Communicate clearly and accurately |
| | | | |
| MAY 30 2013 Presentation of Personal project Process journal, product and report to the community | | | |

Calendar

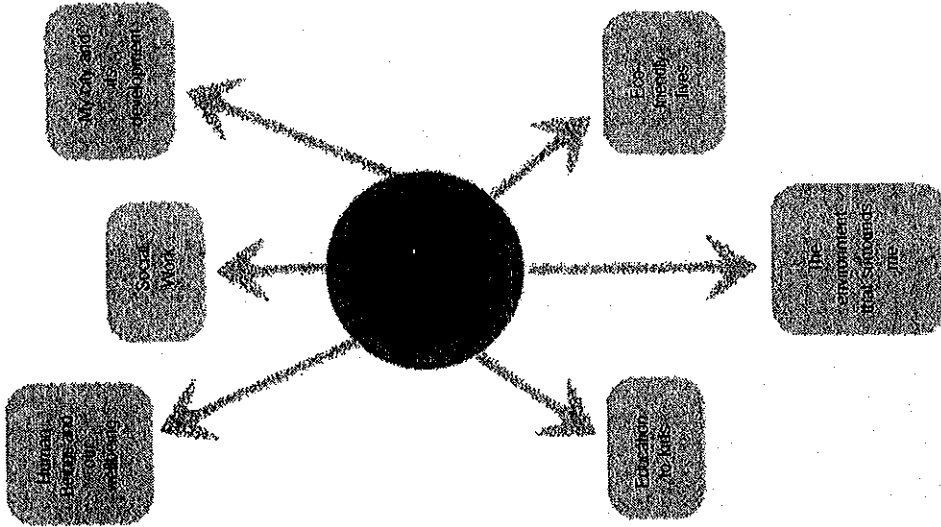
| | | | |
|---|--|---|--|
| 1 | Thursday 7 th New topic Sustainable Transport in | Wednesday 6 th First Meeting with Supervisor | Monday 4 th Must begin the sketches of the Eco-Friendly Bus |
| 2 | Cumulative Exams Week | Ugogo Mundales Training week | Wednesday 10 th Sketches must be shown to supervisor for approval |
| 3 | Friday 21 st Make survey interview questions | Ugogo Mundales Training week | Sunday 14 th Must obtain model of the Eco-Bus |
| 4 | NY | Wednesday 23 rd meeting with supervisor | Continue work on the model |
| 5 | NY | | Thursday 30 th First Outline of the report must be finished |



EXERCISE 2

What do you see that you wish was not like that?

What do you see that you think is unfair or unjust?



November 10th

Goal
A:

These following questions will help me define what I wish to achieve through the personal project and therefore my goal.

• **What do I want to achieve through my personal project?**

I will like to make a project in which I could help my city or my community. I want to help it, and improve it; I want to improve something that hasn't been yet improved: helping at the same time I am innovating. I will like to make something that could have certain impact, for instance a positive impact in the environment and the people.

• **What do I want other to understand through my work?**

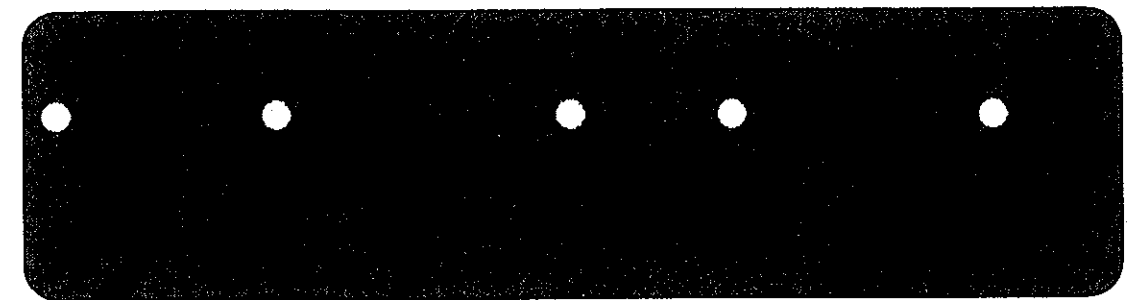
I wish to give others the capacity to open their minds and understand that beyond their bubbles, we are living in world that has serious problems and we are the only ones capable of repairing them. I am approaching local problems to show people of my community that they are no far away from the problematic and that, for example, [redacted] is a city going through global warming as well.

• **What impact do I want my project to have?**

With the project, I am hoping to make a call on those who haven't yet realized the situation of our surrounding. I want to inform people, I want to help others and also make my community help others. I wish to create a change in both the city and its population, or at least my school and the students.

• **How can a specific context enrich my project?**

Two contexts could help and enrich my project. Once my goal is defined I will choose just one of the contexts, the first one is "Scientific and technical innovation" or "Globalization and sustainability".



Actions Arising → Set the FINAL goal for the personal project and define the FINAL topic.

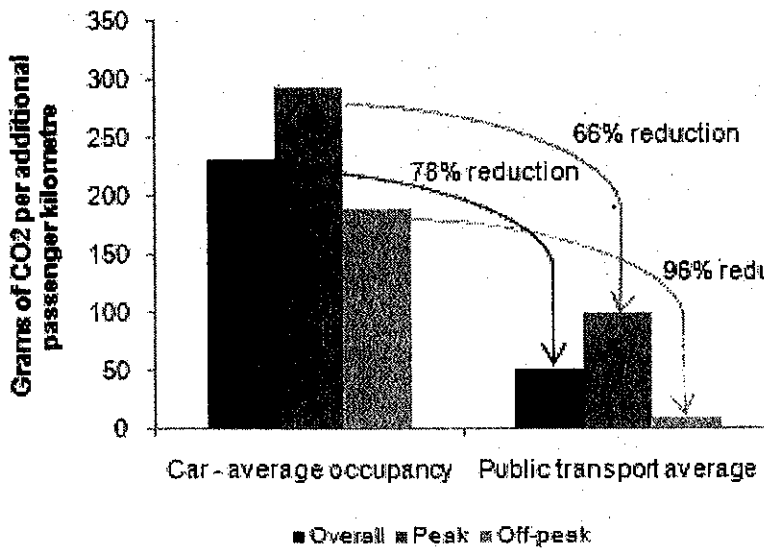
Questions to Follow Up On → Which topic can cause the impact I wish to cause?

Global Context Reflection → Both contexts that were choose today could help my project in a future regardless of the topic because I want to lead that way.

Planning + Self-Management
Bii
Bii

December 10th

The pictures that we are seeing are photographs taken in [redacted]. We can see how the public transport is actually affecting our environment and how this, in a not so distant future, can damage and affect our health. That's why measures should be taken



In the graph we see aside, we can notice how using the public transport actually reduces our CO2 footprint. If we start using sustainable facilities this footprint would lower even more.

*Research
Aiii*

January 9th

Today I had a meeting with the owner and manager of the transport company [redacted], a company that has been in the business for 50 years. Here are is the interview:

Communication / Social
(Ciii)

What are some current problems with the public transport in [redacted]?

The time that each journey is taking its something that many users have complained about. We are also having a problem with the number of buses functioning, the demand has grown and we need more vehicles on the road.

Are the buses, that we currently use, at some level friendly with the environment?

The buses that the [redacted] own are by far more eco-friendly than the old buses that the city had circulating. Figures have showed that the city's air quality has improved.

Do you consider that having eco-friendly buses is indispensable? If so, why?

Absolutely. We are living in a tough era and we need to find ways to save the earth.

The faster we learn to live a green life, the better. We need to be eco in every aspect.

Do you think that [redacted] will have some day 100% eco-friendly public transport?

I am a true believer that [redacted]'s population has come to realize the need of making a change on our lives styles. Recycling is a proof of it, 10 years ago, people didn't event know what recycling meant. We are now going through a recycling boom.

If you wanted to implement these types of buses, will you receive help from the gov?

Yes.

Do you see problems with the eco-buses? As for example maintenance?

No, as we start implementing this technology, mechanics will appear.

Eco-buses are expensive. Do you think we will receive benefits that are worth it?

Off course, not only in the environmental side but as well in the fuel savings!

Which types of Eco-Buses do you know?

Hybrid Electric are my favorites. The function with a conventional engine and a electric one.

*Thinking
 Research
 Planning*

ATL SKILL AREA

● Research ● Self-Management ● Social ● Communication ● Thinking

Explain why this reflects the ATL skill area you identified?

Communication. This skilled is shown because I used active listening to understand others

- Actions Arising* → Look for people and contacts that could help me with the goal of my personal project.
- Questions to Follow Up On* → Is there any possibility of changing/modifying the transport?
- Evaluating sources* → The person I interviewed has been in the transport business for 30 years and his company has run for 50.

Planning + Self-Management
(Bii) (Biii)



Projects teacher support material

Introduction

- How to use this teacher support material

Organizing MYP projects

- Timelines

Pedagogy of MYP projects

- Global contexts and approaches to learning

Completing the MYP projects

- Getting started
- Process journal
- Resources
- Presenting the project

Assessed student work

- Examples of MYP community projects
- Example 1: Community project: Rice husk briquettes
- Example 2: Community project: Recycling plastic at school
- Example 3: Community project: Raising funds for charity
- Examples of MYP personal projects
- Example 1: Personal project: Sustainable transport
- Example 2: Personal project: A medley of pop music
- Example 3: Personal project: Creating a web page

This is the scoring guide + explanation the IB program sent with the sample. It scored high on all levels.

Example 1: Personal project: Sustainable transport

Assessment

| | | | | |
|----------------|---|---|---|---|
| Criterion | A | B | C | D |
| Level achieved | 8 | 8 | 8 | 8 |

Criterion A: Investigating

Maximum: 8

| Achievement level | Level descriptor |
|-------------------|------------------|
|-------------------|------------------|

The student is able to:

- 7-8
1. define a clear and highly challenging goal and context for the project, based on personal interests
 2. identify prior learning and subject-specific knowledge that is consistently highly relevant to the project
 3. demonstrate excellent research skills.

This work achieved level 8 because the student:

- defines a clear and highly challenging goal and context for the project, based on personal interests. The idea of creating a proposal for the school to invest in an eco-friendly solution for transport was highly challenging. Both the goal and global context were clearly defined showing understanding supported by thorough research
- identifies prior learning and subject-specific knowledge that is consistently highly relevant to the project ("during chemistry lessons, the teacher taught us about the catalytic converter and the benefits it generated for the environment")
- demonstrates excellent research skills. (including interviews, surveys and specific bibliography)

Criterion B: Planning

Maximum: 8

| Achievement level | Level descriptor |
|-------------------|------------------|
|-------------------|------------------|

The student is able to:

- 7-8
1. develop rigorous criteria for the product/outcome
 2. present a detailed and accurate plan and record of the development process of the project
 3. demonstrate excellent self-management skills.

This work achieved level 8 because the student:

- develops rigorous criteria for the outcome (considering the form, the function, the audience and the costs of the product)
- presents a detailed and accurate plan and record of the development process of the project (the process journal shows enough evidence)

- demonstrates excellent self-management skills. (The process journal also reflects the obstacles the student had to face and how she approached them in order to find a solution.)

Criterion C: Taking action

Maximum: 8

Achievement level

Level descriptor

The student is able to:

- 7-8
1. create an excellent product/outcome in response to the goal, global context and criteria
 2. demonstrate excellent thinking skills
 3. demonstrate excellent communication and social skills.

This work achieved level 8 because the student:

- creates an excellent outcome in response to the goal, global context and criteria
- demonstrates excellent thinking skills (each journal entry highlighted and justified the main skill reflected in that section)
- demonstrates excellent communication and social skills.

Criterion D: Reflecting

Maximum: 8

Achievement level

Level descriptor

The student is able to:

- 7-8
1. present an excellent evaluation of the quality of the product/outcome against his or her criteria
 2. present excellent reflection on how completing the project has extended his or her knowledge and understanding of the topic and the global context
 3. present excellent reflection on his or her development as an IB learner through the project.

This work achieved level 8 because the student:

- presents an excellent evaluation of the quality of the outcome against her criteria
- presents excellent reflection on how completing the project extended her knowledge and understanding of the topic and the global context
- presents excellent reflection on her development as an IB learner through the project. The student's reflections show how she managed this independently and how this has been a significant experience for her to grow as a person and as an IB learner.



[Student work A \(PDF\)](#)



[Student work B \(PDF\)](#)



[Student work C \(PDF\)](#)



[Student work D \(PDF\)](#)



[Assessment](#)

| | 0 | 1-2 (F to D-: 60-73) | 3-4 (D+ to C: 74-80) | 5-6 (C+ to B: 81-89) | 7-8 (B+ to A+: 90-100) | TOTALS |
|--|---|--|--|--|---|---|
| <p>Criterion C: Taking Action</p> <p>i. Create a product/outcome in response to the goal, global context and criteria</p> <p>ii. Demonstrate thinking skills</p> <p>iii. Demonstrate communication and social skills</p> <p>COMMENTS:</p> | <p>The student does not achieve a standard described by any of the descriptors below.</p> | <p>The student is able to create a limited product/outcome in response to the goal, global context, and criteria; demonstrate limited thinking skills; demonstrate limited communication and social skills.</p> | <p>The student is able to create a basic product/outcome in response to the goal, global context, and criteria; demonstrate adequate thinking skills; demonstrate adequate communication and social skills.</p> | <p>The student is able to create a substantial product/outcome in response to the goal, global context, and criteria; demonstrate substantial thinking skills; demonstrate substantial communication and social skills.</p> | <p>The student is able to create an excellent product/outcome in response to the goal, global context, and criteria; demonstrate excellent thinking skills; demonstrate excellent communication and social skills.</p> | <p>TOTALS:</p> <p>%: _____</p> <p>IB: _____</p> |
| <p>Criterion D: Reflecting</p> <p>i. Evaluate the quality of the product/outcome against their criteria</p> <p>ii. Reflect on how completing the project has extended their knowledge and understanding of the topic and the global context</p> <p>iii. Reflect on their development as IB learners through the project</p> <p>COMMENTS:</p> | <p>The student does not achieve a standard described by any of the descriptors below</p> | <p>The student is able to present a limited evaluation of the quality of the product/ outcome against his or her criteria; present limited reflection on how completing the project has extended his or her knowledge and understanding of the topic and global context; present limited reflection on his or her development as an IB learner through the project.</p> | <p>The student is able to present a basic evaluation of the quality of the product/ outcome against his or her criteria; present adequate reflection on how completing the project has extended his or her knowledge and understanding of the topic and global context; present adequate reflection on his or her development as an IB learner through the project.</p> | <p>The student is able to present a substantial evaluation of the quality of the product/ outcome against his or her criteria; present substantial reflection on how completing the project has extended his or her knowledge and understanding of the topic and global context; present substantial reflection on his or her development as an IB learner through the project.</p> | <p>The student is able to present an excellent evaluation of the quality of the product/ outcome against his or her criteria; present excellent reflection on how completing the project has extended his or her knowledge and understanding of the topic and global context; present excellent reflection on his or her development as an IB learner through the project.</p> | <p>TOTALS:</p> <p>%: _____</p> <p>IB: _____</p> |

STUDENT ACHIEVEMENT LEVEL AND REASON FOR FINAL GRADES: % _____

IB: _____