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COUP.

Show issue







HIGGS BOSON

January 2018, Show issue 5

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SHOW ISSUE 5



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iggs boson' is an almanac compiled and published by students and graduates of the High school 1517. I have been lucky enough to be the editorin-chief of the almanac for a particular period of time, and it has been a great experience. I have really taken to the atmosphere of the editorial board. What you are holding now is an issue which can be interesting for a large audience. It contains a wide range of materials, from articles about cats to reports about important innovation conferences.

Welcome to the exciting world of 'Higgs Boson' almanac!

Editor-in-chief Maxim Solovev



BETT 2013

Alexander Grek



enjoy telling school children and students that they are lucky to be born in a wonderful country where even the most incredible and ambitious dreams come true. One just needs to have a strong desire and to work extremely hard.

I like the story of my peer from Syzran who wanted to become a cosmonaut just like the majority of boys in the 1960s. He went into the army after school and then started working as a policeman. Once on duty he thought: "Am I doing the right thing? Did I dream about this as a child? What have I done to make my dream come true?" That was a turning point in his life. He entered Moscow Aviation Institute and graduated from it as an engineer specializing in liquid rockets. He worked as an engineer at Baikonur Cosmodrome and then at the Rocket and Space Corporation 'Energia' where cosmonauts were trained. Finally, he was enlisted as a cosmonaut and in April 2010, aged fifty, he flew into space and spent in total 560 days 10 hours and 43 seconds there.

Choose the greatest dream you can think of and put all your efforts into making it come true. In case it seems that you are worn out, which is most likely to happen, remember just one name, Michael Kornienko. That is the name of the former policeman from Syzran. Never give up, you will make it.



n our word, In the word of IT-technologies, the concepts of science and business are closely linked. They complete each other and have a lot in common. We all know that without financial support, science simply cannot develop. And at the same time, if science is not developing, business would not be developing too, because it is primarily dependent on how quickly innovations and new technologies can be employed. These technologies of course are created with the help of science.

The correlation of business and science was demonstrated in London at the end of January beginning of February this year at the BETT exhibition, where the delegation from our school participated. This exhibition was devoted to new technologies in the field of education, rather, making new programs will be useful for training pupils. This exhibition opens door for everybody in the world who's got latest developments in IT-technologies. Dozens of stands presenting new gadgets were placed all over this huge exhibition, Could they be created without financing from the government or private companies? The answer is obvious - of course not. We can say that now business is performing the role of soil for

science to grow on. In their turn, the fruits of science, falling on the ground, make it better and richer. This process is endless and correlative. Walking through the long corridors of the exhibition, you meet teachers and students who are interested primarily why this or that program is useful and if it is interesting for studying. On the other hand, you can see many businessmen who are interested in the commercial value of these projects. It was interesting to watch how these two groups share a lot of new, amazing and useful things. Walking along the pavilions of BETT exhibition, you notice huge fluid-lit signs, displays, advertising products, robots that were created for training purposes. Only here you clearly see how far scientific progress goes. Carried away by absolutely new characteristics of the product, you suddenly catch yourself thinking that you start to forget that behind the creation of all these robots there is a huge amount of money got through business. And it seems completely unimportant because the main issue is that it is technical progress! In fact, the exhibition had several rooms for making deals and, as a rule, they were always full of businessmen. Business insensibly is getting closer and closer to us. It is interesting to note that without good advertising, proper





achievements which had being created for many years, they will simply be not demanded. And advertising business helps to promote new products and increase the demand of them. After visiting this wonderful exhibition, I discovered a new correlation between science and business, better understood commercial side of scientific progress. This exhibition helped me to understand that all aspects of life are closely connected and they cooperate with each other. This is life and this is how its laws work.





BETT 2014

Every year thousands of visitors from all over the world who are interested in improving and increasing the level of education gather in London to participate in the largest annual exhibition of IT technologies in education – BETT Show. Students and teachers from our gymnasium not only visited the exhibition, but also actively took part in some activities.

Consultants at the exhibition stands in interesting and accessible to children form told and showed what should be the School of the Future. The basic idea – every student can use the device that seems to him the most convenient. No matter what it is: smartphone, tablet, or panel, directly integrated in the Desk. Very clearly we were shown as any surface in the School of the Future can be a digital space for learning. Though last year the exhibition featured a lot of cloud technologies for educational process, in 2014 the majority were responsive images and surfaces. The students tried touch screens, touch screens, interactive tables, 3D holographic projectors, displays with haptic technology and many other modern developments.

Delegation of gymnasium № 1517 consisted of 18 students grades 6-11. These are students who are actively involved in research and project activities, winners of research and project work competitions, Olympiads of city and Federal levels, the organizers of Scientific-practical Conference «SCIENTIA UNESCAMUS», which is held annually in the Gymnasium № 1517.

The exhibition was held on January 22 -25, 2014 in the exhibition center – London Excel. it was divided into special thematic zones, in which visitors could get acquainted with the latest innovations in IT-technologies in education, such as cloud models, modern remote technologies, special educational computer programs and etc. , to learn what innovations can improve and increase the level of education from pre-primary to higher education and improve their qualifications.

Visiting events such as BETT is a unique opportunity not only to see the latest achievements of science and technology in the field of education, but also to interact with colleagues from different countries, experts from the field of education, developers of exciting software and hardware solutions for children in a creative atmosphere. Information obtained from the primary source almost priceless, especially since all you can not only see and hear, but also to test, to try out.



Higgs Boson, High School #1517

The students were not ordinary visitors of the exhibition. Each participant had several tasks. They were supposed to present a gymnasium scientific journal «HIGGS BOSON» (especially for BETT was made the exhibition issue in English) and invite stakeholders to the Conference «SCIENTIA UNESCAMUS».

The students and teachers become participants in several interesting activities on the BETT. Our delegation watched the presentation made by the pupils of a school from Leeds. After the presentation, the pupils of an English school answered the questions asked by our students.

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Schools

bitions must be attended by the children – they intuitively, quickly and accurately grasp the latest trends in training, see the challenges and opportunities of a good education. And education in our society of new technologies – the shortest path to success and fulfillment.

I think that such exhi-

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gym1517.ru, Higgs Boson

Show issue 5, Higgs Boson 7

BETT 2015

Egor Lopatin



The British Educational Training and Technology show was established in 1985 in London and held annually in ExCel exhibition centre in London. Nowadays we can't imagine the market of educative technologies without BETT Show. Its contribution into the sphere of education with finest technologies and bringing up students with education without any borders is insane. Its purpose coverage is huge - helping people to be in touch with new technologies, helping companies to present their products in a smartest way – that is great! As I sad previously, the conduction of BETT is a greatest thing in order to make humans smarter, technology-orientated and to see the future just in front of you. The show has also expanded from being a purely technology show, and whilst it has played host to companies ranging from multinational Microsoft, Google and Apple inc. to small single-product firms, it has also created themed zones for exhibitors, such as those specialising in SEN provision. The attending of BETT 2015 was my first time here and I

was fascinated by the amount of interesting exhibition content and, definitely, by the exhibitors. This was a great experience of talking with nice people coming here to BETT. Continuing my walk through the dizzying array of exhibitors, I could see the specializing of this exhibition-classroom assessment, complicated student management programs and, of course, the opportunities of the inclusive education - "The education without any borders". The ubiquitous range of companies and firms presented on BETT gave us a great possibility to see the whole market just step by step: from repairing computers and cases for your ipads to really complicated classroom assessment and student management programs – I considered myself that I must return here next year to see the new changes in the market of educational technologies, and to get some ideas that would inspire us to have an aspiration to make the world, so the education, better. Then, after a few days visiting it, I realized that everyone can actually live here-everything





you need is here. That strongly confirms the main point of the event "Future is here". By the way, after 3 days 4-5 hours each I even haven't been to all zones and areas prepared for visitors by the organizing committee of BETT – i2i events group. The main place in the ExCel hall was BETT-Arena – the place where people get inspiration, chat to each other about solving out problems of the international and worldwide education. On the Arena a really big amount of speakers were people, whom was really interesting to listen to. The Wikipedia founder was there! His speech about the importance of new technologies was exciting! It

was also really nice to observe the fact, that companies, firms and people, participated BETT were from all around the world. BETT has no borders, education also. This is the most common aspect why more than 35,000 people from 113 countries all around the globe have chosen BETT. To conclude, I'm really happy to be part of BETT 2015 and looking forward to visit ExCeL in 2016!

















BETT 2016

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BRING EARNING TO LIFE

CLEANER, GREENER SOLUTIONS FOR EDUCATION

10 Higgs Boson, January 2018

Higgs Boson, High School #1517

he BETT Show is an annual education exhibition, which takes place in London in ExCeL exhibition center. The main theme of this exhibition is using new

imple Software

3+5= 8

2x2=4

Eat

technologies in education process. Teachers and students of our school join it every year with a target of creating project works and improvement skills of cooperating with our foreign colleagues. Aside from visiting the exhibition, at a time of the trip to London, our delegation visits main cultural sites of the city, such as St. Paul's Cathedral, London Tower, London Eye, Westminster Abbey and the Parliament of United Kingdom. In 2016 year, High School 1517 made a trip the England again. This year, we also visited English school and communicated with its students and teachers.

BETT 2017



INCE 1985 EVERY YEAR MORE THAN 35,000 PARTICIPANTS ATTEND BRITISH EDUCATIONAL TRAINING & TECHNOLOGY SHOW IN LONDON, UK. THE OR-GANISERS OF THE SHOW STATE THEIR MISSION AS 'TO BRING TOGETHER PEOPLE, IDEAS, PRACTICES AND TECHNOLOGIES SO THAT EDUCATORS AND LEARNERS CAN FULFIL THEIR POTENTIAL'. AS A **REGULAR PARTICIPANT** OF THE SHOW, I SHOULD **CONFIRM THAT THE MISSI-ON WAS ACHIEVED IN 2017** AS WELL AS IN PREVIOUS YEARS.





HIGHLIGHTS OF BETT-2017:

- NEW TECHNO-GADGETS FOR EDUCATION AND LEARNING
- SOFTWARE THAT MANAGES EDUCATION FROM 3 SIDES: TEACHER'S, STUDENT'S AND PARENT'S
- COMMUNICATION AND COOPERATION OF EDUCATORS, STUDENTS AND INVENTORS FROM ALL AROUND THE WORLD, TARGETING FOR BETTER WORLDWIDE EDUCATION
- THE BETT-ARENA SPACE, INTENDED FOR SPEECHES AND COLLABORATIONS OF PUBLIC AND PROFESSIONAL SOCIETY
- STEM SPACE FOR EDUCATORS

The BETT-Arena programme represented a very wide range of interesting speakers with speeches to-point on technology influence on secondary (K-12) and higher education as well. Visitors of BETT-2017 were inspired by speeches of famous speakers, such as Anthony Salcito, Sir Ken Robinson, etc. This year the main theme of the Show was VR-technology in the education process. Big amount of exhibitors presented their technological projects which were intended to make education more innovative, efficient and easier. As a result of the show, many technologies presented there were successfully implemented in different schools all around the world.



We were delighted to visit BETT-Show in 2017 and we are constantly looking forward to working creatively and productively in very friendly and effective environment of British educational training & technology show in 2018. See you next year!



Scientific Student Community



Author: Alekseev Matvey 6 grade, High school 1517

Scientific Supervisor: Zyuzyukova Maria Olegovna, IT-teacher, High school 1517

Introduction

Since 2001 a new type of sports – eSports – has appeared. But many people do not recognize it and believe that it is just an excuse for playing games on gadgets and this would lead to addiction and gambling. I'm going to find out and tell you what ESports is, will hold a poll among children and their parents. My goal is to find out if eSport is considered a a sport or dependence to gadgets.

Hypothesis:

1. For adults, the word eSports is synonymous with gambling.

2. Children consider eSports a cool occupation

Definitions and history

ESports is a competition in the virtual space, which simulated computer technologies, in particular, video games.

ESports is a form of competition using video games. Most commonly, eSports take the form of organized, multiplayer video game competitions, particularly between professional players. The most common video game genres associated with eSports are real-time strategy, fighting, first-person shooter (FPS), and multiplayer online battle arena (MOBA). Tournaments such as The International, the League of Legends World Championship, the Evolution Championship Series and the Intel Extreme Masters provide live broadcasts of the competition, and prize money to competitors.

Cybersport-an innovative competitive activity and the vivid social phenomenon of the twenty-first century. eSports has enormous practical value, develops the identity of the athlete (strategy, tactics, reaction, special skills, etc.) and is available to everyone. In many countries, recognized as officially "sport". The sixth season of student Championship of Moscow in Moscow Student XXVIII program sports games is a springboard for education national student competitions in computer sports.

eSports in Russia

Russia became the first country in the world that recognized eSports as an official sport. It happened on July 25, 2001 by order of the then-head of NSC Russia Pavel Alekseevich Rozhkova. However, a few years later he was expelled from the alleSports registry sports because it did not meet the criteria necessary for inclusion in the roster: development in more than half of the constituent entities of the Russian Federation and the availability of registered in the prescribed manner of all-sports association. However, the sport continues to be present in the computer list of sports recognized by the federal body of executive power in the sphere of physical culture and sports, as well as the list of sports for the introduction of government programs of physical education of the population. Now in Russia, there are even Department of eSports. It is based on the physical education centre in Izmailovo GCOLIFK.

One of the biggest eSports organizations in Russia was the national Professional Gaming League (NPCL), which was established in the year 2004 and carried out regular competitions for professional gamers. NPCL in Russia for the first time applied the format of show matches, created a cyber one professional eSports Club (now closed) and launched regular Championship organized on the principle of the major sports leagues and associations. Currently, the League ceased to exist.

Rules of conduct

Large competitions are held in special places where the public can watch the players sitting at computers, and duel track on the big screen, where broadcast images from the screens of players. In South Korea, due to a large number of spectators, such competitions are held in the stadiums. Smaller competitions held in computer clubs and Internet cafes. In addition, there are online competitions that are conducted over the Internet.

I visited the Federal Research Center for physical culture and sports of the Ministry of the sport of the Russian Federation and spoke with the President of the Federation of computer sports Russia Dmitry Smith.

I asked him the question: how do you think eSport will evolve in the future and is it possible for eSport to become a school lesson. Here's what he said:

"In some countries, cybersport already entered the school curriculum, but if we are going to talk about how Pro eSports part of the training process, then it is more likely to be part of the intellectual games. As much as it is realistic and close? I think that soon enough it will be possible to implement. Now if there is a class in the school of computer science and technology, there is no suitable teachers. If you have other specialists and teachers, no institutions that would have trained such teachers. So in subsequent years, we need to work together with the Department of education. I think in 5-7 years eSports could evolve. "

Survey

In addition, I had a survey among students and teachers of the classes 6-7 High school No. 1517. 18 teachers and 41 students were interviewed. Here are the questions I asked them:

- -What do you think ESports is
- -Have you ever played eSports
- -If not, why not

-When you grow up, would you like to become an eSports athlet

-What do you think, is eSport similar to the classic sport -Would you like eSports to become a school lesson





associated with gambling is confirmed. Most believe that the eSports and "endless games on your computer from morning to night" is one and the same. But this is not the case. The "eSports" concept is being replaced by igromania. I would like to continue my research, popularize the notion of eSports and try to prove to students and teachers that eSports and compulsive gambling is not the same thing.

EDUCATION

The system of education in Great Britain and in The Russian Federation HOW DO THEY DIFFER?

Andrey Rudnevskiy

My name is Andrey Rudnevskiy and I am a student in two schools-Gymnasium 1517 (Moscow, Russia) and Orleans Park School (London, the UK). After a year of living in the UK, I have noticed some similarities and some differences between the cultures of the two different nations. As I'm 12 years old, I mostly spend my days in school and because of that I mostly notice the difference between the two learning systems. In this statement, I am going to show a table of the change in the different systems of education and I am going to try to explain why they differ so much. At the end, I will write a small story why I moved into the UK and I will show you how I feel about living in Britain from my personal perspective.

I started living in Britain one year ago. When I came there, I felt really skeptical about living there and staying there forever (The reason, that we came to the UK was not because of work, but because my mum had a British husband and we needed to stay in the same place together). But I was really amazed about different things there soon. For example, I love the wisely designed transport organization, which is called TFL (Stands for Transport for London). Unlike the Moscow analogue, this transport system is organized in such a way, that it is absolutely not confusing and extremely easy to use the London transport. One year ago I was going to a primary school in London (The system differs from the Russian system. Till Year 6 the students go to a primary school, but in Year 7 they go into the secondary school), which is called St. Mary's Church Of England Primary School. This school was really easy for me and as I was also a student of the Gymnasium as well, I was not doing a lot of homework in St. Mary's, but I was doing a lot of homework for the Gymnasium. In St. Mary's I was counted as one of the best students in my class and my Mum thought that we should go to another school, because this one (As she thought) was really easy for me. But we came to an agreed on waiting till the secondary school starts and that I stay in St. Mary's till the end of the school year. But overall I'm pleased, that I went to St. Mary's, because I had many exciting and very enjoyable moments in there.

Then the new school year started and I went to my secondary school-Orleans Park School (It is not a private school, it is a state school). One of the differences between the schools is that in Britain they put more emphasis on creativity and understanding, whereas in Russia there is more emphasis on facts and knowledge. I found it extremely difficult to learn in Orleans Park AND in the 1517 Gymnasium at the same time. I was disconnected with the Russian system for a while and found it really hard to learn in two different systems at the same time. In addition, I had many clubs and other additional lessons, which I had to attend, which made my position a lot worse. Right now my story comes to an end-I find it extremely easy to learn in Orleans Park School, but I struggle a bit in learning in the 1517 Gymnasium. If I were to give a suggestion to you, then I would suggest that you learn at one school, but if you are learning at two schools or other educational organizations at the same time, then I would suggest, that you don't attend any clubs or other additional classes, because they take out a lot of your time out. Thank you for reading my comparison of the two different schools in different countries-in Russia and in the UK. I wish you a great day and good luck in the future!

The start of the day	8:45 AM	8:30 AM
Tutor time	Happens every morning from 15 minutes up to 1 hour	Happens only on some special occasions for about 1 hour
Lesson time	1 hour for every lesson	45 minutes for every lesson
Break time	A 20-minute break after 2 lessons and 1-hour lunchtime after 4 lessons	A 15-minute break after every lesson and a 20-minute breakfast after 2 lessons
Breakfast	Normally the school doesn't provide breakfasts, but you can buy a croissant or a pain-a-chocolate as a small snack.	The school gives out 2 types of breakfasts: Quick Breakfasts and Hot Meals. Often the Quick Breakfast contain a carton of juice and a sandwich and the Hot Meals often contain porridge and hot tea.

Assessments

Uniform

Sport

Religious Education

International Languages Often marks are only given for different tests and other assessments, but are not routinely given for homework and any type of classwork. The marks are written as a fraction (e.g. 89/100, 60/79 etc.) In addition, each term there is a report, which comes out of the school, which shows your mark (There is the GD(+=-)-Greater Depth, AP(+=-)- At The Expected Standard and TP(+=-)-Towards The Expected Standard).

The uniform is very strict, because the strict uniform requirements help the school discipline and should be always provided by the school. The free choice of clothes can be allowed on only some special occasions but on normal days the free choice of clothes is strictly forbidden and you will be sent home for not wearing the school uniform. The school uniform also costs quite a lot if you buy it from particular shops, even though Orleans Park School is a state-funded school and the uniform purchases gives the school some additional funds.

In Twickenham there is the main English rugby stadium, and this is why Orleans Park School plays rugby as a sport. However, most schools in Britain play football as their main sport, because Britain is very famous for football. We also have gymnastics, basketball volleyball and cricket as a sport. At the end of each term we are being assessed on our sport abilities and talents.

In all schools in Britain religious education is compulsory. There is a lot of focus on different religions and different cultural traditions and that you should not put your race, skin colour or gender higher, than others. Most British schools (except some special ones) have to have some collective worship of a broadly Christian nature.

In Orleans Park School we learn 3 international languages, which are depending on our year. In Year 3 (Year 4 in Russia) they are starting to learn French as their second language, but in Year 8 (Year 7 in Russia) we are going to learn German and Spanish as our international languages. The languages vary in different schools and in different years. The marks in the Gymnasium are given out for excellent homework, great contribution in class, tests and assessments, for talent and for your performance in the school life. The marks are a 5-score system, which effectively rates your attitude to learning. (e.g. 5-Excellent, 4-Good etc.) Every term there is a marks report coming out, showing you the subjects, that you are doing well on and the subjects, where some improvement is required.

The Gymnasium's uniform is not as strict, as the Orleans Park uniform, because the Gymnasium doesn't make out any money from the uniform. Despite that, there is still a dress code, that you should follow, but it is not as strictly defined, as the Orleans Park uniform (A white shirt, A maroon waistcoat or a maroon suit, black trousers and grey socks (For girls a grey skirt and grey tights are allowed). You can buy the uniform wherever you want, but it has to fit the dress code. On some occasions you can come to the Gymnasium with a free choice o clothes but on a daily basis you should come to school in a proper uniform.

The sport in the Gymnasium is held by the National Curriculum, and can only sometimes be chosen by the Gymnasium itself. You have to complete the different abilities tests throughout the entire year, for which you will be given a mark, depending on how well you have performed those tests. Mostly this is all of the sport in the Gymnasium, but sometimes the students can play Pioneerball as a reward for their physical work.

The Gymnasium does not hold any religious assemblies. Religion doesn't have a great influence in the Gymnasium, but some subjects might teach some religion as a part of the Gymnasium curriculum.

The Gymnasium teaches many languages, but in the building, that I'm learning in we learn English from Year 2. In year 7 we are going to start to learn 2 new languages-German and Spanish. These are going to be our 3 international languages, which we can take our tests on. I have heard that in the other buildings in the Gymnasium the students learn Chinese and French as their international languages. In general, Russian students theme to be much better at international languages, than the British students.

Diversity	London is a very diverse city and many nations have settled in it. In all schools in Britain racism is not being tolerated. In Orleans Park School no racism is being tolerated and every person should act tolerantly to each other, allowing every person to be happy and free in Orleans Park School.	Russia is much less ethnically diverse, than Britain is. Although the Russian schools do not support racism, there is less focus on diversity and tolerance in the Russian schools. Unlike in Britain most of the people, who live in Russia are ethnically Russian or come from the neighboring countries for work.
Lunch	Lunch in Orleans Park School happens in the middle of the school day. Lunch is an important moment in the school, because the lunch menu is designed to make sure, that students can have a healthy and a balanced diet. There is a rating of many meals in the school. On lunch you can have a great choice of selec- tion of different snacks and other foods. You will have to pay for your lunches when you leave the canteen. The lunches are very nice and taste good there and in the school they are made in a very good way.	Lunch normally happens straight after school and as I have seen it the food there is pretty nice-the school lunch has a 3-course meal with a drink-of- ten the 1 course is a soup, the second course is often the main meal and the third course is a salad with a drink. The food is filling and I suspect, that it is good quality made. Parents have to pay for the school lunches monthly (but it's optional) or you can just buy a snack from the canteen as lunch.
Awards	In Orleans Park School all of the good actions always need to be rewarded. In this school each term there are rewards given out to the students for many excellent works and for great progressions in learning. In addi- tion, there are house points given out to the students for being helpful, being excellent in learning and for homework, which is done in extra quality. Sometimes a star of the week is being announced for a person, who has contributed very well in the school life.	In the Gymnasium, the awards are not really often given out, but sometimes prizes can be given out to the students, that took part in some sort of competitions or they were representing the school in some sort of contests. The awards are not given out as often, as they are given out in Britain, but still the Gymnasium rewards the students, who have done brilliantly in any sort of competitions and/or contests.
Additional Subjects	There are 3 groups of subjects in Orleans Park School, depending on their importance in the world. Firstly, there are the primary subjects-En- glish, Maths, Science, Geography, IT, History, Physical Education, German and French. They are the subjects, which you will have to complete when you are going to do your GCSE examina- tions and the subjects, that the school is mainly is focused on teaching. Then there are the second- ary subjects-Music, Drama, Art, PSHCEE and PRE. These subjects are not really being taught so much in greater depth and they are optional in your GCSE exams. Lastly-the rotatory sub- jects-Food Technology, Design Technology, Textiles and Film studies. These subjects are not don in your GCSE's, but these subjects are being taught in greater depth.	The subject in the Gymnasium are being grouped as primary and secondary subjects. The first group- the primary subjects-Russian, Maths, Literature, PE, History, Social Studies and English. They are taught more, than once a week and they are being taught in depth. The secondary subjects-Geography, Biology, Music and Art are being taught once a day and no tin such great depth, as the primary subjects. On the exams it is recommended to take the assessments on primary and secondary subjects, even though the entire primary and some of the secondary subjects are counted as subjects, which is compulsory to take the exams on them. There are not as many subjects, as there are in Orleans Park, but in the subjects in the Gymnasium things are being taught nearly the same, as on the subjects which appear in Orleans Park, but which don't appear in the Gymnasium 1517.
School clubs	The school has many clubs for every taste and ability. There are any sport clubs in the school, there is a debating club, homework club, basket- ball club, running club, cricket club, rugby club, football club, linguistics club, drama club, food club, design club, English club, reading club and many more. Nearly all of these clubs are free and you can join them whenever you want.	The Gymnasium holds many clubs, but unlike the Orleans Park clubs these clubs are mostly based on the subjects, that are being taught in school. There are many language clubs, a maths club, literature club and many more. Most of the clubs are free, but you will have to join them at a particular time, which is given by the teacher, who runs the club.
Home Time	Usually 3:30 PM (12:30 AM on different celebrations).	Varies from 12:30 PM to 3:30 PM (Some days can be earlier, some days can be later, depending on the number of lessons and on different celebrations).
18 Higgs Boson January	018	Higgs Boson, High School #1517

Higgs Boson, High School #1517

Problems of choosing career at an early age or 5 main reasons why it's better not to divide children in

EDUCATION

TECHIES AND HUMANISTS

Arina Romashkina

Many parents want to choose future career path for their children. Usually there are two options: a child is classified as either a "techie" and studies natural sciences or a "humanist" and his/her future profession is connected with languages, literature and history. It is believed that the two groups have such different interests that a mathematician may not know about Alexander Pushkin or a humanist can't count the money in a shop.

In my project I have tried to find out whether it is useful to sort children in "techies" and "humanists", when determining their specialization. I have studied the opinion of experts on future professions and most important professional skills. As a result I've found five reasons why it's better not to divide children in techies and humanists today.

THE WORLD ISN'T BLACK AND WHITE

There aren't pure "humanists" and "techies", just like there aren't pure lefthanders and right-handers. Even if you have a dominant right hand, it doesn't mean that you have a dominant right leg and right eyes, therefore you aren't a pure right-hander. Of course, there are people that clearly belong to one category. But not all children are either "techies" or "humanists". In practice many school students have both technical and humanist skills.

THE ROLE OF PERSONALITY IN HISTORY (AND OTHER SUBJECTS)

Teachers play a huge role in the development of natural abilities. A talented teacher can help students to discover their abilities.

EXPECTATIONS OF OTHERS – OUR PROBLEMS

By calling their child a "humanist" or a "techie", parents constantly put pressure on him/her. Some children can easily understand "what father wants" and "what is mother's dream". Such children often want to please their parents and make the wrong choice of learning subjects. It can lead not only to psychological problems in the future, but also limit the development of personal talents.

ABILITIES AND INTERESTS

It is important to consider not only the abilities, but also interests of the child. Ability and interest are two different things. It often happens that a school child is very fond of a subject, even if he/she doesn't completely understand it or doesn't always succeed. It's a big mistake to think that someone is more of a "techie" or a "humanist" based on school marks. Parents need to give the child as much as possible information about different kinds of knowledge, professions and specializations.

PROFESSIONS OF THE FUTURE

In several years bio- and nanotechnologies, as well as artificial intelligence will be part of everyday life, just like computers and smartphones are today. It will also change the professions. Some of them will disappear, while others will be very popular. Experts are sure that most important professional skills will be connected with personal development and wide worldview.

Technical knowledge is still important. But it won't be enough for a future engineer. A specialist will have different tasks. An engineer will need to learn many new things and study throughout the life. It will be also necessary to manage a lot of information and understand the most important ideas. To sum up it can be said that the division of children into "techies" and "humanists" is old-fashioned. Moving from one sphere to another is not only possible, but also in demand. You should study more in different fields. You should discover and develop different skills and abilities. Mathematical modeling in genetics, physics in biology and medicine is what is happening today. For example, mathematical linguistics appeared due to integration of two sciences that seem completely different - mathematics and linguistics. This new field of science develops mathematical tools for linguistic research.

Let us not label one another and limit our interests and future possibilities. Let us wish one another success in studies and new discoveries!



LIKE SHARE SHARE REPOST MEDIA of the modern school

Anna Vakneeva, headmaster High School 1517, vahneeva@gym1517.ru Elena Davydova-Martynova, PhD in political science, Head of the innovative education projects department High School 1517, dmei@gym1517.ru Maria Zyuzyukova, Head of the international education projects department High School 1517, IT-teacher, zyzykova@gym1517.ru



Nowadays media education is a pedagogical system that helps to use modern methods and technologies. In this regard, there is a need to develop an integrated approach to the organization of media space of the modern school. New objects of media space that are a part of the modern educational system are constantly appearing. For instance, "Moscow e-school" - a new project by Moscow Department of Education is bringing an opportunity for a school to enter a global information space. The resources of "Moscow e-school" are becoming a part of the educational media sphere. Also important to note that educator in this project is the author, the creator of educational media resources.

Media and media literacy

Media space is an environment created by electronic means of communication, an electronic environment in which communities, groups, organizations can act together at the same time.

The formation of media literacy is one of the main tasks of the modern school. It is important to consider that one of the main components of the formation of information literacy is the development of critical thinking.

According to UNESCO, Media Education deals with all communication media and includes the printed word and graphics, the sound, the still as well as the moving image, delivered on any kind of technology; enables people to gain an understanding of the communication media used in hat should the media of a modern education institution look like? How is it supposed to be represented in social media? Which ways of increasing media competence are better?

Answers to these questions are the foundation for a better model of a media space of the modern school. Media needs to take into account the needs of a modern audience: educators, students, parents, educational partners.

their society and the way they operate and to acquire skills in using these media to communicate with others; ensures that people learn how to:

- analyse, critically reflect upon and create media texts;

- identify the sources of media texts, their political, social, commercial and/or cultural interests, and their contexts;

- interpret the messages and values offered by the media;

- select appropriate media for communicating their own messages or stories and for reaching their intended audience;

- gain, or demand access to media for both reception and production.

Thus, the areas where media education is most needed:

- providing personal informational security (an ability to orient in the media):

- ensuring the information security of the individual (ability to navigate in the media space);

perception and interpretation of media texts (perception, understanding of the context, the ability to build their own concept about the information received);
media creativity;

- practical mastering of the media space (ethics of communication in the media space).

The structure of the media space of the modern school

The structure of the media space of the modern school includes not only internal school media (school editions, a website, a

blog in a social media, a school tv studio) but also channels for interaction with external media – educational publishers, tv and Internet channels.

The media space of the modern school solves several problems at once. First, it forms a competent and demanding audience. Secondly, it provides an opportunity for interaction with external media, ensuring the principle of openness of the educational and educational space of the school. Thirdly, it forms the professional skills and competencies of schoolchildren included in this type of activity. School media - this is a reliable basis for the formation and approbation of competencies, journalistic talents of schoolchildren. Interest in sociopolitical journalism, obtained at the school, can have important job guidance.

Printed Editions

In High school No. 1517, since 2009, the popular scientific magazine "Higgs boson" has been published. "Higgs boson" is released both in printed and electronic versions. The main purpose of "Higgs boson" is to publish research works; scientific articles; propaganda of science among schoolchildren. The editorial team consists of students (grades 5-11), each of them has a role in the creation of the journal.

"Higgs boson" is not only a printed edition, it serves as a platform for interaction, where students from different schools, different cities and countries exchange opinions, publish their own research, projects, address scientists and public figures, receive reviews and responses to their work. In High school #1517, the newspaper EtCetera is published for four years. The newspaper is a printed organ of student self-government and is published in 600 copies once a month. Members of the editorial team are students of grades 1-11 who write their own articles, edit and process the published material, and select photographs.

School tv studio

Once a month, the creative team of Studio-1517 releases a news video-block and also prepares video materials for the Moscow educational channel. The staff of the studio constantly participates in master classes, training and practical seminars, where specialists conduct training. Videos created by the children's TV studio are published on the School's website and on the school Facebook page. TV studio is for students who want to get practical skills for the future profession.

Internet space of High School Nº1517

The main element of the Internet space of modern educational organization is the site. The functioning of the school's website ensures the informational openness of the educational organization. School # 1517 has two sites: the site "Community of pupils, teachers, parents" http://gym1517. ru/ and the official site on the platform of the Moscow Department of Education http://1517.mskobr.ru/.

Since 2010, High school #1517 has a page on Facebook. Unlike the site, this page is interactive - the audience of subscribers (more than 5000), users can leave comments, responses, feedback, express their reaction to this or that event.

School Twitter account performs a few other functions. Microblogging is used mainly for short announcements of upcoming events or small reports about current events. Twitter allows you to quickly get feedback from a group of users on any subject.

Social network Vkontakte is used in specific areas of activity or interaction. For example, group "Scientific Society of School No. 1517", "The popular scientific magazine "Higgs Boso ","The Scientific and Political Club of School No. 1517","The Parliament of School No. 1517" are organized and are functioning. The main audience of the groups is students. Students independently publish materials in these groups, thereby forming their own media environment.

School Youtube Channel allows broad-

casting the most important events. For example, the channel broadcasts meetings of the Governing Board of the School, parental meetings, etc. Videos created by the school's tv studio, student creative projects, as well as other video information about the life of the School is published.

School Instagram account also allows live broadcasts, but unlike the Youtube Channel, most often these are less formal events or events that do not require full-length broadcasting. Instagram also allows you to publish photo reports about current events, usually occurring at the time of publication.

One of the key values of the described model of the school media space is the development of creative and critical thinking, the acquisition of experience, the improvement of the level of the ability to read, the independent search, the ability to correctly use information flows for effective communication. Therefore, students must be included in the work with the media space of the modern school. Students quickly and accurately grasp all the new trends in the world of communications. Information and communication competence is an integral part of modern education. And education in our society of the newest technologies is the shortest path to success and self-realization.





Scientific Student Community



Gamification in Education

Authors:

Michail Barancev and Yury Konstantinov

Why gamification is necessary

At first, let's understand what it is. Gamification is a way of training in which game approaches for not game processes are attracted. One of main objectives of gamification consists in finding the way allowing to involve also effectively the pupil in passing of all course. And we assume that by means of the training game it is possible to teach the pupil for several lessons what he couldn't study a long time to. Also in gamification the fact that the pupil does tasks voluntarily because of congenital curiosity to finish a game is of great importance. It is very important since directly influences success of training. The main thing in developments on gamification – to create process of a game dynamic, to exclude boring mechanical repetition of actions, to interest the pupil in the system of levels in which each following level will be more difficult previous.

Now the infinite number of systems of gamification works in Russia, generally it is online platforms. In spite of the fact that they are rather popular, this technique will become shortly inefficient. As show various polls and researches, less than 5% of people end similar courses, because in fact online courses are boring. Now very much pupils are helped with it by the direction of sport which has become very popular recently – cybersport. Many school students play Dota 2, Counter-strike, Overwatch and Hearthstone now. Parents try to reduce time which their child spends in games, including it useless occupation. But whether they think that games can be and useful. Let's everything sort at the game which is already mentioned earlier – the Dota 2. It's a computer multiplayer team game in a genre of MOBA (multiplayer online battle arena). In a game two teams on five people participate in everyone. The purpose of a game is to destroy the main building on the basis of the opponent. And you probably now ask: "And how this game can develop the playing children in it?" And we will answer you that this game develops ability to play and work in team, helps to learn to make decisions to a nakhod and to build the accurate action plan.

So we think, that gamification is something bigger, than just a online lesson. It is such scheme of training at which the teacher not just imparts the knowledge and experience with the pupil, and the pupil has an impression as if this knowledge and experience was opened by him.

Experience our school in gamification

Moscow has recently started to implement a new system of gamification in education. Classes are interactive whiteboards, which teachers became much more convenient and easier to conduct lessons. This interactive Board is a working and writing surface, and a screening room to show video and photos, and browser for Internet access, and a large screen to demonstrate the lesson. Also in Moscow schools, including in 1517, actively implemented the training system on tablets. With the help of a special program developed by the Moscow government, the opportunity to learn new material to perform different tasks and tests in a single app. Our class had the unique opportunity to test the system. Teachers are becoming easier to prepare for the lesson and carry it through. In one lesson with the new system you can get much more information than before. The E-services of the Moscow School mobile and available online - teacher, parent and child. They can be used from any point on Earth. This system is constantly updated, it will soon appear in all Moscow schools.

Interview

KATYA KOZULINA

www.festivalnauki.ru



DMITRY

ERENBURG

MARIA Shvedova ALICE BUROVA

1. Newton.

2. In Greece.

3. Gods.

4. Lomonosov.

MAYA Mamedova

1. I believe the scientist that changed the world is Alexander

Fleming, because he, though accidentally

invented penicillin. It is at the moment a very

important invention used in a lot of medicine.

2. I'd go to India. It's my favourite country. It is very

diverse, its foreign kulaura amazing. Many consider

it to be very dirty, but the trash there is not so much.
3. It seems to me that cyborg is chlorobutyl, i.e. they are half composed of technical elements. Also this crank out of horror stories.
4. Regina from the eagle and tails, because it has travelled 2/3 of the world survived a thousand procedures ate so much stuff, seen that, and still remains optimistic.



VLADISLAV BURSUK

 I'm not particularly interested in science and modern discoveries. But I'm a fan of Stephen Hocking and I like his scientific books.
 I would go to Ireland or Australia, and then moved to St. Petersburg.
 Cyborgs are people with bits of robots.
 A person who would

have invented a cure for incurable diseases. 1. Peter Higgs (higgs bozon) 2. New York, USA 3. Cyborgs are hybrids of humans and machines 4. Elon Musk 2. Ma 3. It suppose t

humble opinion the discoveries and inventions of Nikola Tesla in the field of electrical engineering and mechanical engineering was changed the world much more than others. 2. Maybe to Finland for skiing 3. It suppose to be something like robot who looks as a person. Terminator is good example. 4. I would like nominate Ilon Musk for the Noble Prize, cause of his contribution to space exploration. The target of his company SpaceX is to make flights to space cheaper.

1. In my

 Einstein.
 To Spain because it's warm and fun.
 It's a smart robot, created to conquer the world.
 Prokudin-Gorsky.

ALEXANDRA POLYANTSEVA QUESTIONS:

Discovery of which scientist has changed the world most?
 If you could now teleport to any place, where would it be?

 3) What do you think, who are "cyborgs"?
 4) Who would you have awarded the Nobel prize?

Stereotypes about England

Ekaterina Kozulina

There is a profound conviction that the English are snobs and not sincere. And sometimes this is true, but they are insanely polite. Local residents simply need to apologize to everyone and to everything. They like to apologize. They are polite but not snobs.

2 London is considered the centre of the elite, and many people think that Britain is the apogee of the aristocracy. But he is full of contrasts. And this is not quite true. In twenty minutes by subway from the city centre, you can get into the slums where the working class lives, and the crime rate exceeds the statistics of Moscow. If in Moscow life flows more or less evenly, then London rushes from one extreme to the other. Britain there are a lot of red telephone booths and men in black cylinders. It's a false. These things are symbols of England but the country does not fall behind modernity.

Fourth stereotype – oatmeal. It is considered that the English are very fond of oatmeal and eat it for breakfast. This is not true. They almost did not breakfast because of the rush. But in the north next to Scotland, this porridge is well cooked.

The study published in the professional medical publication British Medical Journal debunks the myth that the British have bad teeth. The condition of the oral cavity of an average British is better than that of an ordinary American.

Professor Samir Patel, a member of the British Academy of Cosmetic Dentistry explains: «Stereotype that Americans do not have teeth better than the British, but in recent years, the British have paid much more attention to oral hygiene...»

6 The British are all very smart. But not all studied at Oxford or Cambridge. Simply put, this belief is wrong.

Are the English phlegmatic? The story of one journalist: "Once I went on a business trip to England. During the flight there was almost a plane crash, even the stewardess was frightened. "Everything ended well, but I heard a dialogue between two British businessmen:







-Well, it was impressive. — Yes. I even did not want to eat my sandwich".



Sightseeing tour

Summerschool

DENMARK

Educators in STEM Summer School

Elena Davydova-Martynova

Education programs

LEGO WeDo course

for developing and preparing projects for children in the classroom. LEGO WeDo develops children's creative thinking, fine motor skills, awakens interest in experiments.

The course of Computer Science

was devoted to teaching children the basics of programming in a bright, creative manner, for example, making, programming and design of musical instruments, funny robots and ornaments.

Workshop Paint 3D & Builder.

The familiar Paint program is now available in a new version — with the option of 3D printing.

Minecraft: Education Edition.

The favourite children's computer game now serves the benefit of education: the edition of Education turns the game into a technique of conducting lessons in various disciplines, virtual mastering of the acquired knowledge and even in a creative way of doing homework.

Masterclass Hacking STEM

introduced teachers to accessible, interesting and useful techniques for studying the material on the basis of the principle of combining theory and practice. Basically, it was about simple physical experiments, but with the use of the modern software.

As a result of the training, our teachers prepared a series of master classes where they will share their experience with the teachers of Moscow schools:

1. The new format of engineering design: 3D-Paint (Mikhail Milovanov, IT-teacher).

2. 3D-Paint in teaching subjects of the



STEM Summer School is a real discovery in the field of school education. This is where the exchange of best practices in the use of the latest technologies in the learning process takes place.



Master-classes by #1517

natural-science cycle (Olga Ivanova, biology teacher).

3. Gamification in education: the application of Minecraft technologies in teaching subjects of the natural science cycle in primary classes (Svetlana Ivanova, primary school teacher).

4. The use of Lego WeDo at the technology and environmental classes in primary

school (Elena Gavrilova and Marina Kupriyanov, primary school teachers).

5. Using MakeCode technologies in foreign language lessons with the MicroBit BBC device (Xenia Belous, teacher of a foreign language).

6. Small computer microbit: coding by blocks JavaScript (Margarita Popova, Ekaterina Volkova, IT-teachers).

ECONOMICS

Cryptocurrency

Diana Chestnova

The value of bitcoin is reaching alltime highs in 2017, boosting interest in all cryptocurrencies — more than 700 out there at any given time.

A cryptocurrency is a digital or virtual currency that uses cryptography for security. A cryptocurrency is difficult to counterfeit because of this security specialty. A defining feature of a cryptocurrency, and arguably its most endearing allure, is its organic nature; it is not issued by any central authority, rendering it theoretically immune to government interference or manipulation.

The anonymous nature of cryptocurrency transactions makes them well-suited for ne-farious activities, such as money laundering and tax evasion.

Cryptocurrencies make it easier to transfer funds between two parties in a transaction; these transfers are facilitated through the use of public and private keys for security purposes. These fund transfers are done with minimal processing fees, allowing users to avoid the steep fees charged by most banks and financial institutions for wire transfers. Central to the genius of Bitcoin is the block chain it uses to store an online ledger of all the transactions that have ever been conducted using bitcoins, providing a data structure for this ledger that is exposed to a limited threat from hackers and can be copied across all computers running Bitcoin software. Many experts see this block chain as having important uses in technologies, such as online voting and crowdfunding, and major financial institutions such as JP Morgan Chase see potential in cryptocurrencies to lower transaction costs by making payment processing more efficient.

However, because cryptocurrencies are virtual and do not have a central repository, a digital cryptocurrency balance can be wiped out by a computer crash if a backup copy of the holdings does not exist. Since prices are based on supply and demand, the rate at which a cryptocurrency can be exchanged for another currency can fluctuate widely.

Cryptocurrencies are not immune to the threat of hacking. In Bitcoin's short history, the company has been subject to over 40 thefts, including a few that exceeded \$1 million in value. Still, many observers look at cryptocurrencies as hope that a currency can exist that preserves value, facilitates exchange, is more transportable than hard metals, and is outside the influence of central banks and governments.



The first cryptocurrency to capture the public imagination was Bitcoin, which was launched in 2009 by an individual or group known under the pseudonym Satoshi Nakamoto. As of September 2015, there were over 14.6 million bitcoins in circulation with a total market value of \$3.4 billion. Bitcoin's success has spawned a number of competing cryptocurrencies, such as Litecoin, Namecoin and PPCoin.

Chart of the Week



Science is interesting

NAKED SINGULARITY

PHYSICS

Black and White Holes

Vladislav Bursuk

ypothesis of existence of black and white holes. After all, if there is an "entrance", that must be and "exit" white hole.

ANTI-DE SITTER SPACE

Black hole is the region of space-time, the gravitational pull is so great that it cannot leave even light. Black hole is only pull. So scientists think: what is existence of white holes, that give and don't pull? If black hole is a door to nowhere, so it would be logical answer, is there a way out from there?

Black holes are known phenomenon in space. In center of almost every large galaxy, there is a huge hole, not to mention the small. However, astronomers have not found any white holes. But it does not mean, that white holes cannot exist; maybe they just need to look more careful. If they really throw away particles, there is a small chance that they are invisible.

Stephen Hawking thought, that: "white hole is reversed black hole, is an object, from which you can come out, but in which you can't come in". Maybe white hole located in another part of the Universe. Maybe white hole give us the opportunity for quick intergalactic travels. However, maybe its travels are very quick for us. Hawking thought, that energy of Universe leaked not forever. Sooner or later, the process of absorption of substance by black holes may be stopped, and then starts the reverse process — the output of energy and substance outward. Maybe, from this moment time will flow back. Maybe in future humanity will be able to see black holes and to look in the center of our galaxy?

But if human will fall into the black hole? For example, it will act acceleration of 100 square meters per second to legs, and only 50 to head. Sensations are not very pleasant. If something falls to the black hole, it will disappear forever. However, nothing will happen. It will be in dark space, where no sounds and no light. As scientists assure, human, who fell into the black hole can live there infinitely long. Due curvature of time and space, the laws of physics in it stop working. How appear the black holes? Suppose, we have a star, in 20 times more massive than our Sun. Our Sun slow burns out; when nuclear fuel ends, Sun slowly becomes a white dwarf. However, in case with more massive stars, it does not happen. When the fuel ends, the gravitation suppress the natural pressure of the star and squeeze it inside. This is exactly how star black holes are formed.

Black Hole



White Hole

The Arctic in World Politics: Cooperation or Competition

Maleyka Ismailova

n recent years, there has been a steady interest in the world community to the Arctic region. The Arctic refers to the strategic regions of the world, the huge natural potential, which includes mineral and raw materials, fuel and energy, forest and biological resources. Many of the Russian and foreign authors in their works focus on the stocks of oil and gas, the importance of infrastructure development, reconstruction of transport routes and the prospects for the development of international cooperation. Special hopes associated with the development of the Arctic of hydrocarbon raw materials. According to the Geological management of the USA, in the Arctic are 90 billion barrels. oil, 47.3 trillion cubic meters of natural gas, 44 billion barrels.Condensate, which is about 25% of the undiscovered hydrocarbon reserves in the world. The Northern Sea Route (NSR) is an important transport artery not only for Russia but also for other countries. Finally, the Arctic has an impact on the environment throughout the world, including the climate in geographically remote regions and the level of the ocean. The modern geopolitical situation in the Arctic complicate the absence of effective international security regimes, disputes the five official Arctic states (Russia, USA, Canada, Norway and Denmark), as well as more and more active involvement in the Arctic policy of extra-regional States (the leading countries of Western Europe, China, Japan, the Republic of Korea, India) and a number of international organizations (NATO and the EU).

The U.S.

The Arctic coast of the United States passes through Alaska, on the shelf, which is about 31% of the undiscovered oil reserves throughout the Arctic, which is 27 billion barrels. Here is also intended to find gas but in much smaller amounts. American interests can be grouped into several blocks:

This is the military-strategic interests, among which the missile defences and early warning, strategic deterrence, the presence of the navy and marine operations and also freedom of navigation. It is to protect these interests if necessary, willing to act unilaterally.
 This is the internal security for the prevention of terrorist attacks or other crim-



Russian national interests and Arctic strategy

Economy

The high importance of the Arctic region in Russia's economy is determined by the fact that in recent years the AZRF provided about 11% of the national income of the Russian Federation. And this is despite the fact that live here only 1.95 million - about 1.4% of the population throughout the country. In the economy of the AZRF received the development of military-industrial and transport (the Northern Sea Route) complexes. the Arctic region is home to more than half of the Russian stocks of rare and rare-earth metals, minerals, ores and other raw materials of strategic importance. Platinum extracted in the Russian part of the Arctic, provide about 70% of the global consumption of palladium and over 20% of platinum. More than 60% of oil and gas resources of the entire Arctic falls on the territory, which already owns or on which, according to the norms of international law, the claims of Russia.

Transport

The Northern Sea Route provides functioning of the transport infrastructure of the state particularly hard-to-reach areas of the islands, the sea and the coast of the Far North, central areas of Eastern and Western Siberia, linking into a single system located inland waterways on the Siberian rivers

The Ecology

The ecology of the arctic nature is much more vulnerable compared with other regions of the world, therefore its economic development requires compliance with high environmental requirements for the protection and protection of the environment Russia and its foreign partners.A common problem for the whole of the Arctic region is the pollution of the environment resistant to decomposition of organic compounds and other substances that accumulate over the years in those territories. The traces of contamination are detected not only in the air, soil, water but also in marine organisms. inal actions that reinforce the vulnerability of the USA in the Arctic zone.

3. This is the politico-economic interests. First of all, they consist in increasing the presence and the revitalization, to ensure the maritime power of the United States in the Arctic. The highest national priority named freedom transarctic jetlag and freedom of navigation in relation to all of the Arctic, including the Northern Sea Route. The highest national priority named freedom lights and the freedom of navigation in relation to all of the Arctic, including the Northern Sea Route, which runs along the territory of the Russian Federation.

Norway

The basis of Arctic policy of Norway is program -"The Barents 2000",adopted in 2005 and representing the totality of scientific research projects on integrated study of prospects for the development of natural resources in the region, development of information

technologies, environment, health, the preservation of the identity of the culture of the different nations of the North and e.t.c

1) the approval of the Norwegian sovereign rights in the region,

the protection of the environment and the creation of conditions for the sustainable development of the region (special attention has been given to the environmental situation in Svalbard)
 the creation of favourable conditions for the extraction of energy resources in the waters of the Barents

Sea and the development of the business both in Norway in general and its northern regions in particular;

4) the preservation of life's environment and culture, traditions and culture of the indigenous peoples of the North as health care, education, culture, sport, youth exchanges, etc.);

5) the development of cooperation with Russia (especially in the field of ecology and natural resources of the Arctic) development of The natural resources of the Arctic)

Denmark

Denmark, as the official arctic state, is actively seeking to participate in the affairs of the region, including the protection of their economic and geopolitical interests in the Arctic.She managed to solve the problem in the relations with Iceland,however, the maritime boundaries between Denmark (Greenland), on the one hand, and Canada and Russia, on the other hand, and remain until the end of the unresolved. So, Denmark claims to a number of arctic territories between Greenland and the coastal islands which Canada considers it part of the province of Nunavut. The particularly acute conflict took place due to the small island ненаселённого Hans, located near Greenland. Since 1984, the two countries tried to demonstrate its sovereignty over the island. His visited the Danish and Canadian high-ranking officials, military ships and helicopters, each of the Parties established on its flags.

Finland

Finland has taken an active interest in the Arctic in the second half of the 1990s of the last century when it became clear that this region has great energy and transport and transit potential.

1. Finland is part of the Arctic region (more than one-third of its territory is located in the Arctic zone), so all the processes in the Arctic, relate directly to it.



 Finland has a unique experience and technology development of the Arctic, which can be demanded by other nations.
 Helsinki is interested in solving the problems of the indigenous peoples of the North around the Arctic region, as itself has such a population (Saami).

4. Finland is interested in addressing the rapidly accruing environmental problems in the region, as it directly suffers from the adverse effects of climate change and human activities in the Arctic.

5. Finland is interested in the full participation in the development of energy resources in the Arctic, as does not have the latest and largely depends on energy imports from Russia and Norway.

Sweden

Sweden, as a non-aligned country, however, a number of regional issues are even more rigid positions, than Norway. However, while formulated only the most general contours of the Arctic strategy of Stockholm.

Iceland

Iceland, although not formally, the arctic power, nevertheless actively seeks the recognition of its status as the Arctic and coastal State. Introducing a new Arctic strategy in Reykjavik at the international conference on the Arctic in Tromso, in January 2011, the Icelandic Minister for Foreign Affairs of O.Skarfedisson especially stressed that defending this status is an important priority for his country.

Conclusion

In recent years there has been a steady growth of interest in the Arctic as major regional players (the Arctic countries), and the leading powers all over the world and a number of influential international organizations (NATO, EU). Here concentrated enormous natural wealth, from the reasonable exploitation of which depends on the future of mankind. The Arctic has the prospect of becoming an

important transport corridor of world significance, as well as the aircraft flying from North America to Europe and Asia via the North Pole. The Arctic is of critical economic and military-strategic importance for Russia. Unfortunately, the socio-economic, demographic and environmental situation in A3P remains very difficult, and the civil and military infrastructure that does not correspond to the today's no, no, all the more so future needs. Need to be aware the report that, theoretically, any country

(China, India, Australia, Japan) may declare that the Arctic must be in common use. So that the Arctic will not remain "draw", and its division, most likely, will be based on the fact that real economic (and the military) presence in the region. At the same time, in the international political level in the Arctic has collected a lot of problems related to the environment, territorial disputes, the organization of the joint economic activities of States and effective mechanisms for their cooperation, sometimes the plight of indigenous peoples. Parties often tend to solve the accumulated problems conflict-power, not the politico-legal way. Increased pressure on Russia on such issues as the definition of the outer limits of the continental shelf section of the maritime territories, the development of oil and gas resources, the exploitation of biological resources, the access of foreign states to the Northern Sea Route. But until this region is most likely the subject of arivalry than cooperation between the various States and international organizations.

CRYPTOGRAPHY

The Casear Shift Cipher

No doubt that coding is important in the modern world but only few people know how it began. Jump inside the history of the first cipher which lays in the basis of nowadays cryptography. Salute favourite cipher of Roman imperator Caesar, named in his honor.

Mamedova Mayya and Bochkova Daria



KLJJV ERVRQ. Useless set of letters? No, it is the «Higgs Boson» coded by the Caesar shift cipher (ROT3 formula). The Caesar shift cipher is one of the oldest. Gaius Julius Caesar used it for secret correspondence, that's why it took his name. It refers to simple substitution cipher. The Caesar shift cipher is a modification of an affine cipher but based on more complicated replacement combinations. By the way, it is a type of monoalphabetic substitution cipher. The Caesar shift cipher consists 26 modifications, which was used by Julius Caesar himself. Originally, the numbers of modifications depended on 26 letters in Latin alphabet. The name of the modification, for example, «G» meant, that the first letter of alphabet, i. e. «A» changes on «G», «B» on «H» etc. Nowadays use a ROTN formula for coding. ROT is a reduction from «rotate», literally means «rotate needing amount of letters forward through the alphabet». N is amount of positions to which you should shift the letter in the alphabet to. For instance: ROT2 means shift on two positions, «A» goes to «C», «B» goes to «D» and in the end «Y» goes to «A», «Z» to «B».

In fact, for Russian language is possible only 32 different conventing, because conventing ROT0 and ROT33 do not coding texts and further there are only repeats. For decoding message ought to know how many positions letters were shifted. However, if you do not know amount of positions, so there are two the most popular ways of hacking:



1. Hacker understands that was used simple substitution cipher. He does not know what kind cipher it was. In that way, hacker hacks the cipher using fre-

quency analysis. Frequency analysis is the study of the frequency of letters or groups of letters in a ciphertext. The most using letter in English alphabet is «E». Frequency of letter «E» in ciphertext is very high. The main disadvantage is that it is suitable only for long messages, because short ones contane from small amount of letters. Find frequency of using in the ciphertext is impossible. 2. Hacker knows that the Caesar shift cipher was used, but does not know the value of N variable. The main thing is to know the language on which the source text was written. The small amount of shift options simplify the problem of hacking. Therefore, you only need to check all options.

As you know, more complicated ciphers basis on the Caesar shift cipher, for example Vigenère cipher. The Vigenère cipher is a method of coding basis on the letters of a keyword. In depending on the selecting key, the same letters in the text can be coded by different symbols.

Unfortunately, nowadays the Caesar shift cipher is not use cause of unreliable protection of information. Despite this, it had great influence on modern cryptography (study about codes, ciphers). Exactly the Caesar shift cipher is a base of enormous amount of codes, ciphers and combinations. Everything new is well-forgotten old.

setpost-

PHYSICS

The Invisible Coat: Myth or Reality

Pavel Sherstyuk

At first glance there are a lot of amazing things in the surrounding nature. Light is among them. It is common knowledge light can be reflected from a mirror. In general, light can be reflected from any kind of surface, but with a different refractive index due to its absorption (i.e. getting through the interface of the sections) by the reflecting surface.

Along with reflective surfaces, there are also refractors that pass through the light to a greater extent than reflect it (e.g. transparent surfaces such as glass, water, etc.). The refraction effect occurs when the light photons interact with the crystal lattice atoms. Influenced by the atoms the light deviates from the initial trajectory. The refractive index is used to denote the light deviation within material structures. The refractive index is positive within regular materials.

The key assumptions mentioned above raise the following question: is it possible to make an object (a certain "coat") round which the light will bend? So, the object will not be opaque, it will grow invisible. The answer is YES! It is metamaterial what is required for making the "coat". The material whose refractive index is that n e g - the state of the state ative can be used. This means that all light will be reflected or refracted at the opposite angle relative to the surface. Thus, having made of this material an absolutely flat circle, the light will bend around the content held inside. Unfortunately, the metamaterial comprises a structure which is as thick as one atom, and therefore it is impossible to "sew" the "coat". There is another obstacle on the way to making the "coat", i.e. the more the light is refracted, the more the dispersion effect is (the decomposition of light into the constituent waves identified as colors by the hu-

ot eye). Within the kind of the material mentioned above the light will be reflected and refracted more than once. So inside the shell of the metamaterial, any visible object will be

identified in the red spectrum color. Unlike other wavelengths of the spectrum, the red wavelength continues to move at the same angle as the light in its initial condition without deviating by one degree.

There is a way to create a tissue composed of a myriad of lenses that are perpendicular to the surface. This procures the required negative refractive in-

dex and does not contribute to the dispersion. The most successful of all is the experiment carried out by a group of scientists at the University of Berkeley. The scientists were able to create a nanostructure that is able to hide objects of the same size. Before carrying out the experiment the functional ability of such invisible "coats" was restricted by certain factors, e.g. some of them were able to hide only two-dimensional objects, others could function only with a limited viewing angle or only particular temperature. Previously, the scientists had already managed to create a similar device that covers up objects from heat waves. According to the physicists, the "coat" does not require using special devices, power sources or complex tuning systems. But it is impossible to create such kind of a large structure because of the absence of particular type of precision printers, whereas the "manual" construction is a

time consuming job. Even if we assume that someday we will be able to create a structure to be used in the macrocosm there will still remain one problem: if the light inside of the "coat" bends around, nothing will be seen from the inside.



HISTORY

All the cars of Formula 1

The first race of the «Royal racing»

ormula 1 is one of the most difficult races in the world. This kind of Motorsport is rightly called the "Royal". And it is absolutely right statement. Many racers make their lives' purpose a statement in this world Cup, and also they make an unattainable dream the position on a pedestal. Formula 1 cars are among the fastest in the world and can reach speeds of over 320 km/h. But was this race so prestigious in the beginning?

Barancev Michail

Formula 1 takes its roots back 50 years, and more specifically from championship auto racing Grand Prix. The decision on holding the championship has appeared in 1949 on the congress FIA. Then, that it was possible to call it the World Cup, have included in him besides 6 European Grand Prix also American "Indi-500", the truth she was formality, none of the European racers reached. The lack of wings became distinctive feature of race cars of the Formula 1 i.e. they have open wheels. By the way, interesting fact: initially cars in the Formula 1 weren't called race cars, this designation was attached to them thanks to the journalists who have compared cars to "low-flying race cars".

The first race of the Formula 1 has taken place on May 13 in 1950 in Great Britain on Silverstone Route. At the same time watched more than 200 thousand viewers a race, the king George IV, the Queen Eliz-

abeth, the princess Margaret and many others. In many respects because of it journalists have nicknamed the Formula 1 "royal races". Such teams as Alfa Romeo, Maserati, Talbot-Lago and English teams of ERA and Alta participated in a race. There had to be still Scuderia Milano, but her racer Felis Bonetto couldn't arrive. It should be noted what at that time according to regulations of places among was not 2 as now, but 4 or 3 depending on number of a row (if odd, then 4 and if even – 3). The first 4 positions on start were taken by racers of the Alfa Romeo team, namely Luigi Faghioli, Juan Manuel Fanjio, Reg Parnell and Giuseppe Farina. On the 2nd row there was not who other as the prince of Siam (which is nowadays called Thailand) on Maserati and two race cars from Talbots which were operated respectively by Yves Giraud-Cabantous and Eugène Martin. In the 3rd number of a peleton

two cars from Maserati operated by Tulo de Graffenridom and Pole Luís Chiron have settled down. Also there have settled down Luís Roizer who operated a race car from Talbot and Peter Walker going by the representative of the ERA company (The English racing cars). Other places were distributed between representatives of the English company on creation of Alta, Maserati and Talbot-Lago racing cars. And here the start has been given. Giuseppe Farina has got into the lead at once. On a tail at him team mate Luigi Faghioli and Manuel Fankhio sat. On early circles they constantly changed positions among themselves, but then there was unforeseen: at Juan Manuel Fanjio the engine has broken and he had to withdraw and leave a race. As a result without having encountered special resistance Farina has finished arrival on the first place thereby having won the first in the history of the Formula 1 Grand Prix. On the 2nd place there has arrived Luigi Faghioli, having lagged behind the winner for 2,5 seconds And here on the 3rd place unexpectedly for all there was Reg Parnell. Yves Giraud-Cabantous was his closest rival, but he has lagged behind on 2 circles. Thus all prizes in the first race of the Formula 1 were taken by the Alfa Romeo team. Only one pilot of this team remained in not destiny. It was Fankhio. But I think to him it wasn't necessary to be upset, in the future this young Argentinean will become known as the five-time world champion. However it another story altogether.

Chinese Characters: Long Tradition of Art

Efimov Fedor

When one gets a first look at Chinese characters, he might think that those are just randomly drawn strokes. But in fact there's no randomness in them, in this seemingly disorder of lines. Every stroke has a hidden sense and inner meaning. The very first characters were inscribed on tortoise shells, these ancient type of scripts are called Jiaguwen (甲骨文). These jiaguwen characters are in essence no more than just a simple drawings of things. Later people began to inscribe characters on bronze ware, as cups, pots or bells. As one can guess, these type of characters were called Jinwen (金文), literally "metallic characters".

As time went by, more and more characters were invented. Too many characters meant more difficulty for learners. Therefore, the Chinese began to combine different type of characters together. By that characters-learners were now able to understand either pronunciation or meaning of characters. Thus new type of characters, Xingshengzi (形声字) were born. Xingshengzi are currently the most widely used type of characters, they consist of two parts – first part giving broad meaning of a character, second part implying the pronunciation.

Chinese characters can be written in a variety of styles. Take for instance zhuanshu (篆书) – official writing style of Qin era (770BC – 221 BC). This style was used in official documents; it falls into two subcategories, namely xiaozhuan (小篆) and dazhuan (大篆). They differentiate ny usage, the latter being used in the most official documents.

Another style is Lishu (隶书). Charters in lishu are written in a more square way. Characters should be written according to strict rules and very precisely. Lishu is derived from from zhuanshu.

In 1950-s People's Republic of China decided to simplify characters. The purpose of that move was to make characters-learning easier for mostly illiterate population of the country. Some characters with several dozens of strokes and complicated history were "reduced" to just several combination of lines. For instance character "book", shu was simplified from 書 ti simple 书。

Thus there's a difference between the traditional characters, still in use in Hongkong, Taiwan and Macau, and simplified characters, now used in China's mainland.

First attempt at writing

Ediev Dalkhat

Khomyachenko Yaroslava

want to talk about Ediev Dalkhat. He is a scientist with a world name. Dalkhat counts the number of people in a country or in a city.

In 5th or 6th grade his mother bought the book "A Storm of absolute zero". It's about scientists who made the lowest temperature (-273 degrees). He liked the work of scientists, and Dalkhat decided to become one. Only he does not make the lowest temperature, but with the help of mathematical methods Dalkhat explores how the amount of people varies, how many were born, how many died, how many moved. This science is called Demography. At conferences he travels to different countries such as Japan, Turkey, USA, Morocco and many others. He likes it when people are improving their lives and treat each other well. In childhood Dalkhat dreamed of becoming an astronaut, then a soldier and in the end a scientist. All think, that the day of a scientist means doing every day a new discovery, but it's not true. At first, you dismantle the paper, then communicate with people, then make calculations and then write and read a scientific article. Dalkhat advises to children to learn different languages, study math, read books and learn to program.



TRAVELING WITH SKYPE-A-THON

We went to

- India (Bangalore and Ghaziabad)
- Lebanon (Beirut)
- **Spain** (Valencia)
- Cyprus (Nicosia)
- London (UK)

• Israel (Tel Aviv) Our students learnt a lot about traditions in these countries and told our new friends about Russia and symbols of our country. Mystery Skype is fascinating not only for children but also for teachers. This November our class had an opportunity to participate in the international event Skype-a-thon. The pupils of our class did not even expect that they will have such an interesting and informative science lesson. We were waiting since the beginning of the academic year, because we were told about this at the first lesson, and we were "scratching their hands" to take part in this action.

Kira Temereva

WHAT AN AWESOME JOURNEY STUDENTS AND TEACHERS HAD IN THESE TWO DAYS!

Egor Lopatin: Is there a problem in that the user being in comfortable conditions of using convenient technologies, tools, devices, loses the motivation to make something new and creative, the need to invent and create reduces?

Lisa Genberg: Why do you think programmer is considered a male profession? Kirill Ushakov: What annoys you about nowadays society? Sergey Shatrov: When I get older, I want to be a successful person like you. And I decided to start from scratch, so I wanna ask – what do you eat for breakfast?

Maxim Soloviev: Microsoft monitors popularity of its educational programs constantly. Which of all the programs are the most popular among users? Maya Mamedova: What is your favorite song right now? Students from schools in Nicosia programmed a robot, that also asked Anthony. The most interesting thing was that everybody could speak only in English



Even before the class, we started to come up with leading questions, because of the purpose of the action – to guess which country their teacher called.



The rules of the Mystery Skype are as follows: A class from one country calls the class from another by Skype. They take turns to ask each other the questions to which only "Yes" or "No" can be answered. For example: "Is it cold in your country?" or "Do you have access to the sea?" According to the answers of another class, it was necessary to guess what country they are from.

As a result, our "opponents" were pupils from the countries of Bahrain and Czech Republic. They were about the same age as us. Also our teachers prepared for us a game Kahoot in English, and we played with great pleasure. We did not expect that two countries can play Kahoot with each other!

The New Step in Civil Aviation

Maxim Kotov

History of this plane started in 2004 when Boing announced a Dreamliner. For that moment airbus regarded this jet as another attempt to be ahead a330. After that airbus announced a330lite, but having hold talks with potential clients they realized that common improvements were not enough and they worked out a completely new model.

Finally, airbus announced a completely new model a350xwb. Xwb is an official name for the new model and it was allegedly copied from Boing. This means that the plane has an «extra wide body» thus you will not have to make your way with the elbows when a lunch is being served on board. Englishmen were responsible for engines, Shark lets were Americans' business, BMW designers worked out the design of the plane.

On the 14-th of July 2013 the first a350-900 took off. The plane was tested in several countries, in some of them the temperature varied from -40 to +45. In 2014 the model was given a certificate. You don't have to worry if something happens to one of its engines during the flight, the plane will be able to be in the air for six and a half hours since the moment the problem arose. The first commercial flight took place in 2015 and was carried by Qatar airways from Doha to Frankfurt. By the spring of 2016 sixty two planeswere in use. Moreover, this plane is made of 86% of carbon materials. That makes it lighter than others thus it requires less fuel. It will lead to cheaper tickets and less air pollution. The wing of this plane is made totally of carbon and thus it is cold a «black wing». This is the largest wing one storey planes have. This plane is used in three modifications: a350-800,a350-900xwb, a350-1000xwb.

A330neo

The history of this plane started in 2004 when Boing announced a new Dreamliner. It was when they made their mistake but later airbus realized it and announced a350xwb.After that they gave up that model. In 2010 Airbus announced a new plane airbus a320neo. While working on this model the research was carried out and it proved that even a low budget modernization may lead to profound changes in the model. Thus a notion «neo» came to life. On finishing a320neo project airbus came down to modernization a330neo. However, one may wonder why we need a330neo if we have a Dreamliner and a350xwb. The answer is all those new planes are aimed at long distance flights while the planes aimed at medium distances are in great demand. A330neo is designed to cover medium distances. Moreover, a330neo is comparatively cheaper and clients make get it quicker than a Dreamliner.

There are several reasons to try this model:

- There is the best noise insulation in this model and the engines noise won't interfere with your rest or activities.
- The tickets for a330neo flight are cheaper as prefix «neo» means that engines of this model require less fuel.
- This plane is the quickest of all and thus it can reach the destination quicker than others.

Do you know what Shark lets are used for? They can be seen on the wings of every plane. Shark lets look like real sharks` fins and are designed to decrease fuel consumption by 15%. Have a nice flight!





Press Review of the Conference

International Scientific Practical Conference "Scientia Unescamus" opens on the 23th of March, 2018 in Moscow

Scientific Practical Conference "SCIENTIA UNESCAMUS" is held once a year and is considered to be a comprehensive programme to support talented students and youth, a form of interaction of educational establishments, students, teachers and scientists **from Russia and foreign countries**. The Conference is an inclusive event because it provides participation to the children with disabilities and special needs. The main targets of the Conference are to reveal and support talented students and youth and to draw attention to **the development of the intellectual potential of society**. Every year at the Conference is attended by teachers, students, scientists and experts from Romania, Spain, the Netherlands, Abkhazia, China, Latvia, Kazakhstan, Great Britain, USA and other countries. Since 2012, in the activities of the Conference is to create joint international projects, cooperation and collaboration between teachers and students from different countries.

Preparation and holding of the Conference are performed by Moscow State Budgetary Educational Institution High School №1517 with **the direct support of the Moscow Department for Education**, as well as the sponsorship of companies Microsoft, Dell, CROC and many leading universities of Moscow.

During the Conference two main events are organized:

• Contest of Scientific Research and Project Works "SCIENTIA UNESCAMUS"

• Robotics Competition

• Cinema Festival of Children's Short Films "GymCinFes-1517"

The programme of the conference also includes presentation of key reports, plenary and parallel sessions, holding creative workshops and studios, meetings and discussions.

Participation in all Conference events is free. Students are provided with meals and accommodation for free. Teachers are provided with meals for free and placed in a specially accredited budget hotel at their own expense.

Participants of the Conference are schoolchildren and students from Russia and foreign countries, teachers, scientists and specialists in various fields of knowledge. Evaluation and expertise of students' works are conducted by the Expert Council which involves professionals in all fields according to the sections. Arrangement and holding of the Conference correspond to the goals indicated in the state program "Moscow Education" for 2012-2016. All the details regarding registration procedures and rules of the contest and festival (Regulations on the Conference and Regulations on the Cinema Festival) are on our site - www.c.gym1517.ru

We are available at any time to offer you information at our e-mail addresses: higgsa@mail.ru or on the tel. +79175921643 +79067132625. The opening ceremony is on the 23rd of March, 2018. The Conference is taking place for 3 days: 23, 24 and 25 March. Venue: Moscow, Zhivopisnaya Street,11/1, High School (Gymnasium) №1517. Time: 10.00 a.m. (registration 9.00 a.m.)

The Organizing Committee of the Conference:

Head of the Organizing

Committee

Conference Director "SCIENTIA UNESCAMUS"

Elena Davydova-Martynova dmei@gyml517.ru +79067132625 Maria Zyuzyukova zyzykova@gyml517.ru +79175921643 Head of the Film Festival

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