EDU FUTURE 7W Educational Platform

Case-lesson "Smartphone means everything to me"

Section: Science, Nature and human

The level (grade): 7-8

Subject: Applied science

Objective: To systematize multi-vector knowledge which is used in the design of mobile phones.

What kind of information is there waiting for me?

- How do mobile phones work?
- Why is it called a cellular mobile communication?
- Why do some airlines ask passengers to turn off their cell phones?
- How are physics, chemistry and mathematics involved in the design of the phone?
- What type of fundamental and practical knowledge will be useful for me?
- How do I calculate the probability of my phone?
- How do you find a profitable mobile plan?
- How does the cell phone affect a human?

10 scans for objects, phenomena and practices:

Physics	Chemistry
Technology	Math
Internet	Business
Psychology	Artificial Intelligence
Cinema	Fashion

Introduction

Today, a smartphone is a gadget that no modern man can do without in the world based on technologies.
The smartphone has many useful and interesting features. Some of them we use on a daily basis, while others can be used not so often.

When we look at this small device it is hard to imagine how it can contain hundreds of different gigabytes of data!
Being a part of our life the smartphones highlight technological progress and innovations. The latest discoveries and breakthroughs are implemented in our gadgets. At the same time, users' demands and expectations push scientists and inventors to constantly search for new solutions and opportunities.

Which problem is the most crucial for millions of people in using smartphones? One can say that this is a battery, quickly recharged and long lasting.

Although, the size of the new device does not fit the smartphone yet. But it is a matter of time and further work of scientists, engineers and inventors.

And, what do you think of this opportunity to recharge your smartphone in a few seconds or to do it even from air?

Physics

Your mobile phone is based primarily on the radio. Principles of radio communications are the following. The variable high frequency electric current, which is created in the antenna transmitter, causes the space around the antenna to produce high frequency electromagnetic waves. When the waves reach the receiver antenna, they induce in it an alternating current of the same frequency at which the transmitter operates.

To deliver high sound vibrations, they alter or modulate the electrical oscillations using low frequency (audio frequency). This method is called amplitude modulation.

At the receiver, modulated high frequency vibrations produce low-frequency vibrations. This conversion process is called signal detection. The resulting detection signal corresponds to the audio signal, acting on microphone transmitters.

Which means , we have the string "sound vibrations – electromagnetic waves – sound waves."
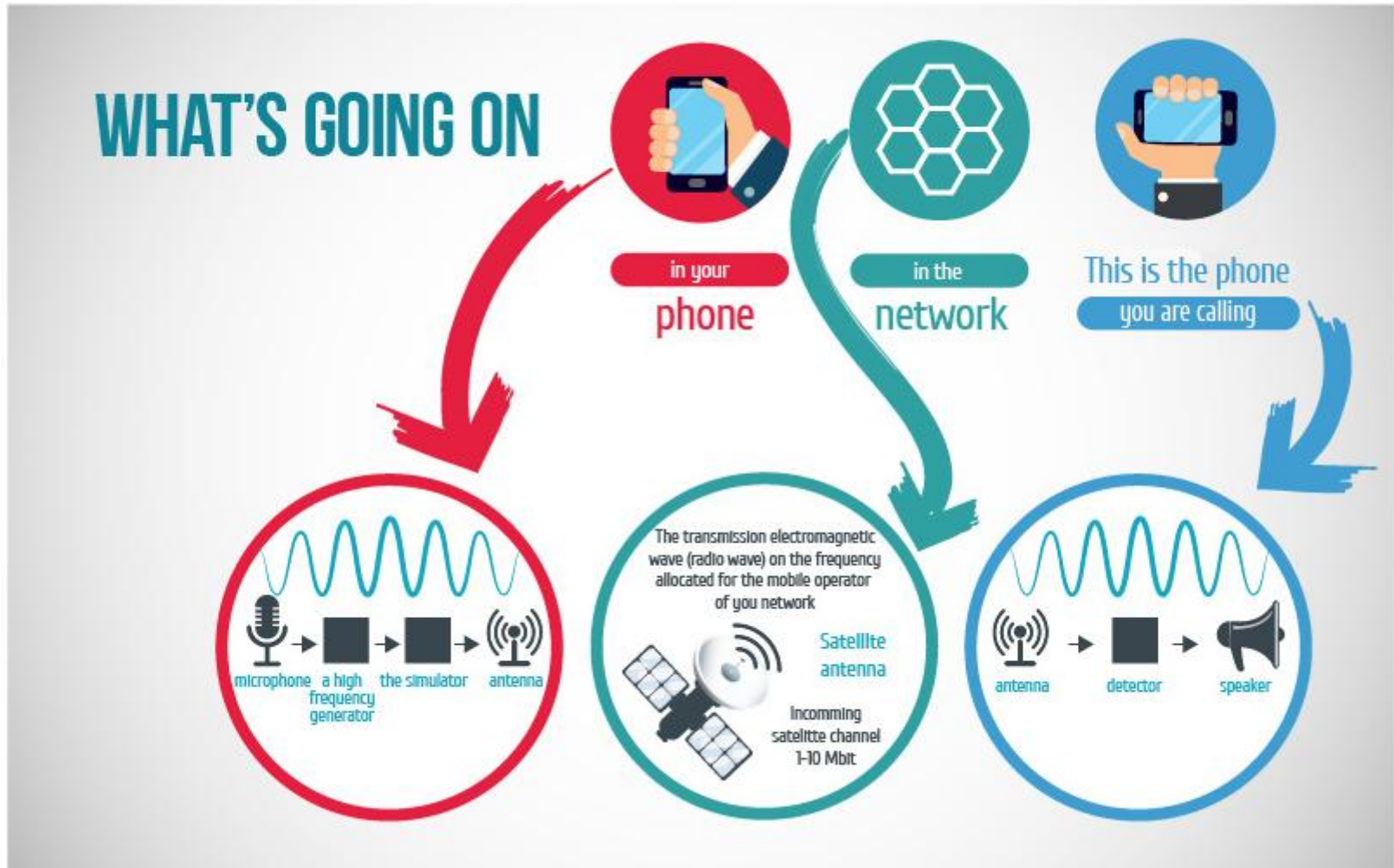
The main elements of the network are handsets and base stations. The antenna base station is divided into several sectors, each of which it has directed at its side.
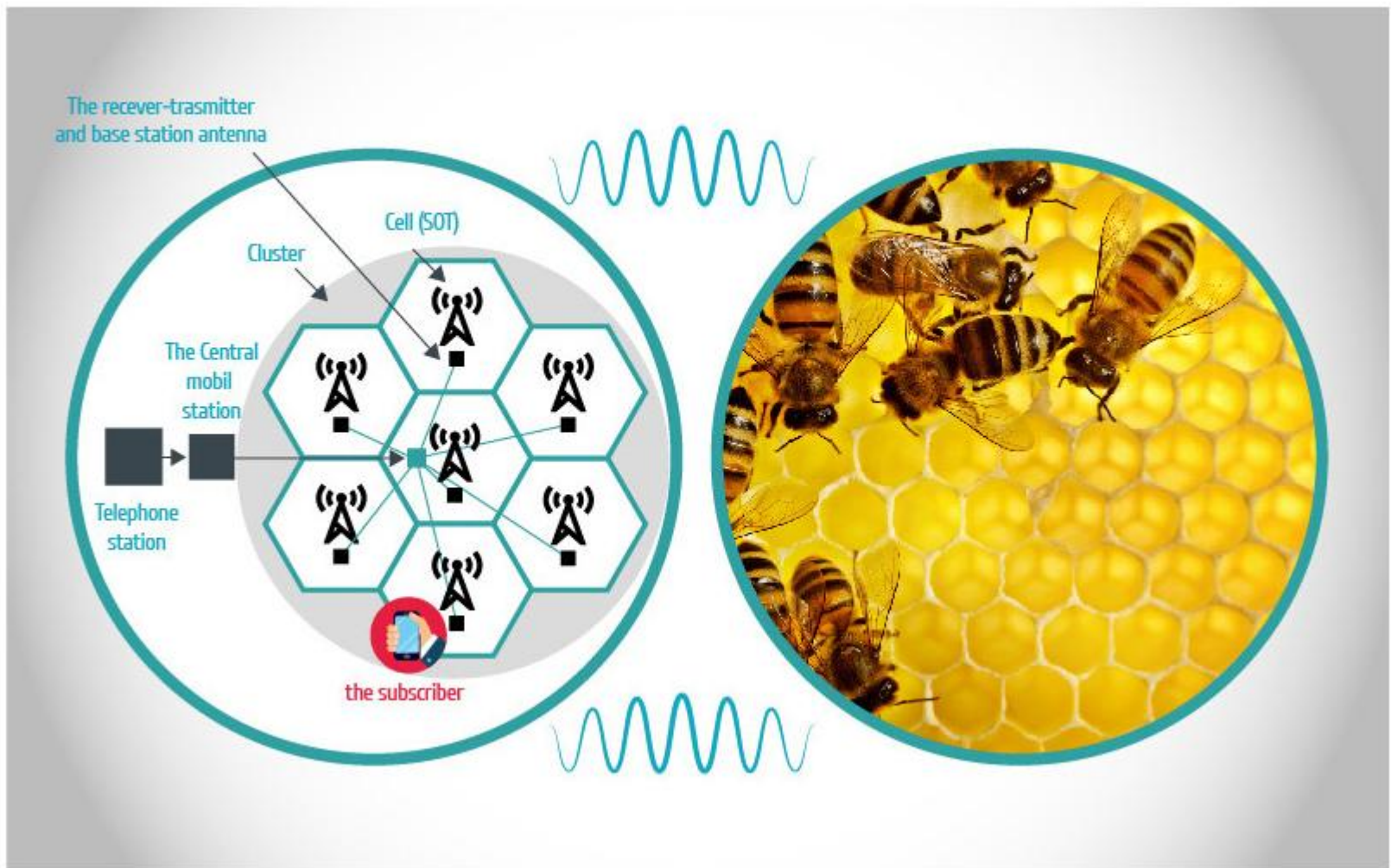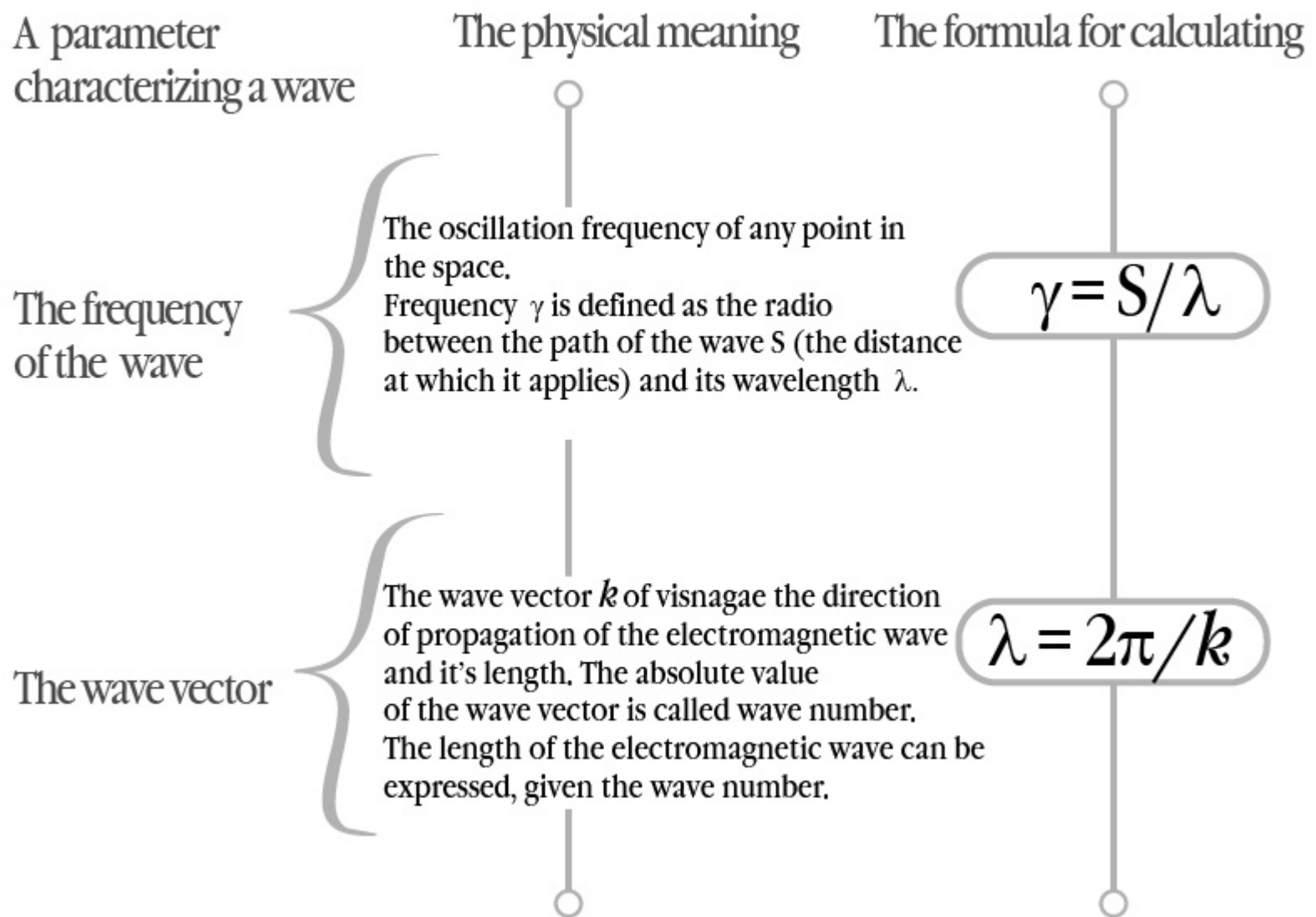

Mobile telephony is a type of modern mobile radio. Its peculiarity is that the entire coverage area is divided by the coverage of individual base stations (BSS). In a perfect flat surface without buildings covering from one station in a circle. But these overlapping circles have formed hexagons – cells. That's why mobile phones are also called cellular.

We do not even notice the work which our mobile is "busy" with when we use it or leave it idle. When switched on, the phone listening airwaves are seeking the alarm base station. Finding the station, the phone sends a unique identification code to it. The station and the phone constantly communicate. Communication can be both digital and analog. The range of such station is 35 km. The phone can measure the signal strength from 32 stations simultaneously, switching to those from which the signal is stronger.

Operators have agreed among themselves, a subscriber out of range of your network can switch to another. So, this is how roaming works.

Mobile (cell) phones work by electromagnetic waves. Electromagnetic wave propagation is the process of electromagnetic interaction in space as variables connect by electric and magnetic fields. Its most important characteristics are the frequency and length. Frequency characterizes not only separate channels, but the entire network. The wave vibrations propagating through space point towards an "advancement" wave: the same point in space, moving, creating a wave. This movement in physics is called forced oscillations.

An important feature of the network is the frequency and wave vector.

A parameter characterizing a wave	The physical meaning	The formula for calculating
The frequency of the wave	The oscillation frequency of any point in the space. Frequency γ is defined as the radio between the path of the wave S (the distance at which it applies) and its wavelength λ.	$\gamma = S/\lambda$
The wave vector	The wave vector k of visnagae the direction of propagation of the electromagnetic wave and it's length. The absolute value of the wave vector is called wave number. The length of the electromagnetic wave can be expressed, given the wave number.	$\lambda = 2\pi/k$

Depending on the frequency, the electromagnetic waves belong to one of the spectral ranges.

Waves in various different bands interact with physical bodies. Waves with the greatest frequency are radioactive radiation with a frequency of up to tens of nanometers. Waves used for radiography, with a length of hundreds of nanometers - are ultraviolet radiation. Visible light falls in the range of 400 to 700 nm.

Millimeter and centimeter ranges - are infrared waves. The longer wavelength belongs to radio waves.

0,01 nm   1 nm   100 nm   1 mm 1 cm   1 m   1 km

400 nm   700 nm
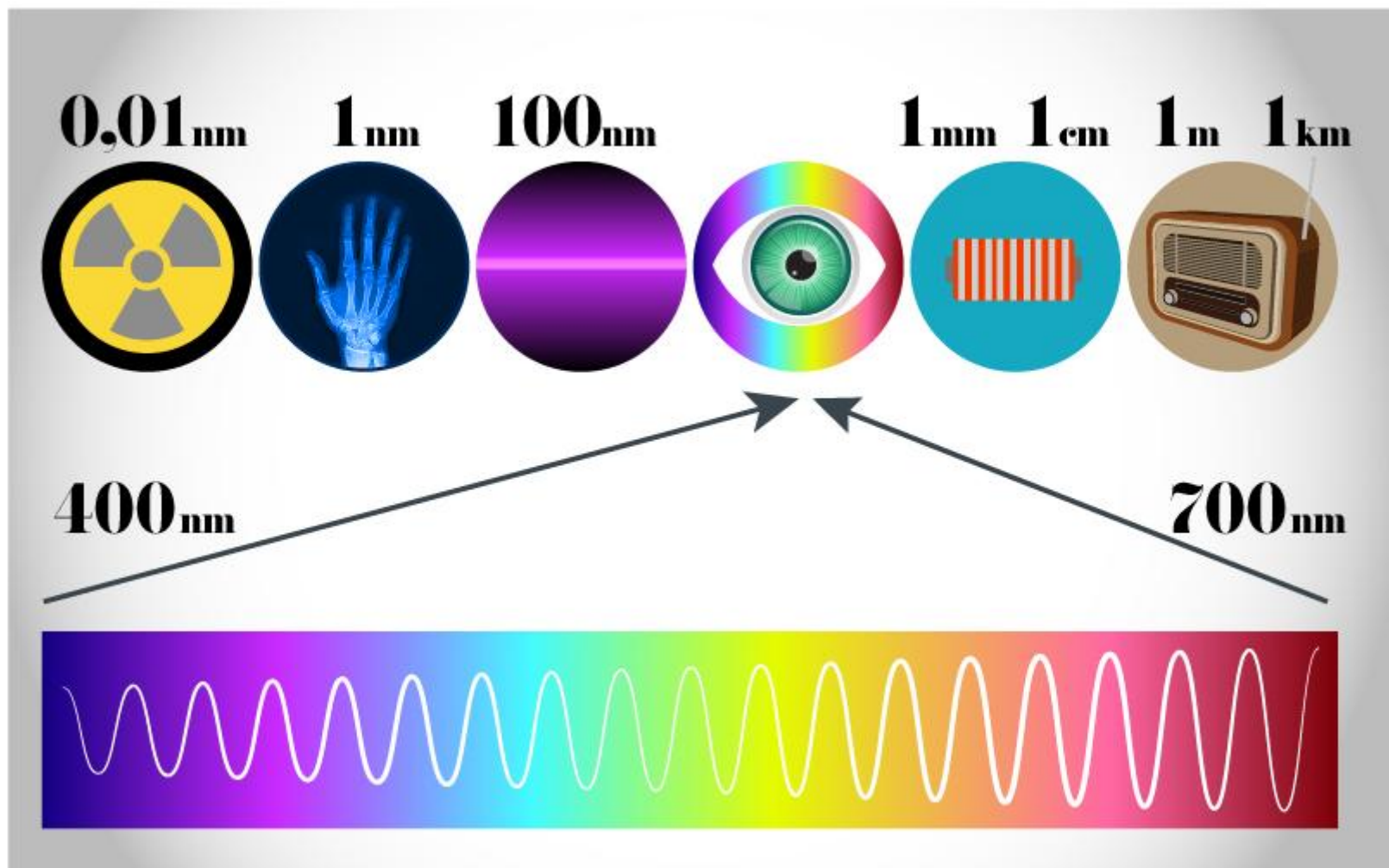
Consequently, electromagnetic waves with the lowest frequency (or the largest wavelength) belong to the radio. Radio waves transmit signals on distance via radio, television, and mobile phones. The radar works in front of the radio. The radio is divided into meter, decimeter, centimeter, or millimeter depending on the length of the electromagnetic waves.

The range of wave	Wave propagation
Meter (higher wavelength)	Wave
Decimetre the average wavelength	Ionosphere — The reflected wave
Centimeter (short waves)	Ionosphere — The reflected wave
Millimeter (ultrashort wave)	Straight wave / The reflected wave

Why do some airlines ask passengers to turn off the phones during take-off and landing?

There is a probability, although extremely small, that the frequency of the phone and appliances of the plane interfere with one another.

In fact, in modern airplanes devices work on other frequencies. Therefore, not all airlines impose such a requirement on passengers.

For, an aircraft operating frequency range is 90-150 Hz, including the piloting purposes of the navigation devices. Some airport's device operating frequencies are in the 329-335 MHz frequency range. The frequency is the same number of standard GSM 1-2 GHz with standard UMTS 2-4 GHz. For, a 3G frequency is about 2 GHz.

Also, all mobile phones have an airplane mode. Airplane mode is a setting that allows you to quickly turn off all wireless communication means. By means of wireless communication includes Wi Fi, mobile broadband, Bluetooth, GPS or GNSS, at a short distance radio communication (NFC) and more.

Are smartphones afraid of the sun?

Another type of physical phenomena, which is associated with your mobile phone is light. First of all, it is about the screens of our phones. Most modern phones have touch screens. The development of sensor technology is in two directions: resistive sensors (that you can manage any objects) and capacitive sensors (those that react only to objects that conduct electricity). The latter lets you control some areas of the screen simultaneously - this is called the multitouch.

lens surface
alternation images
solar cell
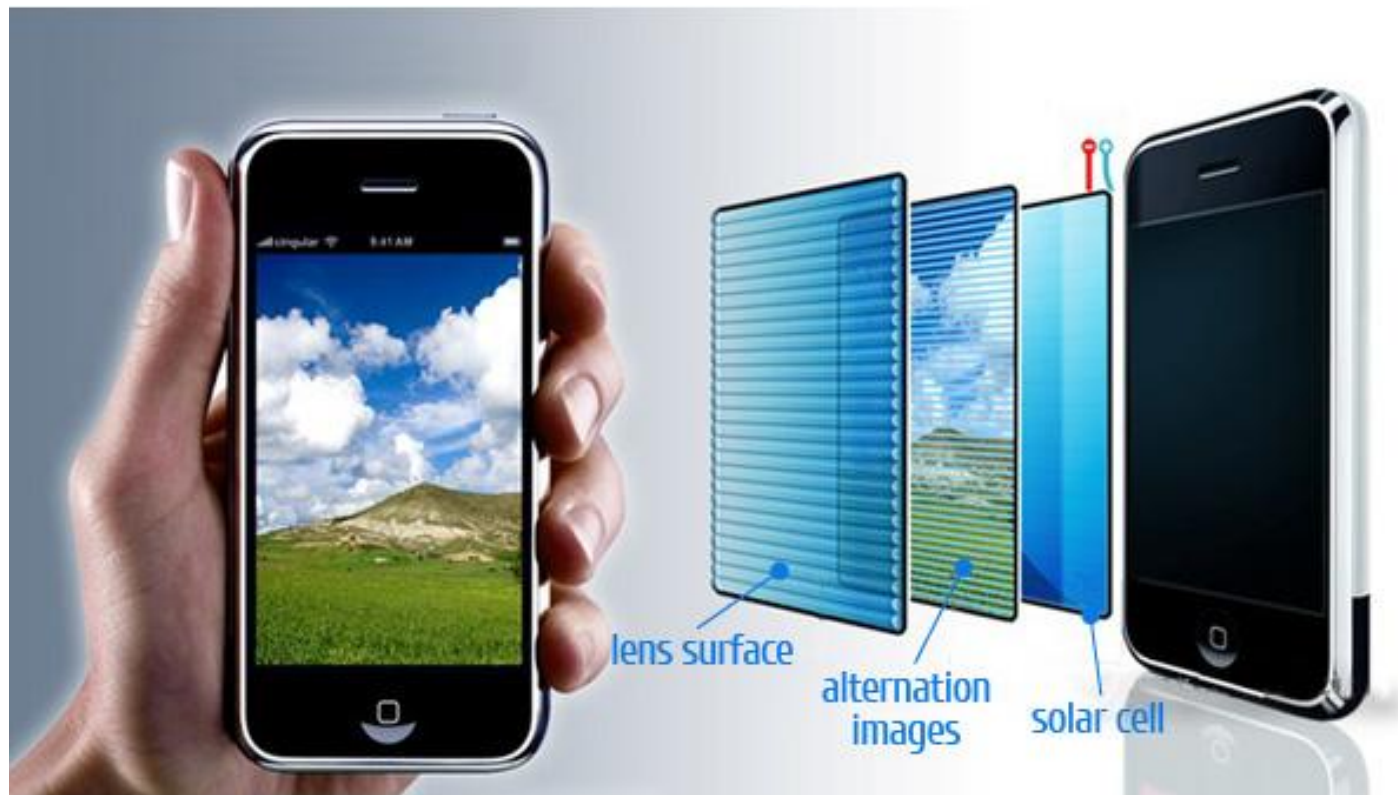
The capacitive touch screen is a glass panel covered with a transparent resistive material (commonly created with the alloy of indium oxide and tin oxide). The electrodes are located on the corners of the screen, a small AC voltage is served on the conductive layer (equal for all corners). When you touch the screen with your finger or other leading object a leakage current appears.
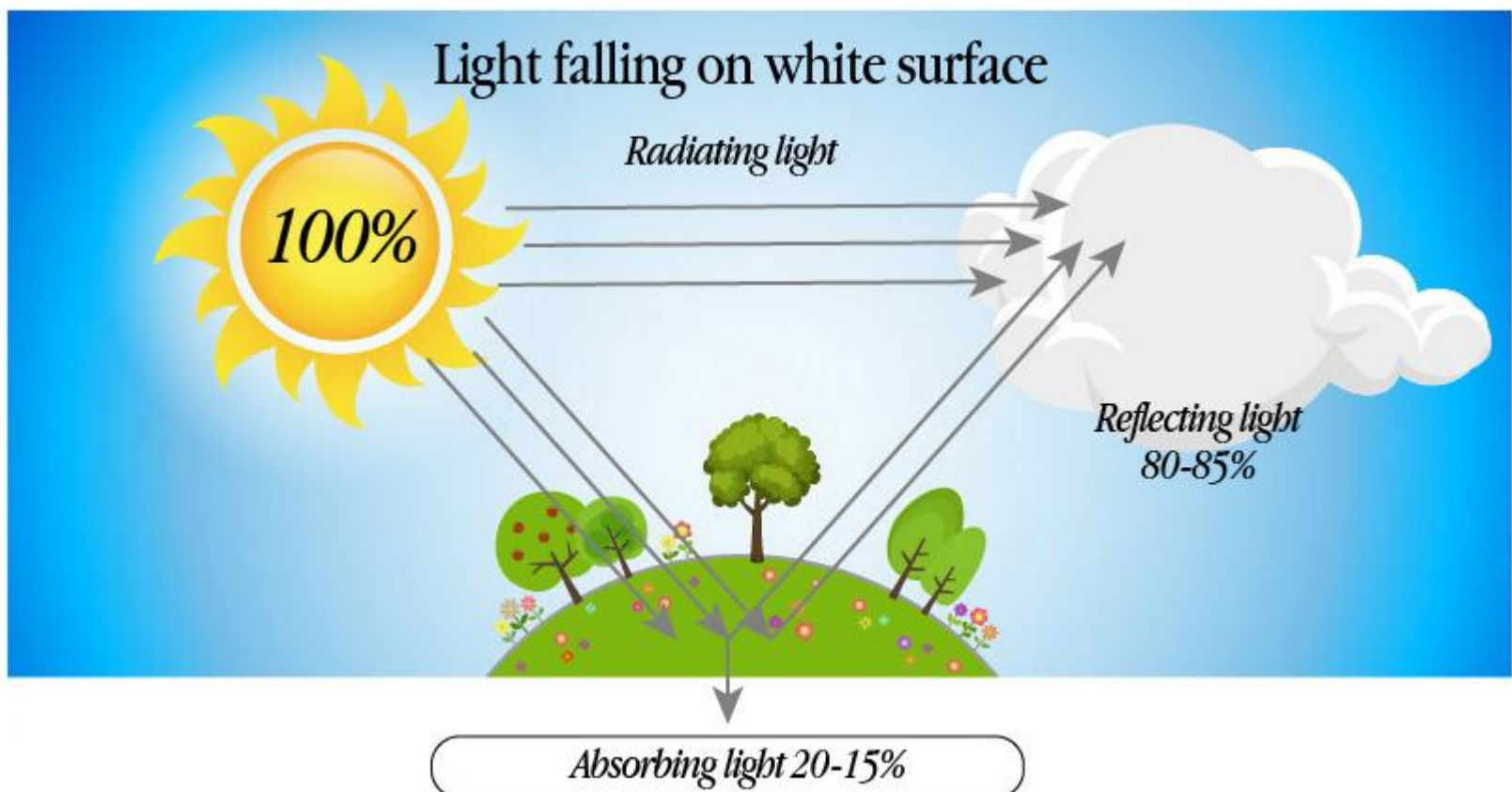
Thus, the closer the finger is to the electrode, the lesser is the resistance of the screen. This means that the current strength is greater. The current in all four corners of registered sensors, and transmitted to the controller, calculates the coordinates of the point of contact.
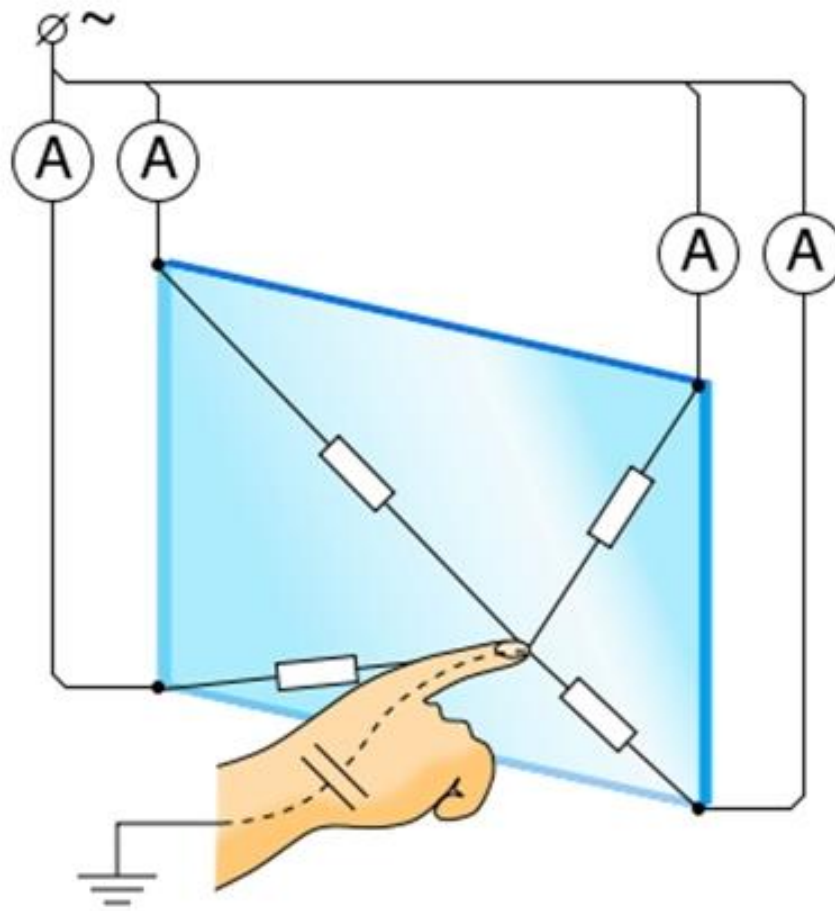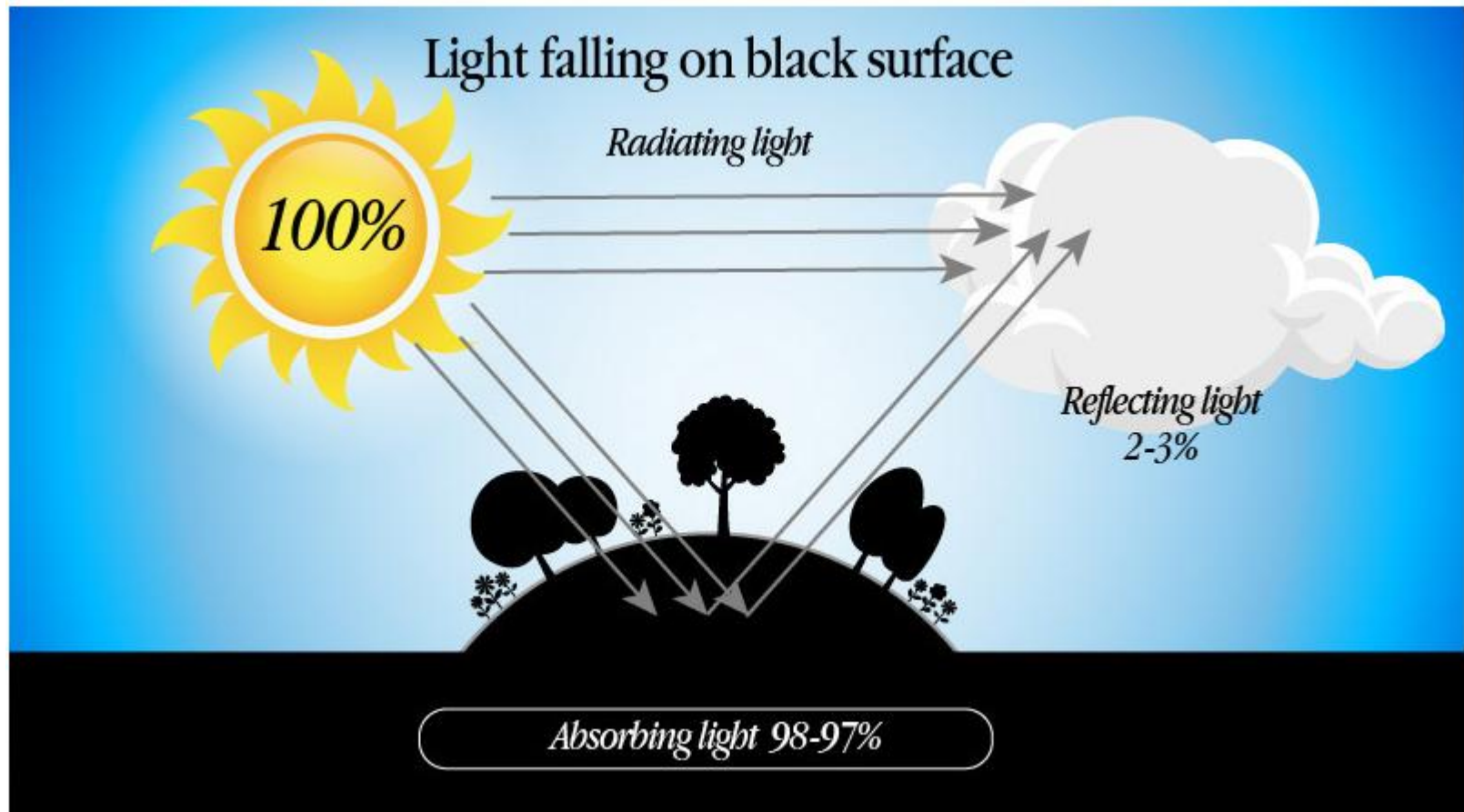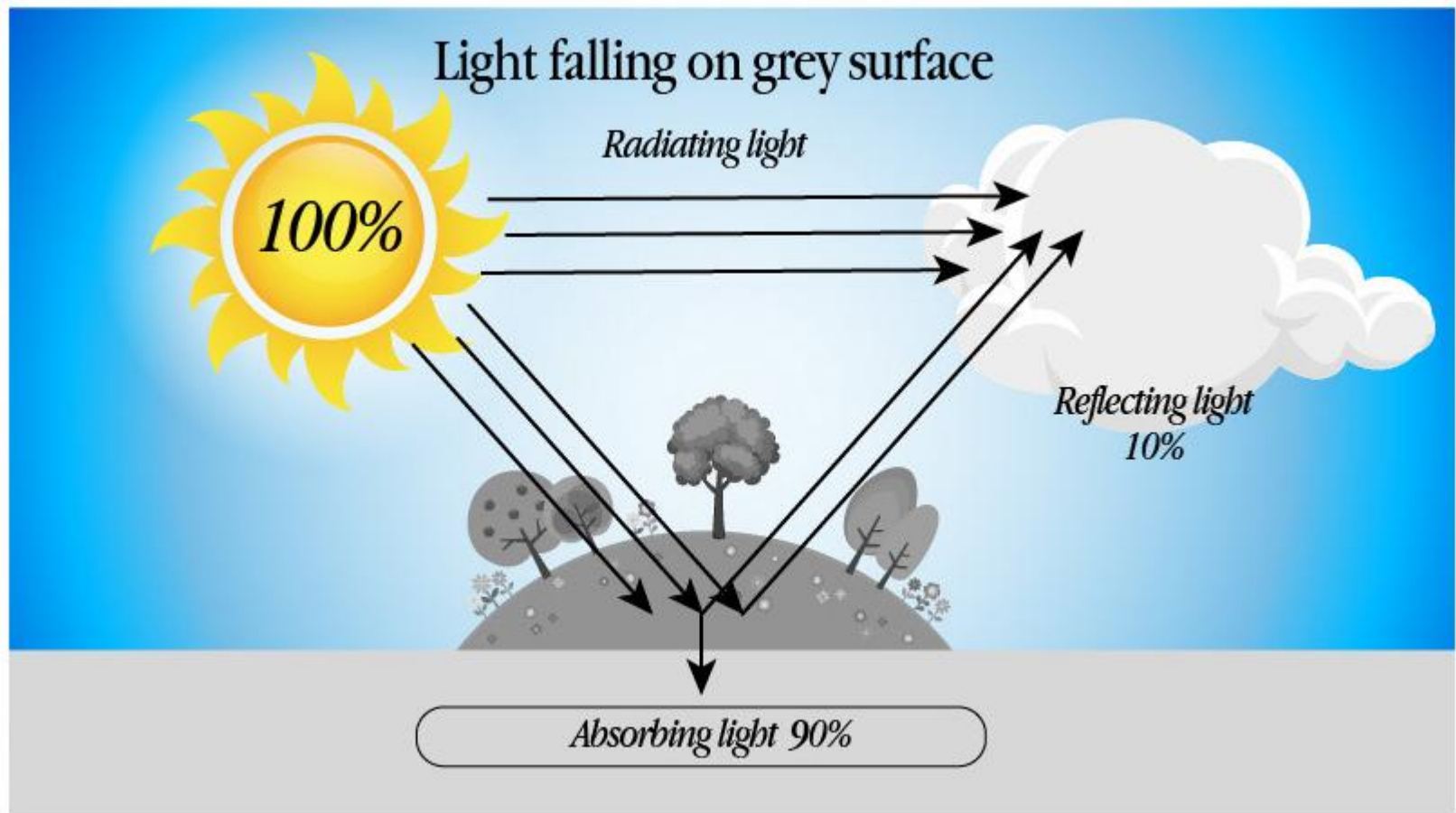
But such capacitive technology is a significant drawback – it is a complicated control in cold. Resistive technology does not have this disadvantage.

The sun rays affect the screen: the higher brightness it allows of the screen, the easier it is to read information on a sunny day.

Light falls on the screen (the surface) at a certain angle. Part of this light is absorbed, some is reflected. The percentage of absorbed (or reflected radiation) will depend on the color of the surface. That is, each pixel of the screen will reflect and absorb light in its own proportions depending on the color.

Light falling on white surface
Radiating light
100%
Reflecting light 80-85%
Absorbing light 20-15%

Light falling on grey surface

Radiating light

100%

Reflecting light
10%

Absorbing light 90%

Light falling on black surface

Radiating light

100%

Reflecting light
2-3%

Absorbing light 98-97%

Thus, for the user, this phone screen illumination is important.

Illumination is a physical quantity equal to the luminous flux that falls on the illuminated surface unit ("lux" is its unit of measurement):

$$E = F/S,$$

Where F – luminous flux; S – area that is illuminated (in square meters).

That is, if my phone screen area is 0.008 square meters, then it will be under different conditions fall a luminous flux:

LIGHTING CONDITIONS	ILLUMINANCE, LUX
NOON OF A SUNNY DAY	100.000
GLOOMY DAY	1000
IN THE ROOM NEAR THE WINDOW	100
AT THE NIGHT STREET UNDER THE LAMP LIGHT	4
IN THE LIGHT OF THE MOON	0,2
STARRY NIGHT WITHOUT THE MOON	0,0003
	EDUFUTURE.BIZ

That is, if my phone screen area is 0,008 square meters, then it will be under different conditions fall a luminous flux:

LIGHTING CONDITIONS	ILLUMINANCE FLUX, LUX/M2
NOON OF A SUNNY DAY	800
GLOOMY DAY	0,8
IN THE ROOM NEAR THE WINDOW	0,08
AT THE NIGHT STREET UNDER THE LAMP LIGHT	0,032
IN THE LIGHT OF THE MOON	0,0016
STARRY NIGHT WITHOUT THE MOON	0,0000024
	EDUFUTURE.BIZ

So not only is the brightness of the screen important, but the illumination while using it.

Task:

What is the illumination of the screen of your phone at this present moment? What will it be at night?

Why is my phone running out so fast? Which phone is "durable"? Can chemistry help to find a "long-lasting" battery?

Yes, because the main principle of the battery is receiving electrical current by chemical reactions. And for what elements of the periodic system will be used depends on the length of battery "life" to discharge.

Important parameters for assessing batteries are:
· High electrical density;
· The number of cycles "charge – discharge";
· Optimal size.

Types of batteries which are used in mobile phones (lithium is the most widespread among them):
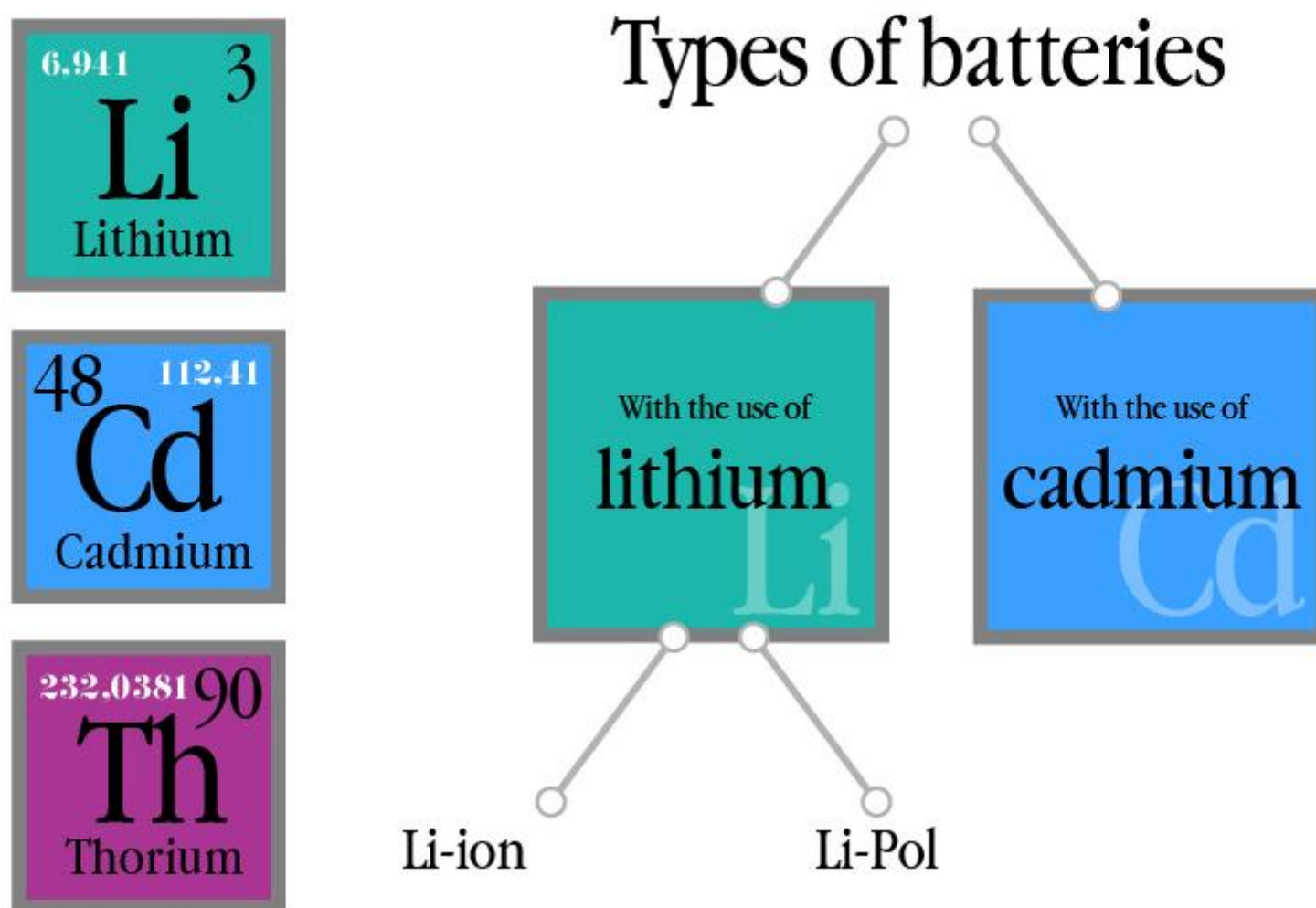
Lithium-ion batteries have a high electric density and a large number of cycles "charge-discharge". This battery consists of electrodes (anode and cathode) separated by a porous separator that is made of permeated electrolytes: Packet electrodes placed in a sealed enclosure.

Another type of battery is Torah. This is a new generation of rechargeable batteries, which now "takes a step" from research laboratories to real life.

Thorium (Th) is a metal with weak radioactivity. It does not bring damage to life and health (an exception is getting directly into the blood). It is not included in biospheric processes as a factor which is not harmful to the environment. Thorium is used for concept cars (representational new generation of car models) and Innovation "advanced" battery models (including mobile phones).

Future thorium battery depends on how they are in operation soon.

Nickel-cadmium has little energy comparatively to its size. These batteries are found only in old phones.

Lithium-polymer batteries are the most technological. They have a minimum thickness used for ultra-thin phones. Also, these batteries are installed in electric vehicles.

In general, the electrochemical reactions occurring in the battery can be represented as follows. Imagine a metal plate that is immersed in water. Under the influence of polar water molecules metal ions detached from the plate and hydration passes into the liquid phase. The liquid phase thus receives a positive charge, and the metal plate has an excess of electrons. The longer the process is, the greater the charge for both the plate and liquid phase. Will have the process on the scheme:

$$Me(solid) = Me(solution)^{n+} + ne$$

Where Me(solution) - metal in the solid phase;

Me(solution)$^{n+}$ - in a rare phase in the form of ions to the discharge n+

(if removed two electrons - charge 2+, 3 electrons - 3+ etc.);

ne - removed electrons (2,3 etc.)

In the summer, for example, the reaction scheme will look like:

If the environment changes, the balance moves (principle of Le Chatelier). Instead of water it is replaced with a solution of salts or special gel or special porous materials - membranes can be used. They have a selective ability – they pass only ions that we need for the battery. In brief, the external current electrochemical process will have two parts: the first is on the anode, the second is on the cathode.

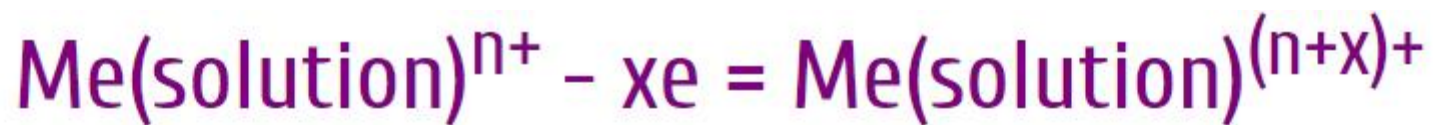At the cathode, metal ions are reduced to melt into a solid (metallic form):

$$Me(solution)^{n+} = +ne = Me(solid)$$
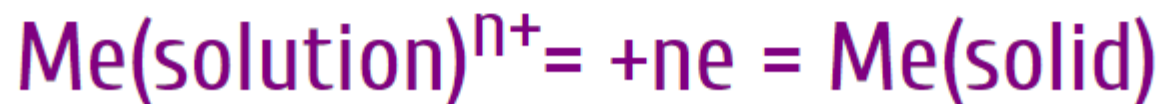
For lithium cathode this process passes:

$$Li^{+}_{(solution)} + e = Li_{(solid)}$$
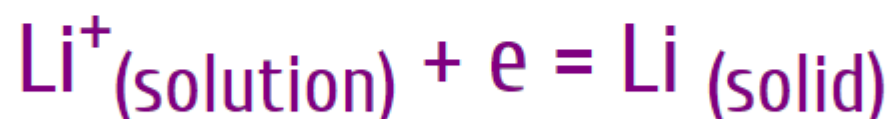
At the anode further oxidation of metal ions happens:

$$Me(solution)^{n+} - xe = Me(solution)^{(n+x)+}$$

Where xe – «removed» by oxidation of x electrons

$Me(solution)^{(n+x)+}$ – the metal in the oxidized form received a new charge $(n+x)$

Given the possible degree of oxidation for Li (1), this process will go simply by increasing the amount of oxidized ions.
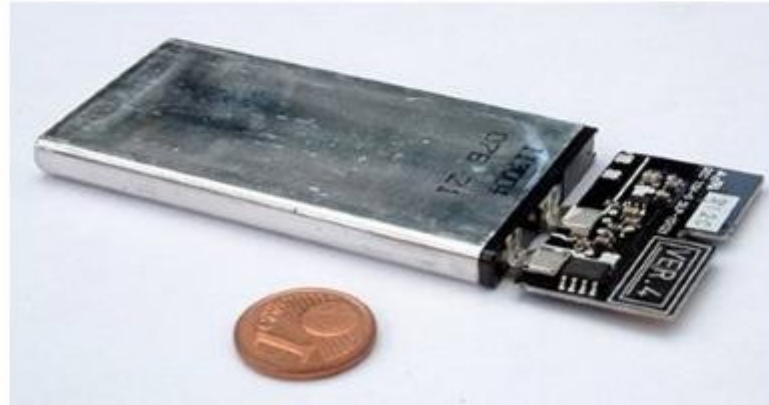
Most modern battery operations can be reduced to these basic chemical processes.

Why does a phone run out?

For this we use the explanation by Daniel Abraham, a scientist from Arahonnsk National Laboratory, which investigates lithium-ion batteries. He draws an analogy between the battery and a bucket with water. Charge is filling buckets. The extent of the bucket is the battery capacity, the speed in which it can fill is its power. But time, the effect of temperature and other factors form a "hole" in the bucket. By analogy with a bucket - "water leaks."

Lithium ions are removed, link. They lose the ability to move between the electrodes. Over time, the number of bound ions are increasing. The phone that needed to be charged every few days, began to need charging each day. After some amount of time the ion battery will not contain any useful charge - "bucket stops to hold water."

Why is heat harmful to my phone? When the temperature of electrolytes decompose faster, and the rate of adverse reactions, which bind lithium, is also increasing. So the battery is discharged faster, and another cycle of "charge-discharge" can be removed from the life of the phone.

Task:

Find out what type of battery your phone and the phones of your parents or friends have. Follow how often they need charging. Consider how this can be explained?

Technology

A modern mobile phone is a child of many advanced technologies. Big companies with modern laboratories and brilliant teams of specialists are working on its improvement.

Areas of improvement are different from modern "e-filling" for convenient and interesting design, from ultramodern software to new special body material or screen.

Let's try to understand this area.

The first direction is information technology.

Question: "What is better, iPhone or smartphone Android?" akin to heated debates. Who are the companies that broke forward in convenience and innovation? Typically, this option leads to a choice when buying.

So, the first facet - the technologies incorporated in the operating system. The main parameter estimates such technology - simplicity and individual settings. Another facet is the ability to support other devices compatible with them. An important focus is the development of a "user-friendly interface."

For example, Android supports Flash, which is used in many sites. In addition, the source code is open (it is available for all programmers) that allows developers to use it to create applications.

Another important facet in the development of information technology is to synchronize with other devices. It can be an impact not only for technical creativity. For example, the group «Brunnettes Shoot Blondes» from Krivoy Rog released a music video using 14 synchronized gadgets. Currently the video has received more than 8 million reviews on youtube.

Recently, 3G technologies are on everybody's hearing. This term has become not just fashionable, it is to some extent seen as a synonym for the word "development" and "progress." And what is the essence of this technology? 3G is a term used to describe the new generation of mobile services. Literally it means "third generation." It is a set of standards and protocols provided by the companies - operators and used by subscribers. The list of standards and protocols approved by the International Telecommunication Union, and called IMT-2000. It is based on a system of UMTS (universal mobile telecommunications system), which can reach speeds of 42 Mbit / s.

This channel allows multimedia services "on the fly", to "Stream" - live broadcast events. The main key to implementing 3G is appropriate allocation of radio frequencies. 3G era is steadily moving through the world.

There is a modern myth that smartphone cameras have replaced conventional cameras. Technology development is on the one hand in the fight for megapixels, on the other hand - for the use of devices such as flash auto-focus or phone. Modern smartphones use technology that allows even FullHD.

The camera can also be used to scan and object recognition. A striking example of fashion is QR-codes. They give the ability to "read" coded information about the product, facility service.
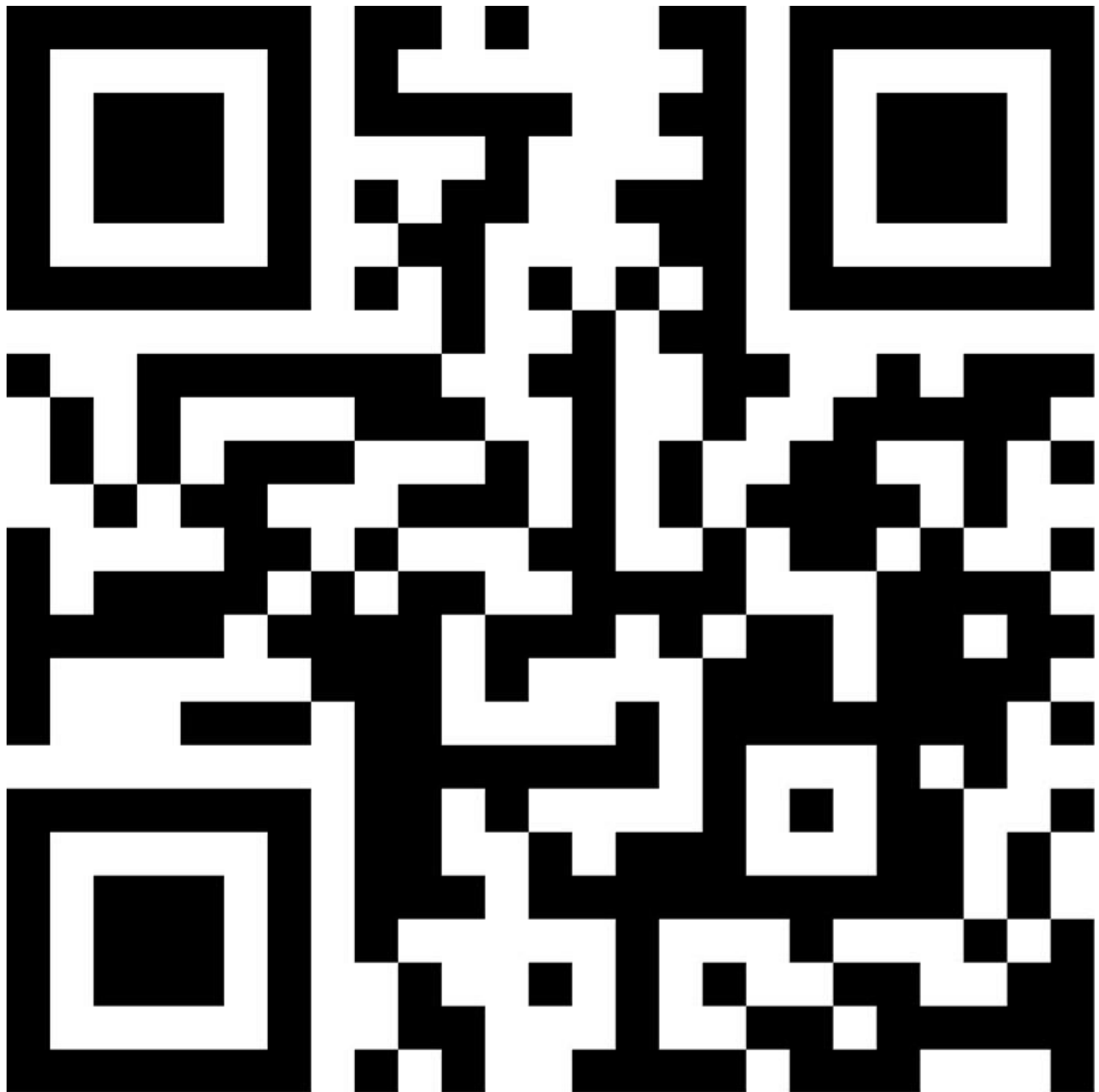
Example of QR-Code

QR-Codes cameras are designed specifically for smartphones. Three squares at the corners of the code make it possible to normalize the size and orientation, the angle at which the sensor is located relative to the surface of the image. QR-codes can be seen not only on goods and advertising banners, but also on informative boards for tourists (near monuments or art-objects).

Mobile Phones absorb the technological achievements of modernity. But they encourage development. For example, the development of GIS technology allowed using them for navigation in mobile phones. But most mobile phones had "growth" in the technical and information plan for such possibilities.

Task:
Find out which was the first phone of your parents. How is it different from yours? Think about what opportunities you would like to see in your phone and make a "task" for phone developers.

Math

Probability theory and study at school and at university. From simple tasks acquaint students in 5th grade. There is an interesting question: can we assess the probability of the failure of a mobile phone?

This is a difficult question to answer and is influenced by many factors. But we can use snippets algorithm used to evaluate the reliability of large ATE (automatic telephone exchanges). Although our version would be a much simpler form.

To start, let's consider some terms:

Efficiency – something like the state in which it performs its job effectively (normally a working phone).

Disclaimer – an event that causes abnormal function (broken casing, screen, filled with sticky juice "caught" the virus from the network, etc.)

Failure – thing that is self-removing (we usually talk about "the phone suddenly stopped working and then started again after a while»).

Probability of failure – the likelihood that the phone fails over time:
P = n / No
n – Number of elements that were denied for some time;
No – The number of elements in the question.
Then the probability of trouble-free operation will be:
P = 1 – n / No.
That is one we have received, an eternal ideal phone that never breaks.

I will consider the time of last year. Telephone for myself was conditionally divided into the following elements: Battery (why it is running we reviewed in Chemistry) screen (the best technology); software, e-filling and casing. Only 5 elements.

Then count only rejections but not failure. Last year the screen was crushed for one time and one time the old battery was replaced. Only 2 failures. So we get:
P = 1 – n / No = 1 – 2/5 = 1 – 0.4 = 0.6 or 60%.

So my phone was working flawlessly in 60% of cases. And yours?
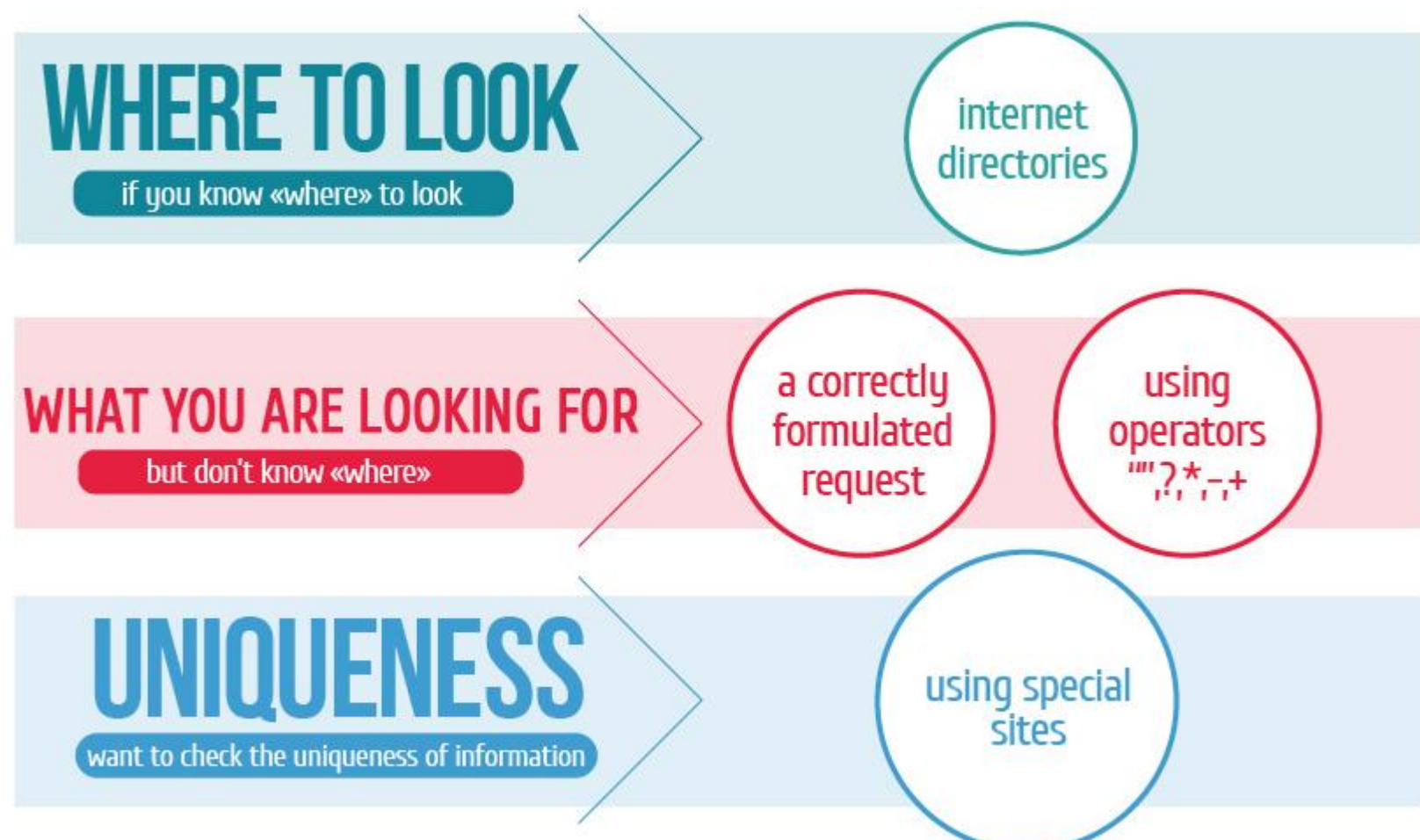
Task:
Calculate the probability of your phone.

Internet

The modern world created an aphorism: "If you want to hate a melody, put it in an alarm ringtone". We wake up by the sound of a mobile phone, read news, weather, communicate in social networks and chats, take pictures and shoot video. All these are from a mobile.

From the usual "dialer" it rose to a mobile phone gadget that can replace the camera, computer and many more.

Very often the mobile phone is used to search for information. Search strategy depends on what information you want to find. If you already know what kind of information you need, you have to use Internet resources prospectus.

WHERE TO LOOK
if you know «where» to look

internet directories

WHAT YOU ARE LOOKING FOR
but don't know «where»

a correctly formulated request

using operators ""?*–+

UNIQUENESS
want to check the uniqueness of information

using special sites

Just another case, if you know "what it takes", but did not know "where it can be." In this case, the key should be to solve the problem for a correctly formulated request for a search engine (Google, Rambler, Bing, etc.).

It is important to focus not only on the word itself "intended finding" but those phrases, words, that it can "accompany" (keyword search). You will have a "sentence". For example, we will seek trains that pass through Lviv. The phrase would have to look like this: "all trains that pass through Lviv". But the search engine will look for just such a set of words and the information that could be needed will be "bypassed" by the system. Therefore, the next step should throw all the "words-parasites" that have key roles to search. This is an example of this – "passing through". Correcting the phrase into 'schedule trains Lviv ", we'll get exactly what we were looking for.
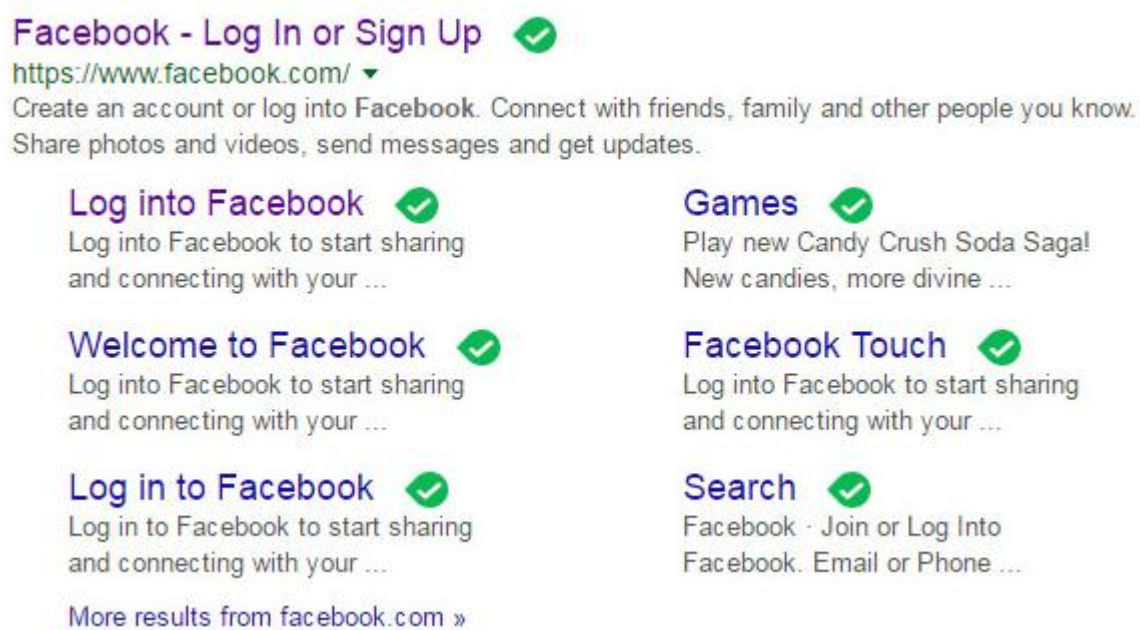
Sometimes, on the contrary, it is necessary to find information on a specific phrase. For example - a poem. Then you can enter it on line or some famous words and use quotes "". Quotes are operator "exact match". For example, the poem "Roses are red and violets are blue…" will lead us right to the desired text.

There is an operator of international obligatory presence of the words "+". Or an operator of international obligatory absence of the word "-". For example, "All computer magazines + Chip" (if we want to see this magazine in search results).

You can search on even particle keyword using * or ? . They represent a part of the word random.

What if you need to find out whether the information is reliable? Then, first of all, look at what you are dealing, or the fact of its assessment. The next step is to search for similar information from different sources and compare it. This implies important criteria of reliability of information - "coherence".

Check the unique information (exclusivity) using special sites. For example: Copyscap, Advego Plagiatus.

Facebook - Log In or Sign Up ✓
https://www.facebook.com/ ▾
Create an account or log into Facebook. Connect with friends, family and other people you know.
Share photos and videos, send messages and get updates.

Log into Facebook ✓
Log into Facebook to start sharing and connecting with your ...

Games ✓
Play new Candy Crush Soda Saga!
New candies, more divine ...

Welcome to Facebook ✓
Log into Facebook to start sharing and connecting with your ...

Facebook Touch ✓
Log into Facebook to start sharing and connecting with your ...

Log in to Facebook ✓
Log in to Facebook to start sharing and connecting with your ...

Search ✓
Facebook · Join or Log Into Facebook. Email or Phone ...

More results from facebook.com »

The phone is not only a tool of voice communication. Thanks to the mobile Internet, through it we can go on social networks. Most of them have a mobile version, which is more convenient for perception in the phone.

There are analogues of Skype, adapted to the peculiarities of using mobile phones. An example is the application Viber. It enables communication between users working on the computer (tablet, laptop, etc.) and the owner. Contacts in Viber can be added as a phone number. It supports voice and text communication.

There are players specially designed for mobile applications (music or video player). Depending on the format of the movie, the application will use a variety of them.

A separate chapter in the development of relations "phone - internet" is mobile game. Some of them have become a cult; have created a niche in the entertainment industry. There is a vivid example where a mobile game has moved into real life – Angry Birds. There were both amusement parks created based games (like Angry Birds park in Finland), and individual attractions.

The cult game Angry Birds

Amusement Park

Mobile Internet can not only use other people's sites, but also to put their own content.

You can upload photos and video, and process them online.

Ordinary SMS can be used with e-mail. Finally, there are special mobile versions of e-mail.

Welcome to bigmir)net

Registering free mailbox you get many advantages:

A lot of space
1908.328049 megabytes of space for your correspondence (and this is not the limit)

Protection from spam and viruses
Your mail is protected by Kaspersky antivirus

Access with mobile phone
Check email from your mobile phone by opening the page http://mail.bigmir.net/

Mobile phones and the Internet are closely linked. The main thing is to use a symbiosis with benefit and pleasure.

Task:

Explore what sites do you visit most often on the phone, what applications do you use most often? Consider why.

Business

The Mobile Phone is in all spheres of human activity. And business is not an exception: the production of mobile phones, software development, providing radio frequencies, providing service or telecommunications services, design, advertising, logistics, and sales.

Large companies - manufacturers compete by trying to sell the maximum number of items - phones or phone accessories. Competing companies - operators are trying to give the most attractive tariff and attract the maximum number of customers. (With the competition between some of them can be seen both in the series interesting: who will pass?) What does this mean?

5.2" and 5.7" displays
OLED screens
564 and 518 PPI
Glance screen technology

An important issue for the owner of the phone is the rate – how much to pay for calls, SMS and mobile inernet. The formation rate impact: the value of the network, the cost of calls within the network and to numbers of other operators, Internet speed, the cost of calls to regular phones, and the cost of SMS.

Example:

HRN/MONTH

CALCULATION PRICING

THE COST OF THE TARIFF PLAN OF THE MOBILE OPERATOR

THE EQUIPMENT FOR MOBILE COMMUNICATION

Installation of mobile tower	0.7
Installation and configuration of special equipment for decoding and signal transmission	1.3
Service engineers equipment mobile tower	0.5
License fees and state fees for use of radio tower	1.2
Summary	**3.7**

SERVICE AND SUPPORT

The payment of the internal hardware decoding signal	0.3
Payment of maintenance personnel	1.3
The staff costs for communications with the client	0.2
License fees and public charges on the use of 3G, GSM, D-AMPs	1.1
Summary	**2.9**

TARIFF PLAN

Calls on the network	20
Calls to other operators	6
Internet	10
Calls to fixed-line number	1.5
SMS	1
MMS	2
SMS (other operators)	1
Summary	**48**

When choosing a tariff you should consider what exactly you use most: SMS or MMS mobile Internet, as your "Contacts" use the services of the same operator.
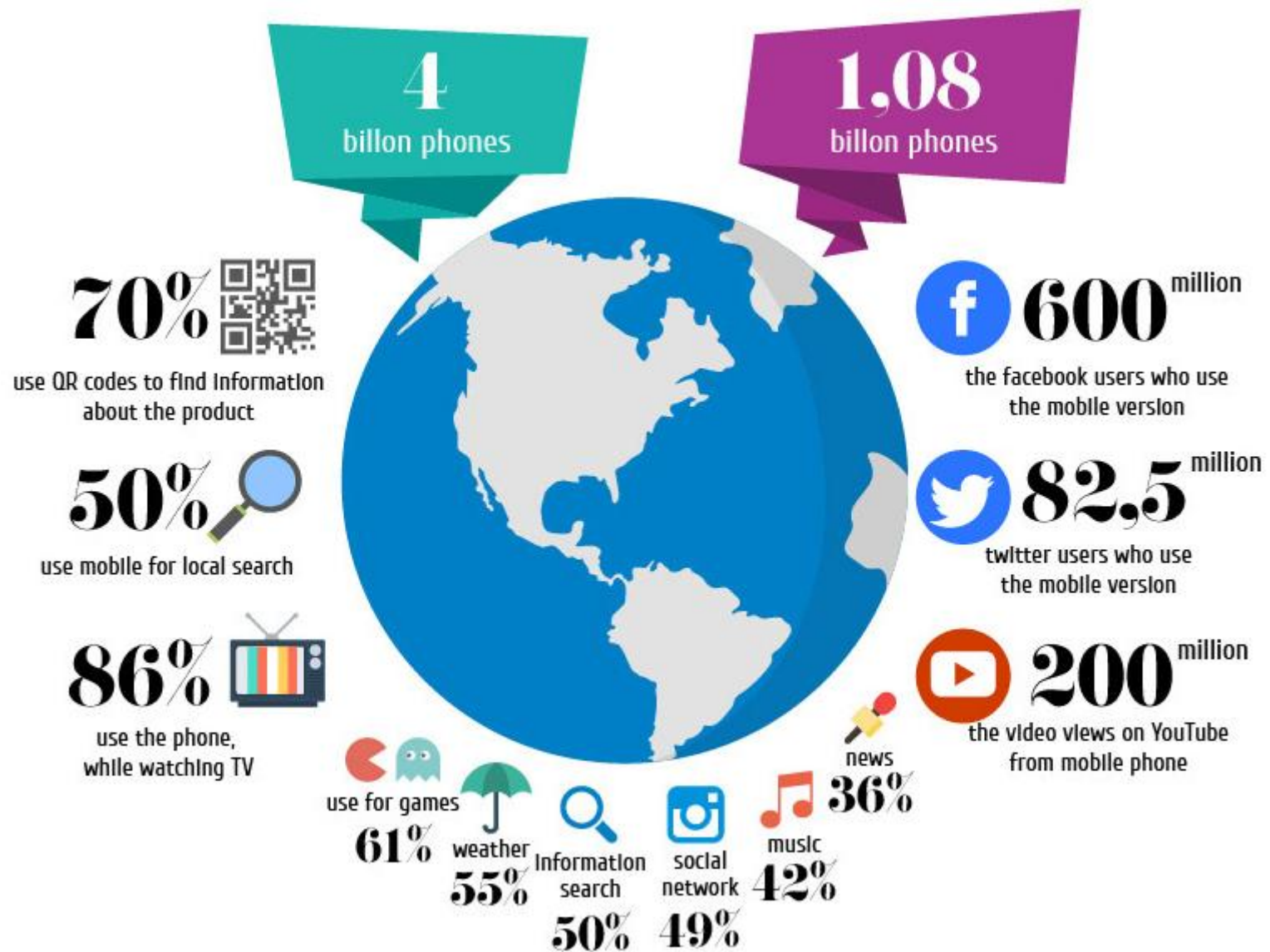
Task:
Find out more about existing tariffs and choose the one that suits you. What are the arguments of the choice? What tariff do you use now and why?

Psychology

Mobile phones have become an essential means of communication between people.

Try to look around you and you will notice how many people are at the moment talking on a cell phone.

But how did we live without mobile, how did we communicate with others? The answer is simple: we communicated with others in the same way, but in live. And it is because we use mobile not always when it is necessary but just because we can. Now, to talk with friends who live on the floor below, it is not necessary to go down, we need only to dial the familiar number or "knock" to them in Skype, Viber...

4 billon phones

1.08 billon phones

70% use QR codes to find information about the product

50% use mobile for local search

86% use the phone, while watching TV

600 million the facebook users who use the mobile version

82.5 million twitter users who use the mobile version

200 million the video views on YouTube from mobile phone

use for games **61%**

weather **55%**

Information search **50%**

social network **49%**

music **42%**

news **36%**

The Mobile Phone is a personal assistant in many situations when you need talk to someone faster. The possibility of rapid communication not only speeds up the search for information and decision-making by man. The string "Task" - "Information" - "Resolution" is passed now much faster. Simple everyday example: you decide whether you need a sports jacket tomorrow. Today for some reason you were not in school. Tomorrow – physical training. First, watch the weather (through telephone applications). You can then call classmates (here is mobile again!), found if physical education classes are planned outdoors. Knowing weather forecast and where the lesson will take place, the solution becomes obvious.

Widespread received photos or capture "selfie." This trend has a positive effect: people can explore their facial expressions (and it is better to learn that it is important for public appearances), find new features "open" themselves or friends in the world from a new angle, "try on" the role or behavior model. Sent selfie brings you "closer" to those who are far away, uplifting the mood.

Selfie

The degree of mastery of a certain type of person's information is evident in its language. How properly and adequately the concept is used, such person has this information. Some are not entirely correct use the device names – modern means of communication. That's a "crib" in this case:

MOBILE PHONE

Means of communication using the mobile network.

SMARTPHONE

Mobile phone + additional features (access to Internet, applications, operating system)

Examples: Samsung, iPhone, LG etc.

TABLETS

For communication using mobile networks (with the support of the card), 3G, Internet.

Examples: iPad, Samsung, Lenovo etc.

LAPTOP AND PC

Special services are used for communication: Skype, viber, ICQ and Internet.

Artificial Intelligence

Mobile phones have artificial intelligence. A mobile phone (the operating system) is able to make decisions, program or application "hung" and it should be close by to offer contextual advertising ...
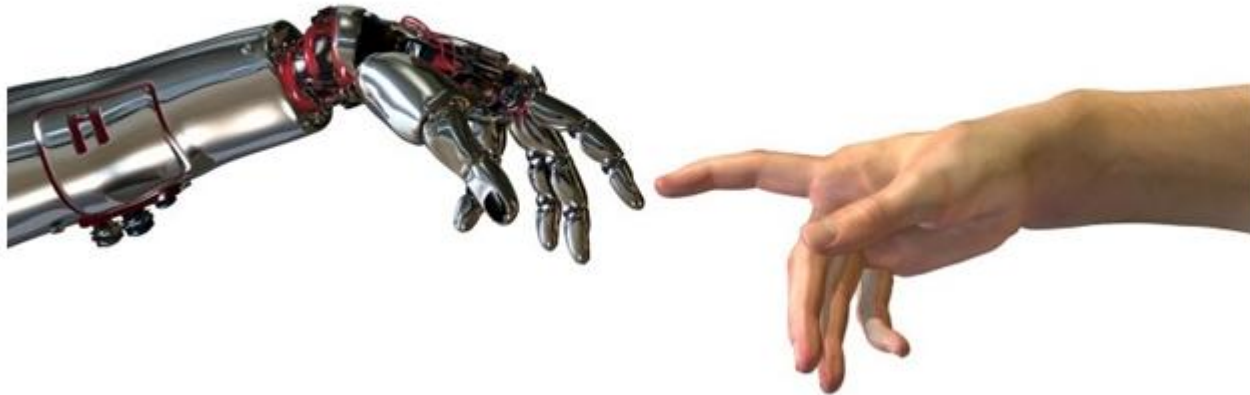

Examples of artificial intelligence – Android and iOS. Both operating systems have the following features of Artificial Intelligence:

1) The ability to choose and make the best decisions on the basis of earlier experiences and analysis of external influences (no reliance on intelligence activities).

2) The most important difference between genuine software artificial intelligence of simple applications is the ability to "think" with images. (With imaginative thinking today the following became available: technologies such as compression and coding of information, processing of biometric images to optimize color gamut, like research, analysis of the meaning of images, automatic cataloging information, and recognition algorithms and classification of images.)
Artificial Intelligence – promising area of technological development.

For example, Google plans to create artificial intelligence that would allow to improve sorting information to search requests. Such development should be complete by 2029. The result should be an intelligent search engine that has emotional intelligence. It has to understand human emotions.

The Japanese National Institute of Information develops an artificial intelligence system, called Todai Robot. It must seize this achievement level, that in 2021 it will successfully pass the entrance exams in the leading universities of the country.
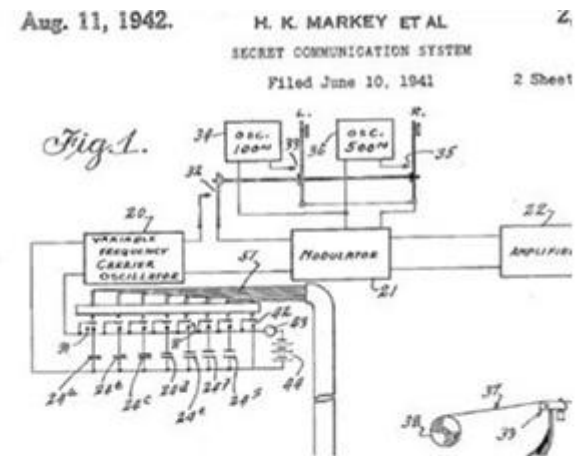
Task:

Explore what signs of artificial intelligence does your phone have?

Cinema

It would seem that sharing between a mobile phone and cinema, Hollywood stars? In addition, of course, the phone in the frame - a familiar feature of our time, which is no longer a surprise or admiration?

But this relationship exists. Her name is Hedy Lamarr.

Hedy Lamarr is an Austrian-American actress and inventor.

Mathematically gifted, she and composer George Anteyl invented a method of spread-spectrum communications and frequency hopping adjustments that are requiring wireless connections of the pre-computer era to the present day.

She played in 30 films, earned 30 million dollars, and has got a star on the Walk of Fame.

But in addition to movies, Hedy Lamarr engaged in science. Back in 1942, she patented a system to manage torpedoes at a distance. Now this technology is used in the "peace line" - in our mobile networks. The value of technology "frequency jumping" was evaluated only over the years.

The Actress's birthday - November 9 –is the Day of the inventor named in German-speaking countries. Without Lamarr's invention there would be no flying military satellites, cellular phone standard GSM would not work, and there would be no Bluetooth headset.

Fashion

Before a new model of mobile phone is even on sale, it is already in high demand. Mobile phones become unfashionable, even without being technically obsolete. Importantly, a phone is a "Status" attribute, reflecting all changes of life.

Successful advertising campaigns encourage fashionistas to "upgrade" the phone to the long-awaited news. Even in spite of their price that "animates" the market of consumer loans, many people want a new phone now, and pay for it "sometimes and gradually."

For example queue for iPhone 6S lined up 4 days before the start of sales:

The queue for the iPhone 6S in Germany

Advertising companies are promoting not only the phone itself, but also related products (mobile accessories): headsets, headphones, blankets or chains, for example. In this case, designers offer a huge scope for creativity: successful decision, trendy finishes, using the popular image and we have "ideal" trendy goods. In this case the appeal is reinforced: fashion phone in a cover from a reputable manufacturer of a fashionable image. Some advertising campaigns oriented to specific categories of customers: women, girls, teenagers, etc.

Modern phone-bracelet

The fluidity of fashion contributes to driving technology to development. But it is important not to make a sensible approach to fashion: buying something new for only status and not for opportunities, is not a good life position.

Although for many people the question of status is also very important, as they pay attention to brands. Technology allows brand promotion to become such a commodity that is easily learned. This allows people, in turn, to receive additional income from the so-called "intangible assets", which include trademarks, brands, and patents. As a result: the brand product has advantages for both producer and consumer.

Such goods like cars, watches and smartphones, are called threevector as they meet just three consumer needs. For example, the car can be seen as a convenient vehicle, a professional agent and a subject of prestige.

The same situation is with the clock: It can be beautiful; and, by simply showing the time may be an indicator of the status of the owner. Concepts of cars and smartphones with a flexible transparent screen.

Smartphones that also perform the minimum number of required user functions, can be an indicator of a "modernity" user, and may be the subject of prestige.

On the one hand, the ratios of the third vector (a measure of prestige) in a society are predominantly negative. But on the other hand, the third vector indicates the prospects of development of new technologies and consumer qualities of goods.

Task:
Make your own version of a fashion phone for girls and for boys.

The End

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