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Font: Times New Roman, size 10 pt

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Begin with:

Topic

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For what purpose the material is

How to use the material

Also send opinions, critics, etc.

Write author's name, position, e-mail

Cite sources in alphabetical order

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FACT 17 introduction

Dear friends

This issue is dedicated to variety of topics – from students' science work to European civil education, from responsible eating to ecological education, from simply sharing news of exciting meetings to complex interdisciplinary theater performance.

And in all cases the focus is on students – what they need, what they want, what they do. We would like students to be at the centre of education despite our own wishes and interests as they and their futures are the most important aspects of life in our world. Not simply because they are our future – but because they are our present. Our present at home, at school and kindergarten, in the street, in the shops and cafes, with the telephones in our hands and the music in our ears. And we should aim to direct them towards living their lives in peace, trying to help them not to lose the way on this journey. To exist in this world as happy as they can possibly be.

Keith and Stefka



ELICIT PLUS

ELICIT-PLUS is the result of the cooperation between two successful networks in the field of education: ELOS and ELICIT.

In a recent Comenius project, ELICIT (European Literacy and Citizenship Education), has developed a Portfolio of the European Citizen based on a new Reference Framework which included the ELOS CFEC, and a European Semester for Student-Teachers (30 ECTS), offered by 4 Universities (ES, FR, HU, SE).

The ELOS network has been working for almost 10 years at the development of high-quality instruments for the implementation of European competences at school. Examples are the CFEC and the Quality Review.

Objectives of ELICIT-PLUS

To establish a sustainable and growing network of training modules for teachers, principals, parents and other actors involved in educational matters in order to educate a growing number of European pupils and students to become responsible European citizens, who are competitive in the global community, as defined in Horizon 2020.

The modules will address the various competences required to sustain the European socio-economic and cultural model and to boost European competitiveness on the international scene in a global environment by developing European literacy, creativity, innovation and entrepreneurship. Our approach is established to promote inclusive education: ensuring that all children are safe, visible and learning and to reinforce the connection between formal and informal learning.

Needs

The development of nationalistic viewpoints and the overall decline in interest for the original European project show a need for an input in European Literacy, intercultural approaches and inclusive school development.

The economic crisis and increasing unemployment - especially among young people - in the E.U. show a need for a redefinition of educational objectives at different levels. Other global economies are rising. European future citizens and professionals will need other competences to be competitive and to behave as responsible global citizens.

Europe will be the carrier for their development and well-being, based on the fundamental values of the European Union: Dignity, Liberties, Equality, Solidarity, Citizenship, Justice.

C1 Training course in Constanta (Romania) and C2 Training course in Innsbruck (Austria)

February 20-26, 2017 was held the second C1 course in Constanta (Romania).

Just as the course held in Paris, this course was to train the Trainers.

The same week, February 19-25, 2017 has been held a C2 course. This course was to train teachers in Europe.

Both courses were fully booked and were held in a very good working atmosphere.

For both these trainings there were publications in the local press (for Innsbruck in German, for Constanta in Romanian).

In the coming months a series of such C2 training courses will be organised.

ELICIT-PLUS FINAL EVENTS JUNE 2017

In the beginning of June 2017 there will be several events in Hungary.

1. The last C1 course (trainer training), in Kecskemét, Hungary. 5-9 June, 2017.

On the website you will find information on the preliminary programme, the online registration and accommodation.

2. The ELICIT + Final Transnational Project Meeting, also in Kecskemét, 7-9 June, 2017

All partners are welcome.

3. The International ELICIT + Conference, in Budapest, 10 June

Venue: European Youth Centre Budapest

The conference awaits participants, presenters and interested people on an international venue. Any topic concerning European citizenship education is relevant. The final conference as a special event of dissemination is open to experts, researchers, teachers, students who are involved in different European projects, research and training activities to share their experiences and results concerning citizenship education. ERASMUS+ K2 projects are especially welcome to show their activities and demonstrate common results. . Participants are welcome to present their papers in 15 minutes with a real chance of publication on the official website of ELICIT-Plus, as well as the website of the member institutions and organisations.

The participants at **C1 course** and the **Final Transnational Project Meeting** are warmly welcome at the **Conference**, but separate registration is necessary to each programme.

We look forward to meeting you at the June programmes.

Training courses in 2017 and 2018

**From May 2017 to April 2018, you have a choice short training courses,
eligible to ERASMUS+ KA1 mobility grants**

Citizenship in 21st century Europe. Developing active citizenship

25th June - 1st July 2017 – Strasbourg – Languages: English and French – 490 €

Organizer: GERFEC / ELICIT-PLUS; contact: paula.askew@stmarys.ac.uk,
rmgerfec@orange.fr

Is it still possible to develop active citizenship in today's Europe, weakened and threatened as it is by so many divisions and so much confusion? During this course, our reflection will aim to:

- Develop a better understanding of what is meant by citizenship in the context of Europe today.
- Understand issues of intercultural dialogue in order to promote understanding between people of different cultures, faiths, and convictions.
- Develop tools to support teachers and managers to deliver successful citizenship programmes in their institutions.

Being an articulate and active European Citizen

9-14 April 2018 - Strasbourg (France) - Languages: English, French and Spanish - 490 €

Organisers: AEDE-France, UNILIM and UCO / ELICIT-PLUS; contact: contact@aede-france.org

This course, held in the beautiful city of Strasbourg, will enable you to find your way in the intricate labyrinth of modern medias. How and where to find reliable information about the E.U. and how to articulate the voice of the European Citizen?

This course will give you the opportunity to develop your communicative skills and your intercultural understanding.

It will also provide time and space for interactive workshops with colleagues from all over Europe. A final session will be enacted as "Theatre FORUM".

Join the course in Botosani to better understand the complexity of our European Institutions, the wealth of our European cultural heritage, the opportunities offered for active citizenship and democratic engagement, the possibilities open to participants of all ages in the ERASMUS+ programmes...

More details

For more details on these courses, download the Course Catalog (in English or French). In that file more details and the contact data are presented.

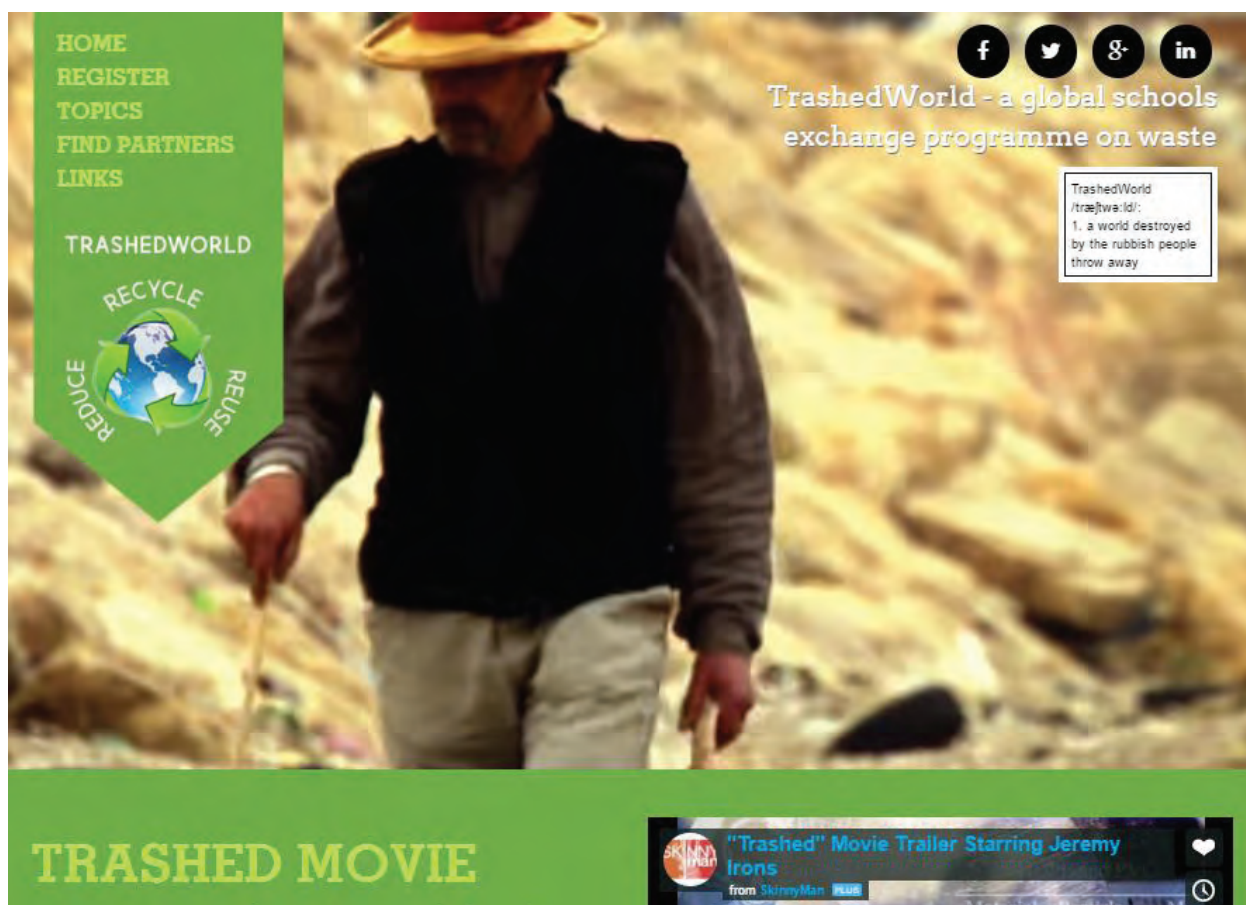
Furthermore, for all details, find the courses at the **ERASMUS** + KA1 Mobility website for Short Training programs for School/Adult Education:

<http://www.schooleducationgateway.eu/en/pub/index.htm>

<http://www.elicitplus.eu/>

TrashedWorld

We're very happy to announce a brand new schools' exchange programme on the topic of Waste. As you probably are aware, the world is sinking and being buried simultaneously in trash. In response to this phenomenon, Blenheim Films produced the award-winning documentary movie '[Trashed](#)' narrated by Jeremy Irons and now the film is available as learning material aimed at getting schools working together on this important theme with their students.



What is TrashedWorld?

TrashedWorld www.trashedworld.com is a global schools' platform for curriculum exchange work on the topic of waste with the dual aims of developing skills and awareness of waste issues whilst also developing skills and knowledge in the English language.

You can watch [a walk through video](#) of how to get started with the TrashedWorld programme.

What is included in TrashedWorld?

The project offers 4 study modules of 3-4 units of work on waste based on 50 film clips taken from the documentary movie 'Trashed'.

TrashedWorld includes pdf files of Teachers Notes and Student's Pages, and also Investigation Sheets to help students gather and present information for exchange with partner classes in schools around the world.

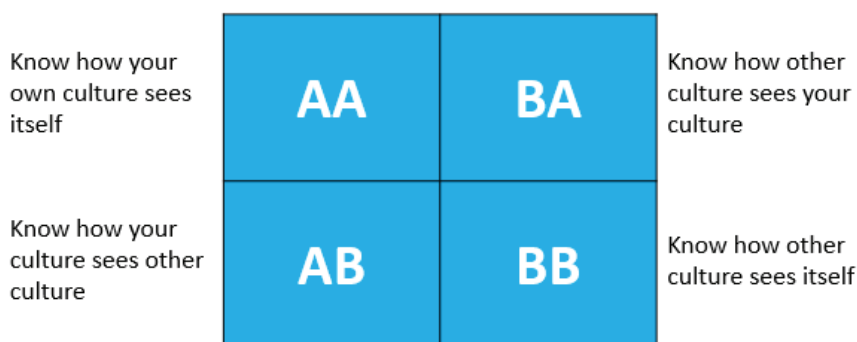
How does TrashedWorld work?

Once registered with the project, groups work through the study units and investigate their lives through the topic of waste. Classes gather information and data about waste in their homes and communities and present this information in many forms for exchange with partner classes around the world. TrashedWorld has a search engine for finding partners already working on the project. There are also samples of student work as examples of what groups can do.

By engaging young people in a dialogue about issues of waste relevant to their own lives and with their peers in other countries, we aim to raise awareness about waste and ultimately change behaviours for this important challenge we face on earth.

Intercultural communicative education


- Culture A and Culture B



The idea behind schools' exchange work like this is that students get to see the world from a number of perspectives. They can begin to understand that their own view is just one of these perspectives. So, while exchanging about waste, they share in the good and bad practice, the problems, the solutions about waste from all over the world. In this way, they can begin to adjust their own worldview.


In short, the students are tasked with investigating the issues locally and nationally, be it finding out about local dumps, landfills, incinerators, recycling plants and more in their local community, and preparing their findings in an attractive visual form which is engaging for their project partners around the world.


TRASHEDWORLD





Module 1 – Trash, the World and Me


Unit 1 – What's the problem?


 pdf


 investigation sheet in Word




 clip 1





 clip 2





 clip 3


Unit 2 – What are we throwing away?


 pdf


 investigation sheet in Word




 clip 1





 clip 2





 clip 3


Unit 3 – What happens to my rubbish?


 pdf


 investigation sheet in Word




 clip 1



 clip 2



 clip 3

The first Unit 'Trash, the World and Me' is freely available and introduces learners to the theme, presents global facts, and gets them to place themselves within this challenging problem we all face. In exploring the theme and how it relates to their daily lives, students consider what is happening around the world and what they themselves can do. Classes all over the world are then offered opportunities to communicate with each other to exchange their local research, share ideas and find common solutions.

TrashedWorld participants are asked to investigate a range of habits in their lives and the lives of those around them using instruments provided by the project, like this questionnaire for use when interviewing shoppers on their shopping habits and how much they think about the waste this creates.

TrashedWorld – www.trashedworld.com

the study resources

Challenging and **changing** behaviour

As a class, how many people have you persuaded to change their shopping habits. i.e. how many people answered 'yes' to questions 3 and/or 5?

		1	2	3	4	5
1. Where do you usually do your shopping?	Supermarket/local shop/other					
2. Do you take your own bags when you go shopping?	Yes/No					
3. If you don't take your own bag when you go shopping, would you agree to try it for one month?	Yes/No If your answer is 'no', why not?					
4. If you buy fruit and vegetables at the supermarket, are they usually packaged in plastic?	Yes/No					
5. If you buy fruit and vegetables at the supermarket and they are packaged in plastic, would you consider buying them at a local shop that doesn't use plastic packaging?	Yes/No If your answer is 'no', why not?					
If people answer 'no' to questions 3 or 5, enter their reasons here:						

In this way, the students are not only thinking about their own lives and behaviour, they are also raising awareness among the people around them, families, friends and communities. It is through such activities that students' beliefs are challenged, and they take the road to changing behaviours which can ultimately be damaging for our planet. It is by engaging in these proactive investigative studies that make young people think about how live, that our young people become Young Ambassadors for Creative Sustainability - YACs.

French Grammar School, Plovdiv

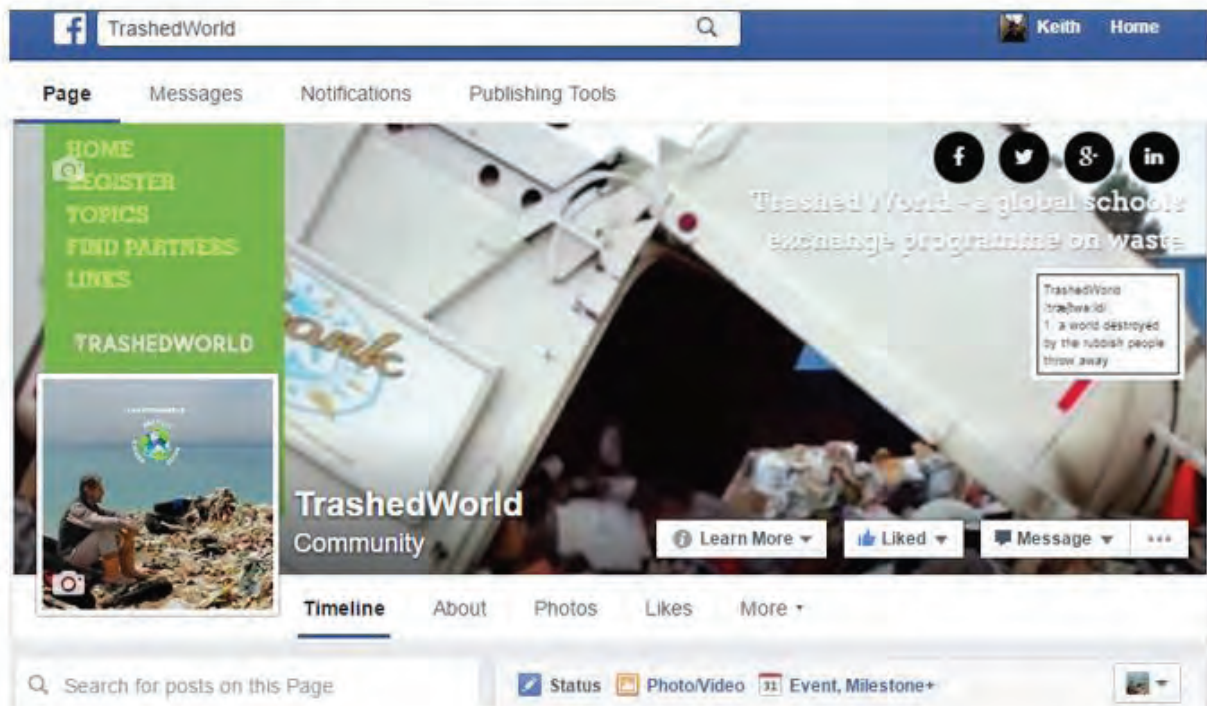


French School students receiving their TrashedWorld certificates

The students not only have the satisfaction that they are doing things to bring about change and improve our lives on the planet, but they also receive recognition with TrashedWorld certificates and they become young ambassadors, alongside our official programme Ambassador Mr Jeremy Irons!

Join the TrashedWorld community

TrashedWorld in Facebook



Find us in Facebook

TrashedWorld in the news!

TrashedWorld has been nominated as a finalist at the ELTons Awards! This is great testimony to the quality of the programme, resources, its aims and mission, namely to get young people changing their waste behaviour through exchange investigations around the world!

There are five other finalists in our category - 'Innovation in learner resources' and they all look really great! So, fingers crossed please for us on June 14th!



UNESCO Week

TrashedWorld participated in the UNESCO Conference on education for sustainability in Ottawa where we ran an exhibition and a workshop.

We managed to sign up over a hundred delegates from all over the world; we made partnerships with other projects like GK4D and associated TrashedWorld with the UN Global Goals and we managed to give UNESCO Director General Irina Bokova a copy of our book.



The 17 goals identified by the UN literally to transform our world have many links to education. We linked TrashedWorld with relevant goals, for example SDG 4 - Quality Education, get your students investigating the world around them and sharing that with global partners; 12 - Sustainable Consumption and Production, raise your students' awareness to the issues using TrashedWorld.



Education for Sustainable Development Goals - We met colleagues working on projects protecting regional seas including the Baltic Sea, the Mediterranean Sea and the Black Sea and we will work on producing a new module for TrashedWorld which focuses on keeping trash out of our oceans and seas. Towards this end, TrashedWorld will run a workshop at the BETA National Conference held in Varna, Bulgaria in June 2017 where we will draft this module with the help of participants. Watch this space!

Appeals for help! - We need help to develop units and activities which develop skills for change. This means we want you to help us with ideas for getting students work on solutions to waste where the ideas and the solutions come from the students themselves, they identify AND solve the problems.

Great introductory offer!

Subscription costs the great low price of EU10.00 per year, but if you register at www.trashedworld.com now writing 'factworld offer' in your registration and you could be in with the chance of winning a free year's subscription to the programme. Every tenth registration will receive a free year's subscription!

Let's help young people now to care for and love the world that they will inherit later.

Keith Kelly
TrashedWorld Coordinator
www.trashedworld.com



Глобално обучение-ориентирано към действие за и след EYD 2015



Why Eat Responsibly?

How can our daily actions help protect the environment, promote human rights and improve the well-being of society? And how does this question relate to our food?

The world population is growing rapidly, and by 2050, with the same planet, we will have to feed nearly four times more people than a century before. From that perspective, food is no longer just a personal matter. The choices we make regarding our food already have direct or indirect consequences on the climate, on the use of resources like water and land and on people's ability to feed themselves and live decent lives here and abroad.

The We Eat Responsibly project supports eco-schools in nine EU countries in exploring ways to make more responsible food choices. Because our choices can shape the world for the better!



Our goals

Together with topics on responsible food consumption, the teacher brings the most pressing world issues right into the classroom to open space for co-creating new, responsible solutions for our everyday life.

Active students explore the connection between global and local topics. Changing little things in our neighbourhood can have a huge impact on a global scale!

Teachers are key players to guide and facilitate the learning experience of youth. They empower pupils and students to become active world citizens.

Food experts, chefs and activists, farmers and policy makers are supportive of school activities. The greater our numbers, the greater the impact!

The eco-schools in the nine participating countries shared good practices during an international forum that took place in Prague. More than 120 people including inspiring personalities from the fields of education and food got involved.

To work with a responsible food consumption topic for all ages, we produced a methodology, lessons and publication Menu for Change on how our food changes the world.



Responsible food consumption means to decide consciously. It is about recognizing not only the interconnections between our food and the environment, but also the political, social, cultural and economic linkages of our decisions. Our choices should contribute to the bettering of livelihoods of all people on planet Earth.



We should try to:

Eat less but better, eat local, seasonal and organic if possible

Replace meat with plant-based foods more often

Choose food produced with respect for people and the planet (water, soil, ecosystems and climate)

Look for more diversity in your food

Watch out for palm oil

Stop food wastage

Fact file:

1800 teachers are exploring links between food production, changes in society and the environment and the quality of our life.

550 European eco-Schools are running a yearlong educational program on responsible food consumption topics.

65 000 pupils and 25 000 students are looking for opportunities for responsible changes to their menu as well as in their neighbourhood.

Much more info at: <https://www.eatresponsibly.eu>





www.eathink2015.org



EATHINK2015

Eat Local, Think Global

Global Learning for Change in EYD2015 and Beyond: European Youth Engagement from School Gardens to Sustainable Food Systems (DCI-NSAED/2014/349033)

Countries in Europe	Countries in Africa	Duration
Austria, Cyprus, Croatia, France, Hungary, Italy, Malta, Poland, Portugal, Romania, Slovenia, Spain.	Burkina Faso, Senegal	From January 1, 2015 to December 31, 2017

CONTEXT

As we know, globalization fosters dynamics that bind our choices and actions to the lives of millions of people worldwide. The era of digital proximity and information do not avoid contradictions and disproportions: poverty, climate changes, migrations are aspects of an increasingly global society.

Today, with over 800 million people suffering from hunger, in the richest countries food is wasted much more than ever happened before. Actual food system has many negative impacts on environment and health, with political and financial interests often threatening farmers and consumers' rights.

In fact, rapid and contradictory changes live side by side, and it is hard to interpret events and take action to change. The role of education becomes increasingly central in allowing young people to develop their own critical tools. Teachers, social workers, educators and local administrators are all called to respond.

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PROJECT OBJECTIVES

- Contribute to increasing European youth awareness of, and engagement in, post-2015 public debate on the contribution of European Union development cooperation policies to global sustainable development.
- Enhanced European students and teachers critical understanding and active engagement on global development challenges, focusing on sustainable food systems and smallholder farming.
- More generally, the project aims to strengthen the skills and knowledge of teachers in primary and secondary schools as part of Global Citizenship Education.

PROJECT ACTIVITIES

- A website on global education issues, with information, tools and best practices is published for students, teachers and other stakeholders (www.eathink2015.org) and a geo-referencing tool to be used for sending information and referral on agriculture and food (eg. farmers markets, local exchange community, farms, shops, fairs, etc.).
- An international photographic contest is organized within the schools involved in the project for the best photo-reportage on food. The best photo-reportages produced in different countries, are selected for the *Food Cloud Exhibition*.
- An exhibition on food (*Food Cloud Exhibition*) is produced and performed during EXPO 2015, open all day during the months of May, June, September and October 2015 for young people, students, classrooms and all citizens.
- During the Expo 2015 a MultiMedia Center is set up and an editorial staff of young people will document the Expo 2015 event on social media.
- Primary and secondary schools teachers of all countries involved are supported through an educational tutoring to design learning modules (lesson plans) for their classes on Global Learning, in particular on food production and consumption, alternative food systems, right to food. Almost 130 free global learning modules are published on the web site of the project for teachers and global education trainers.
- A multimedia APP is designed, implemented and available with a fairy tale for children on the origin and seasonality of food and recipes, a multiple-choice game on ecological footprint.

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- A kit for teachers, global education trainers and volunteers engaged in educational activities on global learning and sustainable agriculture
- An international competition is organized within the schools involved in the project. The video-clips developed for the competition will be evaluated in 2 steps: national and international level. The winning video in each country is produced at professional level and screened on off and on line media to sensitize citizens for the basic message of the project, especially on changing their alimentary consuming habits.
- Trained students on food systems' interdependence will mobilize to realize initiatives (events, campaigns, school gardens, visits on smallholder farmers, etc) at community level to sensitize citizens, other students, parents, community members with the aim to promote behavioral changes in their food lifestyles.
- Primary and secondary students are introduced to global citizenship and alternative food systems with interactive and participative workshops.
- National seminars and workshops are organized to present and disseminate the main outcomes of the action.
- International exchange visits and workshops for teacher's and student's delegations are organized in Italy, Austria, Senegal, Burkina Faso.
- ITT Varalli of Milan, a secondary school in tourism (www.ittvaralli.it), will develop a guided route
- on sustainable agriculture for teenagers and European classes in Milan during Expo2015.
- As a Global Citizenship Education Ambassador, Fondazione CARIPLO connects the project and its network to key institutional stakeholders at EU level (Foundations, Local Authorities, CSOs) having a potential in supporting the initiative at all levels.

IMPACT

The target groups of the action:

4.200 Primary and secondary school teachers

42.000 Students

140 Migrants/young volunteers

240 Local Authorities, Civil Society Organizations, Foundations

Further beneficiaries:

180.000 young people

1.300 school supervisors

20.000.000 European citizens

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EDUCATION FOR SUSTAINABLE DEVELOPMENT – THE MODERN FACE OF THE ENVIRONMENTAL EDUCATION. THE TRANSITION IN HISTORICAL PLAN

Hristina Bancheva, Dilyanka Bezlova

University of Forestry, Sofia, Bulgaria

The article observes the transition process from environmental education to education for sustainable development and suggests the main content needed for elaboration of modern educational programs.

Environmental education plays a worldwide role since 1970. Many international conferences were organized since then, mostly from UNESCO and the International Union for Conservation of Nature (IUCN) in the context of ecology and environmental protection. On the European level, the European community pays attention to the environmental education issues from 1980.

After the United Nations Conference on Environment and Development held in Rio de Janeiro in 1992, grows the need to reorient the education for biodiversity, the so called environmental education, to human rights, justice and democracy, that are basical for the sustainable development. Important milestones in the following transition are also the Pan European Expert Meeting on Sustainable Development and Environmental Training (1999), The World Summit on Sustainable Development (Johannesburg Summit, Rio+10 in 2002) that brought to the proposal for the Decade of Education for Sustainable Development, The UN Decade of Education for Sustainable Development (2005 – 2014), The Global Action Plan on ESD (2014).

Education for sustainable development is the next generation of environmental education, related to new ways of thinking and learning. It integrates environmental, health, global, civic and other educational fields in a whole. It is necessary to develop environmentally friendly, economically feasible and socially equitable behavior in the personal and professional life style. This can be achieved by conducting both formal and non-formal education for sustainable development. Education for sustainable development can be achieved and should be conducted by both formal and non-formal education for sustainable development.

Theoretical analysis was used for the research.

Key words: education for sustainable development, environmental education

ОБРАЗОВАНИЕ ЗА УСТОЙЧИВО РАЗВИТИЕ – СЪВРЕМЕННИЯТ ИЗРАЗ НА ЕКООБРАЗОВАНИЕТО. ПРЕХОДЪТ В ИСТОРИЧЕСКИ ПЛАН

Въведение

В световен мащаб, темата за екообразование става актуална след 1970 г. От тогава са организирани редица световни конференции, предимно от ЮНЕСКО и Международният съюз за защита на природата (IUCN), най-често в контекста на природозащитата. На европейско ниво, с въпросите, свързани с екообразование, Европейската общност се занимава след 1980 г.

След 1992 г., свързана с решенията и резултатите от Конференцията на ООН по проблемите на околната среда и развитието в Рио де Жанейро, все повече нараства необходимостта образованието за биоразнообразие или още наричано природозащитно и екологично, да се ориентира към човешките права, справедливостта и демокрацията, които са в основата на устойчивото развитие.

Образованието за устойчиво развитие е следващо поколение екообразование, свързано с нови начини за мислене и учене. То интегрира природозащитното, екологичното, здравното, гражданското и др. образования в едно цяло. Необходимо е да се развива съзнание за екологосъобразно, икономически реализуемо и социално справедливо поведение в личния и професионален живот. Това може да бъде постигнато чрез провеждането както на формално, така и на неформално образование.

Метод на работа

В настоящата статия са разгледани и анализирани ключови политически и стратегически документи, които засягат образованието, природозащитата и устойчивото развитие.

От екообразование до образование за устойчиво развитие

През 1970 г. IUCN организира първата международна **Конференция от Невада**, свързана с екообразование и по този начин дава импулс за по-нататъшно развитие на дейностите в тази област. По време на Конференцията от Невада е формулирано първото определение за него, което гласи, че „Екообразованието е процес, в който се приемат ценности, изясняват се понятия, с цел изграждане на умения и възгледи, необходими за разбиране и оценяване на връзката между човек, културна и природна среда. Екообразованието е необходимо да води също до практически резултати – взимане на решения и себепознание в смисъла на изграждането на екологосъобразно поведение. В същата 1970 г. е основана и програмата на ЮНЕСКО **Човек и биосфера**, в която отново се набляга на екообразованието.

През 1972 г., с първата **Световна конференция за човешката среда**, организирана от ЮНЕСКО в Стокхолм се обръща внимание на екообразованието в още по-широк мащаб. Поет е ангажимент чрез новосъздадената **Програма на ООН за околна среда** за разработване на международна концепция за екообразование, която е завършена през 1975 г. във формата на **Международна програма за екообразование**. Програмата е официално приета на конференция през същата година в Белград, заедно с **Белградската декларация за екообразование**. В декларацията е подчертана необходимостта от разпространение на екообразованието на международно, национално, регионално и локално ниво, подпомагането на систематична научна дейност в областта, постоянното развитие на екообразователни

програми, обучението на квалифицирани кадри за провеждането му, екообразованието през целия живот, разработването на материали, подкрепата на екообразователни инициативи.

Така се стига и до първата **Световна конференция за екообразование**, организирана от ЮНЕСКО през 1977 г. в Тбилиси, по време на която е допълнена Международната програма за екообразование, но като основно разбиране се утвърждава фактът, че то е основна интегрална част от непрекъснатото протичащите образователни процеси, която започва в училищното образование и остава през целия живот. Определени са основните глобални цели на екообразованието: изграждане на екологично съзнание, предоставяне на знания, предлагане на възгледи, развиване на умения, мотивиране за действие.

Световната стратегия за опазване на природата от 1980 г. на IUCN, UNEP и WWF за пръв път засяга въпроса за конфликт между опазването на околната среда и икономическия напредък, въвежда идеята за устойчиво развитие и отдава голямо значение на екообразованието в този процес.

Идеите за устойчиво развитие са подчертани и разширени в **Доклада „Нашето общо бъдеще“** на Комисията Брунтланд от 1987 год., в който за пръв път се дефинира терминът „устойчиво развитие“.

На междуправителствената конференцията за екообразование на ЮНЕСКО през 1987 г. в Москва е подписан **Международен план за действие за екообразование**, в който е оценен опитът от предишната конференция за екообразование и са включени предложения за интегриране на теми, свързани с околната среда във формалното образование – начално, средно и висше, както и в научноизследователската дейност.

На европейско ниво официално и регламентирано се обръща внимание на екообразованието от 1988 г. Съветът на Европа приема **Решение 88/С 177/03 за провеждане на екообразование**. То цели залагане на аспекти, свързани с околната среда, във всички образователни области и нива. Установява необходимостта от експертни познания в сферата на природозащитата и поради това предлага мерки за засилване на тези теми в професионалното и висшето образование. Основният акцент, който се поставя по това време в Европа е върху опазването на природата или върху т. нар. природозащитно образование.

В публикуваната през 1991 г. от IUCN, UNEP и WWF **Грижа за Земята: Стратегия за устойчив начин на живот**, предназначена предимно за политици и управляващи, която е също така продължение на **Световната стратегия за опазване на природата**, се подчертава значението на образованието за постигане на устойчиво развитие.

Международните усилия за развитие на екообразованието достигат своеобразна върхна точка през 1992 г. по време на **Конференцията на ООН по проблемите на околната среда и развитието** в Рио де Жанейро (2. Световна конференция за околна среда), когато е приета **Програмата „Дневен ред 21“** и подписана от 179 страни, включително и от България. Тази програма е повратната точка за екообразованието, което от природозащитно и силно екологично по своята същност се преориентира в смисъла на устойчивото развитие, като включва както икономически, така и социален и културен аспект в смисъла на глобалната връзка между човек и природа.

Tilbury (1995) и Fien (1997) смятат, че образованието за устойчиво развитие трябва да се различава съществено от силно природонаучната работа, която се провежда при екообразованието. Според Fien (1998) е необходимо образованието за биоразнообразие или още наричано природозащитно и екологично образование да се ориентира в посока към човешките права, справедливостта и демокрацията, които са в основата на устойчивото развитие (Fien, 2002).

Образование за устойчиво развитие (ОУР)

Международната програма за действие за устойчиво развитие **Дневен ред 21**, резултат от Световната конференция в Рио от 1992 г., подчертава необходимостта от образователни дейности за постигане на устойчиво развитие във всяка своя глава, а отделно Глава 36 е посветена на „Подпомагане на училищното образование, общественото съзнание и професионалното обучение“. Първоначално ОУР се ориентира към формалното образование, но все повече се обръща внимание и на извънучилищното, неформалното образование. Така тридесет години след като МСЗП дава първото международно определение за екообразование, Комисията за образование и комуникация на МСЗП през 2000 г. публикува резултатите от обстойна международна дискусия за образованието за устойчиво развитие, която е повлияна от приемането на „Дневен ред 21“.

През 1999 г. е организирана **Паневропейска среща за устойчиво развитие и екообразование** в Холандия, последвана от онлайн-базирана дискусия. Дадени са общо над 6500 мнения на експерти от академични среди или с опит в екообразованието. Единодушно е мнението, че ОУР е „сила, феномен или средство в съвременното образование, както формално, така и неформално, което се свързва с изграждане на ценности или добавя такива“. По-малко съгласие се постига по въпроса как екообразованието е свързано с ОУР. За повечето експерти, ОУР е следващо поколение екообразование, което включва въпроси, свързани с етиката, справедливостта, с нови начини за мислене и учене (Hesseling et al., 2000).

Като резултат от **Срещата на високо равнище за устойчиво развитие в Йоханесбург** през 2002 г., огромното значение на образованието за постигане на устойчиво развитие е подчертано и заложено в Декларацията от Йоханесбург и в Плана за прилагане от Йоханесбург. Като важно средство в тази връзка е предложено провеждането на световна декада на образованието за устойчиво развитие след 2005 г.

Общото събрание на ООН взема под внимание препоръката от Конференцията в Йоханесбург и обявява **„Декада на образованието за устойчиво развитие (2005-2014)“**. Декадата се координира от ЮНЕСКО.

През 2005 г. Икономическата комисия на ООН (UNECE) представя **Стратегия за образование за устойчиво развитие**. Министрите на околната среда и Министрите на образованието съветват и подписват стратегията, като също приемат **Международна схема за прилагане на стратегията**. Целта ѝ е да мотивира страните да приложат образованието за устойчиво развитие в съответните специалности и предмети в училищата и в университетите, както и в неформалното и информалното образование. Като важни теми за ОУР са посочени: намаляването на бедността, свободата, етиката, културното разнообразие, биоразнообразието, здравето, производството и потреблението, правата на човека, опазването на околната среда, управлението на природните ресурси и др. За въвеждане, оценка и подобряване резултатите от Стратегията са определени три фази, съответно – 2007, 2010 и след 2015 г.

Международната схема за прилагане съдържа преглед на развитието на ОУР, стратегии за подобряване на ситуацията, критериите за качество на ОУР и основните приоритети. Те са: подобряване достъпа до качествено основно образование, преориентиране на съществуващите образователни програми, развитие на общественото съзнание за устойчивост, обучение. Качественото ОУР е ориентирано към отделната личност, следва идеалите на УР, релевантно е на местно ниво в екологично, социално и икономическо значение, основава се на демократични принципи и на четирите стълба на образование за всеки – учене за знание, учене за действие, учене за съвместно съжителство и учене да бъдеш. То изгражда познания, умения за живота, перспективи, отношения и ценности. То е инструмент за трансформиране на настоящото общество в устойчиво общество. Необходимо е ОУР да е измеримо (UNESCO, 2005).

По време на **Световната конференция на ЮНЕСКО за образование за устойчиво развитие** се подписва **Декларацията от Бон** (2009 год.), в която е посочено, че образованието за устойчиво развитие е основано на ценности, принципи и практика, необходими да отговорят ефективно на настоящи и бъдещи предизвикателства (UNESCO, 2009). В Декларацията се проследява прилагането на „Декадата на образование за устойчиво развитие“ и се дават насоките за бъдеща работа. От значение е работата в

мрежа, партньорството и обменът с други организации. Необходимо е също провеждането на мониторинг и оценка на образователните дейности за устойчиво развитие.

Последната **Конференция за образование за устойчиво развитие през 2014 год. в Нагоя**, Япония, продължава работата в посока ОУР чрез три важни резултата. Представен е доклад от Декадата на ОУР, който показва постиженията в сферата на ОУР от последните 10 години и ползата от обявяването на Декадата. Подписана е Декларацията от Нагоя, която заявява готовността на участниците да продължат обединени усилия за ОУР и призовава за още по-мощни и интензивни действия в сферата. *Декларацията* подчертава необходимостта от интегриране на отношенията среда - общество - икономика в разбирането и практиката на образованието за устойчиво развитие. Подчертава важната роля, която образованието за устойчиво развитие трябва да играе в изграждането на качествено образование за всички, и в осигуряването на релевантност на образованието към съвременния свят. На Конференцията е изготвен и **Глобалния план за действие за образование за устойчиво развитие (GAP for ESD)**, който поставя акцент на четири актуални направления в ОУР: измененията в климата, биоразнообразие, намаляване на риска от бедствия и отговорно потребление.

В Глава „Политики, допринасящи за развитие на знанията“ от **Проекта на Националната стратегия за устойчиво развитие на България** от 2007 г., концепцията за образование за устойчиво развитие предвижда то да съпътства човек през целия живот. Основните цели на концепцията са: „да разкрие взаимодействията между икономическите, социалните и екологичните процеси и явления; да осигури критично отношение и по-голяма информираност за икономическите, социалните и екологичните проблеми в тяхното единство; да поощрява уважение и разбиране на различните култури и да приема техните приноси; да стимулира хората от всички възрасти да поемат своята отговорност за създаването на устойчиво бъдеще; да съдейства за формиране на гражданско общество“. Централно място заемат въпросите за равенство, солидарност и взаимозависимост в рамките на сегашното поколение и между различните поколения, за взаимоотношенията между богати и бедни, за взаимовръзките на човека и природата и отговорностите му към себе си, към човешкото общество и към околната среда, като образованието за устойчиво развитие е интер- и трансдисциплинно, а не е отделен предмет или дисциплина. Също така ОУР използва интерактивни методи на обучение, работа в екип, активно участие на обучаемите и като цяло трябва да се основава на демократичност. В този смисъл голямо значение се отдава на неформалното образование.

През 2005 г. работна група с представители от Министерството на младежта, образованието и науката, Министерството на околната среда и водите и неправителствени организации изготвя **Програма за подкрепа на образованието за устойчиво развитие в България**, отчитайки решенията на всички рамкови и стратегически документи на международно и национално ниво в сферата на околната среда и ОУР. Поставен е акцент върху екологичното и природозащитното образование поради натрупания световен и национален опит в тези области. Споменава се необходимостта от съвместни действия на МОМН и МОСВ в ОУР, като е подчертан подписаният през 2004 г. Меморандум за сътрудничество по проблемите на опазването на околната среда между двете министерства. В Програмата ОУР е дефинирано като „Образование за личностно и социално развитие, което включва екологичните, социалните (социално-политическите и социално-културните) и икономическите измерения на развитието. Интегрира природозащитното, екологичното, здравното, гражданското и т. н. образование в едно цяло. То е образование за взаимоотношенията в нашия „общ дом на живота“. Сред специфичните цели на Програмата е подкрепянето на партньорства на национално, регионално и местно ниво, между представителите на държавните институции, местните власти, бизнес средите, училищата, общностите и НПО за развитие на ОУР. Тя също така цели да подпомогне създаването и разпространението на съвременни образователни материали за ОУР, както и да насърчи прилагането на принципите на устойчивото развитие във всички форми на формалното и неформалното образование и квалификацията на учителите.

Заклучение

В прехода от екообразование към образование за устойчиво развитие се отразяват международните политически ангажименти и така темите придобиват глобален аспект и чисто екологичните въпроси стават еднакво важни с въпросите за развитието и социалната справедливост. В тази връзка основна цел на образованието за устойчиво развитие, освен предоставянето на знания, става развитието на умения за организиране на устойчив, ориентиран към бъдещето живот, както и за активното участие и практически действия за постигането му. Затова е необходимо да се открие, подпомогне и развие творческия потенциал на всеки отделен човек, комуникативните и кооперативните му умения, способността за взимане на решения и за предприемане на действия. Образователният процес е необходимо да развива съзнание за екологосъобразно, икономически реализуемо и социално справедливо поведение в личния и професионален живот. Това може да бъде постигнато чрез провеждането, както на формално, така и на неформално образование.

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DEVELOPMENT OF PRACTICAL SKILLS IN SCIENCE USING REFLECTIVE TECHNIQUES

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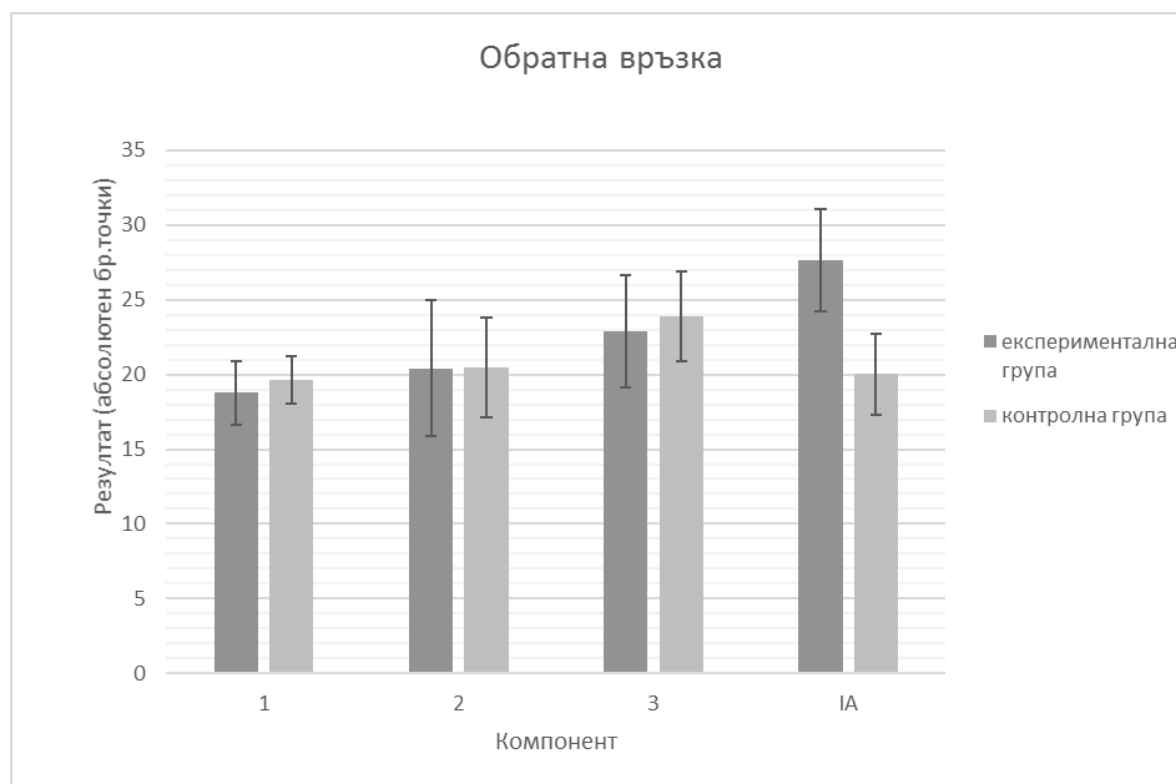
I have been teaching biology in English at Zlatarski school for nine years. Couple of years ago I enrolled in a master's programme in Sofia University and I wrote a thesis about the quality control system applied in the IB biology education, grades 11 and 12. Most of our students are Bulgarians and Bulgarian high school students are notoriously weak when it comes to assessment of their practical skills in science. So my task was to help them improve their performance on the final exams. One area where students performed particularly bad is the so called Internal assessment component, which addresses the assessment of practical skills. This can be seen on Fig. 1, in years when students have good grades in this component, their overall grades are also better. The theoretical test can not compensate much for a lower mark in the practical area.

Fig. 1. Zlatarski School students' average grades in IB Biology, by components.



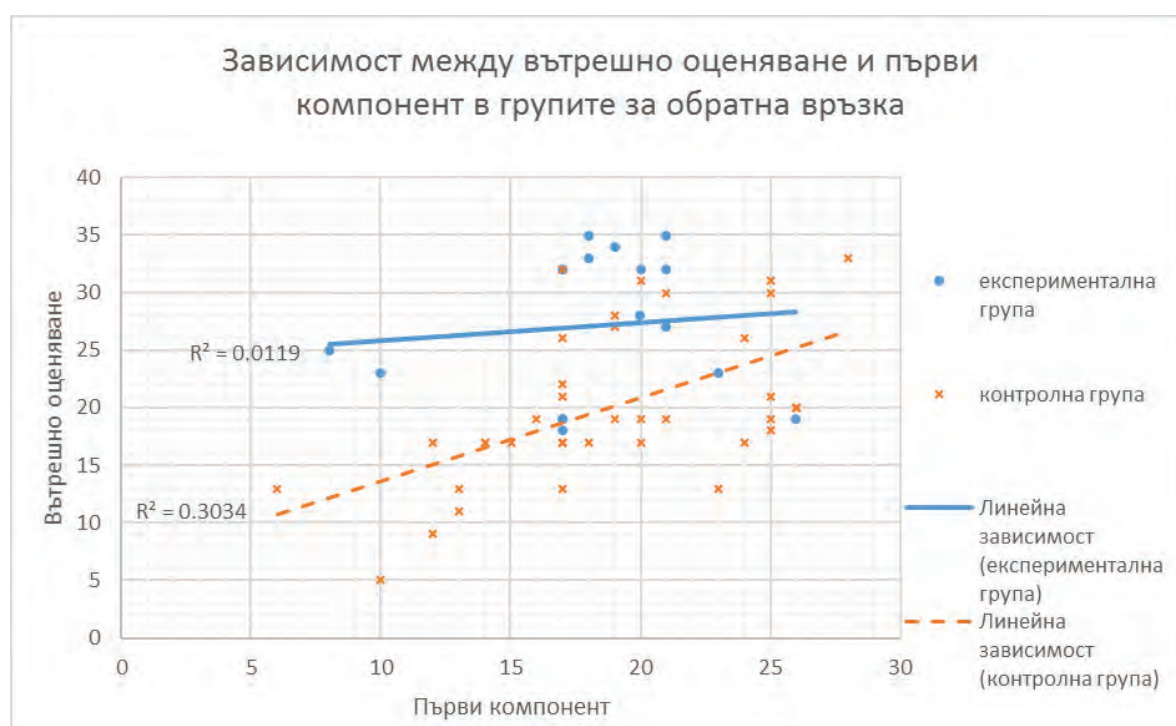
One factor which influence I focused on was the feedback students received on the quality of their practical work over the two years course. Fig. 2 shows the influence of feedback on students' performance. Clearly the students who received comments from the teacher and addressed them, do better on the Internal assessment, than the control group.

Fig. 2. Students' performance on the IB biology internal assessment (practical skills) depends on students' effective use of constructive feedback.



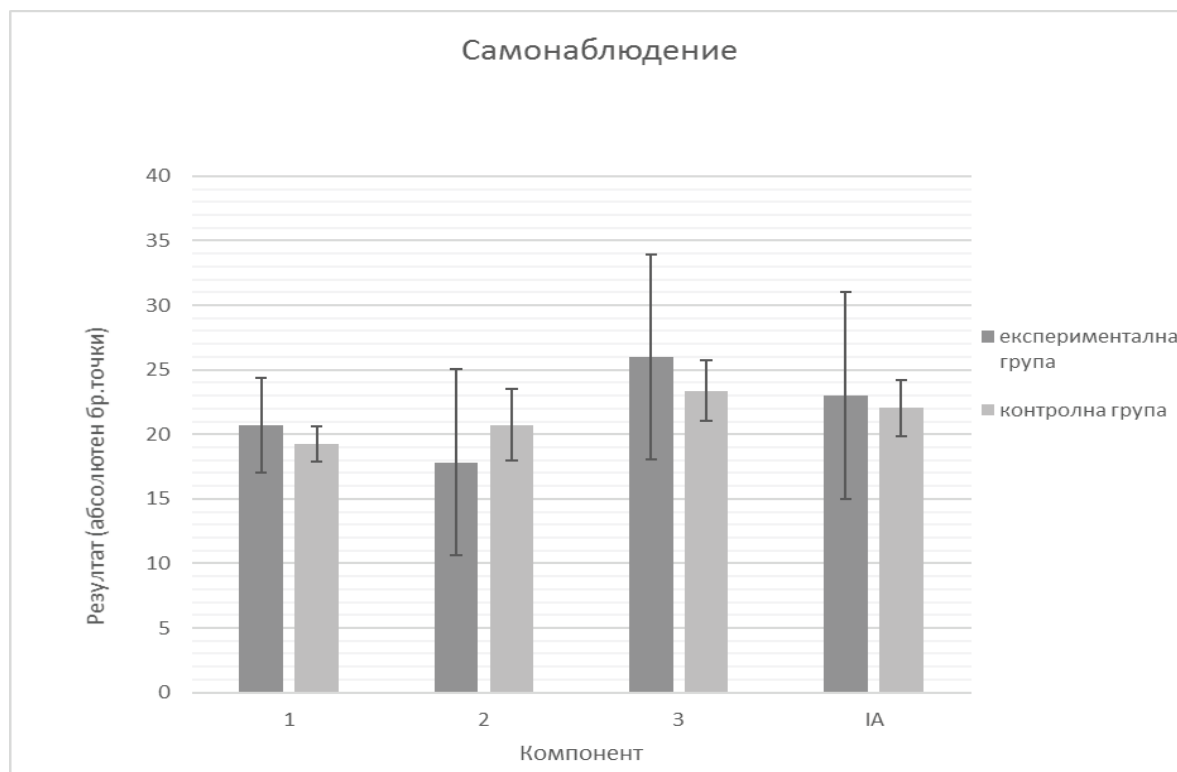
It was also interesting to see that improvement of practical skills also improved students' theoretical knowledge and cognitive skills and their performance on the multiple choice test (paper 1).

Fig. 3. Development of practical skills helps improve students overall performance on the final exams (IB Biology, paper 1).



Another factor which I looked at was students experience and ability to reflect on their own learning and the quality of their work. Figure 4 shows a comparison between the experimental and the control groups.

Fig. 4. Development of reflective techniques helps students improve their overall performance in the final exams.



Here can be seen the influence of reflection on students' performance. Clearly the students who were asked by the teacher to reflect on their performance and did so, performed better than the control group. The error bars of the experimental group are very large representing the students who were assigned to write a reflective essay but did not do their homework.

It has always been very obvious to teachers that students who write their homeworks do better than those who don't, but it was interesting to see this same trend among my students pinned down with some statistics.

At Zlatarski School it was evident that a large group of students could not achieve the requirements of the IB DP for just two years (11 and 12 grades) and needed to be trained earlier. I believe students should get acquainted to reflective techniques and strategies as early as possible, and also there is the need to cultivate in learners a positive attitude towards receiving feedback from teachers and using it to improve the quality of their work.

Last school year I had a fresh group of 9 graders keeping in mind what I have found in my master's research I had somewhat of a plan for their development. Here are the main steps of implementing the IGCSE course as preparation for IB at Zlatarski International School:

- Introduction to practical work and lab reports in 9 grade IGCSE Biology course
- Practicing reflective essay writing
- Receiving constructive feedback and improvement of practical skills

- Successful completion of IGCSE Biology course in grade 10
- Enrolment in the IB PD in grade 11

This is the timeline for the organization and support of 9 grade students' practical work and personal growth process during the 2015-2016 school year:

- December:
 - planning an investigation – class discussion;
 - carrying out the experiment at home during the Christmas break.
- January:
 - writing and submitting first draft of lab report.
- February:
 - assessment of reports and detailed feedback on their improvement;
 - students reflect on personal progress and write a strategic plan for development.
- March-April:
 - writing and submitting second draft of lab report after the Spring break.
- May:
 - Final assessment and grading of lab reports.

To carry out the experiment we used a standard procedure we had in the book we used – Merry and Jeff Jones, IGCSE biology, CUP, shown on figures 4 and 5.

Fig. 4. IGCSE biology, CUP

Activity 5.2

Investigating the effect of pH on the activity of catalase

skills

- C1 *Using techniques, apparatus and materials*
- C2 *Observing, measuring and recording*
- C3 *Interpreting and evaluationg*

Safety Wear eye protection if available.
Hydrogen peroxide is a powerful bleach.
Wash it off with plenty of water if you get it on your skin.

Catalase is a common enzyme which is the catalyst in the breakdown of hydrogen peroxide, H_2O_2 . Catalase is found in almost every kind of living cell. Hydrogen peroxide is a toxic substance formed in cells.

The breakdown reaction is as follows:



The rate of the reaction can be determined from the rate of oxygen production.

(continued...)

Fig. 5. IGCSE biology, CUP

(... continued)

One indirect but simple way to measure rate of oxygen production is to soak up a catalase solution onto a little square of filter paper and then drop it into a beaker containing a solution of H_2O_2 .

The paper sinks at first, but as the reaction proceeds, bubbles of oxygen collect on its surface and it floats up. The time between placing the paper in the beaker and it floating to the surface is a measure of the rate of the reaction.

In this investigation, you will test this hypothesis:

Catalase works best at a pH of 7 (neutral).

- 1 Label five 50 cm³ beakers pH 5.6, 6.2, 6.8, 7.4, 8.0.
- 2 Measure 5 cm³ of 3% hydrogen peroxide solution into each beaker.
- 3 Add 10 cm³ of the correct buffer solution to each beaker. (A buffer solution keeps the pH constant at a particular value.)
- 4 Cut out 20 squares of filter paper exactly 5 mm × 5 mm. Alternatively, use a hole punch to cut out circles of filter paper all exactly the same size. Avoid handling the paper with your fingers, as you may get grease onto it. Use forceps (tweezers) instead.
- 5 Prepare a leaf extract by grinding the leaves in a pestle and mortar. Add 25 cm³ of water and stir well.
- 6 Allow the remains of the leaves to settle and then pour the fluid into a beaker. This fluid contains catalase.
- 7 Prepare a results table like the one below.

	time taken for paper to float in seconds				
pH	5.6	6.2	6.8	7.4	8.0
tests 1					
2					
3					
mean					
boiled extract					

- 8 Pick up a filter paper square with forceps and dip it into the leaf extract.

- 9 Make sure you are ready to start timing. Then place the filter paper square at the bottom of the beaker containing H_2O_2 and pH 5.6 buffer solution. (Do not let it fall near the side of the beaker.) As you put the square into the beaker, start a stopwatch. Stop the watch when the paper floats horizontally at the surface.
- 10 Record the time in your table and repeat steps 8 and 9 twice more.
- 11 Follow steps 8–10 for each of the other pHs.
- 12 Pour some of the remaining leaf extract into a test tube and boil for 2 minutes. Cool under a tap.
- 13 Repeat steps 8–10, using the boiled extract.
- 14 Calculate the mean (average) time taken at each pH and enter it into your table.
- 15 Draw a graph to show time taken for flotation plotted against pH.

Questions

- 1 Does the enzyme have an optimum pH? If it does, what do your results suggest it to be?
- 2 Do your results support the hypothesis you were testing, or do they disprove it? Explain your answer.
- 3 What is the effect of boiling the extract?
- 4 Why do the filter paper squares have to be exactly the same size?
- 5 In most experiments in biology, we can never be quite sure that we would get exactly the same results if we did it again. There are always some limitations on the reliability of the data that we collect. Can you think of any reasons why the results you got in your experiment might not be absolutely reliable? For example:
 - Might there have been any variables that were not controlled and that might have affected the results?
 - Were you able to measure the volumes and times as accurately as you would have liked?

The students' notes on the following figures show more or less the class discussion of the textbook procedure, including unknown words and variables.

NB: all students works are shown here with permission!

Fig. 6. Example of student notes – 1.

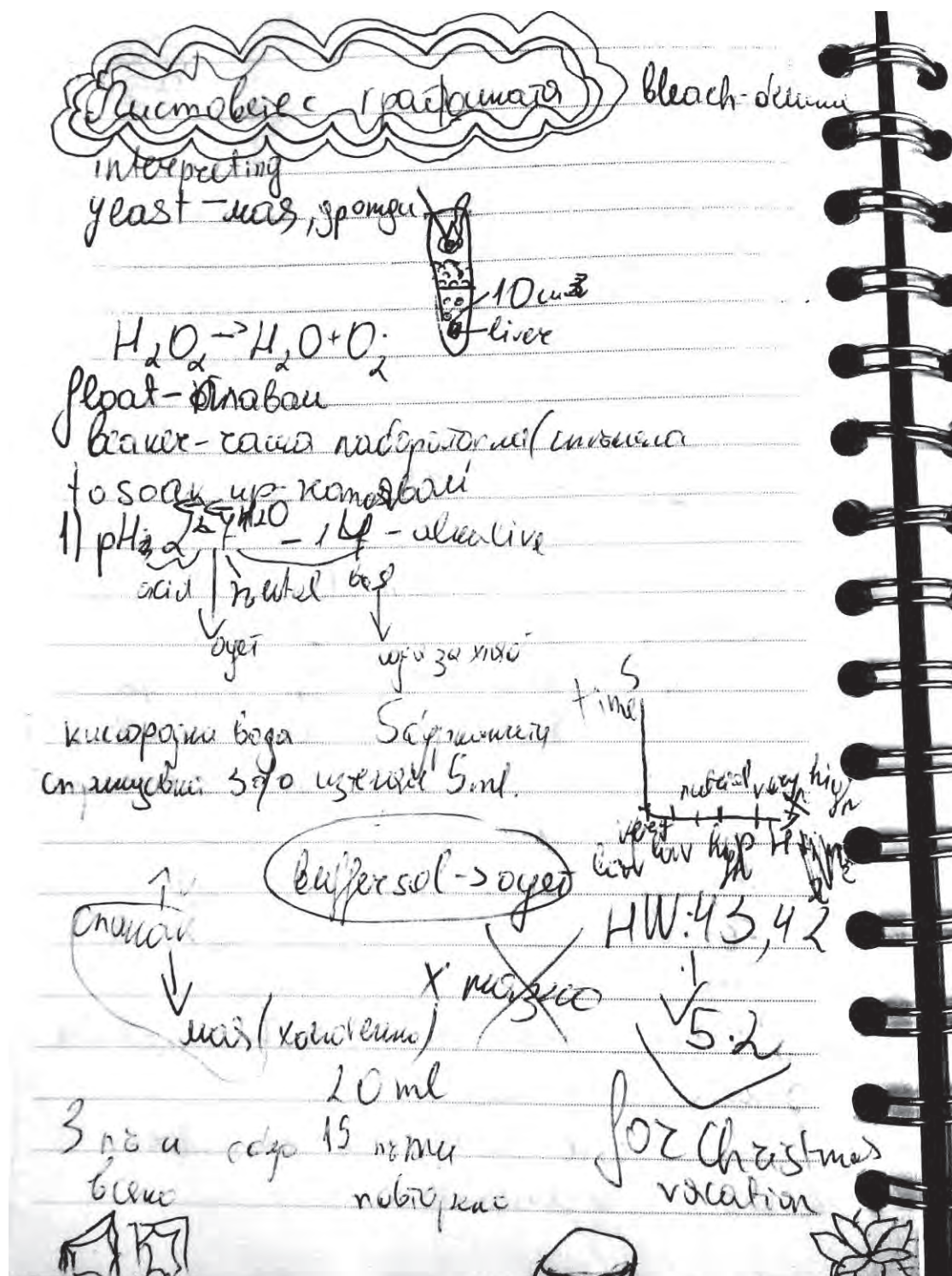


Fig. 7. Example of student notes – 2.

pH 2-3-14 - alkaline
acid neutral base

В Б дупка, в едн смрам сга за хад
5cm на 3 - на стринувката от 3% 702-5mm. Buffer solution - ауге

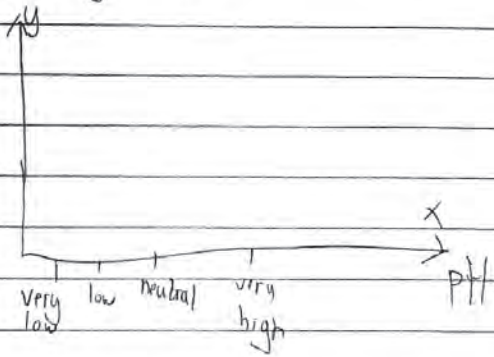
АКТОБЕР С ГРАФУКАТА ДОБЕРПАНУ

mortal - xabance

HW - variation

Activity p 42-43

On 5 January 2016



title of Investigation

I Hypothesis

A Variables - променливи величини

a) independent variable - pH

Б страници с графика и таблици

range from very low - neutral - high

b) dependent variable - time ($8 \pm 1 \text{ sec}$)

c) controlled variables

- t°

- volume of H_2O_2

- size of paper

- (concentration) yeast mass of yeast + volume of H_2O

- drops of vinegar

IV

- mass of NaClO_3

When planning an investigation students may or may not have to formulate a hypothesis on their own. They have to formulate a research question and identify the relevant variable factors.

Discussing variables is one of the most important points. Students not only get confused by the names and mix up the definitions, they clearly do not understand what variables are. When

reading about an investigation they find it very difficult to even identify and name any variable factor.

In this case the hypothesis was formulated by the authors of the book. As for the research question, to be focused precisely it has to name the independent variable and its range and the directly measured dependent variable. On figures 8 and 9 you can see the general structure providing scaffolding for students' writing their first lab report in 9 grade.

Fig. 8. Scaffolding students writing a lab report – 1.

lab report title www.ed.org

I aim/ hypothesis / Research question
Catalase works best at pH

II Variables

1. Independent variable - pH - range (very low, low, ⁴neutral, high, very high)
by adding vinegar by adding NaOH
over coca ga mrd

2. Dependent variable - time / seconds \pm ^{1000 ga naru name na dyana}

3. Controlled variable

volume of H_2O_2 , concentration of H_2O_2
Source of catalase (Latin name of organism)
size of filter paper 5mm x 5mm

Fig. 9. Scaffolding students writing a lab report – 2.

100% recycled

III List of materials and apparatus

IV Procedure

step-by-step (suro ga ce bungs cronnere + nanko upronne)

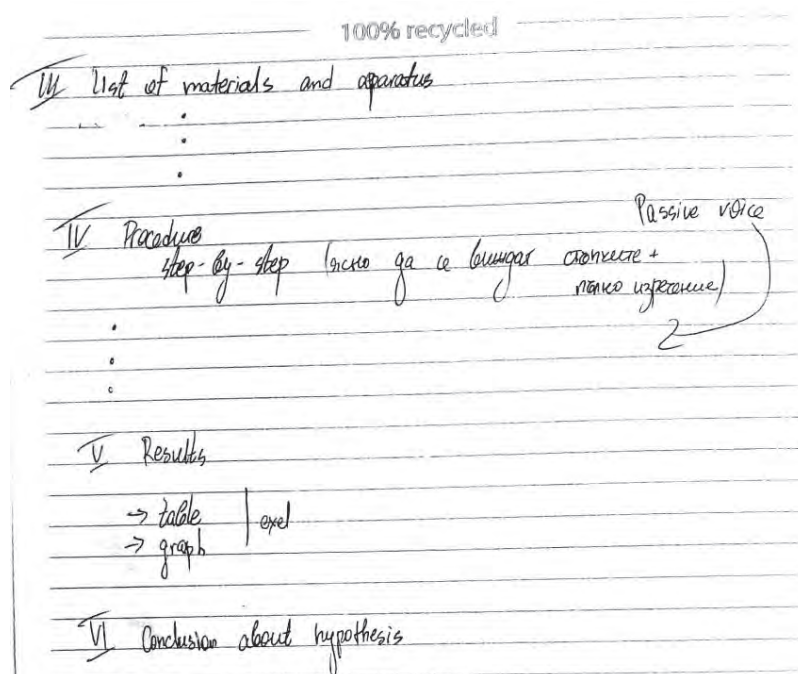
Passive voice

V Results

→ table | exel

→ graph

VI Conclusion about hypothesis



On Fig. 10 and 11 you can see examples of students' notes in L1 during the discussion held in English. You can also see a typical mistake – the student who wrote on figure 11 refers to a sample graph as a table. Not distinguishing between tables and graphs is an illustration of how low the level of students' knowledge and understanding of science is.

Fig. 10. Example of students notes in L1 – 1.

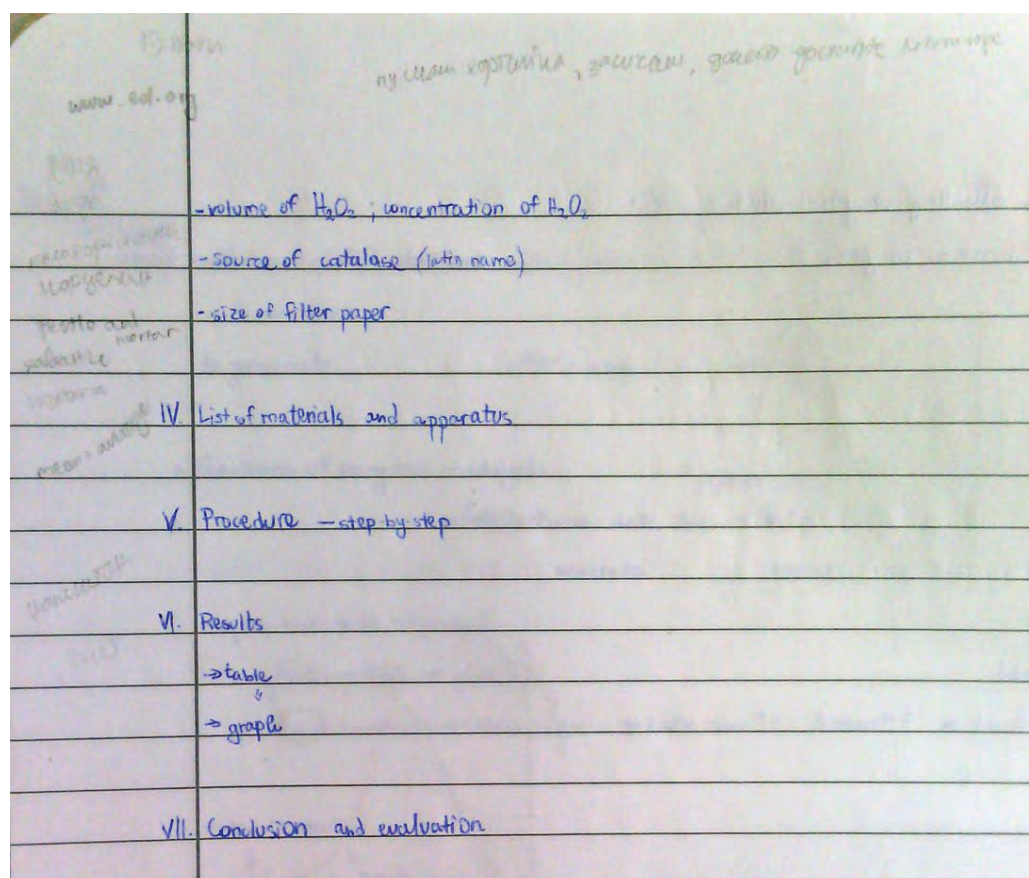
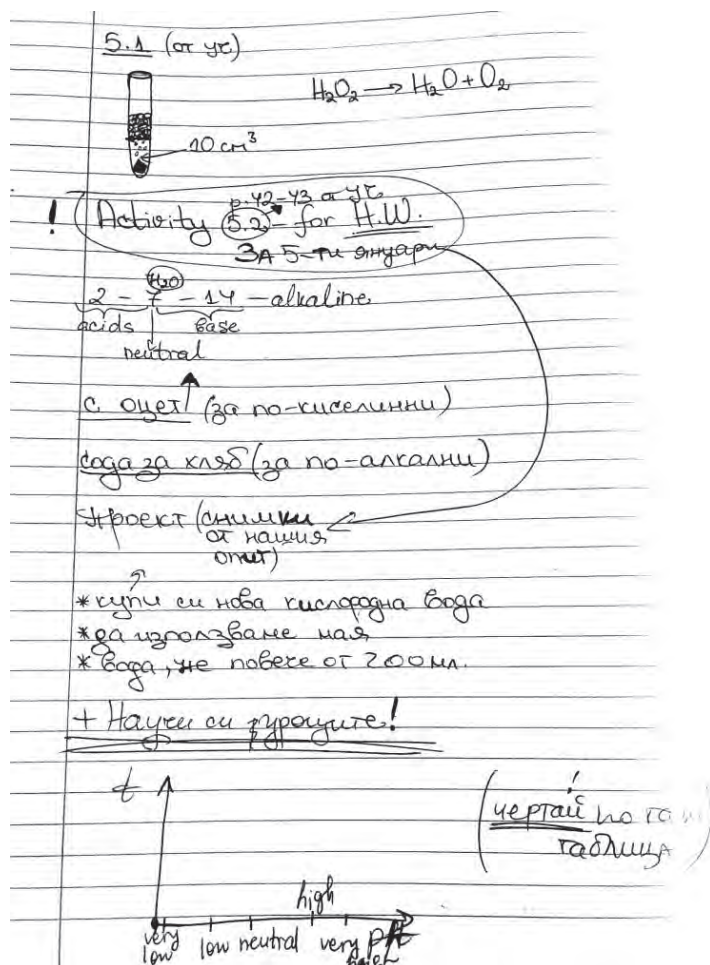


Fig. 11. Example of students notes in L1 – 2.



In this particular group of 9 graders it turned out that even students who were excellent on tests fail to follow teachers' instructions. On figures 12, 13 and 14 can be seen that the student has not identified the relevant variables and not formulated a research question, despite discussing their importance in class.

Every student who submitted a first draft was given a detailed account about the mistakes and omissions in their report. Since all works were of disappointing quality no student received a formal mark on the homework.

Fig. 12. Example of student' first draft of the lab report, page 1.

Name: Kristiana Kamenovska

3/18

Class: 9b

Number: 11

Date: 7th January, 2016

Lab Report

Investigating the effect of pH on the activity of catalase

Set the investigation in context - ~~we~~ provide some background info.

Hypothesis: Catalase works best at a pH of 7 (neutral)

Identify all relevant variables as either IV, DV, CV. For each explain how, when & why it will be measured, controlled.

I. List of Materials & Apparatus:

- 8 cups
- 180 ml. of hydrogen peroxide, give concentration too
- 180 ml. of potato extract → Latin name of species
- 60 ml. of vinegar % ?
- 60 ml. of water
- 3 teaspoon of Sodium Bicarbonate
- Tweezers
- Dosimeter measuring cup? cylinder
- Timer
- 6 squares of filter paper exactly 1 cm x 1 cm

II. Procedure (- step-by-step)

In the experiment, 3 cups were labeled pH 2.4, 7 and 8. ^{can you actually measure this?}
 Thereafter, it was added in each of the glasses 20 ml. of potato extract. In the first cup, with pH 2.4, as a second extraction, 20 ml. of vinegar was appended and then mixed with the potato juice. After that, in the middle cup with pH 7 was added 20 ml. of water and again mixed with the potato. And finally, in the last cup with pH 8 one teaspoon sodium bicarbonate was blended with the catalase. After a couple of minutes, with the help of tweezers one square piece of filter paper is precisely put in the bottom of each of the three glasses. Then, 20 ml. of hydrogen peroxide was added successively to each solution. A stopwatch was started to time the period that is needed for the papers to float horizontally at the surface.

III. Results

This is control of IV - show in table format!

DV =

Fig. 13. Example of student' first draft of the lab report, page 2.

Valuable observations well done! :)

The experiment went as expected with no unusual events that would have introduced error. In the first cup with pH 2.4 (in our case ^{low} was vinegar) the reaction was very slow and hardly noticeable. Only small bubbles appeared on the surface but unfortunately the filter paper didn't float. The reaction in the second cup with pH 7 (water) was immediate and visible. After the addition of hydrogen peroxide to the mixture of water and potato extract, the filter paper emerged instantly for a couple of seconds. A huge foam was apparent which in one moment started to overflow the glass. And finally, the breaking down of hydrogen peroxide in the last cup with pH 8 (sodium bicarbonate) was again ^{high} pretty ^{obvious} observable. On first sight, the reaction was similar to the one with water because of the foam and bubbles, but the float of the paper was a little bit slower. The whole experiment was repeated two more times in order to improve ^{validity} it and to be more accurate. The results are shown below:

pH	Time taken for to float in seconds \pm ?		
	2.4 (low)	7 (neutral)	8 (high)
tests 1	13.64	7.62	-
2	11.03	6.33	-
3	11.21	10.57	-
mean <i>show formula</i>	11.62	8.17	-
Boiled extract	?		

All tables & graphs need descriptive titles

IV. Conclusion & evaluation

Overall, the experiment succeeded in showing the effect of pH on the activity of catalase. According to the results from the table and the graph, the hypothesis that it had to be worked out is correct. Catalase works best at pH 7 (neutral), because the reaction there is the fastest of all. That was concluded due to the immediate breaking down of hydrogen peroxide to water and oxygen. However, the experiment can be improved by using better materials and apparatus or simply by repeating it.

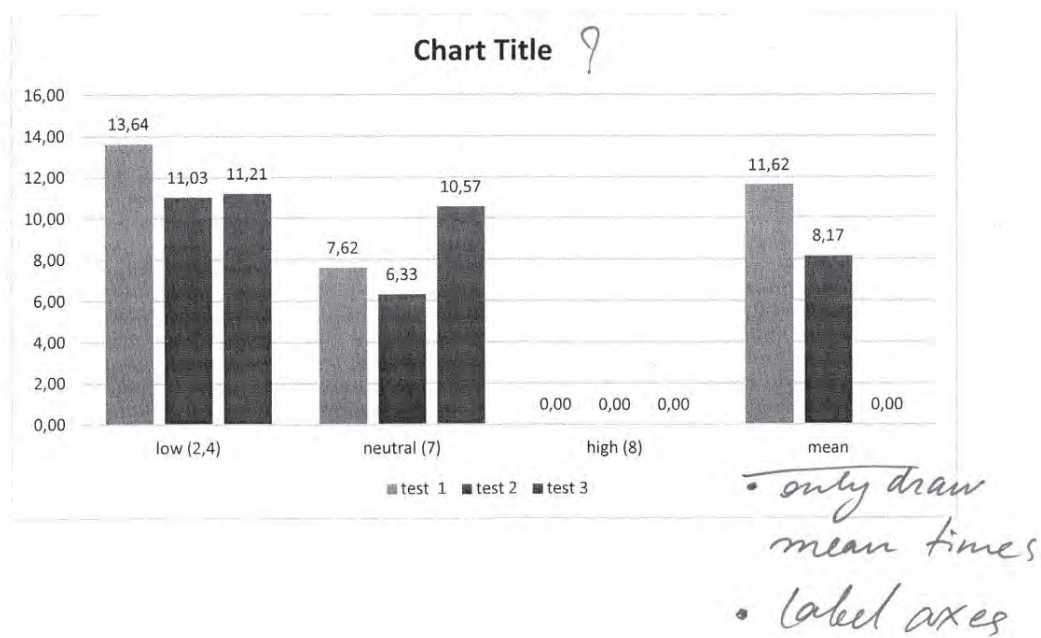
refer to mean time calculated

refer to literature for support

be specific. how many times?

buffer solutions measure pH - litmus paper etc

Fig. 14. Example of student' first draft of the lab report, page 3.



In January, as I was assessing and commenting on the homeworks, the first term was closing and most students were not very happy with their marks. At the beginning of the second term they were all assigned to write a reflective essay.

To guide reflection they received the following handout:

Writing a reflective essay on personal development

(Thanks to: www.biologyforlife.com)

IGCSE Biology Mid-year Summative Essay

Type and email this reflective assignment to l.dombeva@zlatarskischool.org by 19th February 2016.

Prepared at the end of first semester, the essay provides a glimpse into **you as a learner of biology**. It should contain your thoughts on:

how your assumptions about biology have changed and

how this course and its content have increased your knowledge of biology and of you as a learner.

Provide a **reflection** on the content; learning experiences; successful learning strategies; previously held ideas that were disproved; how your knowledge of biology has increased.

Consider how you perceptions have changed. Describe areas of personal growth. Include a goal you will work to achieve during second semester.

In the following two essays you can read a pretty critical account for the students own abilities and attitude toward studying biology, but also a clear determination to master the required skills. Strange enough, some students did not submit such an essay, clearly showing they have no motivation for improving their situation in biology.

Fig. 15. Reflective essay example 1.

Name: Kristiana Kamenovska
Class: 9b
Number: 11
Date: 19th February

IGCSE Biology Mid-year Summative Essay

As a 7th grade student, having good marks in most of the subjects, I was really disappointed to realize that this pattern didn't relate to Biology. However, the more I studied and expanded my knowledge, the more my initial dislike to the subject changed in a positive way. Currently, I am really pleased that I have a chance to study Biology again as a separate subject at school.

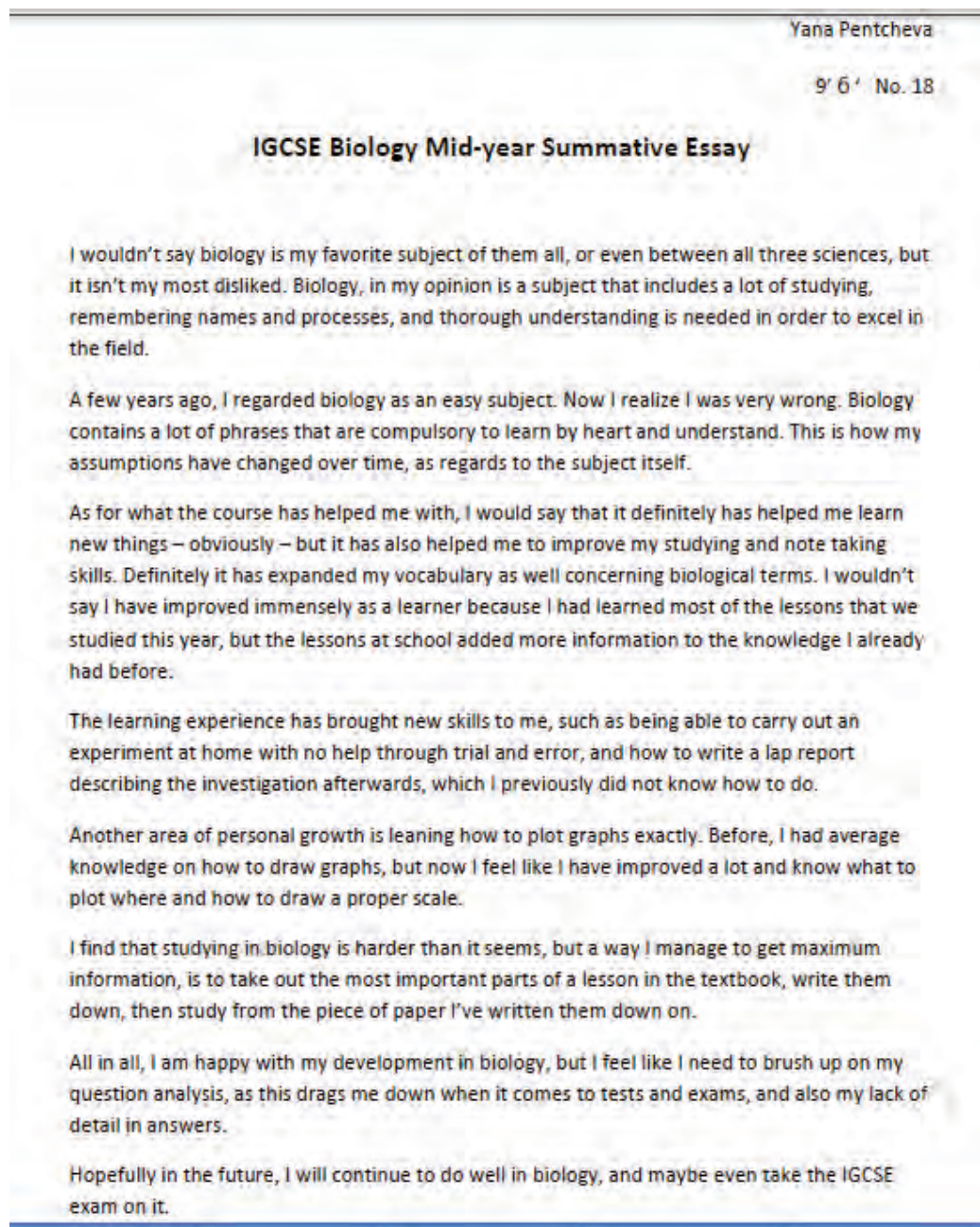
Now, in 9th grade, our Biology textbook content seems to be a bit more comprehensive and thus, quite fascinating. It covers the interests and learning desires of one 15-16 year old student. According to me, one of the most important things in studying is to put the theory in practice in order to see by myself how Biology actually functions. Lastly, I was given the chance to conduct a real experiment at home to investigate the effect of pH on the activity of catalase. Then, by combining theory and practice, I managed to understand easily and depict in my head biology processes. I am glad to be given a lot of experimental work because for me this is the most successful learning strategy.

To be honest, I thought that those things that are not visible to the naked eye were insignificant, but at the end it seems that they play major role in our existence. For instance, after I did the experiment to test the effect of pH on catalase using hydrogen peroxide, I supported the hypothesis that says that the peroxide is broken down the fastest at pH around 7. Therefore, that made me choose the water I drink more carefully in order to be healthy. Studying Biology for the last couple of months, gave me many answers to questions I have never asked myself before, expanded my knowledge in different spheres and boosted my confidence to discuss and argument better. Unexpectedly, Biology turned out to be among my favorite subjects at school and moreover, happens to be my desired field of further expertise – to become a medical doctor.

Now I know the structure of the cell of each living organism, diffusion and osmosis, what we are made of, functions and uses of enzymes, how animals and plant eat, and I am tend to learn even more. My personal goal for the second semester would be to discover new horizons in Biology and to feed my interest in the human body, in particular.

As a learner, I realized that Biology, like universe, is endless. The more you learn, the more curious you become to acquire new information. I enjoy this subject and I hope that the second semester is going to be even more fruitful.

Fig. 16. Reflective essay example 2.



Drafting process and its success depends to a great deal on making effective use of teacher's feedback. When I was done with all first drafts I also reflected on student's typical mistakes and produced a handout to scaffold and make easier the drafting process – figure 17. I tried to make it a bit funny, hence the title, as a lot of students were broken hearted from the low score and the feedback they received. I didn't want them to feel like they failed though and before I provided them with the handout we watched and discussed the video about the Story of Austin's Butterfly. For most of them it had an immediate effect on their motivation and willingness to start drafting as soon as possible.

The Story of Austin's butterfly <https://www.youtube.com/watch?v=hqh1MRWZjms>

Thanks to <http://pluriliteracies.ecml.at/>

Fig. 17. Handout scaffolding drafting process.

Lab report analysis – What the %*^#’s wrong with my lab report?!

When you write your lab plan, be very careful about setting your research question - RQ in context. Use some background information to do this. The RQ must contain both the independent variable - IV and the dependent variable – DV. It can actually be more than one sentence long, a short paragraph. Species are referred to by Latin names. You don’t always have to have a hypothesis, but if you do, that will actually give you something to talk about in the conclusion. The hypothesis is a possible answer to the RQ.

The examiners advise on using table format to show all variables and the method for their control. The following grid may help clarifying what do you have to explain about the variables, but it is just an example.

Variable factor name (IV, DV, CV), units \pm	For ALL VARIABLES explain the method of control, measurement instrument, units \pm
Independent variable (Input)	Give justification of the range you have chosen (pH from-to). At least 5 range points (increments) are expected. Range should be based on literature you have read about the IV (e.g. optimum pH is 7). You must give reference to the source, but could do it later in the conclusion. Explain in details how do you plan to achieve the full range (e.g. titration method reference).
Dependent variable (output)	Tell what raw data do you measure and how. NB! Rate of reaction is NOT raw data! How do you plan to process it further, justify the choice of method (e.g. averages, SD/SE, one tailed/two tailed t-test, indices, frequency, etc.) show all formulas to be used.
Controlled variable (fixed)	You must have at least 3 CV! For each explain how they are relevant, to what extent they influence the investigation. Place the most influential on top. A control of the experiment is expected – the so called ‘normal conditions’ (e.g. water instead of enzyme at each pH level).

List of materials – include the actual amounts you will need, but NEVER refer to them as AMOUNT! Be specific – volume, mass, etc. include the units \pm for ALL devices/instruments, refer to the full name (e.g. electronic balance, Vernier LabPro data logger and software)

Then give the full procedure step-by-step with the tiniest details, why do you do one thing before the other. Never say ‘the same amount’ only! Be specific!

The data collection table must have a descriptive title – it has to tell what are IV and DV and what data it contains. The columns have to have names of variables and units \pm , Latin names of species, names of enzymes. The raw data table should accommodate at least 3 trials of data collection, at each increment. It is possible to combine raw and processed data in a single table.

Plot processed data (use Microsoft Excel or other graph plotting software), to draw a graph of a suitable type. Make sure your graph is easy to understand in black and white print. This graph must have a descriptive title too. The graph axes must be labeled with the name of the variable, units \pm .

Make a conclusion, with justification (support from the data you collected yourself, or you’ve read about- give reference to the source) if your initial hypothesis is supported and to what extend. How valid and how reliable is your data? Suggest how you could improve this investigation.

EXAMPLE Catalase lab Preparation of solutions of different pH level, volumes /ml \pm			
pH level /arbitrary	Tap water	Vinegar 3%	Sodium bicarbonate 10%
Very low	20	2	0
Low	21	1	0
Neutral	22	0	0

	High	21	0	1	
	Very high	20	0	2	

It just happened so that by the end of February we got an invitation for students to participate in the Fission science conference at the American College in Sofia. The only problem was, that there were roughly two weeks to prepare for it. The two girls who's essays were shown above, Yana and Kristiana, decided to go for this opportunity. Instead of just making a second draft, they decided to improve the investigation altogether and repeated the catalase experiment in the school lab, controlling all variables as far as possible. Figures from 18 to 22 show what they wrote afterwards.

Fig. 18. Example of *motivated* students' achievement, page 1.

Lab Report

Investigating the effect of pH on the activity of catalase

Background information:

Within any living organism, chemical reactions take place in our life. There are substances called catalysts that speed up chemical reactions without being changed itself. However, inside the cells proteins named enzymes function as biological catalysts and control almost every metabolic reaction. They are essential for the breaking down of food and other substances entering the living organism. A different enzyme is needed for each kind of food because each enzyme has its own active site into which the substance at the beginning of the reaction, called substrate, fits exactly. A substance, called product, is produced by the reaction.

Catalase is a type of enzyme that can be found in the cells of living organisms. The catalase speeds up the inner reactions and breaks down hydrogen peroxide (substrate) to water and oxygen (product). This is necessary because hydrogen peroxide is very dangerous substance that is produced by many chemical reactions that take place inside the cells and it must be broken down as fast as possible. However, the catalase works best and fastest at a particular pH. pH is a measure of how acid (low pH) or alkaline (high pH) a solution is. Most enzymes are their correct shape at pH of about 7 – that is, neutral. If the pH becomes very low or very high the enzymes lose their shape. This means that the active site no longer fits the substrate, so the enzyme cannot catalyze the reaction anymore.

Research question:

What is the effect of pH, measured as the released oxygen gas, on the activity of catalase?

Hypothesis:

If an enzyme loses its shape in very acidic or very alkaline pH, then the reaction will take place slower the further away the from the optimum pH. Literature suggests optimum pH for catalase is 7. Therefore, at pH 7, the hydrogen peroxide will be broken down fastest and more bubbles of oxygen will be collected on the surface.

List of Materials and Apparatus:

- Thermostatically Controlled Water bath ($\pm 0.01^\circ\text{C}$)
- pH Electrode BNC, "Vernier"
- Buffer "Merck" with pH 2 – 10 ml x 3
- Buffer "Merck" with pH 4*2 – 10 ml x 3
- Buffer "Merck" with pH 6*2 – 10 ml x 3
- Buffer "Hanna" with pH 7 – 10 ml x 3
- Buffer "Merck" with pH 8 – 10 ml x 3
- Buffer "Merck" with pH 10 – 10 ml x 3
- Yeast (*Saccharomyces cerevisiae*) – 7 grams
- Distilled water – 50 ml
- Hydrogen peroxide (3%), "Chemax Pharma" – 90 ml
- Mercury thermometer ($^\circ\text{C}$), $\pm 0.1^\circ\text{C}$
- Beakers
- Measuring cylinder – 50 cm³, ± 0.1
- Plastic syringe – 2 ml
- Plastic syringe – 5 ml
- 2 plastic Naogene bottles

The table 1.0 below shows the variables in the experiment:

Fig. 19. Example of *motivated* students' achievement, page 2

Independent Variables	<p>pH values were established in the following way:</p> <ol style="list-style-type: none"> Using pH buffers: <ul style="list-style-type: none"> Buffer "Merck" – pH 2, 4, 6, 8, 10 Buffer "Hanna" – pH 7 By measuring pH with litmus paper and using pH meter, which gave the following readings: <ul style="list-style-type: none"> Buffer 2 has pH 2.10 Buffer 4 has pH 4.16 Buffer 6 has pH 6.17 Buffer 7 has pH 7.18 Buffer 8 has pH 8.00 Buffer 10 has pH 9.93
Dependent Variables	<p>Volume of oxygen produced measured as % in the air:</p> <ul style="list-style-type: none"> Oxygen Gas Sensor was used to measure the exact amount of oxygen released during the breaking down of hydrogen peroxide The Gas Sensor was connected with cables to a data logger and computer The rate of reaction was determined using the R² function of the data logger software
Controlled Variables	<ol style="list-style-type: none"> Temperature / ° C : <ul style="list-style-type: none"> Temperature was controlled by using water bath heated at 32 °C (the optimum temperature of the <i>Saccharomyces cerevisiae</i> (yeast). It was also monitored using mercury thermometer Temperature has to be kept constant in order to prevent any influences on the shape of the enzyme molecule during the experiment All reacting solutions will be preheated so that the reaction takes place at exactly 32 °C. Volume of hydrogen peroxide: <ul style="list-style-type: none"> The amount of hydrogen peroxide was kept the same for all trials by using plastic syringe (5 ml) Each try has to be done with one and the same amount of hydrogen peroxide in order to be sure that there it will be the same number of substrate molecules. The mass of <i>Saccharomyces cerevisiae</i> (yeast) dissolved in distilled water: <ul style="list-style-type: none"> The amount of yeast dissolved in distilled water was kept the same during the experiment by using plastic syringe (2ml) Each try has to be done with one and the same amount of yeast in order to be sure that it will provide the same number of enzyme molecules. Time for the reaction to take place / 300s: <ul style="list-style-type: none"> Time is fixed so that the rate for the trials at different pH can be compared

Table 1.0 Factors influencing the investigation of catalase activity

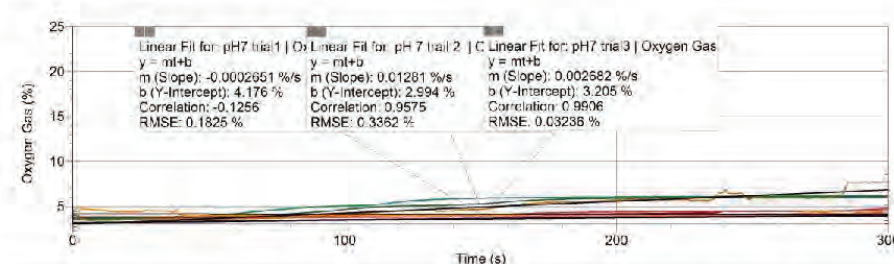
Fig. 20. Example of *motivated* students' achievement, page 3

Procedure

1. Preheat a water bath to 32 °C.
2. Connect the pH meter (pH Electrode BNC, "Vernier") and the Oxygen Gas Sensor, "Vernier" to the computer.
3. Measure with the pH meter (pH Electrode BNC, "Vernier") the pH of the buffers 2, 4, 6, 7, 8, 10 in order to be more precise and accurate. Mark the results.
4. Put 7 grams of yeast into a beaker, add 50 ml of distilled water and mix them up with glass bar. When you stir the yeast, there should not have any pieces of yeast left on the walls of the beaker.
5. Put the beaker with yeast solution into the water bath.
6. Put the jars with pH buffer 2, 4, 6, 7, 8, 10 and the bottle with hydrogen peroxide into the water bath.
7. Leave everything in the bath for 4-5 minutes in order to heat to 32 °C.
8. Then, by using thermometer check whether the temperature of the yeast solution, the buffers and the hydrogen peroxide has reached 32 °C.
9. When you are sure that each liquid in the water bath has temperature of 32 °C, take out the buffer with pH 2, the hydrogen peroxide and the yeast solution.
10. Use cylinder tube (50 cm³) to measure 10 cm³ of buffer with pH 2.10 (≈2) and then turn it back to the water bath.
11. Use plastic syringe (2ml) to measure 2 ml of yeast solution and then turn the yeast back to the water bath.
12. Use plastic syringe (5ml) to measure 5 ml of hydrogen peroxide and then turn it back to the water bath.
13. Place the yeast solution (2ml) and the buffer with pH 2 into one plastic bottle.
14. Prepare the gas sensor and the syringe with hydrogen peroxide (5ml).
15. Be ready to turn the "start" button on the computer to record and measure the released oxygen.
16. Put the hydrogen peroxide into the plastic bottle and then immediately close it with the gas sensor.
17. Shake the bottle a little bit and then put it again into the water bath. Hold it there until the program on the computer shows that the time reached 300s and the trial is over.
18. Save your data and results on the computer and then repeat the same procedure with pH 2.10 two more times.
19. Follow the same steps for pH 4, 6, 7, 8, 10.

Results

The graph shows data collected about the percentage of oxygen produced and how it is processed for pH (7):



Graph 1.0 Data collection and processing for pH 7

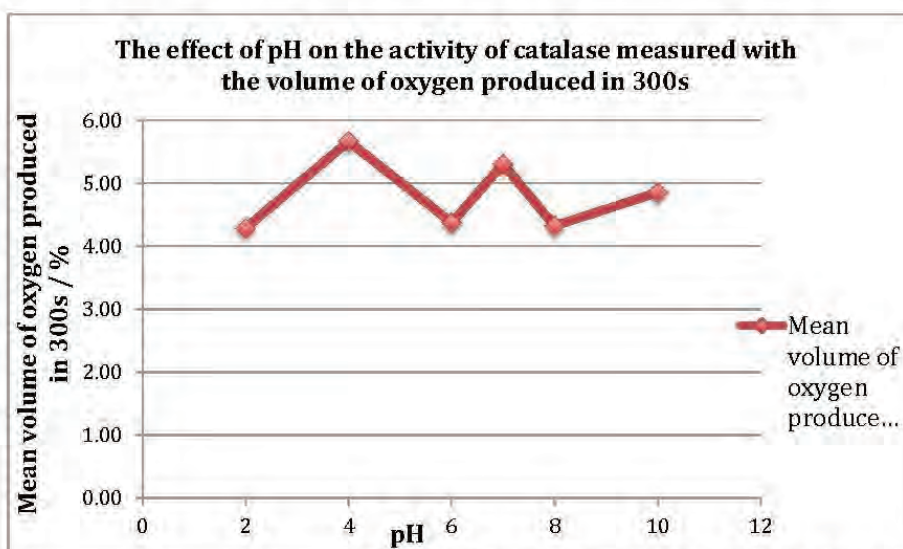
Fig. 21. Example of *motivated* students' achievement, page 4

The table below shows the volume of oxygen produced for each pH:

	Volume of oxygen produced for 300s measured in %			
	Trails			mean
pH	1	2	3	
2	4.23	4.55	4.06	4.28
4	4.76	6.17	6.05	5.66
6	4.47	4.37	4.26	4.37
7	4.28	7.66	3.95	5.30
8	4.50	4.06	4.40	4.32
10	4.41	5.76	4.37	4.85

Table 1.1 Volume of oxygen produced in the air

Used formula to measure the mean: $\frac{\text{the sum of the amounts of oxygen produced}}{\text{number of trials}}$



Graph 1.0 The effect of pH on the activity of catalase

Conclusion:

The aim of the experiment was to investigate the effect of pH on catalase. In this case, our chosen catalase was yeast. Referring to the hypothesis that infers catalase will work best at a pH of 7; we can now compare and check if the hypothesis was indeed correct.

From the results collected, we observe that the catalase reacts with all pHs, but responds with some better than others. The success of the reaction depends on the oxygen released in percentage. The highest oxygen release therefore means that this is the pH that is most suitable for the reaction to take place.

Hence, from our results, the pH appropriate is 4, because the most oxygen – 5.66% - was produced. This doesn't support the hypothesis that the most oxygen made is at a pH 7, although the same pH closely follows, with 5.29%.

Finally, our hypothesis was disproved, and replaced with the fact that our chosen catalase works best at a pH of 4.

Our figures are considered reliable because we have used special software to process and collect the data.

Fig. 22. Example of *motivated* students' achievement, page 5

Evaluation:

There are possible reasons why our results didn't support the hypothesis that the hydrogen peroxide will be broken down fastest and more oxygen will be produced at pH 7. First, the buffer with pH 7 had expired but it was still used it because we did not think that this would somehow effect the trials. Second, the stock solutions of buffers with pH 4 and 6 were not pure. In addition, we mixed hydrogen peroxide, buffer and yeast solution outside the water bath, so we did not know the exact temperature be sure what was the temperature of each solution. Finally, we shouldn't skip the fact that we used technology that could have made some errors.

Improvements:

1. Repeat the whole experiment at least one more time in order to have more accurate results.
2. Use wider range of pH buffers in order to have more results and then, more accuracy.
3. Choose the brands of the buffers more carefully. Use them before they have expired and be sure that the stock solution is absolutely pure.
4. Use more reliable technology such as gas sensor and water bath.
5. Be sure that the whole procedure is done under controlled temperature (water bath).
6. Use different catalase such as potato extract or liver.
7. Check the concentration of the hydrogen peroxide and make sure that it is controlled during the whole experiment.

Bibliography:

Mary Jones and Geoff Jones IGCSE Biology Coursebook Second edition, p. 39-43

When I read this second draft I was really happy. I told the girls they should be very proud with what they have achieved. Despite all the imperfections there were, their level of science skills and understanding is way above the level of some Zlatarski School students have in 11 grade.

Fig. 23. Performing the improved experiment in the school laboratory.



Investigating the effect of pH on the activity of catalase

Background information

Enzymes are biological molecules that speed up reactions in every cell. There are thousands of different enzymes in every cell. Each enzyme has a specific shape that allows it to bind to a specific molecule, called the substrate. The enzyme then catalyzes the reaction, breaking the substrate into smaller molecules or joining smaller molecules together. Enzymes are essential for the proper functioning of the living organism. A deficiency or mutation in a specific enzyme can lead to a variety of diseases, such as phenylketonuria (PKU) and Tay-Sachs disease. Enzymes are also used in many industrial processes, such as food processing and pharmaceuticals. The study of enzymes is called enzymology. Enzymes are typically named by adding the suffix '-ase' to the name of the substrate they act on. For example, the enzyme that breaks down starch is called amylase. Enzymes are sensitive to temperature and pH. Most enzymes work best at a temperature of 37°C (98.6°F) and a pH of 7.4. If the temperature or pH is too high or too low, the enzyme will denature, meaning it will lose its shape and stop working. Enzymes are also sensitive to inhibitors, which are molecules that bind to the enzyme and prevent it from working. Some inhibitors are reversible, meaning they can be removed and the enzyme can start working again. Other inhibitors are irreversible, meaning they permanently bind to the enzyme and stop it from working forever. Enzymes are essential for life, and understanding how they work is crucial for many fields of science, including medicine, biology, and chemistry.

Research question:
What is the effect of pH, measured as the released oxygen gas, on the activity of *Agaricus*?

Hypothesis:
If an enzyme loses its shape in very acidic or very alkaline pH, then the reaction will take place slower the further away the from the optimum pH. Therefore optimum pH for catalase is 7. Therefore, at pH 8, the hydrogen peroxide will be broken down fastest and more bubbles of oxygen will be collected on the surface.

List of Materials and Apparatus:

- Potentiometrically Controlled Water bath, 0-90°C
- An Electrode BNC, "Chemica Pharmazie"
- Buffer "Merck" with pH 4.10 \pm 0.01
- Buffer "Merck" with pH 4.10 \pm 0.01
- Buffer "Merck" with pH 6.10 \pm 0.01
- Buffer "Merck" with pH 7.10 \pm 0.01
- Buffer "Merck" with pH 8.10 \pm 0.01
- Buffer "Merck" with pH 10.10 \pm 0.01
- Tissue (Bacteriomyces cerevisiae) 17 grams
- Distilled water / 50 ml
- Hydrogen peroxide (3%) "Chemica Pharmazie" / 50
- Mercury thermometer $\pm 0.1^\circ\text{C}$
- Beakers
- Heating cylinder / 50 cm³ ± 0.1
- Plastic syringe / 2 ml
- Plastic syringe / 5 ml
- 3 plastic hydrogen bottles

1. Being pH buffer:
 a. Buffer "Marc" - pH 1, 6, 8, 14
 b. Buffer "Pancal" - pH 1, 6, 8, 14

2. He measuring pH with a glass paper and using pH meter, which gave the following results:
 a. Buffer 2 has pH 2.1
 b. Buffer 4 has pH 4.3
 c. Buffer 6 has pH 6.3
 d. Buffer 8 has pH 7.8
 e. Buffer 10 has pH 9.3

Independent Variation:

Volume of oxygen produced (response) is in the left

- Hydrogen Gas Sensor was used to measure the total amount of oxygen released during the Teratogenicity of Teratogenic peroxide.
- The Gas Sensor was connected with cables to a data logger and computer.
- The rate of reaction was determined using the following formulae to calculate the rate.

Dependent Variable:

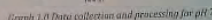
- Temperature was controlled by using water bath heated at 32 °C. (for optimum sensitivity of the Serpinogenase enzyme [19]), it was also monitored using mercury thermometer
- Temperature has to be kept constant in order to prevent any influence on the shape of the enzyme molecule during the experiment
- All reacting solutions will be prepared in this flask

- The amount of water vapor plants can lose and the rate at which they lose it by using plants called *transpiration*.
- Each tree has 100,000 leaves with one and the same amount of *transpiration* in order to be sure that there will be the same amount of *transpiration*.
- The most of *transpiration* in the leaves (transpiration) dissolved in distilled water.
- The amount of water dissolved in distilled water used in the experiment by using plants.

- Each fry has to be done with new and the same amount of yeast in order to be sure that it will provide the same number of yeast molecules.
- 4. I want to see the reaction to take place / stop:
 - I have to find out the rate for the trials at different

Figure 11: A diagram illustrating the investigation of random events.

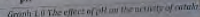
Results



The table below shows the volume of oxygen produced for each pH:

Time, h	Volume of oxygen produced, ml
0.43	5.76
0.51	6.50

TABLE 1. Volume of oxygen produced during the catalase reaction



Procedure

- [illegible]

Conclusion:
The aim of the experiment was to investigate the effect of pH on catalase. In this case, our chosen source of catalase was yeast. Referring to the hypothesis that invertebrate will work best at a pH of 7, we can now compare and assess if the hypothesis was indeed correct.

From the results collected, we observe that the catalase reacts at all pH levels, but works better at some than at others. The success of the reaction is determined by the oxygen released as percentage of volume. The highest oxygen release therefore means that this is the pH that is most suitable for the reaction to take place.

Hence, from our results, the most appropriate pH is 4, because the most oxygen was produced - 5.6%. This doesn't support the hypothesis that the most oxygen made is at a pH 7, although this pH closely follows, with 5.2%.

Thus, our hypothesis was challenged, and replaced with the fact that our chosen catalyst works best at a pH of 4.

Evaluation:

There are several possible reasons why our results don't support the hypothesis. First, the buffer with pH 7 had expired but it was still used because we did not think that this would somehow affect the trials. Second, the stock solutions of buffers with pH 4 and 6 were not pure, there were white threads, showing contamination. Still, the accuracy of the pH measurements can be considered reliable as the buffers pHs were double checked with litmus and a electronic pH sensor.

The uncertainty of the oxygen gas sensor is appropriate, 2001, but we haven't checked if the reading is correct and the sensor is operating normally. The initial level of oxygen measured seems to be too low compared to the normal atmospheric level (about 20%) indicating that the sensor needed to be calibrated before we perform the investigation. In addition, we mixed hydrogen peroxide, buffer and yeast solution outside the water bath, so we did not know the concentrations of each solution.

Improvements:

The proper work of the oxygen gas sensor has to be ensured by calibrating the sensor. If the reading is below 12% prior to calibration it may need to be replaced. Repeat the whole experiment at least one more time in order to have more reliable results.

Use a range of pH buffers closer to the optimum. Choose the brands of the buffers more carefully. Use them before they have expired and be sure that the stock solution is absolutely pure.

Be sure that the whole procedure is done under controlled temperature (water bath).

Use different sources of catalase such as potato extract or liver.

Check the concentration of the hydrogen peroxide and ensure that it is controlled during the whole experiment.

Bibliography:

http://www.vielier.com/files/manuals/ku2-bts.pdf, accessed on 28.02.2016.

Fig. 24. Conference poster for Fission 2016 at the American College in Sofia.



Fig. 25. The presentation at Fission 2016, American College in Sofia, March 2016

As a supervising teacher I could hardly hold my smile during my students' presentation. I was very content with the girls' answers to a jury member at the Fission 2016 Science Conference.

Taking part in the conference was the right decision – the girls not only felt like stars because they were complemented for their excellent performance in fluent English. They were also able to compare their project with other students' work, found new friends with common interest in science and became even more motivated.



Fig. 26. Presentation at Zlatarski School Science Fair 2016

At the annual science fair at Zlatarski School Kristiana and Yana were the youngest presenters. They were clam and confident and clearly showed that they are ready to dive deeper into exploring the experimental sciences. Their presentation was a moment of truth for a lot of people - to see the motivated 9 graders showing a better project than 11 graders who not only didn't write their homeworks when they were 9 and 10 grades, but also procrastinated and didn't try hard enough to plan their group work for the past weeks in 11 grade. After seeing them, none of the underachievers from 11 grade protested about their own low grades anymore. I am looking forward to hear how Yana and Kristiana progress further in the science studies in the coming years.

In conclusion, teacher's feedback and reflective techniques can have a great impact on the quality of students' work and the improvement of their practical skills. But above all students have to have motivation to do better. No matter how much effort a teacher puts into her teaching, if students are unwilling to do their share of work and do not follow the instructions in the feedback, students' progress will be rather limited.

If you have any further questions, please email me: dombeva@gmail.com

Meeting and working with Bulgarian students

Sofia, 24/25 March 2016

Rod Holmes

As a retired science and information technology teacher from London on holiday in Sofia I was asked by a Sofian colleague to talk to her students in two English classes at her secondary school.

The students were in two mixed groups of 15 and 16 years of age, studying English in their 9th year of a 12 year course leading to a matriculation certificate in English.

I was told they had never before had the opportunity to speak to a native speaker of English at their school.

I was asked to informally talk to, and get response from students in the two classes to assess their ability and confidence to communicate in English.

Both groups of students were pleasant, easy to get on with and good natured.

Class 9c, 24 March 2016. 12 in class, one session of 40 minutes duration.

These students were German speaking with English as a second language.

The majority in the class were receptive and eager to communicate in English.

One student asked a question in German, which was answered in German. This seemed to set the tone of the class.

This was a lively group. Discussion concerned life and living in London.

They asked how I liked Sofia, why I had come to Sofia, my personal attitude towards drugs, alcohol and smoking and how I met their class teacher. A majority in this class seemed happy and confident to speak English.

When I met some of the class in the street afterwards there was good rapport and communication.

Class 9b, 25 March 2016. 17 in class, two sessions with the whole group, each of 40 minutes duration. Bulgarian speaking students

This group seemed more socially diverse. Some seemed not to have enough vocabulary to build sentences, did not speak English easily, and seemed lacking confidence in expressing their views

Others seemed self assured in speaking English, and expressing themselves. They seemed to have family or other personal connections with English. They were more able and willing to verbalise - their hopes for the future, studying psychology, dentistry, medicine etc.

Interest was shown in how to establish friendships in London. I mentioned the wide range of adult education classes available in the UK but no in depth questioning resulted.

Towards the end of the period, because of many hesitant responses, I felt it necessary to ask each student individually what they wanted to do after they finished school.

Some were clearly happy to share their feelings, others remained reticent. This could have been caused by shyness or a lack of vocabulary.

STUDENTS' FEEDBACK ON THE CLASSES FROM 25TH MARCH 2016

9B CLASS SOFIA

Cristopher

I was impressed by Rod because he came to our school to inform us about the life and education in England – especially London. Some of the things he said were useless but it was nice that he came.

Georgi Vanev

The visit of Rod Holms was very exciting. I am feeling so lucky because he came exactly in my school and there are many other schools in my city! You can see by his face that he is a very intelligent person! He has a sense of British humour! He was patient with us and answered our questions seriously because he wanted to give us the precise information. I am proud of people like him! Finally he paid attention for everybody of us and asked us where we want to study!

Elena Maksimova

He is an old man. He is very interesting and smart person. He always answered my questions. He knew what to say. If could, I would talk with him again.

Mihail Cholakov

I think that was very cool lesson. Rod was very good person with knowledge. He came to Bulgaria for us.

Nikolaos Klimov

A very nice old person with who you can have very interesting and pleasant conversations. I definitely learned a lot from his visit about England. It was a nice experience for me and that I got to talk to him.

Jivana Yordanova

He is very outgoing and smart. I wish I could meet him again.

Simona Krusashka

He was smiling all the time. He was very energetic.

Simona Dimitrova

He was talking interesting things. He was a good human.

Gergana Naidenova

He was talking interesting things. He is very sociable. He was very patient.

Elena Dimitrova

It was interesting. It was good for us to hear a native speaker. Mr Rod Holmes is a very likeable person. He was patient with us and very kind. I am very happy that I tried to speak in English with him. It was a pleasure for me to meet him.

Yoanna

He told interesting things. He was patient with us. It was a pleasure for me to listen to him. He was very kind.

Hristina

I wanted to talk about life, deep topics but he spoke more about education. I expected to give us tips from experience. And as a person left an impression on me that he is smart, sociable, he likes to travel. I liked him but I wanted to get to know him more.

Alek

He looks like a very good person who likes helping people in deed. Very cool and energetic for his age.

Diana

Very pleasant and positive person.

Vanessa Rozova

My impression is that he is very well-behaved person who is very interested in what the children want to do in the future. He is a very interesting and good person and I suppose that he is also a good teacher. I think I really want to say thanks to him because he came here and told more information on the colleges in London.

Teodora

I have got no idea what my impression is but I will try. He looks like a person with a very good education and is very well-behaved.

He was very tolerant with us maybe because he saw that we cannot speak his language free and he tried to help us.

Lubomir Yotov

He lesson was very interesting. Rod told us very interesting things about England. I am impressed by the visit. He is very intelligent and funny person and made our lesson exciting. He has a good sense of British humour. He was patient with us and answered our questions. Rod wanted to tell us all he knows about England and made a joyful lesson. He did that very well. He is a good person and made our lesson different. I am proud of people like him.

FEEDBACK FROM 9C THE CLASS WITH FIRST LANGUAGE GERMAN AND SECOND LANGUAGE ENGLISH, 24TH MARCH LESSON

Daniela Borisova

It was a pleasure for me to listen to him. I was interested in what he was saying and I would like to visit London. I am glad that a person from London came to visit us and we were able to hear a native speaker.

Lilia

He talked about interesting things. He knows a lot. I hope he visits us again.

Alexander

I liked Rod. I would enjoy seeing him in our lesson again.

Antoanet

I really believe that your visit was useful for us. Also, communicating with you was good for our English skills and knowledge. I think, it would reflect good if we have more English lessons with you or other English people. We are very thankful for visiting us.

Boshidar

Rod Holmes was a very good person. I understood he was a person who helped so much the children. His carrier is very useful. He helps people. Physics and Maths are his subjects.

Valentin

My first impression on you was that you look very old. No offence obviously. You may look old but there is still a lot of life in you. You have an unlikely spark in your eyes if I can call it like that. I really liked your visit. It was really educating. I learned a lot of general stuff about UK, and I am really glad you have visited us. It was a pleasure meeting you, Mr. Holmes!

Hristina

My impression is that he is a person with experience and knowledge for lots of things. He was speaking clearly and with patience.

Martin

Rod said interesting things about London and the life in UK. He asked a lot of questions for Bulgaria and for Bulgarian teen how we study in school.

Andrea

I think the lesson was very interesting. Rod's stories were cool! He is a person with a sense of humour and he has a lot of experience. I like England and London. I want to visit this city very much.

Simona

I really liked Rod's visit. He told us some really interesting thing about his life. He was very nice to me and my class and I enjoyed his lesson.

Eleonora

My personal impression of him was that he is an old person with a lot of knowledge and experience. I really liked to listen to him and I also liked the lesson.

Antoan

I liked Rod and I liked his visit. Certainly I learned something more and certainly I want him to be our guest again.

Save me – for your future

Запази ме – за да те има

In the beginning of June in Sliven (BG) the annual meeting of National Pupil's EcoParliament (NPEP) was held. During the session the awards of ecological competition were given for school students in different categories. Also the EcoAnthem was introduced. Here it comes along with poster first price. An ecological performance took place accompanied by presentations of students on the usage of herbs in our everyday life, on responsible eating, and the ecology of human relations.

Татяна Йотова

РАП ПЕСЕН ЗА ПРИРОДАТА

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недей да пръскаш всичко в гигантомана МОЛ.
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и също безобразно обиди не ръси.
Не хвърляй от колата торбичка или фас,
играй по правилата и си един от нас!
(От спектакъла „Екология на отношенията”)



Рап песен за природата
Татяна Йотова
Превод: Димана Николова, 13 год.

Nature song

We love the nature and keep it clean,
We don't run in the parks, we plant flowers.
We don't cut down trees, we are friends,
and we put up bird houses in May
We throw our rubbish on the right places
and don't ask questions it is a law:
The nature is valuable, beautiful and kind,
Don't use it only for a sleep and food
Love everything that has life and fight the evil
Then the nature will thank you.
REMEMBER: keep the air and water clean,
Because one day the world will be against you
Live ecological without pollution and smog!
You should study this lesson.
Far away from drugs, cigarettes, alcohol,
Don't spend everything in the shopping mall
Live naturally And don't talk rudely.
Don't throw bags or fags from the car,
Play by the rules and you will be one of us!

От спектакъла „Екология на отношенията”

Постановката „Екология на отношенията” е с две първи места от Международни фестивали за 2017 г.: „Бургаски изгреви” и „Радост на брега”. Изпълнители на екошоуто са седмокласници от Школа за слово, мелодия, театър „Генгерче” при СУ „Христо Ботев”, Айтос. Автор на сценария, песните и ръководител – Татяна Йотова.



Elena Todorova, Spanish Language School - Sofia

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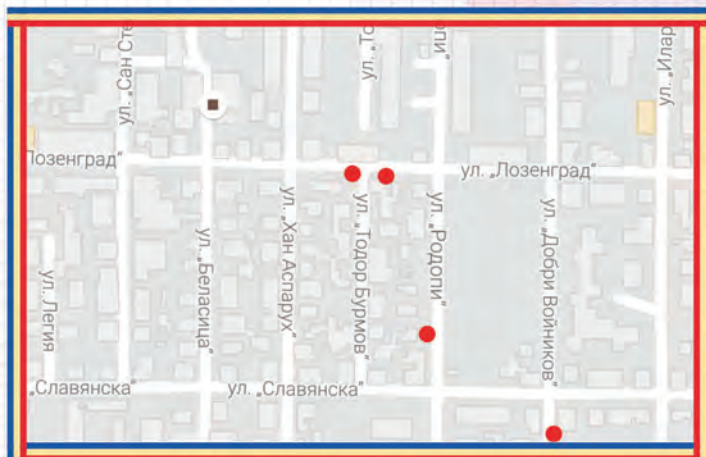
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