ICT for users

(план занятий вариативного курса по информатике)

Тулегенова Айнагуль Токсиитовна
учитель информатики
КГУ "Октябрьская общеобразовательная школа"

Explanatory note

In a rapidly changing world and increasing information flows, fundamental subject knowledge is an obligatory, but not sufficient, goal of education. Students should not just master the amount of knowledge, skills and skills. It is much more important and more difficult to instill in students the ability to independently extract, analyze, structure and use information effectively for maximum realization and useful participation in the life of society.

To solve the tasks set, the following is necessary: to transform the content of education from a knowledge-centric to a competent, result-oriented; strengthen language and information training of students.

In this connection, it seems that the transition to the teaching of subjects (both individual and whole cycles) in English - the language of international communication - is necessary and appropriate to the requirements of the time, reasonable and absolutely logical.

Such an approach is rational, first of all, apparently for the objects of the natural cycle, because they use the sign system and a huge number of words that do not have special translation in Latin.

This course is intended for students of 8 classes of general education schools. The proposed program of the course of physics is compiled in accordance with the mandatory minimum content of secondary (full) general education, meets the requirements for the level of training graduates.

The aim of the course is to form the basis of the scientific world outlook for students through the use of the English language, cognitive interests, intellectual and creative abilities, critical thinking based on knowledge and skills obtained in the study of natural phenomena, familiarity with the basic laws of physics, their application in technology and everyday life.

Course Objectives:

- To form the skills of translation, reading using basic strategies, speaking, listening and writing, to talk about the practical work done in English, to understand the instructions, both printed and through listening, to make short reports about the course of your own experiment;
- To form skills of independent, individual, pair and group work.

Criteria for selecting the lesson material

• Multimodality and variety of materials (real objects, diagrams or models, oral explanation of the teacher, etc.);
• The amount of material;
• Visibility;
• Knowledge of subject vocabulary and terminology by students;
• Accessibility of the material for perception.

Methodical recommendations for lesson planning.

To implement the goals and objectives of this course, it is proposed to use the method of language-based integrated learning (CLIL).

The CLIL lesson includes the following components:

Content is the knowledge, skills, and skills of the subject area that are progressing.

Communication (communication) - the use of foreign language in training, with emphasis on its use.

Cognition is the development of cognitive and cognitive abilities that form a general representation (concrete or abstract).

Cultural (cultural knowledge) is the provision of oneself as a part of culture, as well as the awareness of the existence of alternative cultures.

When planning a lesson, the following points should be considered:

• The CLIL lesson is not a foreign language lesson, but a substantive lesson in a foreign language.
• Auditing is one of the most important types of speech activity when learning the language.
• Reading is the main kind of speech activity, reading materials should make sense.
• Speaking is a type of activity in which it is necessary to focus on clarity of presentation, simplicity and fluency, while grammar fades into the background.
• Writing - an activity through which lexical and grammatical skills develop.
• The lesson should be based on texts (printed, or audio recording).
• The language components of the lesson depend on the subject.
• Lexical material is more important than grammatical.
• The tasks set in the lesson depend on the student's level of preparation.

- The structure of the lesson.
- The lesson is organized according to a four-stage scheme:
- 1. Text processing.
- 2. Awareness and organization of acquired knowledge.

Свидетельство о постановке на учет периодического печатного издания, информационного агентства и сетевого издания №KZ93VPY00020180 выдано Комитетом информации Министерства информации и общественного развития РК 11.02.2020 г.

- 3. Language understanding of the text.
- 4. Tasks for students.
- Tasks for students depend on the level of students' preparation, on the tasks of instruction, and on the preferences of students. A sample list of tasks:
- draw up a chart, table, map, etc.
- fill in the table
- find specific information
- find the match
- place the paragraphs in the correct order
- define the procedure
- fill in the blanks in the text
- problem posing: question-answer, term-definition, part-whole
- tasks to search for specific information
- games in which you have to guess the words
- write questions on the text
- oral presentation of the work.

Expected results:
Students should be able to:
- use the methods of scientific investigation of natural phenomena
- apply theoretical knowledge in solving life problems in various fields of activity;
- describe and explain information phenomena;
- draw conclusions from the listened material with contextual prompts;
- to formulate simple questions based on the material heard;
- convey the main idea of the text;
- to anticipate the content of the text with the help of headings, photographs, keywords, excerpts on a familiar topic;
- ask simple and complex questions for obtaining specific information and responding to them;
- interact with students (in pairs, in a group) to complete assignments;
- fill out tables, diagrams, schemes, questionnaires, forms;
- make notes on the text in accordance with the communicative task.

Course Content
Introduction (3)
What is ICT? Components of ICT. ICT in our life.
Hardware (5)
External HW. Internal HW. The most common hardware. HW upgrading. Where can I buy computer hardware?
Software (4)
Examples and types of software. System software. Application software. Freeware, shareware, open-source ware, software.
Data (5)
What is data? Types of data. Picture. Sound. Video.
Internet access (3)
Internet in Kazakhstan. Global internet access. Broadband internet access.
Cloud computing (3)
What is cloud computing? Three types cloud computing. Using cloud computing.
Communication technology (5)
Communication systems. Computer technologies. Graphic communications. Photographic communications. Multimedia communications.
Transactions (4)
What is transaction? Transaction facts. Types of transactions. Online vs traditional shopping.
The future of ICT (2)
Can technology solve our big problems? How to fight cyberbulling?

The curriculum-thematic plan of the course
Учебно-тематический план курса

№	Theme	What is being studied	The student will	Number of hours	Date
Introduction (3)					
1	What is ICT?		- Describe	1	
2	Components of ICT		- Describe usage of thermal expansion in temperature measurement; - Use different temperature scales (Kelvin, Celsius); - Describe ways of changing of internal energy.	1	
3	ICT in our life.		- Compare different types of heat transfer; - Tell examples of heat transfer in daily life and industry; - Tell examples of adaptation of living organisms to different temperatures.	1	

Свидетельство о постановке на учет периодического печатного издания, информационного агентства и сетевого издания №KZ93VPY00020180 выдано Комитетом информации Министерства информации и общественного развития РК 11.02.2020 г.

Hardware (5)					
4	External HW.		- Determine heat lost and heat given during heat transfer; - Explain physical meaning of specific heat capacity.	1	
5	Internal HW.		Apply formula of heat of combustion to solve problems.	1	
6	The most common hardware.		Apply equation of heat balance to solve problems.	1	
7	HW upgrading		- Use Molecular-Kinetic Theory to describe melting and freezing; - Apply formula of freezing/ melting for problem solving.	1	
8	Where can I buy computer hardware?		- Use Molecular-Kinetic Theory to describe boiling and condensation;	1	
Software (4)					
9	Examples and types of software.		- Analyze temperature-time graph of melting and freezing; - Analyse temperature-time graph of boiling and condensation.	1	
10	System software.		- Determine amount of heat during boiling; - Explain dependence of boiling point on external pressure.	1	
11	Application software.		- Explain the first law of thermodynamics.	1	
12	Freeware, shareware, open-source ware, software.		- Describe transformations of energy in heat engines; - Explain working principles internal combustion engine and steam turbine.	1	
Data (5)					
13	What is data?		- Determine efficiency of heat engine; - Propose methods to increase efficiency of heat engines.	1	
14	Types of data.		- Estimate the effect of heat engines on ecology of environment.	1	
15	Picture.		- Characterize electric charge; - Explain charging by friction and induction; - Give examples of positive and negative effects of charging; - Explain charging by rubbing, induction and contact.	1	
16	Sound.		- Explain law of conservation of charge; - Apply Coulomb's law for problem solving.	1	
17	Video.		- Explain physical meaning of "electric field" and determine its dynamics characteristics; - Calculate force applied on charge by electric field; - Show electric field by using electric field lines.	1	
Internet access (3)					

Свидетельство о постановке на учет периодического печатного издания, информационного агентства и сетевого издания №KZ93VPY00020180 выдано Комитетом информации Министерства информации и общественного развития РК 11.02.2020 г.

18	Internet in Kazakhstan.		- Explain physical meaning of electric potential and potential difference.	1	
19	Global internet access.		- Describe structure of capacitor and its function.	1	
20	Broadband internet access.		- Explain conditions for production of electric current.	1	
Cloud computing (3)					
21	What is cloud computing?		- Use schematical drawings of elements of electric circuit to draw electric circuit; - Explain physical meaning of voltage and its unit of measurement.	1	
22	Three types cloud computing.		- Apply Ohm's law for part of electric circuit for problem solving.	1	
23	Using cloud computing.		- Explain physical meaning of electric resistance and its unit of measurement; - Apply formula of resistivity for problem solving.	1	
Communication technology (5)					
24	Communication systems.		- Design complex electric circuits (that have series and parallel combination of resistors) by using Ohm's law.	1	
25	Computer technologies.		- Apply formulas of electric power and electric work for problem solving.	1	
26	Graphic communications.		- Explain properties of magnetic field; - Determine direction of magnetic field of straight wire and solenoid; - Describe magnetic phenomena in nature.	1	
27	Photographic communications.		- Describe the effect of the magnetic field on current carrying wire; - Explain the structure and working principles of an electromotor and electric devices; - Describe electromagnetic induction; - Give examples of electricity production in the world and in Kazakhstan.	1	
28	Multimedia communications.		- Graphically represent solar and lunar eclipses.	1	
Transactions (4)					
29	What is transaction?		- Experimentally determine relationship between the angle of incidence and the angle of reflection; - Explain and give examples of regular and diffuse reflection; - Plot image in plane mirror and list its properties.	1	
30	Transaction facts.		- Apply the law of refraction for problem solving; - Draw a ray diagram in rectangular prism.	1	
31	Types of transactions.		- Apply the formula of a thin lens for problem solving; - Apply the formula of a magnification of lense for problem solving; - Draw a ray diagram of the image in a thin lense and list properties of the image.	1	

Сетевое издание SEVIBA: Образование | SEVIBA.KZ
Свидетельство о постановке на учет периодического печатного издания, информационного агентства и сетевого издания №KZ93VPY00020180 выдано Комитетом информации Министерства информации и общественного развития РК 11.02.2020 г.

32	Online vs traditional shopping.		- Apply the formula of a thin lense for problem solving; - Draw a ray diagram of the image in a thin lense and list properties of the image.	1	
The future of ICT (2)					
33	Can technology solve our big problems?		- Describe the correction of myopia and hyperopia.	1	
34	How to fight cyberbull-ing?		- Describe and explain physical phenom-ena; - Apply theoretical knowledge in solving life problems in various fields of activity; - Establish relationships between physical quantities.	1	
	Total			34	

Sources for the teacher
Источники для учителя
1. Концепция развития иноязычного образования Республики Казахстан. – Алматы: Казахский университет международных отношений и мировых языков, 2010.
2. Послание Президента Республики Казахстан Н.А. Назарбаева «Новый Казахстан в новом мире» (Астана, 28 февраля 2007 года).
3. Государственная программа развития образования Республики Казахстан на 2011-2020 годы // Издание официальное. – Астана, 2010.
4. Дорожная карта развития трехъязычного образования на 2015-2020 годы. Утвержден совместным приказом и.о. Министра образования и науки Республики Казахстан от 5 ноября 2015 года № 622, Министра культуры и спорта Республики Казахстан от 9 ноября 2015 года № 344 и Министра по инвестициям и развитию Республики Казахстан от 13 ноября 2015 года № 1066.
5. Интегрированное обучение английскому языку и учебным предметам ЕМЦ (информатика, физика, химия, биология, естествознание). Учебно-методическое пособие. – Астана: НАО имени И.Алтынсарина, 2016. – 111 с.
6. Ирсалиев С.А., Карабасова Л.Ч., Мухаметжанова А.З. и др. Организация обучения на трех языках: международный опыт и рекомендации для Казахстана. - АО «Информационно-аналитический центр», Астана, 2017.
7. Лалетина, Т. А. Интегрированный подход и использование предметно-языковой интеграции при обучении иностранному языку /– [Электронный ресурс]. – Режим доступа: http://elib.sfukras.ru/bitstream/2311/8574/1/3_Laletina_T%5B1%5D.A.pdf.
8. Лаптева, Т. Г. Некоторые аспекты использования методики CLIL при обучении иностранным языкам. - Интерэкспо ГЕО-Сибирь-2012: VIII Междунар. науч. конгр., 10-20 апр. 2012 г., Новосибирск: Междунар. науч. конф. «Геопространство в социальном и экономическом дискурсе»: сб. материалов в 2 т. – Новосибирск: СГГА, 2012. – Т. 1. – С. 231–233.
9. Локтюшина Е. А. Иностранный язык в профессиональной деятельности современного специалиста: проблемы языкового образования. Волгоград: Перемена, 2012. 176 с.
10.Мартынова М.В. Интегрированное обучение. Педагогические технологии. типы и формы интегрированных уроков. Методические рекомендации. http://ido.tsu.ru/ss/?unit=199
11.Нуракаева Л.Т., Шегенова З.К. Методические рекомендации учителям по использованию метода предметно-интегрированного обучения (CLIL). - Астана. - 2013.
12.Предметно-языковое интегрированное обучение [Электронный ресурс]. URL: http://www.britishcouncil.org/europe/our-workin-europe/content-and-language-integrated-learning-clil.
13.Что такое CLIL? [Электронный ресурс]. URL: https://sites.google.com/a/xtec.cat/clil-principles/what-is-clil)
14.Bridges, D., &Sagintayeva, A. Introduction. In D. Bridges (Ed.), Educational reform and internationalisation: The case of school reform in Kazakhstan. – Cambridge: Cambridge University Press, 2014. – pp.xxii-xIii.
15.Kruzhkova, Y., &Fiersova, Y. About realization of the politics of polylingual education implementation in the Republic of Kazakhstan, 2009.http://www.rusnauka.com/17_APSN_2009/Pedagogica/47819.doc.htm8. (дата обращения: 01.07.2015 г.).
16.Smagulova, J. Language policies of kazakhization and their influence on language attitudes and use // The International Journal of Bilingual Education and Bilingualism. – 2008. – №11(3-4). –pp. 440-475.

Свидетельство о постановке на учет периодического печатного издания, информационного агентства и сетевого издания №KZ93VPY00020180 выдано Комитетом информации Министерства информации и общественного развития РК 11.02.2020 г.

Sources for the students

Источники для учащихся

1. Karabatyrov A., Baieshov A., Duiseyev Y. and others Physics. Grade 8.- Almaty: Астана-кітап, 2017.
2. Bazarov Y., Mirzakhmedov A., Tussyubzhanov A. Terminology. - Almaty: Астана-кітап, 2017.
3. Bryan Milner Core Physics, -Cambridge University press, 2017.
4. Дубровин М.И. Рассказы в картинках на английском языке. - Москва, Государственное учебно-педагогическое издательство,1961.
5. https://phet.colorado.edu
6. http://englishon-line.ru

Сетевое издание SEVIBA: Образование | SEVIBA.KZ
Свидетельство о постановке на учет периодического печатного издания, информационного агентства и сетевого издания №KZ93VPY00020180 выдано Комитетом информации Министерства информации и общественного развития РК 11.02.2020 г.