

**O‘ZBEKISTON RESPUBLIKASI
OLIV TA‘LIM, FAN VA INNOVATSIYALAR
VAZIRLIGI**

GULISTON DAVLAT UNIVERSITETI

**KARSHIBAYEV JAXONGIR XAZRATKULOVICH
SHAVKIYEVA DILFUZA SHAKARBOYEVNA**

ENGLISH

Oliy o‘quv yurtlarining nofilologik yo‘nalishlardagi
bakalavriat bosqichida tahsil olayotgan talabalar uchun
o‘quv qo‘llanma

**Тошкент
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O'quv qo'llanmasi "geografiya" sohasi bo'yicha mutaxassislarni tayyorlash uchun universitet ingliz tili kursidir. Qo'llanma tabiiy fanlarning umumiy yo'nalishlari va turdosh fanlarga oid ingliz tilidagi haqiqiy matnlarni o'qish, tarjima qilish, izohlash, referat qilish ko'nikmalarini rivojlantirish, shuningdek, kasbiy va kundalik aloqa bo'yicha bilim va ko'nikmalarni shakllantirishga mo'ljallangan.

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Kirish

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Qo'llanmada 30 ta dars (Units) mavjud. Har bup "Unit" asosiy matndan, uning uchun so'z birikmalaridan, ma'lum grammatik mavzudan va uni mustahkamlash mashqlaridan, яъни саволларга жавоб бериш, янги сўзлар, сўзларга мос келган таърифларни топшиш (matching the definition), сўзларни маънолари билан мослаш (matching the words), нуқталар ўрнини мос келадиган сўзлар билан тўлдириш (fill in the gaps), ҳамда антоним ва синонимларга доир машқлар қo'shimcha mavhum matndan iborat va test bilan yakunlanadi

Qo'llanmadan tegishli profil magistrantlar, doktorantlar, talabgorlar va olimlari ham foydalanishlari mumkin.

Preface

The study guide is a university English language course for training specialists in the field of "geography". The manual is suitable for developing the skills of reading, translating, interpreting, summarizing real texts in English related to the general directions of natural sciences and related sciences, as well as for the formation of knowledge and skills in professional and everyday communication. intended.

The structure of the manual allows the teacher to choose the best ways to organize their work both in the classroom and independently, taking into account the level of knowledge of students.

There are 30 lessons (Units) in the manual. Each "Unit" consists of the main text, vocabulary for it, a specific grammatical topic and exercises to strengthen it, i.e. answering questions, finding new words, matching the definition, matching words with their meanings the words), fill in the gaps, and exercises on antonyms and synonyms consist of additional abstract text and end with a test

The manual can be used by master's students, doctoral students, applicants and scientists of the relevant profile.

PART I

UNIT 1

**Listening: Occupation. Grammar: Auxiliary verbs. Reading.
The way to the development**



I. ACTIVE VOCABULARY

application (n) – qo'llash; bayonot;

attempt (n) – urinish;

breakthrough (n) - muhim ilmiy yoki texnik yutuq, kashfiyot;

clue (n) – kalit;

collect (v) - to'plash;

complicated (adj) – murakkab;

cover (v) – qoplamoq, yopmoq, ustini bekitmoq;

determine (v) – aniqlash;

destruction (n) – yemirilish;

discovery (n) – kashfiyot;

enormous (adj) – ulkan;

environmental pollution (n) – atrof-muhitning ifloslanishi;

examine (v) – tekshirmoq, ko'zdan kechirmoq;

exist (v) – mavjud bo'lmoq;

field (n) – maydon, tarmoq;

harm (n, v) – ziyon, zarar yetkazmoq;

include (v) – kirgizmoq, kiritmoq; ulamoq;
investigate (v) – o‘rganmoq, tadqiq qilmoq;
observe (v) – kuzatmoq;
origin (n) – kelib chiqish, paydo bo‘lish, yaratilish; asos, negiz;
boshlanish;
order (v) – tartibga solmoq, yo‘lga qo‘ymoq; buyurmoq;
outdated (adj) – eski, azalgi, qadimgi, ilgari;
prove (v) – isbotlamoq, isbotqilmoq; taqdim qilmoq, havola qilmoq; imkon bermoq;
revise (v) – ko‘rib chiqmoq, ko‘zdan kechirmoq;
search (n) – qidiruv, izlash;
set apart (v) – ajratib turmoq, chegaralamoq, ajratmoq;
shortage (n) – kamchilik, yetishmovchilik;
solve (v) – xulosaga kelmoq, qaror qilmoq; hal qilmoq, yechmoq; muayyan bir fikrga kelmoq;
test (v) – test, tekshirmoq;
unify (v) – unifikatsiya qilmoq, bir shaklga keltirmoq, birlashtirmoq;
universe (n) – koinot, olam, yer yuzi, butun dunyo;
update (v) – yangilamoq;
variety (n) – xilma-xillik, juda ko‘p, ko‘pdan-ko‘p;
verify (v) – tasdiqlamoq;
weapon (n) – qurol, qurol-yarog‘.

Exercise 2. Learn the word combinations in Uzbek and translate them

<p>range of topics, the pursuit of hints, repeated observations, outmoded theories, different plant species, t he need to understand why, global exploration, and the use of science.</p>
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Exercise 6. Use the word combinations to create your own statements or questions by translating them into English.

<p>yechimni topish; savolga turli xil usullarni qo'llash; sayyoralarning harakatini kuzatish; ko'plab faktlarni o'rganish; eng yaxshi javobning kaliti; tadqiqot dasturini qayta ko'rib chiqish; yangi tushunchaning kelib chiqishi; atrof-muhitni ifloslanishiga olib kelish; murakkab vazifani hal qilish; oyni o'rganish; ma'lumotlarni yig'ish va tartibga solish; ilmiy kashfiyot (yutuq) qilishga urinish; nazariyani tasdiqlash</p>	<p>o'z nuqtai nazarini isbotlash; bilim chegaralarini kengaytirish; eskirgan vosita; cheksiz koinot; kosmosda mavjud bo'lish; olamshumul (dunyo ahamiyatiga molik) kashfiyot; ulkan makon; zararli ta'sir; havo yetishmasligi; moddaning yemirilishi (materiyaning buzilishi); qurollarni tekshirish; hujayralardan iborat bo'lmoq; faktlarni ahamiyati bo'yicha saralash</p>
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UNIT 2

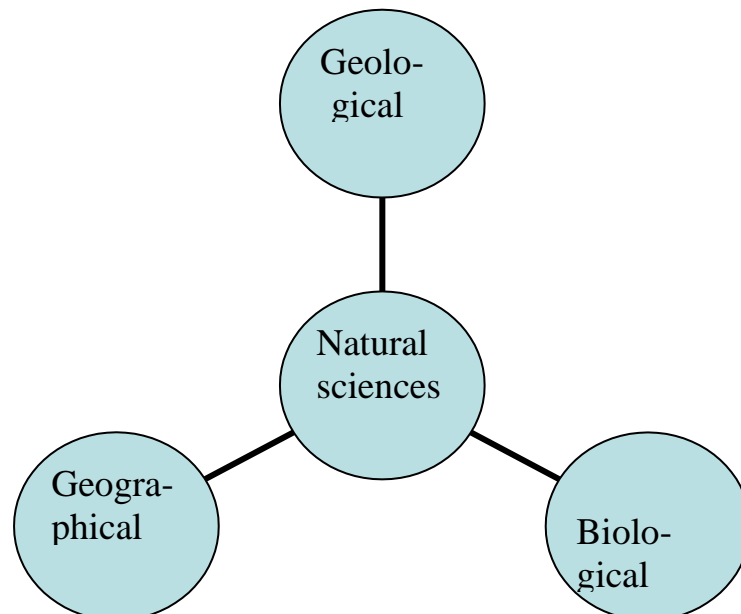
Grammar: Present simple. Reading: Let's get acquainted.

Writing: Doing exercises

GEO

GEOLOGY

GEOLOGICAL



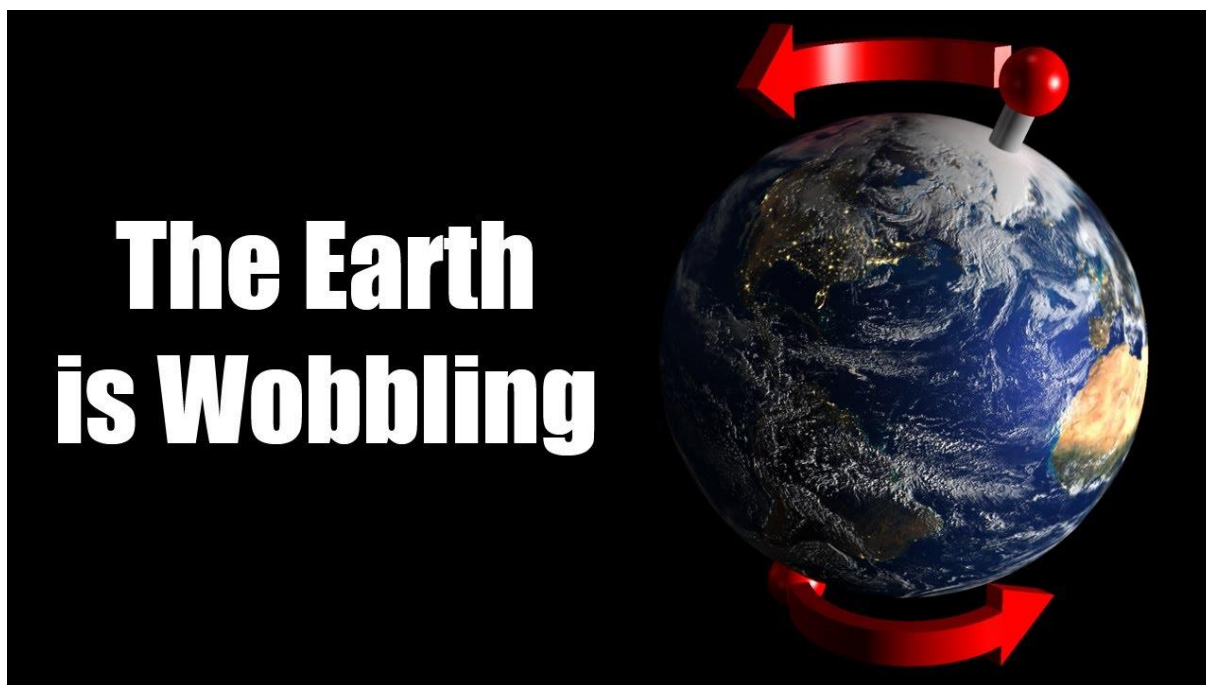
Geography

Exercise 6. English translation Be mindful of the proper tense usage.

1. Geologiya yer haqidagi materiallarni, uning fizik-kimyoviy xususiyatlarini o'rganadi.
2. Atrof-muhit muammolarini hal qilish butun insoniyatning kelajagi uchun juda muhimdir.
3. Neft qazib olish qisqaroqda, chunki uning zaxiralari tugamoqda.
4. Yoshlar o'rmonlarni saqlashga g'amxo'rlik qilishlari kerak, chunki ular sayyoramizning o'pkasi hisoblanadi.
5. Xitoyda atmosferani ifloslantiradigan avtomobillar ishlab chiqarish har yili o'sib bormoqda.
6. Olimlar qutblardagi muzliklar tezda kamayganligi sababli xavotirda.
7. Velosiped transportning eng ekologik turidir.
8. Dunyodagi suvning yetishmasligi yangi urushlarning sababi bo'lishi mumkin.
9. Chernobil ekologik halokati haydaladigan yerlarning katta maydonlarini qishloq xo'jaligida foydalanishdan chiqarib tashladi.
10. Gidrosfera daryolar, ko'llar, dengizlar, okeanlar suvini o'z ichiga kiritadi.

UNIT 3.

Listening: Geography of Uzbekistan. Grammar: Present Continuous Tense/to have



Text 1B

WORKINGS OF SCIENTISTS

A variety of techniques can be used in scientific research, which is a creative endeavor. Progress can be made by persistent hard work or unplanned creative spurts. The scientific method could involve even chance. A multitude of methods are used by scientists to generate ideas and achieve discoveries. These techniques include: 1) paying attention to nature; 2) classifying data; 3) using reasoning; 4) running tests; 5) developing a hypothesis (proposed explanation); and 6) summarizing results statistically. The majority of scientific research incorporates some or all of these techniques.

One of the first methods of science was observation of the natural world. For instance, Charles Darwin methodically researched the flora and fauna in many parts of the world while serving as a naturalist with the British scientific expedition in the 1830s. He formulated his theory that the current species descended from a few earlier ones with the help of the specimens

he obtained on the journey.

Data classification can bring forth connections between observable facts. The periodic table was created in the middle of the nineteenth century by Russian scientist Dmitri Mendeleev, who classified the elements into families or groups. On the table, similar elements would periodically appear at regular intervals. The holes in the table represented information that wasn't yet known. Mendeleev's systematic classification was immediately proven to be valuable by scientists once they found additional elements that filled in the gaps and learned their properties.

Using reason Scientists can draw inferences from the evidence at hand by applying logic. In the late 1800s, German physicist Wilhelm Wien investigated the relationship between temperature and the energy radiated by solids and liquids. After examining several unusual examples, he found that the same result was always obtained by multiplying the temperature of a heated solid or liquid by the wavelength of maximum intensity radiated at that temperature.

carrying out experiments Scientific hypotheses must be developed and evaluated by experimentation. One of the first scientists to realize that meticulous testing can help in the discovery of natural laws was the Italian astronomer and physicist Galileo. Galileo conducted meticulously planned experiments in the late 1500s to look at the fundamental properties of matter in motion. By rolling balls of various weights down inclined surfaces, he discovered that everything falls to the ground with the same acceleration unless air resistance or another factor slows them down.

Mathematically expressing results can assist in illuminating how the world works. Galileo, Newton, and Einstein all employed mathematics to communicate their research's findings.

Exercise 3. Convert to English

Mustaqil joylangan yoki jinsning tarkibiy qismlari sifatida uchraydigan minerallar bir xil kimyoviy tarkibga, kristallik shaklga, solishtirma og'irlikka va agar ular orqali qutblangan yorug'lik o'tkazilsa, u yoki bu hodisalarni yuzaga chiqarish

xossasiga egadirlar. Minerallarning yuqorida keltirilgan xossalari doimiydir hamda ularni aniq belgilashga va barcha yo'nalishlar bo'yicha o'rganishga imkon beradi.

Biroq, biz bunday usullarni atroflicha qarabchiqa olmaymiz, chunki ular yetarlicha murakkabdir, va ulardan harbirini aniqlash alohida fanlarning ob'yektni tashkil qiladi. Aniq kimyoviy tarkibni miqdoriy tahlil bilan aniqlash mumkin, asliy sifatlar tarkibini va solishtirma og'irlik esa fizik-kimyoviy kristallografiya usullari bilan aniqlanadi. Umuman olganda, kristallarni o'rganish bilan mineralogiya shug'ullanadi.

Shu tariqa, eslatib o'tilgan har bir fanning batafsil rivojlantirish o'rniga, biz faqat keyingi bayonda foydali bo'ladigan xulosalarni keltiramiz va boshqa fanlarga qiziqayotganlarni tegishli kurslarga yuboramiz.

Shunday qilib, agar mineral kristallanish xossasiga ega bo'lgan bo'lsa va tashqi to'siqlarga duch kelmaslik xususiyatiga ega bo'lsa, u kristallanadi va aynan o'sha geometric shaklni beradi. Albatta, bir xil kimyoviy tarkibga ega bo'lganda ham modda bir nechta geometric shakllarda kristallanishi holatlari ham mavjud, ammo bunda ular har xil optic xususiyatlarga, qattqlikka, solishtirma og'irlikka va boshqa xususiyatlarga ega turli xil materiallar bo'ladi.

Bunday kristallanish mineralni ixtiyoriy tanlangan tekisliklardan iborat bo'lishiga imkon bermaydi, aksariyat holatlarda tekisliklar o'qlarning soni va tartibiga hamda tekisligiga bog'liq holda simmetriyaning jiddiy qonunlariga binoan joylashadi. Geometrik kristallografiyada kristallik shaklidagi minerallar uchun atigi 2, 3, 4 va 6 yo'sinidagi simmetriya o'qlari mavjud bo'lishi mumkin, va boshqa hech qaysisi bo'lishi mumkin emasligi isbotlab berilgan.

Kristallik tanada simmetriya o'qlaridan tashqari, simmetriya tekisliklari ham mavjud, ya'ni figurani (shaklni) ikki teng va aksincha ajratadigan xayoliy tekisliklar mavjud.

Task 7. English translation.

1. Mening sevimli fanlarim – topografiya, kimyo va kristallografiya.

2. Kecha biz taniqli ingliz olimining minerallarning dengizdagi konlari geologiyasi bo'yicha maqolasini tarjima qildik.

3. Eng yaxshi bitiruvchilar aspiranturada o'qishni davom ettirish imkoniyatiga ega.

4. Geologiya qit'alar, okean, atmosfera, magnit va radiatsiya maydonlarini o'rganadi.

5. Talabalar Internet va zamonaviy kutubxonadan foydalanish imkoniyatiga ega.

UNIT 4

Reading and Speaking: Someone special Writing: Life skills



I. ACTIVE VOCABULARY

cause (v) – yuzaga keltirmoq, sabab bo'lmoq;

clay (n) – loy;

consolidate (v) – qattiqlanish, qobiqning qattiqlanishi; birlashmoq.

crust (n) – qobiq;

decay (v) – chirimoq, chirish;

derive – o'xshash;

destroy (v) – parchalanmoq, qobiqning rarchalanishi; yo'q

qilmoq, buzmoq;
 dissolve – eritmoq, eritish;
 expose (v) – sirtga chiqmoq;
 extrusive – эффузив;
 glacier (n) – muzlik;
 grain – zarra, don;
 gravel (n) – гравий, shag'al;
 internal – ichki;
 external (adj) – tashqi;
 iron – temir;
 layer (n) – qatlam;
 lime – ohak;
 loose (adj) – sochiluvchan, uvalanib ketadigan, bo'sh;
 particle – zarracha;
 peat (n) – torf;
 sandstone – qumtosh;
 sediment (n) – cho'kindi jins;
 schist – kristall slanets;
 schistose (adj) – slanetsli, slanetsga oid, slanets qatlamli;
 shale – slatets, slanetsli gil;
 siltstone (n) – alevrit;
 stratification – yotish, joylanish;
 substance (n) – modda, material;
 thickness – qalinlik, quvvat;
 vary (v) – o'zgarish;
 value – qiymat.

Exercise 6. English translation.

1. Bugun juda sovuq; tun bo'yi qor yog'di. 2. Biz bir oy oldin uchrashgan edik, lekin o'shandan beri u haqida hech narsa eshitmadim. 3. Avstraliyada bo'lganmisiz? - Yo'q, lekin men doim u yerga borishni orzu qilardim. 4. Iqlimning isishi jahon okeanlari sathini o'zgartirmoqda. 5. Men uchun qilgan barcha ishlaringiz uchun rahmat. 6. Tropik o'rmonlarning kesilishi tabiatdagi nozik muvozanatni buzadi. 7. Inson g'ururi uchun ko'plab qimmatbaho daraxt turlari yo'q qilindi. 8. Qrimga oxirgi marta qachon borgansiz? - Men hech qachon Qrimda bo'lmaganman. 9. Yomg'ir to'xtadi va quyosh yana porlay boshladi. 10. Inson faoliyati tufayli

Orol dengizi deyarli yarmigacha qurigan.

UNIT 5. Reading: Great Britain Geographical definition Grammar: Past Simple

Describe a mineral.

ELEMENTS	+	ELEMENTS	=	MINERALS
		combine with (unite)		to form
MINERALS	=	ELEMENTS	+	ELEMENTS
		are formed combination of		by



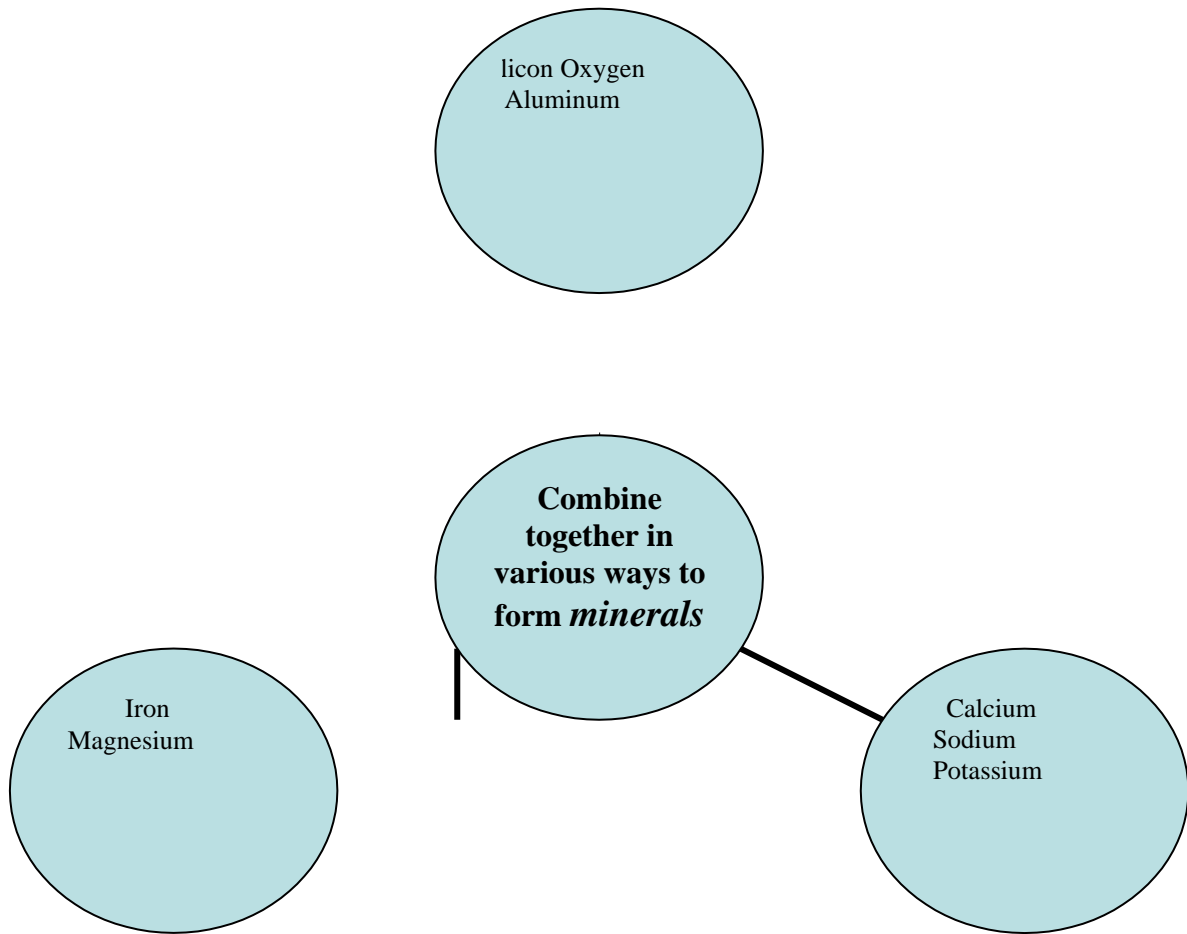
As a result, the fusion of the elements produces minerals.

To create minerals, the components must mix (unite).

Minerals have unit constituents called elements.

Minerals are made up of chemicals.

Potential characteristics of minerals


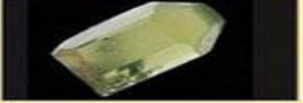
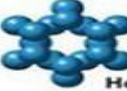



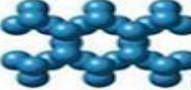

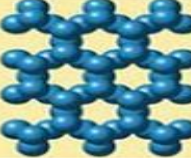





Elasticity sectility solubility specific gravity
radioactivity Hardness rigidity transparency crystal
form streak Cleavage ductility colour flexibility
magnetism Luster malleability fluorescence brittleness

HARDNESS

- | | |
|-------------------|-----------------------|
| 1. talc (softest) | 6. orthoclase |
| 2. gypsum | 7. quartz |
| 3. calcite | 8. topaz |
| 4. fluorite | 9. corundum |
| 5. apatite | 10. diamond (hardest) |

MINERALS FOR FORMING ROCK

Silicate structure	Mineral/formula	Cleavage	Example of a specimen
 Single tetrahedron	Olivine Mg_2SiO_4	None	
 Hexagonal ring	Beryl (Gem form is emerald) $Be_3Al_2Si_6O_{18}$	One direction	
 Single chain	Pyroxene group $CaMg(SiO_3)_2$ (variety: diopside)	Two directions at 90°	
 Double chain	Amphibole group $Ca_2Mg_5(Si_4O_{11})_2(OH)_2$ (variety: tremolite)	Two directions at 120°	
 Sheet	Mica $KAl_2(AlSi_3O_{10})(OH)_2$ (variety: muscovite) $K(Mg,Fe)_3(AlSi_3O_{10})(OH)_2$ (variety: biotite)	One direction	
Too complex to show here, see Figure 2.16	Feldspar $KAlSi_3O_8$ (variety: orthoclase)	Two directions at 90°	
	Quartz SiO_2	None	

This chart summarizes the ways in which silica ions can polymerize to form minerals. Typical examples of each type are shown in the photographs. There are many other silicate materials in each category, but all of the principal categories that occur in nature are illustrated here.

Even though most rocks contain minerals, knowing something about minerals is necessary to recognize rocks. Because they are chemicals, minerals have distinctive characteristics that aid in identification. Mineral identification is made straightforward by chemical analysis.

One of a mineral's properties that is influenced by its chemical composition is its specific gravity, often known as its relative weight. The material weighs more when its molecules are closely packed together with little extra space, as in metals.

Mineral specific gravity is contrasted with water's specific gravity of 1, which is 1. Common minerals have specific gravities ranging from 1.7 for borax to 19.3 for gold.

The majority of minerals also have a certain crystal form. The arrangement of the molecules within each mineral affects this in turn. Based on the angles of the crystal, there are six different

classification systems for mineral crystals. A crystal's structure and crystal shape can be determined from even a little portion of the crystal. Cleavage is the term used to describe the splitting of a mineral into flat planes. Additionally, this can be used to identify someone. Mica is the epitome of beautiful cleavage. Minerals also break in an uneven manner. Fracture is a sort of breakdown that facilitates mineral identification. Every mineral has a particular degree of hardness, which refers to the material's ability to scratch or be scratched. The usual scale used to rate difficulty is a scale of 10.

Since it could be brought on by impurities or surface modifications, the color of minerals is irrelevant for identification. Powdered mineral colors are referred to as streak, and the way a mineral's structure scatters or reflects light is referred to as lustre. In addition to these characteristics, some minerals exhibit vibrant colors when exposed to UV light. Object identification is another use for this fluorescence. There are magnetic characteristics in other minerals. Some of them are radioactive electrically. These and other characteristics of minerals help with both field and lab identification. When it comes to sources of diamonds or metals, the rock-forming minerals represent a minor group. They do, however, have an important place in the history of Earth. The formation of the ground on which we live is due to the minerals that make rocks.

The simplest and most prevalent of all rock-forming minerals is the crystal quartz, which is silicon dioxide. Quartz comes in a wide range of hues and forms. To create jewels, they are required. Quartz is a transparent, glassy mineral that has the potential to crystallize into a six-sided structure. It cracks with a shell-like surface, much like broken glass does. Because they are rare and precious, large quartz crystals are used in radio and electronics. Although crystalline quartz can occasionally form good crystals, it can be found in molten rocks.

Under specific circumstances, quartz will dissolve in alkaline water and reform as non-crystalline quartz. Agate, onyx, and chalcedony are the names given to these quartz variations. Crystalline quartz is the mineral that forms rocks the most

frequently. Non-crystalline quartz isn't crystalline.

Rock-forming minerals can include gypsum, calcite, dolomite, and halite (rock salt), however silicate minerals predominate in this field. The most important minerals for the formation of rocks are probably feldspars. Since they are hard to separate and blend together, this mineral family is tough to understand. Feldspars contain oxygen, silicon, and aluminum. Additionally, they contain one or two metals, such as sodium, calcium, and potassium. Feldspars that contain potassium or ash are typically found in another category with calcium feldspars.

Another family of rock-forming minerals is the zeolites, which consists of two dozen feldspar-related minerals. Zeolites are mostly soft, light minerals. Some of them have enticing crystal shapes.

It takes a long time for minerals to coalesce into rocks. It involves chemical reactions occurring under incredibly high pressures and temperatures. These different conditions, which might exist above or below the Earth's crust, lead to a variety of rocks. Even though some rocks share chemical characteristics, they have very diverse physical and mineral qualities.

Rocks are composed primarily of minerals. Only the volcanic rock known as kimberlite contains diamonds. Numerous rocks contain additional minerals like quartz and calcite. Gold is almost impossible to find in limestone, but it is much more likely to be discovered in molten rocks.

UNIT 6.

Listening: Leisure Grammar: Past Continuous/ Used to do(Working on texts Population of Uzbekistan)



The earth is a big, oddly shaped ball of rock that is so weighty that we are unable to imagine it.

Geologists do not imply that the entire globe is made up of the rocks found on a stony beach when they refer to the planet as a "ball of rock." The knowledge of the planet's deep-buried rocks is somewhat limited. It is easy to distinguish between chemical elements and the minerals they produce, but it is more challenging to distinguish between the earth's rocks.

On or near the rocky earth's surface, there is a thin coating of life covering the entire planet. Between two and three miles above sea level, certain plants and animals can be found. At the same depth below the sea's surface, other creatures might survive. However, within this limited six-mile layer, over 99.99% of all plants and animals are born, live, and die.

Geologists and astronomers have recently shown how complex the history of the world's origins is. However, everyone agrees that the sun, planets, and earth are made of matter. So the first step in understanding rocks is to grasp what is meant by matter.

Everything that occupies space, has weight, and can be felt is considered to be matter. On Earth and throughout the universe, all

matter is drawn to all other matter. Gravity or gravitation is the term used to describe this persistent attraction.

All matter is composed of 105 chemical elements, according to Mendeleev's Periodical Table. The 30 lightest elements make up more than 99 percent of the earth's mass. We may also find these 30 light components in all of our rocks. The two lightest elements, hydrogen and helium, make up the majority of the cosmos when the sun and other stars are taken into account.

On the hot surface of the sun, the majority of atoms (the tiniest particles of an element) exist independently of one another. On Earth, molecules are generally formed when atoms combine. The combination of two or more identical atoms occurs occasionally. Atoms of hydrogen and oxygen are frequently connected in pairs. Most typically, a molecule made up of different types of atoms is created when two or more unique elements interact.

Atoms can come together in a million various ways, with at least 100 different sorts. Each time, a fresh molecule is created. The molecules that make up living things are large and complicated. Carbon atoms are bonded to hydrogen, oxygen, nitrogen, sulphur, and phosphorus atoms in almost all of them. About 30 of the lightest elements have bonded to create countless millions of unique molecules in the crust of the earth. These molecules combine to create elements that are naturally present in the crust of the planet. Minerals are organic substances that do not originate in or from living things and have a unique crystal structure.

Although there are thousands of distinct kinds of minerals, only a small number are frequently used. The majority of the elements that make up these usual types are oxygen, silicon, aluminum, iron, calcium, sodium, potassium, and magnesium. In various combinations, these eight elements make up nearly all of the earth's crust, or outer layer.

English translation:

Minerallar (Foydali qazilmalar)

Hozirgi vaqtda 300 ga yaqin minerallar ma'lum bo'lib, har yili olimlar ularning tobora ko'proq yangi turlarini kashf etmoqdalar.

Ammo faqat 100 ga yaqin minerallar nisbatan katta amaliy ahamiyatga ega: ba'zilar - tabiiy tarqalishi tufayli, boshqalari - odamlar uchun maxsus, qimmatli xususiyatlari tufayli. Va ularning faqat to'rtidan bir qismi tog' jinslari tarkibida muhim rol o'ynaydi.

Ba'zi minerallar qadimgi Yunonistonda ham ma'lum bo'lgan. Ammo ularni bilishning ilmiy usuli ancha keyin paydo bo'ldi. Nemis olimi Georg Agrikola (1494-1555) haqli ravishda mineralogiyaning otasi hisoblanadi. Minerallar nazariyasi (minerallar haqidagi ta'limot) rivojiga tog' jinslari tasnifini ishlab chiqqan Frayberg konchilik akademiyasining mineralogiya professori A. Verner (1750-1817) katta hissa qo'shdi.

Minerallar nomlarining paydo bo'lishi hech qanday yagona tizimga bo'ysunmaydi: ularning ba'zilar konchilar jargonidan yoki xalq nomlaridan olingan, boshqalari ataylab maxsus o'ylab topilgan. Vaqt o'tishi bilan ba'zi minerallar (foydali qazilmalar) yangi nomlarga ega bo'ldi, bunda ularning oldingi nomlari ham ko'pincha iste'moldan chiqib ketmadi. Shuning uchun hozir bir xil mineral bir nechta nomga ega bo'lishi mumkin. Qimmatbaho va yarim qimmatbaho toshlarning nomenklaturasi ayniqsa chalkash: ularning ko'psonli nomlari chalg'itishi mumkin.

Task 7. English translation.

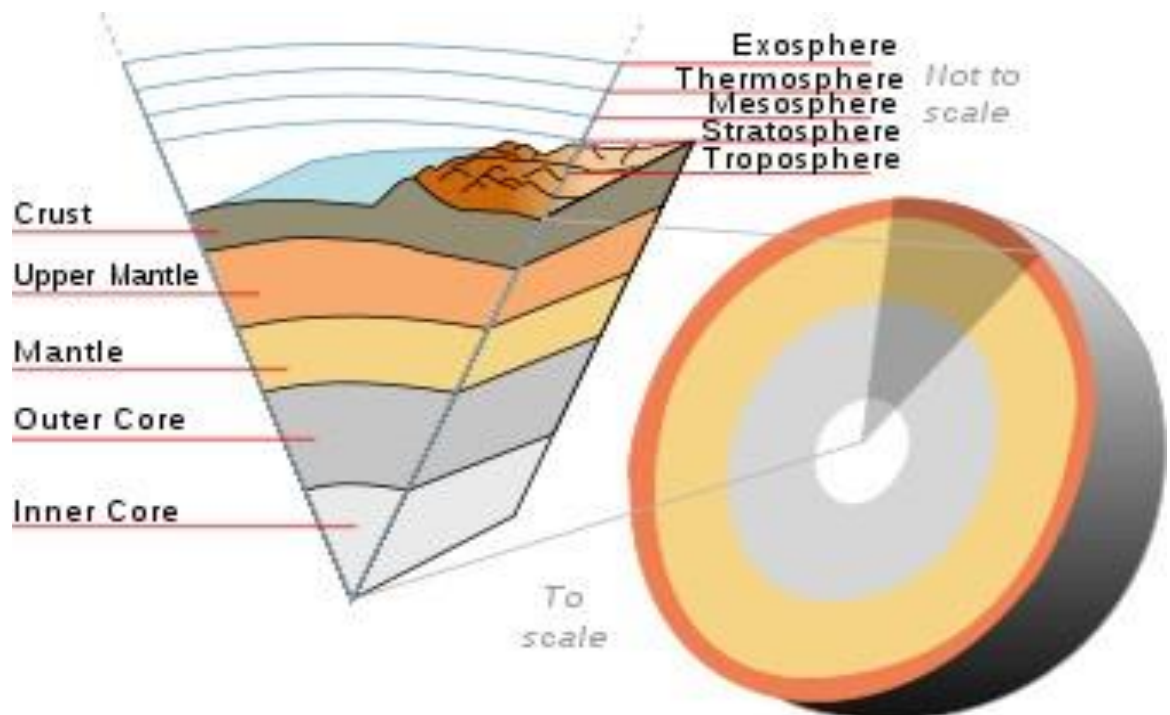
Geologiya - Yerni, uning tarixini, tuzilishini, hayot evolyutsiyasini, Yer va uning aholisini shakllantirgan jarayonlarni o'rganadigan fan. Geologiya fani akademik va amaliy jihatlariga ega. Akademik jihatlariga hayotning paydo bo'lish tarixini, Yer va sayyoralarini, shuningdek, tarixiy evolyutsiya jarayonlarini o'rganish kiradi.

Tarixiy evolyutsiyani uzoq vaqt davomida o'rganish geologiyani boshqa fizika fanlaridan ajratib turadigan narsadir.

Fanning amaliy jihatlariga inson va Yerning o'zaro ta'siri, mineral resurslarni o'rganish, zilzilalar, ko'chkilar, vulqon otilishi kabi hodisalarni aniqlash va bashorat qilish, hamda ifloslangan yer osti suvlari manbalarini topish kiradi. Geologlar urbanizatsiya muammolarini ham o'rganishmoqda.

UNIT 7

**Reading: Great Minds. Grammer: Present Perfect Tense.
Writing-Achievements of 21st centure**



A

ADVANCED VOCABULARIES

- abyssal (a) – abyssal, chuqur, chuqurlikdagi;
hypabissal (a) – gipabissal, tubsiz;
adjacent (a) – qo'shni, yonma-yon, payvasta;
ash (n) – kul;
belt (n) – kamar;
body (n) – tana, jism, modda;
solid (liquid, gaseous) bodies – qattiq (suyuq, gazsimon)
moddalar, jismlar;
common (a) – odatiy, umumiy; *syn* general; *ant* uncommon;
cool (v) – sovimoq, salqinlashmoq; *ant* heat – isitmoq, isimoq;
dimension (n) – o'lcham, o'lchash; *pl* o'lchamlar, qiymat,
syn measurement, size ;
dust (n) – chang;
dyke (n) – dag'al, qo'pol
extrusion (n) – tashqariga surish, surib chiqarish, siljish; *ant*
intrusion – yorib
kirmoq; *geol.* intruziya (magmatik massaning tog' jinsiga kirib

borishi);

fine (a) – nozik; mayda; dona-dona, donador; yuqori sifatli;
yupqa;

fine-graded (fine-grained) (adj) – mayda donali, mayda donador;

finer (n) – mayda; mayda ko‘mir;

inclined (a) – qiya;

mica (n) – slyuda;

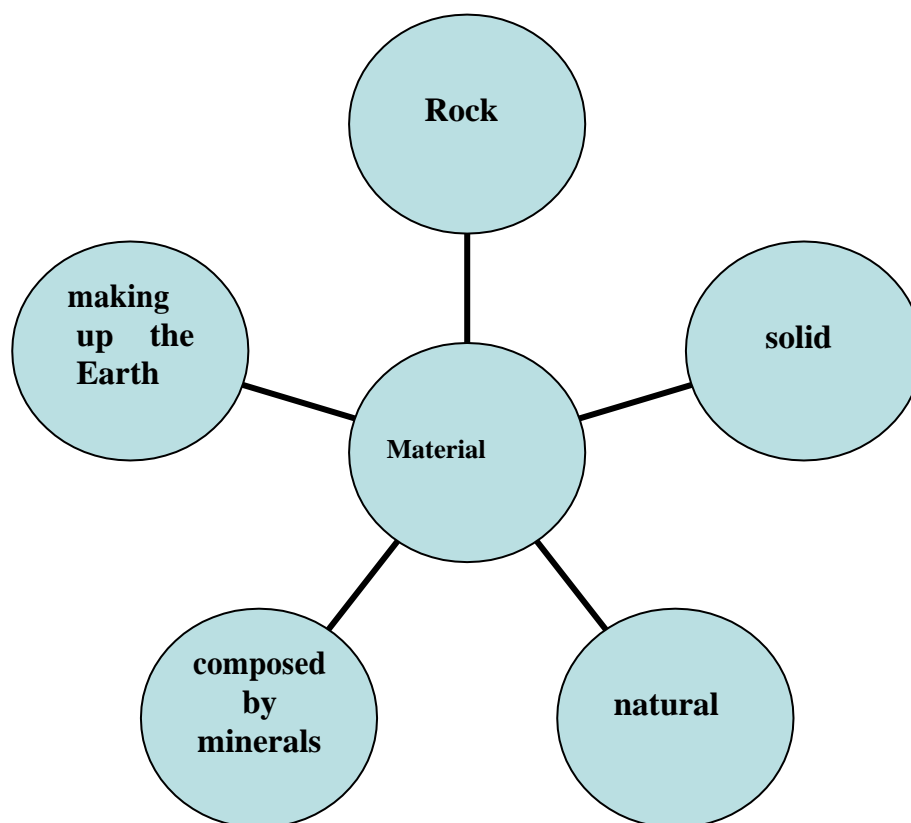
probably (adv) – ehtimol; *syn* perhaps, maybe;

shallow (a) – ustki, sirtqi; *ant* deep – chuqur, pastki;

sill (n) – сила, qatlamdagi intruziya;

stock (n) – stok, kichik batolit;

vein (n) – tomir, oraliq qatlam, *geolog.* yer po‘stining tog‘ jinslarga boy tomirsimon yorig‘i va undagi tog‘ jinsi, kon.



Exercise 6. English translation.

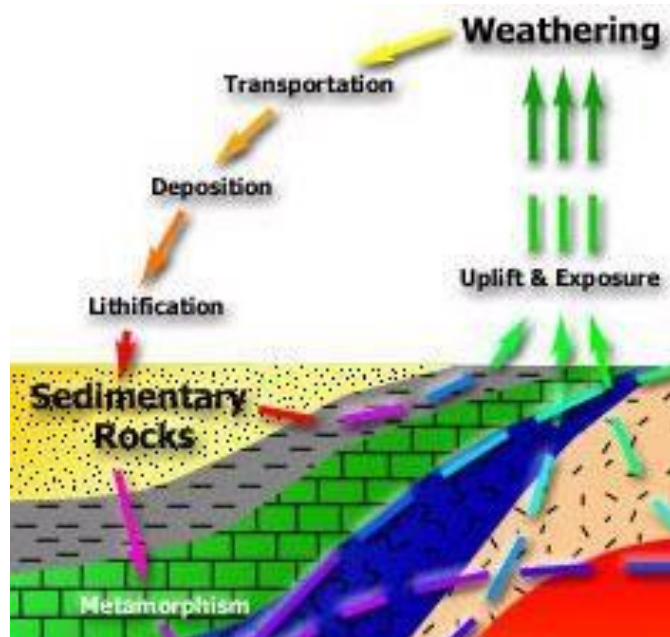
1. Ular o‘tgan hafta tajriba o‘tkazdilar.

2. Bu yosh muhandis ikki yil oldin institutni tamomlagan.
3. Geologlar tabiiy gazni topgach, mintaqa yoqilg'i balansida ko'mirning ulushi kamaydi.
4. Biz kechikdik va ular allaqachon uxlab qolishgan.
5. Olimlar bu hudud foydali qazilmalarning katta zahiralari ega ekanligini ta'kidlamoqda.
6. V.I.Vernadskiy mineralogiya va kristallografiya, geokimyo, biokimyo va radiogeologiya sohasida ajoyib kashfiyotlar qilgan mashhur olim bo'lgan.

UNIT 8.

Grammar: Past Perfect Tense. Listening: Around the world. Reading-Human Geography (Writing formal and informal letters)

The fact that igneous rocks make up 95% of the Earth's crust



and sedimentary rocks make up 5% should be emphasized. On the other hand, there are three times as many sedimentary rocks on Earth's surface than igneous rocks.

By bulk, sedimentary rocks make up a very small portion of the Earth's crustal rocks. On the other hand, sedimentary rocks make up around 75% of the Earth's surface. It means that

sediments, which are solid material accumulations on the Earth's surface, are responsible for the formation of the majority of sedimentary rocks. Sedimentary rock layers can vary greatly in thickness from one site to another. Water, wind, frost, and biological decomposition all have the ability to mechanically manufacture them. Conglomerates, sandstones, and clay schists can be formed from gravel, sand, and clay deposits as a result of material accumulation brought on by the corrosive mechanical action of water and wind.

Mechanical sediments can be both unconsolidated and consolidated. Unconsolidated mechanical sediments include gravel, sand, and clay because they are composed of loose, uncemented particles (grains).

The most prevalent sedimentary rocks are conglomerate, sandstone, siltstone, shale, limestone, and dolomite. Common salt, gypsum, phosphate, iron oxide, and coal are other varieties with a high practical utility.

Since they depend on the energy that our planet receives from the Sun for their functions, water, wind, and living things are all considered to be external forces.

Exercise 3. Compare and contrast the words in A and B.

A B

- | | |
|-----------------------------|----------------------|
| 1) yer qobig'i | a) sandstone |
| 2) suvda erish | b) fine-grained sand |
| 3) qumtosh | c) the Earth's crust |
| 4) siqilgan yog'ingarchilik | d) exposed rocks |
| 5) magmatik tog' jinslari | e) to dissolve in |
| water | |
| 6) mayda donador qum | f) like gypsum |
| 7) qotib qolmoq | g) consolidated |
| sediments | |
| 8) gips kabi | h) igneous rocks |
| 9) fosh jinslar | i) to solidify, to |
| consolidate | |

Exercise 6. English translation.

1. Yer yuzasi cho'kindi, portlovchi va metamorfik jinslardan iborat.

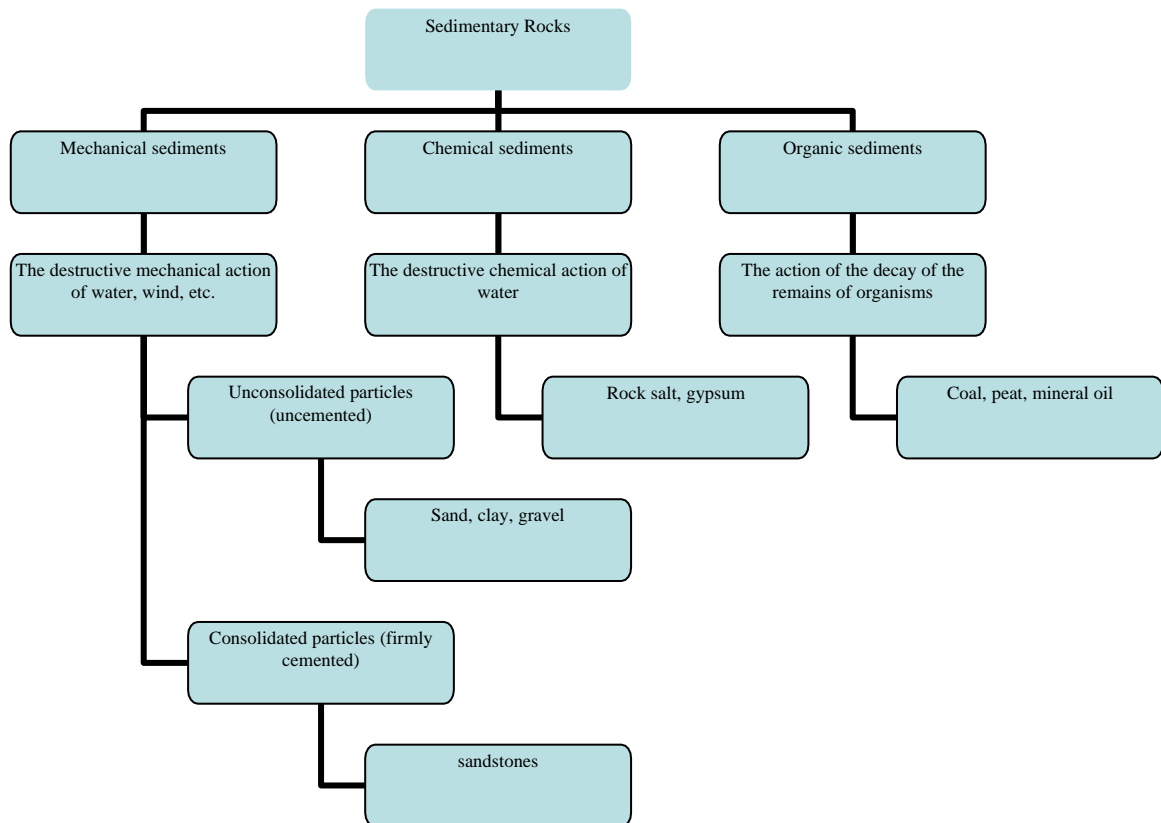
2. Cho'kindi jinslar suv, issiqlik, sovuq va organik moddalar ta'siri ostida hosil bo'ladi.

3. Ma'lumki, tosh tuzi mineral moddalarning cho'kishi natijasida hosil bo'ladi.

4. Ushbu moddalar suvda eriydi.

5. Ko'mir yoqilg'i sifatida ishlatiladi.

Exercise 7. Use the following scheme to discuss sedimentary rocks:



UNIT 9.
***Control Work. Reading-Keeping fit Drawing-Physical
Geography***



Geologists claim that rock, a naturally occurring, solid substance, is what makes up the earth. When temperatures are similar to those of the crust of the earth, a rock is said to be solid.

When referring to rocks, geologists use the word solid in its technical definition. A solid is something that isn't liquid or gaseous. You might find it strange that geologists refer to solid rock in this way. Both the shifting sands of the desert and the damp sands of the seashore are solid and rock. This also holds true for marshy mud and muck layers, as well as volcanic ash and cinders. Stones they are as well.

The final qualifier, material, doesn't make the definition of a rock any more complicated. It should be emphasized, nonetheless, that the biological and inorganic origins of certain minerals in the earth's crust are distinct. Inorganic materials make up the

majority of the earth's crust. This indicates that there is no connection to life or living things. Lava from a volcano is a prime example of an inorganic material. As well as the enormous rock fragments that are launched kilometers into the air.

Some rocks are organic, which means that living things generated them. Old plant remains include coal and oil resources. You can counter that since oil is a liquid, it is not a rock. However, contrary to popular belief, there aren't any sizable subterranean oil lakes. Sand and other rocks' pores frequently absorb the oil. It may occasionally drain into wells and then be pumped to the surface. Oil is trapped in rocks, particularly oil shales, in the millions of gallons. Asphalt is a different variety of organic rock.

The rocks made from the remains of aquatic organisms are less widely recognized. Shells join together to generate a variety of limestone kinds. Sometimes these are little animal shells, and other times they are considerably larger.

Another sort of rock created by living things is coral. Lime is extracted from seawater by coral organisms, who then utilize it to build the reefs that are home to countless millions of other coral organisms. The South Pacific is dotted with coral islands. Despite their presence in the earth's crust, diamonds are not rocks.

The study of rocks is called petrology. Since most rocks are harder to identify than birds, flowers, or trees, it is a challenging field of study. However, the study is important since minerals and rocks are the building blocks of modern civilisation. All life on Earth is based on the rock that creates soil. Rock minerals are dissolved by flowing water, adding salt to the sea and enabling marine life to survive.

When the rocks are made of identifiable minerals that are large enough to be identified, rock identification is straightforward. It takes skill to recognize the minerals in fine-grained rocks when they appear to be identical to one another, as in some of the black rocks. A diamond saw is frequently used by a geologist to cut a piece of rock, which is then polished until it is completely smooth. The remainder of the rock is polished until it is paper thin before the flat surface is adhered to a glass slide. Under a microscope, this thin layer of rock is examined with

Polaroid light. Beautiful colors are produced as light passes through the minerals in the rock. The identification of rocks depends on a variety of other characteristics. It is possible to use the texture, color, hardness, and relative weight of the rock as indicators. Wherever the rocks are located, the geologist looks for geologic features as well. Some types of rocks are exclusive to volcanoes, whereas others are found only in caverns. Instead of being found on high ridges, others might be found in valleys.

2. READ TEXT 3B AND PREPARE TO DISCUSS THE NATURE OF ROCKS. Text 3B

Exercise 3. Describe in English:

Sahro (cho'l), kon, aralashma, suyuqlik, mavjud, botqoq, sayqallamoq (polirovka qilmoq), sun'iy, silliq, loyli slanets, ko'mir, oddiy, barxanlar, garchi, biroq.

Exercise 6. English translation:

TOG' JINSLARI



Yer qobig'i yoki litosfera tashkil topgan tog' jinslari ularning kelib chiqishiga qarab 3 katta guruhga bo'linadi:

1. portlovchi;
2. cho'kindi jinslar;
3. metamorfik yoki kristalli slanetslar.

Tog' jinslarining ushbu uchta guruhi bir-biridan asosan yer qobig'idagi joylashuv sharoitlari, kimyoviy va mineralogik tarkib hamda minerallar tarkibiy qismlarning shakli va hajmiga bog'liq bo'lgan tuzilishi bilan aniq farqlanadi.

Portlovchi jinslarga tarkibida mavjud bo'lgan olovli-oquvchan

massasining (magmaning) qattiqlashishi va kristallanishi natijasida hosil bo'lgan jinslar kiritiladi. Cho'kindi jinslar deb turli denudatsion jarayonlarning mahsuloti hisoblangan jinslarga ataladi. Nihoyat, metamorfik jinslar bosim, harorat, gaz va eritmalar ta'siri ostida portlovchi va cho'kindi jinslardan chiqib ketgan jinslardir. Tog' jinslarining ushbu uchta guruhi o'rtasidagi munosabatlar, ya'ni portlovchi, cho'kindi va metamorfik jinslar o'rtasidagi o'zaro munosabatlar, bu guruhlarining barchasi bir-biri bilan cheksiz o'zgarish zanjirining bog'lanishlari sifatida o'zgarib turadigan aylanish (tsikl) tasvirini ochib beradi. Ushbu tsikl shunday ko'rinadi: sirt ustiga tushib qolgan portlovchi jins, parchalanadi, bug'lanadi; uchib (bug'lanib) ketgan mahsulotlar cho'kindi jinslar orasida taqsimlanadi, ularning bir qismi yer yuzasida qoladi va ikkinchi qismi esa sirt suvlari dengizlarga ko'chiradi va u yerda cho'kib, o'tirishib qoladi. Cho'kindilarning to'planib qolishi bilan, ayniqsa, ular geosinklinalga joylashganda, ya'ni, dengiz tubining pastroq va pastroq tushib ketayotgan qismiga botganda, dislokatsion jarayonlari doirasiga kirib, va, nihoyat, gazlar va suvning isitish va bosimi ularni metamorfik jinslarga aylantiradigan sohaga kirib, yanada pastroq tushib, bu qatlamlar vulkanik o'choqlariga yaqinlashadi va u yerda toblanish ta'siriga duchor bo'lib, botib qoladi va magmani hosil qiladi. Bu magma qulay sharoitlarda portlovchi jins sifatida qattiqlashadi, vaqt o'tishi bilan bug'lanib yo'qoladi va o'tgan tsiklni yana takrorlaydi.



Task 6.
English translation



Yerdagi issiqlik energiyasining asosiy manbai Quyosh va yerning o'z issiqligidir. Quyosh issiqligi Yer sharidagi ko'plab mexanik, fizik, kimyoviy va organik jarayonlarni keltirib chiqaradi, va yer qobig'ining o'rtasiga to'lqinli termal oqim bo'lib kiradi; ushbu oqimning kunlik (sutkalik) va yillik amplitudalari hatto katta bo'lmagan chuqurlikda ham (taxminan 30 metr) tezdaqotib

qoladi (so'nadi), keyin esa markazga qarab juda zaif doimiy oqim keladi.

Yerning juda yuqori harorat (bir necha ming daraja) mavjud bo'lgan o'rta qismidan, quyosh termik oqimlariga qarab, yer ning (yer yuzasining) statsionar harorati borib, u yer yuzasining haroratiga juda zaif ta'sir ko'rsatadi.

Yer yuzasini (quruqlikni) quyosh nurlari bilan isishi uning nurafshonligi (shu'laligi), issiqlik sig'imi va tuproqning issiqlik o'tkazuvchanligiga bog'liq va sirt harorati bilan bir xil o'zgarishlarga uchraydi. Endi isbotlanganidek, isitish juda sayoz bo'ladi, shuning uchun hatto past chuqurlikda ham kunlik harorat o'zgarishlari sodir bo'lmaydi.



UNIT 10.

Grammer: will/shall/ be going to. Writing: Writing an essay- Changes. Reading-Great Adventure (Making presentations)



ADVANCED VOCABULARIES

deposit(n) – deposit, kon

facility (n) – vosita, asbob-uskunalar, qurilma

wet fire (n) – метан

relate(v) – tegishli (taalluqli) bo'lmoq, daxldor (aloqador, ansub) bo'lmoq

seam (n) – qatlam

in order to contribute (v) – (ilm-fanga) hissa qo'shmoq

the best one can (id) – kuchni ayamay; eng yaxshisini qilmoq

mine security (n) – tog'-kon ishlab chiqarishida mehnat xavfsizligi

description (n) – ta'rif, tavsif

harmful – zararli

safety – xavfsizlik

success – muvaffaqiyat

Exercise 1. Finish the table. Utilize the information provided here.

Element	Aggre-gate state	colour	Chemical activity	valency	weight	Flam-mability	Taste	odour

Vodorod – eng engil gaz, rangsiz, hidsiz, ta'msiz, birikmalarda monovalent (bir valentli), kimyoviy faol, suvda eriydi, yonadigan.

Kislород - rangsiz, hidsiz va ta'msiz gaz, kimyoviy faol. Birikmalarda ... valent.

Brom - qizil-jigarrang rangli og'ir o'yuvchi suyuqlik, kimyoviy faol.

Simob - og'ir suyuqlik, kimyoviy jihatdan kam faol, kumush-oq rangli, bir-ikki-valentli, o'yuvchi, yonmaydi.

Arsen (margimush, mishyak) – kulrang-po‘latrang modda, yonadigan, kimyoviy kam faol, birikmalarda 3- va 5-valentli, o‘yuvchi.

Exercise 2. English translation:

1. Mutaxassislarining ta'kidlashicha, sanoatda ko'mirdan foydalanish o'sib bormoqda.

2. Energiya inqirozi masalasi ko'pincha olimlar tomonidan qo'yiladi (belgilanadi).

3. Agar insoniyat atrof-muhitni ifloslantirishdan to'xtamasa, bir necha yil ichida nafas olishimiz uchun hech narsa qolmaydi.

4. Pessimistik prognozlarga ko'ra, iqlimning isishi kelajakda odamlar hayotiga katta ta'sir ko'rsatadi.

5. Atom stansiyasining qurilish maydonchasi shahardan 35 km masofada joylashgan bo'lib, u yaxshi ventilyatsiya qilinadi va suv toshqini paytida uni suv bosmaydi.

6. Agar ular pul topsalar, daryo bo'ylab yangi ko'priklar quradilar.

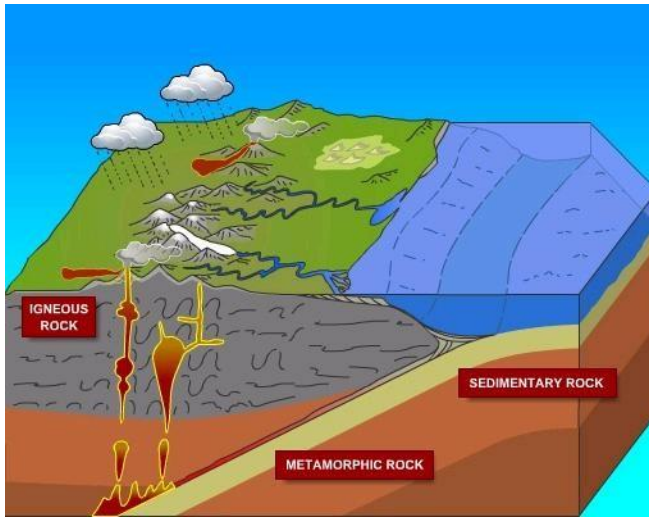
7. Kichik gidroelektrostantsiyalarga e'tibor o'sib boradi, chunki yirik stansiyalarning quvvati mamlakatning barcha energiya ehtiyojlarini qondirish uchun yetarli emas.

8. Yangi o'quv yili boshlanishidan oldin biz hisobotni yozishni tugatishga majbur bo'lamiz.

9. Ertaga ob-havo prognozi soat 3-da yomg'ir yog'ishi, ba'zida qor bilan bo'lishini ta'kidlaydi.

UNIT 11.

Listening: Environmental Geography. Grammar: Degrees of Comparison



The largest igneous rock masses are called batholiths. Batholithic cooling was glacial. Massive mineral grains were able to develop as a result of this progressive cooling. The majority of batholiths are composed of granitic rocks with enormous crystals called plutons. It is well known that intrusive or plutonic rocks like granites and diorites are created when igneous material solidifies beneath the Earth's crust. Granites can form smaller masses known as stocks when an occurrence has an erratic shape but smaller dimensions than the batholiths.

Sills and laccoliths, which are relatively comparable, are found in the spaces between sedimentary strata. Sills are small and might be vertical, angled, or flat. Laccoliths can occasionally form mountains due to their thicker bodies.

Lava flows that emerge from fissures produce extrusive igneous rocks. These fields of volcanic rocks include rhyolite, andesite, basalt, as well as volcanic ashes and dust, tuff, and other types of rock. These fine-grained volcanic rocks frequently cool quickly. It's important to remember that basalt is the most typical lava type. On the ocean floor, it is the most prevalent kind of rock.

Minerals with considerable scientific or economic value are abundant in igneous rocks. Igneous rocks and veins are rich in ferrous metals such as iron, gold, zinc, nickel, and others.

Exercise 4. English translation.

1. Portlovchi jinslar katta iqtisodiy ahamiyatga ega bo'lgan minerallarning katta guruhini tashkil qiladi.
2. Portlovchi jinslar sovutish paytida intruziv yoki effuziv jinslar shaklida hosil bo'lgan.
3. Ortoklaz chinni ishlab chiqarishda xom ashyo sifatida katta miqdorda ishlatiladi.
4. Ortoklaz parchalanishi natijasida hosil bo'lgan loy (gil) massasi odatda oq rangga ega va kaolin deb ataladi. Olingan mahsulot sanoatda ishlatiladi.
5. Kvarts kichik, juda qattiq donalar shaklida joylanadi.
6. Shisha ishlab chiqarishda sof kvarts qumi ishlatiladi.

UNIT 12.

Reading and Speaking: Nature. Reading: Migration(Preparation of sample articles)

Igneous rocks, sedimentary rocks, and metamorphic rocks are the three categories into which geologists divide rocks based on how they were formed. Igneous rocks form when a heated, molten liquid called magma solidifies. Sand and clay are examples of loose particles that can join together to form sedimentary rocks. Metamorphic rocks are created when older igneous, sedimentary, or other metamorphic rocks move as a result of intense heat and/or pressure, or when they get deformed during the creation of mountains. The rock cycle shows that all rocks gradually change from one of three rock types to another over the course of geologic time.

Increased warmth, decreased pressure, and the injection of water are the three main processes that melt portions of the Earth's asthenosphere. Spreading centers, mantle plumes, and subduction zones are three geologic locations where these processes produce enormous amounts of magma. Magma has a temperature range of 600o C to 1400o C. The majority of magmas are silicates. Magma regularly rises to the Earth's surface because it has a lower density than the rocks around it.

Extrusive, or volcanic, igneous rocks are produced when magma erupts and solidifies on the surface of the Earth. An intrusive, or plutonic, rock is produced when solidified lava cools and solidifies beneath the surface. Volcanic rocks often have extremely fine-to-fine grain sizes, whereas plutonic rocks frequently have medium-to-coarse grain sizes. Porphyry is composed of larger crystals that are encased in a matrix with fine grains.

The two most common types of igneous rocks in the Earth's crust are granite, which makes up the majority of the continental crust, and basalt, which makes up the oceanic crust. The top mantle is made primarily of peridotite. Classification and naming of igneous rocks are based on their texture and mineral makeup.

Mafic rocks are dark in color, have a low silica content, and a high iron and magnesium content. A common variety of mafic rock

is basalt. A felsic rock has a light color, is rich in silicon and feldspar, but is deficient in iron and magnesium. One type of felsic rock that is quite common is granite. An intermediate rock has a composition and color that fall between mafic and felsic rocks. The most prevalent intermediate rock is andesite. The least silicon and aluminum and the highest magnesium and iron are found in ultramafic rocks. Peridotite, an ultramafic rock, is prevalent in the mantle but rare in the crust.

PORTLOVCHI JINSLAR

Portlovchi jinslar yer qobig'ining chuqurligidan ko'tarilgan yoki yer yuzasiga yetib bormasdan, uning ichida qotib qolgan, yuqori harorat ta'sirida erib ketgan magmalarning qotishi yo'li bilan hosil bo'lgan (intruziv, yoki chuqur yer osti jinslari); yoki yer yuzasiga quyilgan magmalarning qattiqlashishi bilan hosil qilingan (effuziv yoki to'kilgan jinslar).

Ular cho'kindi jinslardan o'z o'lchamlari bilan farq qiladi, ya'ni vazmin (salmoqli) bo'lib, hayvonlar va o'simliklarning qoldiqlarini o'z ichiga olmaydi va bir nechta minerallardan iborat, ya'ni murakkab jinslardir. Zamonaviy davrda portlovchi jinslarning shakllanishi vulqonlarning portlashlarida (lava) kuzatilishi mumkin.

Turli portlovchi jinslarni yuzaga keltiradigan magmalar murakkab silikat eritmalaridir; portlovchi jinslarning mineral tarkibi va tuzilishi tegishli magmalarning kimyoviy tarkibiga va magma qitib qoladigan fizik sharoitlarga, masalan, bosimga bogliq bo'ladi; agarda ushbu sharoitlar o'zgarsa, magmaning o'zi ham turli portlovchi jinslarni berishi (hosil qilishi) mumkin.

Task 7. Utilize the dictionary to translate into English.

Vulqon portlashlarining kuzatuvini shuni ko'rsatadiki, magmaning ko'tarilishi bilan bir vaqtda undan suv bug'ining massasi va turli xil gaz mahsulotlari, masalan, karbonat angidrid, turli oltingugurtli, xlorli va boshqa birikmalar chiqariladi. Ushbu materiallarning roli shundaki, magmada ular mineralizatorlar hisoblanadi. Magmaning qotib qolishi va qattiqlashishi paytida, mineralizatorlar yo havoga o'tadi, yoki, agar sovutish qobiq ichida sodir bo'lsa, - atrofdagi tog' jinslariga o'tadi.

Tog' jinslarini tahlil qilganda, biz magmaning tarkibini mineralizatorlarsiz aniqlaymiz.

Mineralogik tarkib jinsni hosil qildirgan magmaning tarkibiga bog'liq. Magmada mavjud bo'lgan oksidlar turli minerallar, asosan, silikatlarining kristallanishi vaqtida hosil bo'ladi, bunda biz minerallarni ularning jins tarkibida bo'lgan soniga qarab, asosiy va yon minerallarga taqsimlaymiz.

Asosiy minerallarning rolini ko'pincha kvarts, skalinetlar, amfibollar, losnaklar va olivin o'ynaydilar.

Asosiy magma parchalanish davrida ikki turdagi magmani beradi: dioritli va bazaltli; birinchisidan dioritlar, porfirritlar, andezitlar, ikkinchisidan esa - gabbro, diabazlar, bazalt va melafiralar kelib chiqadi.

Asosiy magmaning keyingi parchalanishi peritonitlar, pikritlar, piroksenitlar hosil bo'ladigan ultra-asosiy magmalarni beradi.

UNIT 13.

Grammar: Future time. Grammer: there, it Reading – Top cities

ACTIVE VOCALICIES

cleavage patterns – tarqalish, bo'linish

geological anomalies – geologic buzilish

the schistose coal – qatlamli ko'mir

the schistose coal – o'rta navli ko'mir

most prevalent metamorphic rocks – odatda metamorfik

jinslar fluids with chemical activity – kimyoviy faol suyuqliklar

too much water – ortiqcha suv

Metamorphic rocks with and without foliation – qatlamli va qatlamsiz metamorfik jinslar

an explanation of rocks – porschning ta'rifi

Schistose composition – qatlamli tuzilish

inferior metals – sifati past metallar

superior oil – sifati yuqori moy

uncovered igneous rocks – ochilgan magmatic jinslar

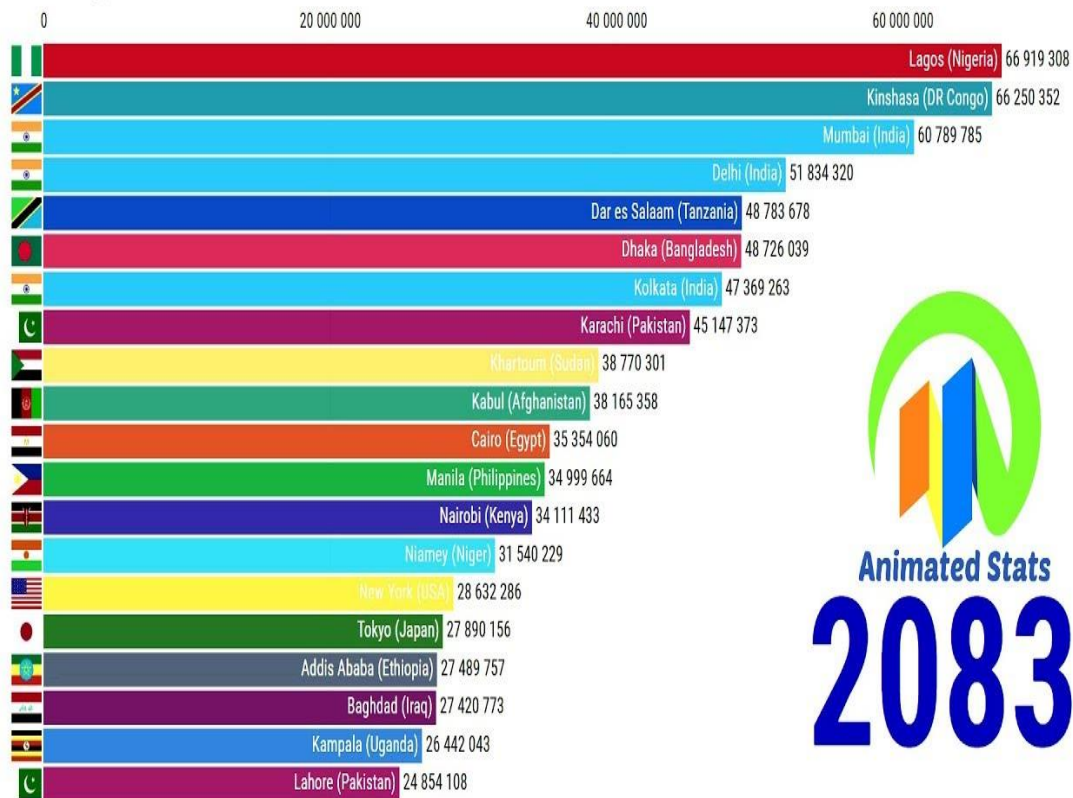
solitary crystals of orthoclase – yagona ortoklaz kristallari

science-based value – ilmiy ahamiyati

a water's force – suv bosimi

Earth's surface is covered in thin sheets. – Yer yuzasining yupqa qatlamlari
different plates – alohida plitalar

Largest Cities in The World 1500 to 2100

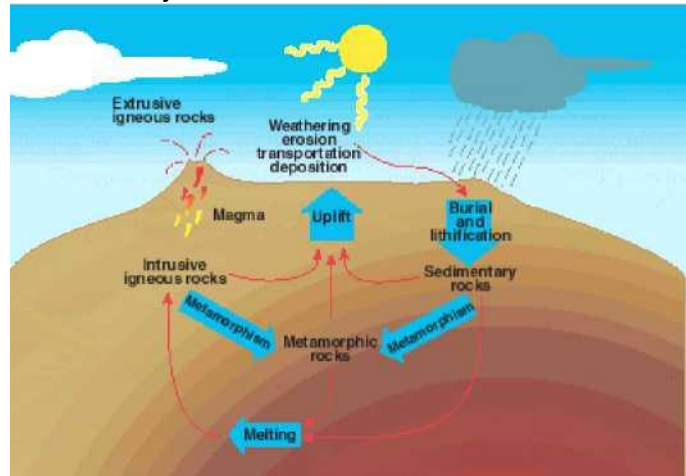


Exercise 7. English translation:

1. Bu masalani matematika yordamida hal qilish mumkin!
2. Davlat konchilarning mehnat sharoiti va salomatligiga e'tiborni kuchaytirishi kerak.
3. Havodagi oz miqdordagi CO2 ham uyquchanlik, bosh og'rig'i, bosh aylanishiga olib kelishi mumkin.
4. Arktikadagi muzlarni tez erishiga odamlar sababchi.
5. Barcha ekologik muammolar davlat tomonidan o'zaro bog'liq va targ'ib qilinadi..
6. Uning juda ko'p kitoblari bor. U o'qishni yaxshi ko'rishini aniq..
7. Bugun xat ololmadim. Bugun pochta ishlamayapti.
8. Garchi ko'proq ishlashim kerak bo'lsada, men imtihonga yaxshi tayyorgarlik ko'rmadim.



The Rock Cycle



METALLIC ROCK

UNIT 14.

Reading: Tourism and culture. Grammar: Types of questions(Preparation of videos based on the topics of specialization)



Crystalline schists, which are metamorphic rocks with schistose characteristics, include gneisses and mica.

The oldest components of the Earth's crust are metamorphic rocks. They are mainly found in mountain belt regions where there have been significant prior Earth dislocations.

Minerals used by humans can be split into two groups: Metals include non-metallic materials like diamonds, salt, limestone, cement, sulphur, and asbestos as well as aluminum, copper, gold, silver, iron, tin, platinum, chromium, nickel, lead, and zinc. When minerals are present in sufficient quantities to allow for profitable

mining, ore deposits are created. Rarely are mineral deposits equally rich throughout. Both metallic and nonmetallic minerals are considered economic minerals because they have a monetary worth.

Numerous elements make up the majority of minerals. Examples of such elements are oxygen, silicon, titanium, aluminum, iron, magnesium, calcium, sodium, and hydrogen. By weight, they make up more than 99 percent of all the minerals that comprise rocks. Iron, magnesium, and aluminum are industrial metals. Trace amounts of the other metals are present, especially in igneous rocks.

One of the most prevalent metals in the Earth's crust, for instance, is iron. Volcanic rock deposits, residual deposits, and sedimentary deposits are the three categories into which iron deposits fall. Small yet incredibly rich haematite or magnetite masses are frequently found in iron deposits associated with igneous rocks. Successful mining operations have produced significant amounts in Pennsylvania (the United States) and the Russian Federation.

Remaining iron mineral deposits are produced as a result of weathering. This process of creating iron deposits is very common. The fact that humans were among the first to use up leftover goods should be emphasized. The great majority of the present supply of iron in the globe comes from sedimentary sources.

Since it is a necessary component of all steels, iron is without a doubt the most significant of all industrial metals. It has been essential to the growth of our contemporary society. Cast iron, steel, and ferro-alloys are the main products made with iron ores. The ability of iron to become magnetic is its most significant characteristic from a scientific perspective.

Magnetic iron ore is the primary resource of the Kursk Magnetic Anomaly (KMA). It is noteworthy that the underside of massive iron ore masses' peculiar magnetic was just recently found.

Surface mining is used to recover iron reserves as it is more cost effective. However, the KMA is not only abundant in iron ores.

Bauxite, phosphorite, cement, sand, and clays are all found in its reserves.

Exercise 1. Convert to English.

Fan va texnikaning rivojlanishi bilan geologik muhitga antropogen ta'sir muttasil ortib bormoqda. XVIII asr boshlarigacha odam 26 elementpv msherally foydalangan!' xomashyo, 20-asr boshlarida. - 59, bugungi kunda esa 80 dan ortiq. Ko'pincha geologik muhitga salbiy ta'sir qiladi.

Konchilik va qurilish sanoati Faqat 10% chegirma!' sayyoramiz ichagidan olingan xomashyo tayyor mahsulotga aylanadi, qolgan 90% esa atmosferani ifloslantiradi. Masalan, og'ir rudalarni boyitish jarayonida og'ir rudalarning deyarli uchdan bir qismi poligonlarga tashlanadi. Bundan tashqari, qo'shimcha materiallar - kumush, rux va rudalarning mini komponentlari etarli darajada ishlatilmaydi.

Foydali qazilmalarni qazib olish, boyitish va qayta ishlash natijasida bo'sh tog' jinslari va ishlab chiqarish chiqindilarining to'planishi, zararli elementlar - og'ir metallar, radionuklidlar va boshqalarning kontsentratsiyasi o'simlik va hayvonlarning og'ir kasalliklariga, hattoki ommaviy nobud bo'lishiga olib keladi.

UNIT 15.

Grammer: Tag quastions. Writing: Doing exercises. Listening and Speaking: Geography of time zones



ACTIVE VOCALICIES

brittle (adj) – bo‘sh, mo‘rt, sinuvchan
contract (v) – shartnoma
drag (n) - pasayish
eliminate (v) – inkor etmoq, rad etmoq
expand (v) – kengaytirmoq, ko‘paytirmoq
fluctuate (v) – tebranmoq, silkinmoq
grind (v) – maydalamoq, yanchmoq
halite (n) - toshtuz
harm (n) – zarar, ziyon
hydrogen (n) - vodorod
hydrolysis n) (- gidroliz
involve (v) – o‘z ichiga olmoq
oxidation (n) - oksidlanish
reduce (v) – kamaytirmoq, qisqartirmoq
rubble (n) – tosh bo‘laklari
removal (n) – olib tashlash, ko‘chirish
rust (n) - zang
thaw (n) – erish
vanish (v) – g‘oyib bo‘lish
wedge (n) - xanjar

Exercise 1. Convert to English.

1. Agar odamlar tabiiy jarayonlarga kamroq aralashsa, ular bunchalik tez o‘zgarib ketmasdi.
2. Aftomobillar narxi yanada ko‘tarilsa yaxshi bo‘lardi.
3. Agar yoz uzoqroq va issiqroq bo‘lsa, men juda xursand bo‘lardim.
4. Agar ular hozir shu yerda bo‘lishganida, menga yordam berishardi.
5. Korxonalar tozalash inshootlari haqida qayg‘urishganida, suv omborlarimizdagi suv ancha toza bo‘lardi.
6. Boylar faqat o‘z foydasini o‘ylamaganida, sayyoradagi nopokliklar kamaygan bo‘lardi.
7. Agar biz issiqxona gazlari chiqindilarini kamaytirish vositalarini topmasak, ozon qatlami yo‘qolishi mumkin.
8. Sizning xohishingizga ko‘ra, men bu loyihani imkon qadar tezroq yakunlayman.

9. Agar biz harakat qilmasak, global isish oqibatlaridan kelajak avlod aziyat chekadi.

10. Agar ular menga iltimos qilishmaganida, maktabdagi bu ishga rozi bo'lmagan bo'lardim.

UNIT 16. ROCKS WEATHERING



All rocks exposed on the Earth's surface, including those in deserts and high mountain peaks, have undergone some degree of erosion. Weathering is the term used to describe the process of rock disintegration brought on by the direct influence of regional air conditions on the Earth's surface. Since weathering is a dynamic process, it is frequently discussed in geology. The highest layers of the Earth's crust contain it.

The primary factor causing physical weathering is the change in temperature that occurs with the passage of day and night. Due to the frequent temperature changes in deserts and steep mountains, this phenomena is particularly obvious there.

Due to the effects of heat, rocks grow during the day but contract at night. Due to the variety of minerals that make up rocks, their expansion and contraction are not uniform. Rocks shatter as little more than a result of this. These fissures or fractures are initially hardly noticeable, but as they widen and deepen, the entire rock surface turns into gravel, sand, or dust.

In regions with a warm or cold environment, the action of water greatly accelerates the breakdown of rocks when the temperature in winter drops below 0 degrees Celsius (zero). Water swells in volume when it freezes, producing a tremendous amount of lateral pressure. Rocks disintegrate into a variety of shapes and sizes when exposed to water.

Rocks break down physically as a result of extreme heat and cold.

Both chemical weathering and physical deterioration of rocks are possible. Chemical weathering refers to the action of chemical agents such as water, carbon dioxide, and oxygen. The most prevalent minerals, quartz (sand) and aluminosilicates, are targeted by chemical weathering, which is generally an acid attack on the Earth's crustal rocks (clays). Only a few minerals and rocks are affected by natural water action. When carbon dioxide is added, the water's ability as a solvent is enhanced. Water has more varied and complex impacts. Up to 90% of rocks become soluble minerals when oxygen and carbon dioxide are present, and these minerals are then transported away by the oceans.

Plants and animals also contribute in the disintegration of rocks. By boring holes into rocks to live in, some marine invertebrates speed the disintegration of the rocks. The damage caused by plants is frequently greater. Their roots penetrate rock crevices and exert lateral pressure that causes rocks to fracture and disintegrate.

CHECK FOR COMPREHENSION.

Text 17.

Chemosphere forecasting



Compared to physical weathering, which simply causes comminution, chemical weathering of rocks involves more

significant alterations. These modifications cause some minerals to completely or partially disappear, and the secondary material that results differs greatly from the original minerals.

The processes take place in an aqueous medium and rely on the water's ability to break down due to the presence of dissolved carbon dioxide and, in some cases, organic acids produced by plant decay. Chemical weathering is obviously enhanced where physical weathering has already taken place since it happens at the surface of rock minerals. Chemical weathering alone can cause disintegration, especially if the weathering rocks have some degree of jointing or porosity, because most rocks are made up of an uneven mosaic of different minerals with varied degrees of susceptibility to attack.

There are two steps to chemical weathering: the removal of certain minerals and the synthesis of secondary chemicals.

Alteration near the parent mineral's seat may produce certain secondary products, whereas precipitation from solutions may produce others. Sometimes leftover products are incorporated or mixed with the material that precipitated at the weathering site.

Water has been compared to an organism's blood because of its critical role in the modification of rocks and the development of soil. Chemical weathering is intimately tied to water; it is low in extremely dry or extremely cold environments. The universal solvent is sometimes referred to as water since it dissolves practically all compounds. Water becomes much more active when carbon dioxide is present.

Relationships between temperature and activity of solutions in rocks and soil are especially crucial since, in general, changes occur more quickly the higher the temperature. Regarding chemical weathering, the length of time of the year when temperatures are above 0°C is crucial.

UNIT 18

SOIL



ACTIVE VOCABULARIES

acidic weather (n) – quruq iqlim

beneath (adv) - ostida

barren (n) – chiqindilar, hosilsiz yer

cereals (n) - yormalar

crucial (adj) – asosiy, muhim

deluge (n) – suv toshqini, to‘fon

deplete (v) – ortiqchasini chiqarish

health threat (n) -

failure (n) - muvaffaqiyatsiz

fertilizers (n) – o‘g‘itlar

food cycle (n) – oziq ovqat zanjiri

hookworm (n) - глист

horizon (n) – ufq, ufq chizig‘i

humus (n) – qoratuproq, chirindi

infest (v) – to‘lib toshmoq, bosib ketmoq

livestock (n) - chorvachilik

moisture (n) - namlik

overgrazing (adj) - seryaylov

mother rock (n) - материнська порода

pedologist (n) - tuproqshunos

perennial (adj) – ko‘p yillik

ongoing irrigation (n) - ko‘p yillik sug‘orish

protein (n) - oqsil

residue (n) – cho'kma
resurgence (n) – qayta tiklash
rodent (n) - kemiruvchi
rot (v) - chirish
soil (n) - tuproq
solid waste disposal (n) - chiqindi
shelter (n) - boshpana
subsoil (n) – yer osti boyliklari
sustain (v) – ushlab turmoq
thrive (v) – gullab-yashnamoq
topsoil (n) – tuproqning yuqori qatlami
vulnerable (adj) - zaif
water table (n) – suv sathi
weed (n) – begona o't
yield (n) – o'rim-yig'im
yield (v) – hosil bermoq

LECTURAL TESTS

Exercise 1. Give the following their English translations.

1. o'simlik ildizlari
2. tez namlanish
3. donli ekinlar
4. dukkaklilar
5. tuproqning sho'rlanishi
6. organic moddalarni yo'q qilish
7. muhim nitratlar
8. yangi irrigatsiya loyihalari
9. to'yimli, oziqali
1. nourishing substances

Exercise 5. English translation.

- 1.Ular bizdan dasturlarda ishtirok etishimiz bilan bog'liq BCI muammolari allaqachon hal qilinganmi yoki yo'qligini so'rashdi.
- 2.“Sizdan ko'p gapirmaslikni so'rasam bo'ladimi?” — so'radi u.
- 3.Siz erta turishingiz kerakligi sababli u sizdan kech kelmaslikni so'radi.
- 4.U qanday qilib millionerga aylanganini aytib berdi.
- 5.“Men sizga insho yozishda yordam beraman”, - dedi talaba.

6. "Yaxshi, mayli. Men xato qildim. Endi afsusdaman. Kechirasiz, - dedi guruhdoshimiz.

7. Ular bizda xarajatlarni kamaytirishga yordam beradigan formatimiz bor yoki yo'qligini bilishni xohlashadi.

8. O'qituvchi bizga muntazam ravishda o'z ustimizda ishlashimiz kerakligini tushuntirdi.

SOIL



We learn that mineral weathering caused soil to form over millions of years.

The three types of weathering are physical (where temperature changes cause the rock to expand and contract until it breaks into pieces), chemical (where carbon dioxide and water combine to form a weak acid that dissolves rocks like limestone), and biological (where the rock is broken down by the action of living things such as plant roots and bacteria).

The usual soil composition is as follows: The top layer of soil is rich in humus, an organic waste product that is dark and fibrous (topsoil). Microbes that break down organic matter are found in humus, along with minerals like iron and micronutrients like nitrogen. Compost contains microbes that break down organic materials as well as micronutrients like nitrogen and minerals like iron. Humus links inorganic particles and absorbs moisture. The soil's quality is determined by how much humus (organic content) is present (or fertility). High-grade soil is dark, moist, and crumbly. Less organic material, but plenty of minerals brought down by rain, make up the intermediate layer of soil. Because they are unable to create new tissue in the absence of nitrogen, plants

and animals are unable to develop. Leguminous plants and cereal crops have traditionally been rotated because cereal crops absorb nitrogen from the soil (which replace the nitrogen). Intensive farming techniques that produce grains year after year deplete the nitrogen in the soil. The top soil layers erode due to cutting and animal grazing (too many cattle on a small area of grassland). The nitrogen cycle, which is vital to maintaining human homeostasis, is interrupted because the essential oxides are taken away with the topsoil.

The world loses 24 billion metric tonnes of topsoil per year as a result of intensive farming and forestry practices. Land degradation is the final stage of topsoil loss, occurring when all of the soil's organic and mineral components have gone, leaving behind poor subsoil that cannot support plant development. Each year, soil erosion destroys over 20 million hectares of agricultural land. 30% of the land surface on the earth is affected by land degradation. Another issue with intensive farming (i.e., continuous irrigation year after year without a break) is the salinization of the soil, which occurs in arid regions as a result of persistent irrigation. Rain washes away the salt that is present in every soil. The quantities of salt in soil are relatively high in areas with little rainfall. Evaporation from irrigation canals and reservoirs increases the salt of the water.

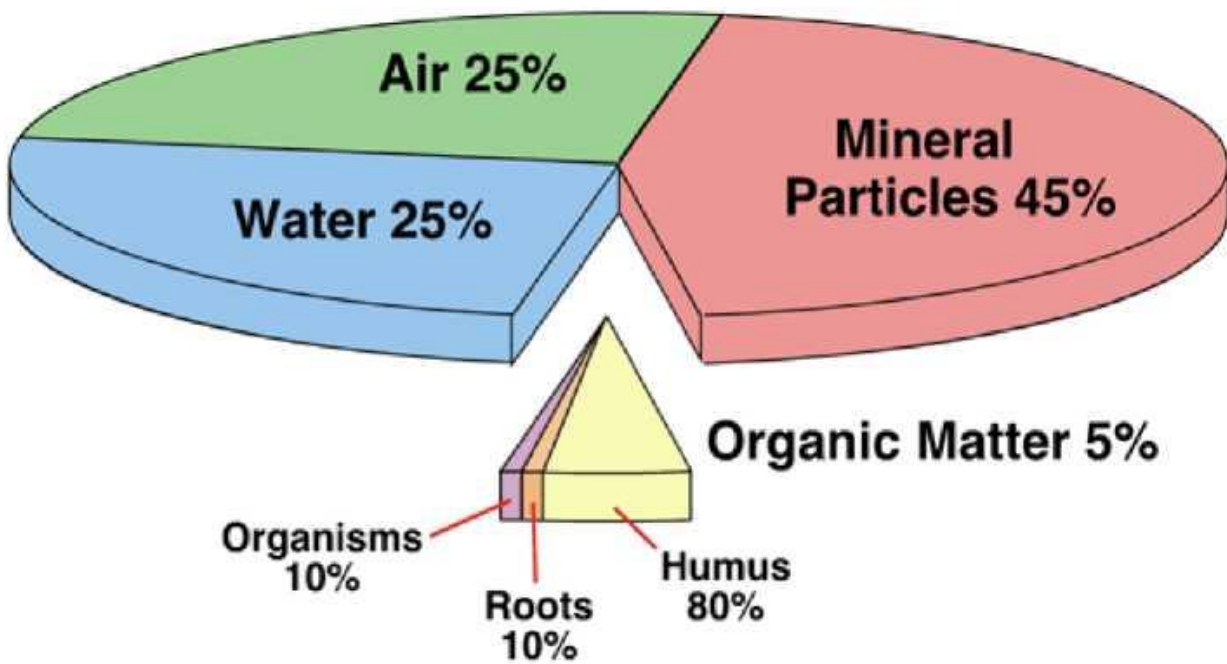
Utilizing fertilizers can help to improve soil quality. However, they do have an impact on the environment through a process known as eutrophication. The discharge of rainwater cleans the soil of extra nitrogen. Plants raised with synthetic fertilizer are typically bland and undernourished. Pesticides are not used to raise organic veggies. These compounds kill insects and other pests but are poisonous to many other living things, including humans. Crops absorb pesticides, which are then washed into bodies of water. They are frequently concentrated by the food chain. In the human body, pesticides build up and are expelled in breast milk. Pesticides are responsible for the deaths of more than 20,000 individuals annually, many of whom are children.

Organic vegetables are grown without the use of pesticides. These substances work well to kill bugs and other pests but are

harmful to many other living things, including humans. Pesticides are absorbed by plants and then wash into bodies of water. In the food chain, they are often concentrated. In the body, pesticides accumulate and are excreted in breast milk. The accidental ingestion or inhalation of pesticides results in the death of over 20,000 people annually, many of whom are children. Many plants, fungus, insects, and other pests perish in temperate regions during the harsh winter months. There is no cold season in tropical areas. The high temperatures encourage pests, which might result in crop loss. When a single crop is widely produced across a huge amount of land, they quickly spread from field to field, wreaking devastation. In general, small-scale, diverse subsistence farming is more appropriate for tropical regions than large-scale, intense cash crop cultivation. Finally, it has been widely discovered that cattle in the tropics are affected. If individuals try to adopt intensive farming practices, yields may initially increase, but they gradually decline further, and soil erosion increases. In general, the yield from both arable and livestock farming in tropical climates is one-quarter to one-third that of temperate regions.

A small amount of earth appears lifeless and boring. Nevertheless, all the necessary components for life are present in high-quality, rich soil. A planet that is as lifeless as the moon is hidden behind the thin layer of dirt.

VII. CHECK FOR COMPREHENSION
Unit 19.
WHAT FORMATS SOIL



The majority of the earth's land surface is covered in soil, which is a precious natural resource. Most creatures on Earth derive their nutrition either directly or indirectly from the soil. Because of their roots in the soil, plants depend on it for nutrition (nourishing ingredients). Mammals get their sustenance from plants or animals that eat plants. Decomposing dead creatures is made possible by specific soil bacteria, which helps the soil replenish its nutrients. The dirt is also a haven for a wide variety of species.

Mineral and organic fragments, as well as other plant and animal materials, air, and water, are all components of soil. The composition of the soil is ever-changing. There are various varieties of soil, and each has distinctive qualities including color and composition. How well crops grow in a place depends on the type of soil present. In order for life to flourish, soil must be conserved because it forms slowly and is easily harmed.

"Polypedons" is the term used by pedologists, or specialists in soil, to describe the aggregates of various soil types in a given geographic area. Although some polypedons only have a 10.8 square foot surface area, they can grow infinitely large (1 square meter). Only a few inches (13 cm) deep, several polypedons. Some are more than 4 feet deep (1.2 metres).

When natural pressures disintegrate rocks and other similar materials that are present on or near the earth's surface, soil starts to form. The outcome is referred to as parent material by pedologists. As soil ages over generations, organic matter builds up and the soil gradually diverges from the parent material. Parent material and soil may be transported from one location to another by rivers, glaciers, wind, and other natural phenomena.

There is constant creation and degradation of soil. Soils that took thousands of years to form, for example, may be quickly degraded by wind and water erosion.

Different environmental factors have different effects on how soil is formed. These factors are time, plants and animals, climate, land surface features, parent material types, and others.

Numerous interconnected factors affect soil growth. They are time, the climate, the plants and animals, and the rock that formed the soil. Soils develop gradually and steadily. The images below show the beginnings and development of a normal soil over time.

<p>When rain, ice, freezing and thawing, and other environmental forces decompose rocks and similar materials, soil starts to form. The resulting substance, known as the parent material, subsequently decomposes into mineral particles.</p>	<p>Simple organisms can be found living on deteriorating rocks (decaying). Acids produced by lichens that resemble plants aid in the breakdown of rocks. Organic material accumulates amid the mineral particles after an organism dies.</p>	<p>As soil grows, horizons appear as layers. More organic material than the other layers can be found at the top layer, or A horizon, which also gets deep enough to support plant roots. The source material can be seen in the lowest layer, called the C horizon.</p>	<p>A robust vegetation cover can be supported by a well-developed soil. The B horizon, a midway layer, may also be present. Minerals from the soil's surface that have been washed away are present in this horizon.</p>
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soil characteristics

Over a body of soil, several processes and rates of soil formation occur. Thus, layers of filth accumulate. Soil horizons are the name given to these strata. Horizons in the soil can be thin or thick, similar to or distinct from those around them. The edges of the layers may be clearly visible or barely perceptible.

Three main horizons are present in the majority of soils. The A and B horizons, which are the top two levels, are the most developed. Topsoil is a common term used to describe the A horizon. The C horizon, often called the subsoil, is the lowest horizon and undergoes the least amount of weathering. Its structure resembles that of the material it is derived from.

The characteristics of the soil horizons, such as color, texture, structure, density, and chemical conditions, are used by pedologists to categorize soils (4). Color. Soil comes in a variety of hues, from red and yellow to black and dark brown.

Pedologists can determine the amount of air, water, organic matter, and specific elements by looking at the color of the soil. For instance, a red color could be a sign of iron compounds in the soil.

The size of a soil's mineral particles affects the texture of the soil. Sands are the largest particles. There are discernible and feelable individual grains. Clays are small, whereas silts are hardly noticeable. Based on the amount of sand, silt, and clay present, pedologists divide soils into textural classes. For instance, loam soils' mineral sections typically include less than 52% sand and between 7% and 27% clay. In silty clay, clay makes up more than 40% of the mineral particles while silt makes up the remaining 40%. How well water drains from a soil is influenced by texture. Clays give less drainage than sands do. writing a summary.

Task 2. Give the following their English translations.

1. Donli ekinlar
2. Tuproqning sho'rlanishi
3. Yangi irrigatsiya loyixalari
4. Dukkaklilar
5. Chorva mollarini ko'p boqish
6. Oziq-ovqat zanjiri
7. Hosilni yig'ib olish
8. Qancha vaqtingiz bor
9. Siz juda mehribonsiz
10. Dorixona orqasidagi bank
11. Bu erda yoqilg'i quyish shahobchasi bormi?
12. U yerga metro orqali borishingiz mumkin.
13. Avtobus bekati shu yerda
14. Sizga bir soat vaqt kerak bo'ladi.
15. Tuproq hosil qilish usullari.
16. Yerning rangi har xil b'ladi.

Task 3. English to Uzbek translation. Total 15

1. "Iltimos, ayting-chi, Tuproqshunoslik instituti qayerda?". — soʻradi u.

2. "Men Tobiga "Tuproq" mavzusida insho yozishda yordam bera olaman, – dedi u, imtihondan oʻta olmagan uchun.

3. Vali soʻradi: "Tuproqning tuzilishi nimaga bogʻliq?".

4. Doʻstim mendan soʻradi: "Senda geologik lugʻat bormi?".

U: "Barqaror qishloq xoʻjaligi haqida nimalarni bilasiz?" deb soʻradi.

Task 5

Give the following irregular verbs three different forms.

1. Bilmoq

2. boshlamoq

3. Oʻsmoq

4. Bermoq

5. sotmoq

6. yirtmoq

7. joylamoq

8. tikmoq

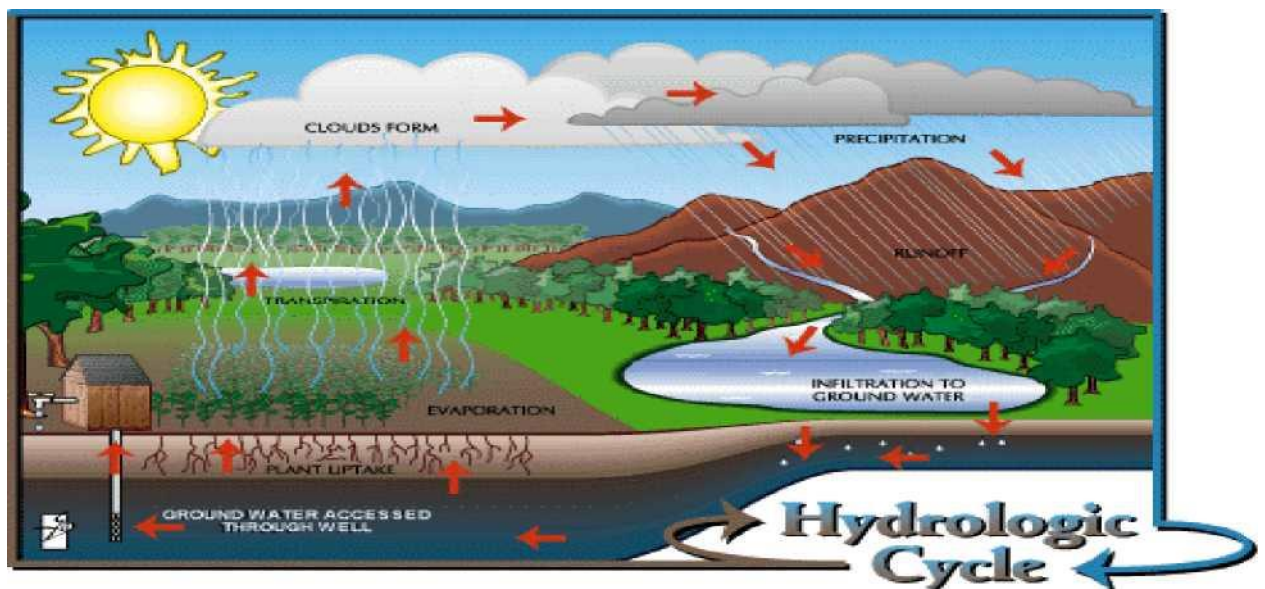
Task

Land and soil

Soil and land are frequently misunderstood even though they are two different concepts. While soil is a combination of minerals, organic matter, living animals, air, and water that works together to support plant life, land is the portion of the planet that is not covered by seas. It is covered in soil, which is a thin covering of earth. Farmers are particularly interested in soil because it affects the kind of crops that can be grown and the farming techniques that must be utilized. The condition of the soil has an impact on the type and quantity of food that urban inhabitants consume. Both urban and rural residents suffer if the soil is misused to the point where it is unable to produce. When soil is misused to the point where it can no longer support crop growth or when it is allowed to deteriorate, reducing the quality of the air and water, both urban and rural residents suffer. We must first comprehend the characteristics and formation of soil in order to understand how it might be protected.

Physical and biological activities combine to produce soil. Physically breaking up the parent material, which can be more recent geologic deposits from lava flows or glacial activity or more ancient rock strata, is the first step in the production of soil. The sort of soil that forms depends on the parent material and the environment. Weathering describes environmental factors that could cause the parent material to fragment or undergo chemical alteration. The main factors that contribute to mechanical weathering are temperature changes and abrasion.

UNIT 20. Biological Cycle of Water



ACTIVE VOCALICIES

aquatic cycle - gidrologik sikl

evaporation (n) - bug'lanish

unceasing (adj) - tinimsiz

trade (winds) - tog' shamoli

precipitation (n) - yog'ingarchilik

seep (v) - sizib kirmoq

runoff (n) - suv oqimi, oqar suv

humidity (n) - namlik

surplus (n) - ortiqcha

deficit (n) - tanqislik, yetishmovchilik

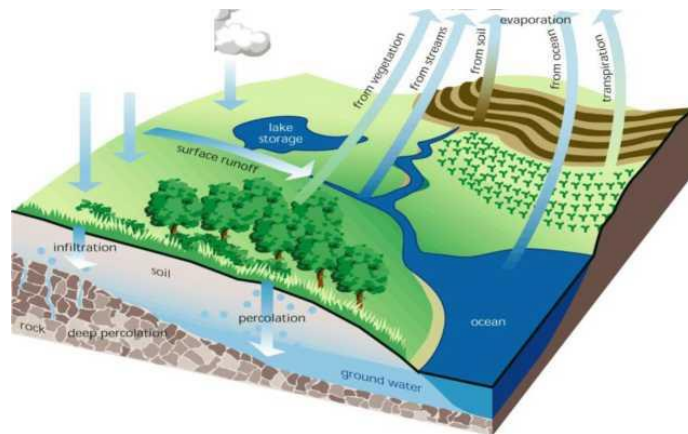
water equilibrium - suv muvozanati, suv balansi

Exercise 3. English translation:

1. Dunyodagi eng katta chuchuk suvli ko'l - Baykal ko'li bo'lib, suvi doimo zararli chiqindilar bilan ifloslanadi.
2. Alyuminiy ishlab chiqarish uchun juda katta energiya talab qilinadi.
3. Bundan tashqari, aluminiyning katta qismi boksit konlaridan olinadi.
4. Daraxtlardan yog'och olish maqsadida katta nam o'rmonlar yo'q qilinmoqda.
5. Atrof-muhitni juda ifloslantiruvchi yoqilg'ilar kelajakda yangi, toza yoqilg'ilarga almashtiriladi.
6. Katta hududlarda chiqindi miqdori halokatli darajada oshib bormoqda va biz unga qarshi kurashishimiz kerak.
7. Yaqinda yurtimizda zamonaviy yuqori texnologiyali yoqilg'i zavodlari quriladi.

Text

THE HYDROLOGIC CYCLE



Huge amounts of moisture are continuously transported to landmasses via the hydrologic cycle, a continuous system that combines seawater and atmospheric air. If water could not move from a liquid to a solid state, the hydrologic cycle would not be conceivable vapor, then liquid again (and even, as ice, to the solid state). When the ocean's surface makes contact with an air mass, evaporation occurs as water vapor is released into the atmosphere. Equatorial air masses are frequently humid, whereas polar air masses are dry, because evaporation rates rise with temperature and warm air can hold much more moisture than frigid air. If the air mass continues to move in the trade winds, westerlies, or another pressure pattern after the water vapor has joined it, the air could reach and spread over a continent. Moisture in the air condenses as a result of numerous processes and falls to the earth as precipitation. When this precipitation reaches the ground's surface, some of it evaporates due to contact with plant leaves, soil, lakes, and rivers. It eventually drains into lakes, streams, and even the ocean, but some of it seeps into the ground and forms ground water. Additionally, some of the precipitation runs off into streams before reaching the ocean. The water mixes with the current as it makes its way back to the ocean, where it may eventually evaporate back into the atmosphere. The circulatory system as a whole is then revived. In this way, the hydrologic cycle serves as an enormous, global pumping system

that transports water to even the most remote parts of the continents.

When this precipitation reaches the ground's surface, some of it evaporates due to contact with plant leaves, soil, lakes, and rivers. It eventually drains into lakes, streams, and even the ocean, but some of it seeps into the ground and forms ground water. Additionally, some of the precipitation runs off into streams before reaching the ocean. The water mixes with the current as it makes its way back to the ocean, where it may eventually evaporate back into the atmosphere. Then, the entire circulatory system is rejuvenated.

The best water supply and the best water balance are found in equatorial regions. However, as we move north and south from the equatorial zone into the tropics, we find vast areas with a negative balance between latitudes 10° and 40° - and these are not only desert regions.

CHECK FOR COMPREHENSION



Exercise 1. Respond to the following inquiries.:

1. How does the hydrologic cycle work?
2. What prerequisite must exist for the hydrologic cycle to occur?
3. At what point does evaporation occur?
4. In what areas do evaporation rates increase?
5. What occurs to precipitation after it reaches the surface of the land?
6. How does the hydrologic cycle work?
7. What significant finding did researchers in climate change make?
8. Which areas have the best water supply?

Exercise 2. Ask questions about the following claims:

1. Huge volumes of moisture are sent to the landmasses by the atmosphere's air and the oceans' water.
2. If water could not change from a liquid state to a vapour state and back to a liquid state, or even a solid state, the hydrologic cycle could not take place.
3. Equatorial air masses frequently include moisture.
4. The best water supply and optimal water balance are found in equatorial zones.
5. The hydrologic cycle serves as a huge worldwide pumping mechanism that transports water to the deepest interiors of continents.

UNIT 21

AQUIFERS AS GEOLOGICAL FORMATIONS

A geological feature or substance called an aquifer can store large volumes of water.

Most developed aquifers are composed of unconsolidated rocks, usually gravel and sand, to a degree of around 90%. A significant portion of the water in the sand and gravel beds of these aquifers is replenished by seepage from streams into alluvial fans close to the mouths of mountain valleys. An aquifer is a type of geological formation or material that may store large volumes of water.

Depending on the degree of consolidation and the development of permeable zones following deposition, limestones have a wide range of densities, porosities, and permeabilities. The majority of the original rock has been dissolved and removed from those most significant aquifers. Limestone can have a variety of openings, from tiny initial pores to enormous solution caverns that create subterranean channels big enough to transport a stream's whole flow. The phrase "lost river" refers to a watercourse that totally vanishes below in a limestone terrane. In the limestone region, large springs are regularly discovered. Depending on the level of consolidation and the development of permeable zones following deposition, the density, porosity, and permeability of limestone vary significantly. In the largest aquifers, considerable amounts of original rock have been dissolved and removed. Limestone has a variety of openings, from minute pores to enormous solution caverns that form underground channels big enough to transport a stream's entire flow. An subterranean waterway that totally vanishes in a limestone terrane is referred to as a "lost river." Big springs are common in limestone regions. In limestone aquifers, calcium carbonate is dissolved by water, resulting in largely hard ground water. Additionally, because water is dissolving the rock, pore space and permeability gradually increase. A limestone terrane gradually transforms into a karst zone, where massive ground

water reservoirs are created by subsurface drainage through the limestone. Gypsum is another soluble rock that has been exploited as an aquifer to a limited extent, despite being rare.

Aquifers that are permeable could be created from volcanic rocks. Basalt flows are very porous; in this respect, they resemble limestones. Permeable zones in volcanic rocks include flow breccias, porous areas between lava layers, lava tubes, shrinkage fractures, and joints.

Sand and gravel that have been cemented together form sandstone and conglomerate. Their porosity and yield have decreased as a result of the cement. The greatest sandstone aquifers are those that are either partially cemented or that release water through their joints. Conglomerates are insignificant as aquifers because of their limited dispersion.

Because they are largely impermeable, crystalline and metamorphic rocks make poor aquifers. Tiny wells for domestic use have been made in places where such rocks are found close to the surface in fractured and rotting conditions.

Clay is porous, as are coarser materials mixed with clay, yet because of how small the pores are, they could be regarded as fairly impenetrable. Clay soils have delivered meager amounts of residential water through shallow wells.

Exercise 5. English translation.

OQAR SUVNING GEOLOGIK FAOLIYATI

Yer yuzasida oqayotgan oqar suvlar ko'plab manbalardan oziqlanadi: bug'lanib yer ostiga tushishga ulgurmagan atmosfera yog'inlari, qor yoki muz erishi natijasida paydo bo'ladigan suv, kunduzi yuzadan chiqadigan buloqlar. Yer osti aylanishi va nihoyat, yer osti suvlari - bularning barchasi oqayotgan suvni oziqlantiradi. Katta maydonda quvvat olib, oqayotgan suvlar dastlab kichik oqimlarning kuchidan boshqa narsa emas. Sekin-asta bir-biri bilan bog'lanib, bu oqimlar kichik oqimlarni yoki daryolarni hosil qiladi, ular yanada oqib o'tadi, bir-biriga oqib tushadi va nihoyat, qattiq oqimlar yoki daryolar hosil qiladi. Unga barcha daryolar oqib tushadigan asosiy daryo daryo tizimi deb ataladi va bu tizim qamrab olgan hudud daryo havzasi deb ataladi.

Faqat yer yuzining eng past qismlarida daryolar dengiz va ko'llarga etib boradi yoki bo'sh tuproqda, masalan, qumda yo'qoladi, bu daryolarni okeanik va kontinentalga bo'lish uchun asos bo'ldi. Shu tarzda, alohida oqimlarning kuchidan daryolar oxir-oqibat ko'p sonli asosiy suv arteriyalariga ulanadi; bu arteriyalar atmosfera suvini kelib chiqqan joyiga, ya'ni okeanga qaytaradi. Bu harakat davomida daryolardagi oqayotgan suv qattiq zarrachalarni o'z ichiga oladi va ular bilan birga qattiqroq jinslarni eskiradi va maydalaydi, bu zarralarni ancha masofalarga olib boradi va nihoyat ularni cho'kadi.

Task 5. English translation.

Tuproqlarning suv o'tkazuvchanligi - ular orqali tortishish kuchi yoki gidrostatik bosim gradyanlari ta'sirida suv o'tkazish qobiliyati. Suv o'tkazuvchanligi tuproq zarrachalarining hajmi va shakliga, tuproqdagi g'ovak va yoriqlar hajmi va soniga, uning granulometrik tarkibiga bog'liq. Miqdoriy jihatdan suv o'tkazuvchanligi filtratsiya koeffitsientining qiymati bilan belgilanadi, bu bir ga teng bosim gradientida suv filtrlash tezligini aks ettiradi va m / kun , sm / s , m / s bilan ifodalanadi. Ushbu koeffitsientning mohiyatini tushunish Darsi qonuniga asoslanadi, unga ko'ra vaqt birligida toshdan o'tadigan suv miqdori (Q) filtrlash koeffitsienti (k), bosh tushishi (h), o'zaro faoliyat ko'rsatkichlarga to'g'ridan-to'g'ri proporsionaldir. jinsning kesim maydoni (F) va filtrlash yo'lining uzunligiga (L) teskari proporsionaldir.

Tuproqlarning suv o'tkazuvchanligi - ular orqali tortishish kuchi yoki gidrostatik bosim gradyanlari ta'sirida suv o'tkazish qobiliyati. Suv o'tkazuvchanligi tuproq zarrachalarining hajmi va shakliga, tuproqdagi g'ovak va yoriqlar hajmi va soniga, uning granulometrik tarkibiga bog'liq. Miqdoriy jihatdan suv o'tkazuvchanligi filtratsiya koeffitsientining qiymati bilan belgilanadi, bu bir ga teng bosim gradientida suv filtrlash tezligini aks ettiradi va m / kun , sm / s , m / s bilan ifodalanadi. Ushbu koeffitsientning mohiyatini tushunish Darsi qonuniga asoslanadi, unga ko'ra vaqt birligida toshdan o'tadigan suv miqdori (Q) filtrlash koeffitsienti (k), bosh tushishi (h), o'zaro faoliyat ko'rsatkichlarga to'g'ridan-to'g'ri proporsionaldir. jinsning kesim maydoni (F) va filtrlash yo'lining uzunligiga (L) teskari proporsionaldir.

UNIT 22

WATER SUPPLY IN THE WORLD

ADVANCED VOCABULARIES

assets (n) – mulk, aktivlar
cesspool (n) – suv oqib tushadigan quduq, drenaj
claims (n) - talab
clog (v) – to'sqinlik qilmoq, tiqilib qolish
condemn (v) – qoralamoq, kamlik qilmoq
cripple (v) – buzmoq, yaroqsiz holga keltirmoq
dike (n) – to'g'on, ariq
dike (v) – to'g'on bilan to'sish
disaster (n) - falokat
effluent (adj) – oqib chiqadigan
effluent (n) – daryo, oqim
endanger (v) – xavf ostida qolmoq, xavf tug'dirmoq
enforce (v) - mustahkamlamoq
float (v) – suzmoq, suv yuzasida oqmoq
grassland (n) - yaylovlar
plow (plough) (v) - shudgor
pottery (n) – kulolchilik
precious (adj) - qimmatbaho
restrict (v) - cheklash
revenue (n) - daromad
salvation (n) - qutqarish
scarce (adj) – kam, siyrak, noyob
seaweed (n) – dengiz o'tlari, suv osti
sewage (n) – oqar suv
shelter (n) - boshpana
sludge (n) – toshqin, suv ombori, kanali
soak (up, in) (v) – singish, shimib olmoq
spring (n) – bahor, manba
wash off (v) – yuvmoq

Exercise 9. English translation.

1. Iqlimning tez isishi haqidagi mish-mishlar biroz oshib ketgan, degan umiddamiz
2. Insoniyatning taraqqiyot sari harakatini to'xtatib bo'lmaydi.
3. Farzandlarimiz toza havodan nafas olishi uchun atmosferaga chiqayotgan issiqxona gazlarini kamaytirish zarur.
4. Konning shakli va hajmini aniqlash uchun uning tuzilishini va ko'pincha konni o'zlashtirish muvaffaqiyatiga bog'liq bo'lgan xarakterli xususiyatlarini aniqlash muhim ahamiyatga ega.
5. Geokimyoviy usullar geologiyaning turli bosqichlarida qo'llaniladi.
5. Har qanday tajribani tugatish uchun eslatma yozing.
6. Bu savolga javob berish uchun avvalo magmaning xossalari va xatti-harakatlarini ko'rib chiqamiz.
7. Ta'sir qilish jarayonida bu minerallarning bir qismi parchalanadi, boshqa atomlar esa yangi minerallar hosil qilish uchun qayta birlashadi.
8. Bu mcheral qimmatli bo'lishi dargumon.

UNIT 23. WATER



One of today's most urgent environmental challenges is the lack of clean water. The amount of water used per person varies widely between countries. A comfortable lifestyle makes considerable use of water (with flush toilets, washing machines,

and public swimming pools). A luxurious lifestyle that includes automatic car washes, Jacuzzis, and outdoor swimming pools uses a lot more energy. The average American drinks 1,000 litres per day compared to five litres per day for Kenyans. People are adopting a more western style of life on a global scale. The demographic catastrophe will increase even if population growth slows.

Access to clean water for drinking is a basic human right. However, a lot of sources of drinking water are now unsafe for human use due to wastewater disposal, industrial contamination, and air pollution. Large deadly pools have formed in streams, basins, and even entire oceans. One of the largest lakes in the world is Lake Baikal in Russia. It is also among the most beautiful. It is referred to as the Holy Sea by the locals. A wide variety of animals and plants, including 1,300 unique species that are found nowhere else on earth, call it home. However, the massive amounts of industrial wastewater that are discharged into the lake every day are causing them to decay.

One percent of the world's water surface is made up by the Mediterranean Sea. However, 50% of all maritime pollution originates there. There are sixteen countries that surround the Mediterranean. Nearly all of them routinely discharge shiploads of industrial waste a few miles offshore. Only a few meters separate renowned swimming beaches from where sewage effluents are thrown into the water. These 16 nations were brought together in 1975 by the United Nations Environment Program to form the Mediterranean Action Plan. The governments decided to stop ship waste disposal and lessen sewage pollution. Few, if any, have kept their word. Japanese manufacturers threw mercury-tainted trash into the water around Minamata Bay in the 1950s. This dangerously contaminated shellfish contains heavy metals. 40 people died as a result of the more than 2,000 brain injuries they sustained. These tragic events need to act as a warning that the ocean is neither a trash bin nor a latrine.

Micronutrients, which are necessary for plant and animal growth, are abundant in sewage. Due to sewage sludge and fertilizers splashed off the land, the amount of micronutrients

(particularly nitrates) in the water is dangerously high. The small plants known as plankton, which float at the water's top, become so numerous that they prevent light from penetrating deeper portions of the ocean. This puts at risk marine plants that rely on sunlight for photosynthesis and grow on the ocean floor. Seaweed is highly susceptible to changes in the concentrations of micronutrients in coastal waters. All other kinds of algae (seaweed) can be displaced by one or two. An excessive amount of algae can cause nasty, unpleasant, and ugly deposits on beaches.

We regret the deliberate sewage discharge and industrial waste pollution of the water supply. However, we frequently become excited about "developments" like large dams, dikes, and irrigation systems. Frequently, these are breathtaking feats of civil engineering. They are pricey and rely on contemporary tools and materials. We frequently rely on the knowledge of individuals designing and implementing these systems to determine their influence on the environment. In truth, numerous dams and irrigation projects have caused severe environmental damage. A region's water supply might be completely destroyed by inefficient or expensive irrigation methods because crops use 75 percent of the water in the world. Previously, the fourth-largest lake in the world was the Aral Sea in Russia. Its current size is less than half of what it was. Poorly constructed irrigation systems diverted water from rivers that supplied the Aral Sea. Additionally, the nearby cotton plantations that employ pesticides have contaminated the water with dangerous substances. The Assuan Dam in Egypt seriously harmed the Nile Valley.

In other instances, large-scale water diversion initiatives began as a result of new technology and governments' desire to demonstrate their newly acquired control over nature. Dams can also be utilized as a direct political tool.

Rivers commonly cross borders as they go from one country to another, giving the first the opportunity to control how much water enters the second. Turkey recently built numerous dams across the Euphrates River, and it has already used these dams to reduce the amount of water that enters Iraq and Syria. Additionally, it has a deal to sell water to Israel.

Initiatives aimed towards "development" may make soil erosion worse. In a river valley after a downpour, the grasses and trees soak up the water and then slowly release it back into the rivers and streams. In the dry months, this prevents the valley from becoming dry and dusty. In addition, vegetation prevents erosion by fusing soil particles. When there is no vegetation, the soil breaks up and is carried as silt into rivers. Rivers deposit sediment. Lakes can change from beautiful, turquoise lakes to filthy puddles. Soil erosion is a result of both intensive farming practices (such as cattle grazing and extensive plowing with powerful machinery) and the loss of tropical rain forests. Due to deforestation and modern farming methods, the Yellow River in China has an annual silt load of 1.6 billion metric tonnes, compared to the Ganges' 1.455 billion metric tonnes. The conventional agricultural practices of primitive communities may seem inefficient, but little sediment is lost as a result.

The best things in life are totally unaffordable. Water is free, but we occasionally take it for granted because of this. In the past, people thought there will always be clean water available. Many water sources have been ruined nowadays due to pollution and sewage. Others have dried up as a result of improperly managed irrigation projects or water diversion for hydroelectricity. The destruction of forests and grasslands has made soil erosion worse. We are now learning to cherish this priceless resource as clean water is becoming more and more scarce. The clean water that is still available belongs to our children and grandchildren, just like other natural resources. For their sake, we must fight to keep up what little water supply there is.

Unit 24.

LIQUID RESOURCES



Life is dependent on water. Man can endure prolonged periods of time without food, clothing, or shelter. Without water, he swiftly expires. However, not all water aids in his survival; if it is filthy, he could pass away before his time.

Some claim that "water and little else" is all there is to man and his story. Up to 95% of his diet is made up entirely of water. Nearly 70% of his body is water. With an average depth of nearly 4 kilometers, 70% of the surface of the world is made up of water. However, water is frequently insufficient for man.

Water was essential to the development of man. He required a way to carry and store water, and so the idea of "pottery" was born. Around the Nile, Tigris, and other rivers, ancient civilizations developed. However, the population of the planet was not as large as it is today. Additionally, business is thirsty. For every kilogram of dry cement, 3,5 liters of water are needed. For every liter of fuel, 10 gallons are needed. For every kilogram of paper, 100 litres are needed.

Most towns and cities in South Central and South-East Asia require access to sophisticated water systems. The countries with the greatest needs include Pakistan, Nigeria, India, Indonesia, the Philippines, and Brazil.

Women are required to carry water repeatedly under the scorching sun. Housewives in arid regions of Africa spend a large portion of their time walking three hours or 15 kilometers to collect a few liters of water from springs and rivers. Because there is so little water available, much or all of it is used for drinking, leaving little to nothing for hygiene.

There is neither more nor less water in the planet than there has ever been. However, the population of the planet keeps increasing.

A clean, plentiful, and accessible water supply is unquestionably one of the top things on the civilizational hierarchy, and this holds true everywhere in the world.

The Jordan River is deep and broad, and there is milk and honey on the other side, as stated in an old church song. Hallelujah! But the river is now nothing more than a trickle, no matter how deep and wide it was in the past.

The Middle East can only meet two-thirds of its needs if a million people use an average of one billion cubic meters of water annually. These alarming data exaggerate the severity of the problem by comparing it to wetter regions while ignoring soil moisture, or lack thereof.

"Rivers and groundwater are only counted in the United Kingdom because they are not required to be used for agriculture. In the United Kingdom, the soil holds between 80 and 90 percent of the water ". The Middle East, on the other hand, has very little soil moisture.

With a population similar to that of the United Kingdom, Egypt only has access to 55 billion cubic meters of Nile water. All of it is man-made water, and it has been traced.

This raises some intriguing queries. How has the Middle East survived despite years of severe water shortages?

Everyone in the Middle East has very strong feelings on the subject of water, not the least because it is so closely related to the availability of food. Politics therefore prevents the creation of sensible environmental and economic policy.

It makes sense that the initial goal should be to raise awareness of the problem and secure virtual water supplies through global food agreements. The second objective is to control water demand and move it toward more profitable uses. The third goal is to make better use of it, for as through improving irrigation and reducing waste. But in terms of political feasibility, these goals are reversed in the Middle East.

Because it affects the livelihoods of too many people, the idea that the region will have to import large and growing amounts of food in order to address its water shortage indefinitely causes intense concern. For instance, Saudi Arabia invested a lot of money to start cultivating wheat and even exported some of it.

However, redistributing water resources can yield important benefits. The property would generate \$3,000–\$4,000 in revenue, require 10,000 cubic meters of water annually, and provide half a job as a wheat field. It employs 1,000 people, brings in \$50 million a year, uses the same amount of water as a college, teaches 3,500 students, and uses the same amount of water. The fact that software can be developed in the desert using less water than it takes to grow a row of beans helps to explain why so many Middle Eastern countries are so interested in information technology.

Reallocating water to more profitable applications necessitates societal disruption as people change jobs, leading to problems that governments would prefer to avoid. In Egypt, farmers constitute a powerful political force. Allocating water effectively comes at a significant political cost. Water rerouting away from agriculture is not popular.

Exercise 2. Use the dictionary to translate into English.

Gidrosfera - sayyoramizning suv sferasi, okeanlar, dengizlar, kontinental suvlar va muz qatlamlari to'plami. Sayyoramizda taxminan 16 milliard kubometr suv mavjud. m suv, bu uning massasining 0,25% ni tashkil qiladi. Ushbu suvning asosiy qismi (80% dan ortig'i) Yerning chuqur zonalarida - uning mantiyasida. Gidrosferaning yer osti qismiga yer usti, yer osti va qatlamlararo suvlar kiradi. Ko'p sonli tirik organizmlar uchun, ayniqsa biosfera rivojlanishining dastlabki bosqichlarida, suv genezis va rivojlanish muhiti edi. Biosferadagi suv moddalarning geologik va biologik aylanishlarida vujudga keladigan uzluksiz harakatda. Bu Yerda hayot mavjudligining asosidir. Insoniyat tsivilizatsiyasi suvsiz mavjud bo'lolmaydi, chunki suvdan odamlar nafaqat ichimlik, balki sanitariya-gigiyena va maishiy ehtiyojlar uchun ham foydalanadilar. Sayyoramizdagi suvning umumiy hajmi 1385 million kub kilometrni tashkil etadi. Agar Yer muntazam shar bo'lganida, bu miqdor uni 2650 metr chuqurlikda qoplash uchun

etarli bo'lar edi. Bu suvning faqat kichik bir qismi odamlar uchun mos keladi. Ushbu ulkan massaning mutlaq ko'pchiligi hayot va texnik foydalanish uchun yaroqsiz achchiq, sho'r dengiz suvidir.

CONTRACT WORK.

Task 2. Give the following expressions their English translations.

1. **Kuchli eroziya.**

2. Ichimlik suvi.

3. Aholi jon boshiga iste'mol.

4. Miyaning shikastlanishi.

5. Cho'kindi jinslarning og'irligi.

6. Hashamatli hayot.

7. Bizni ishimiz qoramollarni boqish.

8. Men ketishim kerak shoshilyapman.

9. Kuchli shamol esmoqda.

10. Men buni intiqlik bilan kutypman.

11. Harorat noldan yuqori.

12. Tashqarida yomg'ir yog'moqda.

13. Bugun ob-havo qanday?

14. Do'l yog'ayapti.

15. Soat aniq vaqtni ko'rsatadi.

16. Soatingiz 6 daqiqa orqada.

Task 5. Into English, please translate the following.

1. Gidrosfera sayyoramizning suv sohasi.

2. Sayyoramizda 16 milliard kubometr suv bor.

3. Suv yerda hayotning mavjudligi uchun asosdir.

4. Inson tsivilizatsiyasi suvsiz mavjud bo'lmaydi.

5. Agar yer to'g'ri shar bo'lganda edi, sayyoramizda suv yetarli bo'lar edi

IS THE WATER SAFE TO DRINK?

Approximately 1,000 pollutants have been found in the public water supply in the United States, and virtually all large water sources are susceptible to pollution. About half of the people in the US drink surface water from rivers, lakes, and reservoirs, and it may be contaminated with industrial pollutants and pesticides that have been washed off fields by rain. The other half is dependent on groundwater that could be tainted with substances

that have been slowly leaking in from toxic waste sites. Where groundwater supplies are slowly depleting, chemical pollutants are becoming more and more common.

The majority of pollutants are unlikely to be sufficiently concentrated to pose a substantial health concern, but there are several exceptions. Lead, which can result in high blood pressure and a number of other health problems, is the most frequent concern in water. Because lead interferes with the formation of brain cells, youngsters are especially vulnerable. The US Public Health Service estimates that at least 9 million children are adversely affected, while the EPA estimates that at least 42 million Americans are exposed to unsafe levels of lead.

PART II
Texts to practice speaking and reading further
Major Resources on Earth (Mineral Resources, Water
Resources, Energy Resources)
Minerals

Ex. 1. The vocabulary, please.

Acid kislota, kislotali

brittle mo'rt

common oddiy, tipik, keng tarqalgan

compound murakkab

condition holat, mavqe,

constituent component, tarkib, element

crust qobiq

feldspar dala shpat

gneiss gneys, migmatit

greasy moyli

homogeneous bir hil

igneous rock vulqonli tog' jinslari

occurrence yuzaga kelish, tarqalish

to occur sodir bo'lish, sodir bo'lish

to possess ega bo'lmoq

property mol, mulk

quartz kvarts

sandstone qumtosh

sedimentary qumli

silicon kremniy

variety hilma hil

to vary farqlamoq

Ex. 2. Read the text and translate it.

Rocks are created by the combination of minerals, which are the basic naturally occurring inorganic homogeneous units with different physical and chemical features.

While most minerals are made up of chemically combined elements, some, including gold, silver, copper, and carbon, can occur naturally (diamond and graphite).

Eight elements make up nearly all of the earth's crust (98%)

in total. The most prevalent element is oxygen, and it may mix with seven other elements to create a number of common minerals. These elements mix with oxygen to form oxides, which is their most basic combination. Oxygen and silicon combine to form silicon dioxide, which then combines with water to create acids. When oxygen and water are combined with the other six elements, bases are created.

Silicates are the most common chemical in the crust of the planet and are created when acids and bases combine.

Feldspars

The category of rock-forming minerals with the most widespread dispersion is probably feldspars. The majority of igneous rocks, like granites and lavas, as well as some sandstones and conglomerates among sedimentary rocks, as well as gneisses formed during metamorphism, contain them.

Not a particular mineral but a family of minerals, feldspar. It makes up around 45% of the earth's crust, making it one of the most major, if not the most significant, group of rock-forming minerals.

Quartz

One of the most common minerals is quartz, which can be found in a variety of rocks and solids. Silicon and oxygen are the main components. It comprises the vast bulk of sands.

Quartz is crystalline, lacks cleavage, and comes in a variety of colors, including colorless, white, grey, brown, and black, as well as on occasion yellow, red, pink, green, and blue. It occasionally gets greasy and has a vitreous sheen. It is delicate.

Rocks that are igneous, sedimentary, or metamorphic may include quartz. It is the most prevalent component in quartzites and is a significant component of acid igneous rocks including granites and gneisses.

Ex. 3. On the text, respond to the following questions.

What is the makeup of the minerals? 2. What is the genesis of oxides? 3. How do silicates develop? 4. Where are feldspars to be found? 5. What does quartz consist of? 6. What are quartz's physical characteristics?

Ex. 4. Tell the story again.

Rocks. Rocks' Identification

1. The vocabulary, please.

Alluvial fan alluvial ventilyator

angular o'ralgan, burchakli

breccias brekchi

brittle mo'rt

to bury ko'mmoq, yerni kovlab joylashtirmoq

cap-rock-tog'jinslari kap-rok

chert -kremniyli slanes

clay-loy

coal -ko'mir

composition -tarkib

content -tarkibidagi, tarkib

crust -qobiq

curved surface - kavisli yuza

to deposit chetga qo'yish

desert cho'l

to differentiate farqlash

to drill burg'ulash

edge chekka

flint chaqmoqtosh, kvartsning kalsedon turi

floodplain suv bosadigan joy

foliated rock qatlamli tosh, tog' jinsi

fossil shells qazilma qobiqlari

glassy yaltiroq, silliq, sirlangan, mo'rt

grain don, qum

heat issiqlik

igneous rock vulqonli tog' jinsi

layer qatlam

limestone ohaktosh

mountain stream tog' daryosi, tog' oqimi

mud loy, mayda tosh

mudstone slanets, loytosh, loyli ohaktosh

particle zarracha

pebble tosh
petroleum trap neft tuzog'i
plant remains o'simlik qoldiqlari
platy tekis, qo'pol qatlamli tuzilishga ega shifer
precipitation yog'ingarchilik, bo'shatish, ko'payish
pressure bosim
reservoir rock tog' suv ombori
shale shifer
silt loy, cho'kindi
size o'lcham
source rock tosh manbai
subsurface yer osti
texture tuzilish
variety xilma-xillik
well-rounded yaxshi yumaloqlangan
with the naked eye och ko'zlik bilan

Ex. 2. Read the text and translate it.

One of the main solid elements that makes up the earth's crust is rock.

Rocks can be categorized and identified based on their mineral compositions and surface textures. The texture of igneous rock depends on the size of the mineral crystals. The size of the grains ranges from obvious to glassy without crystals. Metamorphic rock textures are determined by mineral crystal size and orientation. Foliated metamorphic rocks exhibit parallel, platy crystals. Crystals in non-foliated metamorphic rock are either homogeneous in size or non-parallel platy crystals. Sedimentary rock textures depend on the kind, size, and shape of the grains as well as how they are bound together.

rocks made of sediment

A clastic rock with pebble- to clay-sized granules is conglomerate. It differs from other clastic sedimentary rocks due to the coarse particles. The particles are all evenly rounded. In river channels or on alluvial fans created when a mountain stream flows into the desert, conglomerates are frequently discovered. Rocks called breccias contain angular particles.

Sand grains that have spontaneously bonded together make up the majority of sandstone. The sand grains can be separated from the rock if it is just loosely bound. Sandstone has a rough surface. The rock's color might be anything from white to buff to black.

Beaches, river channels, and dunes are common places to find sandstones. It is the most significant and well-liked reservoir rock for gas and oil in North America.

The most common sedimentary rock is shale, which is composed of particles the size of clay. It frequently has many layers and is velvety. Shale deteriorates into mud when it is exposed to water. Depending on the amount of organic material, shale can be green, grey, or even black in color. The shale gets darker the higher the organic content. In addition to the bottoms of oceans, lakes, and lagoons, shale is frequently discovered in river floodplains. Black shales are common sources of gas and oil.

Grey shale can serve as a cap rock on top of a reservoir rock in a petroleum trap. Shale-like mudstone includes particles the size of silt and clay.

Brittle and ranging in color from brown to black, coal. There aren't many layers, if any. Plant remains that have been subterraneanly buried and changed by heat and time make up coal. Increased heat makes coal harder and changes its texture and composition, producing variants like lignite, bituminous coal, and anthracite.

Chert or flint is amorphous quartz. It cannot be scraped with a knife due to its great toughness. Chert cracks across smooth, curving surfaces, producing sharp edges and points since it is amorphous (has no crystals). American Indians crafted arrowheads out of chert. Agate, chalcedony, and jasper are some examples of colored cherts. Chert can be created by the direct precipitation of groundwater or by the re-crystallization of ancient SiO₂-containing shells under high heat and pressure. The hardest sedimentary rock to drill is chert, which is amorphous quartz.

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Ninety-nine percent of the sedimentary rocks that make up the earth's crust are made of sandstones, limestones, and shales. Numerous sedimentary rocks are a combination of the three types. The most frequent sedimentary rock combinations are sand, shaly, limey, or calcareous.

Ex. 3. On the text, respond to the following questions.

1. According to their place of origin, what are the three main groups of rocks?

2. Which sedimentary rocks are most prevalent? 3. What shade is the sandstone? 4. Where can you find shale? 5. What is the coal's chemical make-up? What are the main characteristics of flint?

Ex. 4. Tell the story again.

Resources for water. Surface Water

Ex. 1. The vocabulary, please.

Absorb singmoq,
capillarity kapillyarlik
circulation sirkulyatsiya, aylanish
evaporate parlanish
to fall tushish, quyilish
basement water chuchuk suv
to penetrate singmoq, shimmoq
plant root o'simlik o'zagi
pores teshiklar, yoriqlar
rainfall yog'ingarchilik
run away from oqib ketmoq
to sink cho'kmoq, singmoq
soil tuproq
stream oqim
to vary farqlamoq, farq

Ex. 2. Read the text and translate it.

Ground water is the liquid that is underground and held in the pores of rock and soil. When it rains, some of it evaporates, some is absorbed by vegetation, some runs off into streams, and the remainder seeps into the earth to form ground water. Numerous variables influence the amount that sinks into the earth.

It's critical to understand how much rain falls on the ground, evaporates, is used by vegetation, and runs off into streams. Water is known to exist in some parts of the earth, and there are compelling arguments for thinking that water can penetrate rocks up to a depth of 12 miles.

Water that seeps into the soil moves laterally and sometimes even bubbles back to the surface. As a result, there is a specific type of subsurface water circulation that is mostly sustained by gravity and supported by capillarity and plant roots.

Ex. 3. On the text, respond to the following questions.

1. Exactly what is underground water? 2. How does rainwater behave once it reaches the ground? 3. Which way does water penetrate the earth? 4. Which organizations promote the movement of ground water?

2. Ex. 4. Tell the story again.

Fossils

Ex. 1. The vocabulary, please.

above yuqorida

ancient qadimiy

ash layer vulqon kul qatlami

below pastda

bone suyak

burrow o'tish joyi, chuqurcha, qazilma ishlari

carbon uglerod

clastic yorilish, bo'laklarga bo'linish

deposited kechiktirilgan, depositga qo'yilgan

depositional setting sedimen-tatsiya muhiti, tog' jinslarining cho'kish holati

evidence dalil, isbot, tasdiq

to fill to'lmoq, to'ldirmoq

fossils qazilma qoldiqlari

grains don, qum

groundwater chuchuk suv

guide (index) fossil qazilma qoldiqlarini nazoratga olish

layer qatlam

marsh botqoq,

to occur yuz bermoq, uchramoq

original matter- asl materia

overlying layer ustki qatlam

fossilized wood toshga alangan qoldiqlar

pore areas g'ovak joylar

preserved saqlanib qolgan

age relative to date nisbiy yoshni belgilash

remains qoldiqlar

replacement almashtirish

выделять

sedimentary rocks-cho'kindi tog' jinslari

sediments yog'ingarchilik

sequences ketma-ketlik

silicon kremniy

species tur,xil

subsurface yer osti, yer osti qatlami

trace fossils qazilmalarning izlari

track iz, yo'lak, дорожка, ход

trail iz, qobiqning izi

unaltered o'zgarmas

underlying layer tagidagi qatlam, ostki qatlam

Ex. 2 Read the text and translate it.

The buried remains of plants and animals are called fossils. There are several ways to preserve fossils. Lime shells are made by a variety of marine organisms, including corals and dams. The shells are discovered in sedimentary rocks unaltered. Bones from

other species have been preserved. In mud that finally transforms into shale, plants may be preserved as carbon. In a process similar to clastic grain cementation into sedimentary rock, groundwater occasionally deposits minerals into the pore spaces of bones or shells. When the original minerals in the subsoil are completely replaced by another mineral, further fossils are preserved. When wood is replaced with silicon dioxide, the wood's grain structure is preserved, creating petrified wood. Trace fossils such as burrows, tracks, and trails offer tangential proof of ancient life.

The ages of the fossils discovered in sedimentary rock layers can be determined using vertical sequences of those layers that have undergone relative age dating. Geologists have gathered the majority of fossils and dated them.

An unusual plant or animal that lived for a small period of geologic time is referred to as a guide or indicator fossil. Any sedimentary rock in which this fossil species is found can be dated using it. An accumulation of fossils found in the same geological strata is known as a fossil assemblage. It details the geologic period and rock-forming region where the fossils and corresponding rocks were deposited.

Additionally, fossils can be used to establish the sedimentary environment. The beach, marsh, and deep ocean are just a few of the settings where plants and animals can be found.

Radioactivity can be used to indirectly date fossils, just like sedimentary rocks can. The fossil is older than the covering ash layer and younger than the underlying volcanic ash, if the two layers of volcanic ash are dated.

Ex. 3. On the text, respond to the following questions.

1. What exactly are fossils? 2. What are the various purposes of fossils? 3. How is a fossil's age ascertained? 4. What is a fossilized index? 5. What is an assemblage of fossils?

Ex. 4. Tell the story again.

Oil catches (Anticlines, Synclines, and Domes)

Ex. 1. Study the vocabulary.

anticline antiklinal

arch arka
basin kon, havza (neft, gaz)
bbl (barrel) barrel, 1 bochkasi 158,9 litrga teng
bull's eye fonar, dumaloq oyna
circular dumaloq, aylana,
compressed qisilgan, siqilgan
compressional siqilgan, kompressiyali
dome gumbaz
downward pastlik, qiyalik bo'ylab
to drill burg'ulash
flat tekis
to fold bukmoq
folding qatlamlarning uzilishsiz harakatlanishi
folds burmalar, osish chiziqlari
force kuch, harakat
formation shallanish
hill tepalik
level daraja, bosqich
to level tekkislamoq
lobate-shaped yumaloq shaklga ega
nose old qismi
oil field neft koni
pattern namuna
plunging anticline cho'kuvchi antiklinal
petroleum producers neft ishlab chiqaruvchi neft ishlab
 chiqaruvchi hudud
prolific sermahsul **ridge** cho'qqi, qoya, tizma, tepalik
rock layers tosh qatlamlari
sedimentary rocks cho'kindi jinslar
to shorten qisqartirish, kamaytirish
shortening of the earth's crust yer qobig'ining qisqarishi
superimposed yuklangan, qo'llaniladi, qo'shiladi,
surface yuza, sirt
syncline sinxronlash
tilted qiya, burchak ostida
trap qopqon, tuzoq
upward yuqoriga

well quduq

Ex. 2. Read the text and translate it.

An anticline is a large, upward arch of sedimentary rocks, whereas a syncline is a large, downward arch. Anticlines create gas and oil traps (but not synclines). For instance, anticlines expose the rocks to erosion. If the anticlines are fresh, they are still visible as topographic ridges since they haven't yet been eroded. There is a series of young rising anticlines that traverse the Los Angeles basin, and they are also active petroleum producers. These reach from Beverly Hills in the north via the fields of Inglewood (Baldwin Hills) and Dominguez, south to Long Beach, and offshore into the field of Huntington Beach.

The majority of anticlines and synclines are inclined in proportion to the surface of the ground rather than being level. Plunging anticlines and synclines are what these are. The creases that occur during and after folding are rapidly leveled by erosion. An eroded plunging anticline and syncline pattern is known as a nose.

The earth's crust shortens as a result of the development of anticlines and synclines. The forces that shrink the earth's crust are called compressional forces. Anticlines and synclines are formed when the rocks that make up the earth's crust are crushed. The earth's crustal rocks were most likely crushed there at some point in the past if they have folds.

Domes

An elliptical or round rise is a dome. When a dome is flattened by erosion, the oldest rock is in the center, creating a bull's-eye pattern of concentric rock layers. Domes can also serve as oil and gas catchers. On the island of Bahrain in the Persian Gulf, oil was discovered in the Middle East in 1932. The traps in Bahrain were domes with a slight slope on their tops. In 1937, the first oil field was found in Saudi Arabia on a short hill atop a dome.

Anticlines and domes were the first types of petroleum traps to be identified. Many of the vast reserves of oil and gas in the globe come from them. In the Middle East, dome and anticline traps are home to most of the oil fields. Southwest of Tulsa lies the

location of Oklahoma's 1912-discovered Cushing oil field. Three domes are stacked on top of an anticline to form the trap. The Bartlesville Sandstone is the rock that makes up the reservoir, along with several other sandstones and a limestone. The highest-yielding wells are in the domes. 450 million barrels of oil are anticipated to be produced by the Cushing oil field. It was the largest oil field in the world during World War I.

Ex. 3. On the text, respond to the following questions.

1. What types of oil traps are there? 2. What is an anti-cline exactly? What does a diving anticline actually mean? 4. What is the origin of anticlines?

5. Describe a dome.

Ex. 4. Tell the story again.

A Source Rock

Ex. 1. the vocabulary, please.

To adsorb adsorbsiya qilish, shimdirmoq
adsorbed shimdirmoq, o'ziga tortib olmoq
algae suvo'tlar
to bury ko'mmoq, berkitmoq, suvga botirmoq
composition tarkibi, mazmuni
coal ko'mir
coal bed ko'mir qatlami
coal mine ko'mir koni
coal seam gas ko'mir qatlami gazi
content tarkibi, mazmuni
crude oil xom neft
dead o'lgan, nobud bo'lgan
decay chirish
to deposit qoldirmoq, surmoq
dirt tirqish, iz
drain drenaj, oqish, ariq
to drill burg'ulash
to explode portlash
fracture sinish, yoriq olish

to generate ishlab chiqarish
grain –don, qum
limestone ohaktosh
matter modda
natural gas tabiiy gaz
to occur ro‘y bermoq, yuzaga kelmoq
oxygen-free kislorodsiz
plant matter o‘simlik moddasi
preserved saqlanib qolgan
pressure bosim
prone moyil
to release ozod qilish
sedimentary basins cho‘kindi havzalari
sedimentary rocks cho‘kindi tog‘ jinslari
sediments cho‘kmalar
shale slanets, mo‘rt cho‘kind jinslar
source manba
stagnant turg‘un, harakatsiz
variety xilma xil
weight vazn
well quduq, suv ombori, kon
woody o‘rmonli, serdaraxt, yog‘ochli

Ex. 2: Read the text and translate it.

An oil or gas source is a particular kind of rock. Gas and oil are derived from organic material that has been preserved in sedimentary rocks. Sand and mud are examples of inorganic mineral grains found in sediments (dead plants and animals). Due to breakdown, an oxidation process, some organic material is lost on the surface. While the organic matter that is decomposing on land gets its oxygen from the air, the organic matter that is decomposing on the ocean floor gets its oxygen from the water.

Some biological material is kept, though. Either it was swiftly covered by other sediments before decomposing, or it was dumped on the seafloor of an oxygen-free, still body of water.

The primary cause of sedimentary rocks' dark color is their organic makeup. Black-colored, organic-rich sedimentary rocks

include coal, shale, and several types of limestone.

Plant material is transformed into coal using temperature and time. Due to the peculiar chemistry of wood and coal, only methane gas can be produced (CH₄). Because of the methane gas they contain and its potential for explosion, coal mines are dangerous. To collect pure methane gas from the coal bed or coal seam, wells are usually dug into the coal. The gas is adsorbed to the surface of the coal using natural fractures called dints. A coal seam gas well first produces water for up to a year before acting as the crack drain.

Methane gas is discharged from the coal's surface as the pressure inside the coal decreases. Shale is the most prevalent type of sedimentary rock, and a lot of it is black. Only about 0.5 percent of green or grey shale contains organic stuff. Organic material from plants and animals, including non-woody plant matter like algae, is abundant in black shales. They are chemically capable of generating both natural gas and crude oil. Black limestones that are rich in organic material are also source rocks in a number of regions, including North Africa and the Middle East.

Some sedimentary basins are gas-prone and produce a significant amount of natural gas. Examples include the southern half of the North Sea, the Arkoma basin in southern Oklahoma and Arkansas, and the Sacramento basin in northern California. This is because coal is the only source rock that is practical.

Ex. 3. On the text, respond to the following questions.

2. An explanation of a source rock 2. From what do sedimentary rocks originate? 3. What kinds of sediments have the color black? 4. What is so harmful about coal mining? 5. How much organic material is included in black and green shale?

3. Ex. 4. **Tell the story again.**

Geomorphology Different Landforms Mountains

Ex. 1. The vocabulary, please.

To attack hujum qilish, yo'q qilish, urish
bed of the ocean ummon tubi

block of rock tosh bloki
to bulge bo‘rtib ketmoq, shishib ketmoq
to climb up yuqoriga chiqmoq, ko‘tarilmoq
to cool sovutmoq, salqinlatmoq
dissolved salt erigan tuz
dome gumbaz
dome-shaped gumbaz shaklidagi
fall pastga tushmoq, qulamoq
fault yorilish, sindirish
fossils organik qoldiqlar
gently undulating plain biroz to‘lqinli tekislik
gorge tor dara, jar, to‘siq
hill tepalik
ice muz
njagged peak tog‘li cho‘qqi
landform landshaft, relef shakli
to lift ko‘tarmoq
line maydon,
marine dengiz floti
molten rock erigan tosh
mountain range tog‘ tizmasi
to move harakat qilmoq, harakatlanmoq
peak cho‘qqi
plain tekislik
plates (tektonik) plitalar
rain shadow yomg‘ir soyaboni
remains qoldiqlar
ridge tog‘ tizmalar, cho‘qqi
to rise o‘smoq, ko‘tarmoq
rise yuksalish, o‘shish
shape forma
to shed berkitmoq, qaytarmoq
sheltered boshpana
side of the valley vodiylar taraf
soft mayin, yumshoq
solid qattiq, bardoshli
to split bo‘linmoq, yorilmoq, tilinmoq

to squeeze up siqmoq
bosh-sided tik qiyaliklar
surrounding area tevarak- atrof, yon-atrof
to tilt qatlamlarni ag'darish
valley vodiya
variety xilma-xillik
weakness mo'rtlik, zaiflik, nuqson, zaif nuqta
to wear away eskirmoq, parchalanmoq

Ex. 2. Read the text and translate it.

There is a huge variety of landforms and surface shapes on the Earth's surface. Plains, plateaus, hills, mountains, canyons, valleys, islands, ridges, and fiords are a few names for these landforms.

Mountains

Mountains are struck by water, wind, rain, and ice as soon as they rise above the surrounding plain. Rapid erosion of the weaker rocks creates valleys, and as the valleys recurve back into the hills, jagged peaks emerge. Young mountains with rapid growth have steep-sided tops, deep valleys, and canyons. Over time, the valley sides and mountain summits erode, resulting in wider, more rounded valleys and lower, more rounded hills, as well as slower-moving, weaker rivers.

As you climb a mountain, the temperature lowers by 1°C every 150 meters. The peaks of high mountains are covered in snow even at the equator. Additionally, the amount of oxygen decreases as you go higher in the atmosphere. The weather can quickly shift, and winds can be rather fierce on occasion. The surrounding climate is significantly influenced by mountains. The windward side of a mountain range is typically fairly wet, whereas the protected side (the rain shadow) receives just a small amount of rain when the clouds rise over the mountains. For instance, in California, rain from the Pacific Ocean falls on the Sierra Nevada's western slope.

The Mountain's Origin

Large plates of the Earth's crust, which gently move over the surface of the planet, support the continents. The Alps, Himalayas,

Andes, and Rockies are examples of mountain ranges that were created as a result of two plates moving in opposite directions and pressing up the sediments on the ocean floor between them. This explains why rocks with marine animal fossils can occasionally be found at mountain summits.

Mountains are created as molten rock from deep inside the Earth rises to the surface. It might produce a volcano when the earth erupts as lava. The lava hardens into rock as it cools. Both Mount Fuji in Japan and Mount Vesuvius in Italy are volcanoes. The largest volcanic peak in the world, Mauna Kea in Hawaii, rises 10,000 meters above the Pacific Ocean.

Along areas of weakness known as faults, large sections of rock can break and slide. When substantial volumes of rock are elevated or inclined over nearby rocks, mountains are created. Examples are the Black Forest and Harz mountains in Europe, the Sierra Nevada highlands in the west of the United States, and Mount Ruwenzori, which reaches to a height of 5,167 meters in East Africa.

Molten lava does not usually rise to the surface due to the strength of the rocks above, which cannot easily give way. Instead, it leads to the upward expansion of the rocks, which shapes the mountain into a dome. In certain cases, rather than lava, the pressure is brought on by streaming water that is salt-dense. The eroded remains of a dome mountain can be found in South Dakota, where they are known as the Black Hills.

Ex. 3. On the text, respond to the following questions.

Do you have any examples of landforms in mind? 2. What are the different ages at which mountains are formed? Create a personality for them. 3. How does the temperature change as you climb a mountain? 4. Why do mountains have such a big impact on their surroundings' climate? 5. Based on where they were formed, what various types of mountains exist? What causes them to exist?

Ex. 4. Tell the story again.

**Forces both internal and external that shape landforms
(Geological Processes)**

Ex. 1. the vocabulary, please.

To act harakat qilish, sodir etish

attraction tortishish, tortishish kuchi
denudation eroziya
deposition-cho'kindi materiallardan foydalanish, yotqizish
external tashqi
forces kuchlar, omillar
igneous activity magmatic yoki vulkanik faoliyat, intruiziv faoliyat
internal ichki
landform landshaft, landshaft shakli
leading yetakchi, ilg'or
mantle mantiya
movement harakat
origin manba, kelib chiqish
to require talab qilmoq
revolution inqilob, aylanish
rotation about its axis o'z o'qi atrofida aylanish
source of energy energiya manbai
stores of energy energiya zahiralari
substratum yer osti qatlami, magmatic zona

Ex. 2. Read the text and translate it.

There are two categories for the most significant geological processes. The processes that take place on or near the crust's surface as a result of the motions and chemical activity of air, water, ice, and living creatures fall under the first category, denudation and deposition. Most of these processes have exogenous origins. The events that take place inside or through the crust as a result of the physical and chemical activities of substratum (or mantle) materials, as well as gases and magmas in or traveling through it, are included in the second group, known as earth motions, igneous activity, and metamorphism. These are mostly internal mechanisms.

Both sets of processes are governed by gravity (including the pull of the sun and moon) and cooperate with the earth's natural motions, rotation around its axis and revolution around the sun.

An additional energy source is needed for every stage. The

heat emitted from the sun specifically supports processes that have an external cause. Similar heat released by the earth's energy reserves sustains those with an internal source.

Ex. 3. Respond to the following inquiries about the text.

4. 5. What are the main geological processes on the outside that produce landforms? 2. What do the words "deposition" and "denudation" mean? 3. What major geological processes are taking on inside the body? 4. How are both process clusters managed? 5. How much additional energy is needed for both internal and external processes?

Ex. 4. Tell the story again.

Running Streams, Rivers, and Water

Ex. 1. Study the vocabulary.

above sea-level dengiz sathidan yuqori

annual yillik

arid lands qurg'oqchil yerlar

bank sohil

bend egilish, burilish

boulder tosh, blok, tosh tuproq

cliff qoya

curve egilish, burilish

cutting power kesish kuchi

to decrease kamaytirmoq

to deposit bir chetga qo'yish

drainage basin drenaj havzasi, daryo havzasi

to erode yemirmoq, zarar yetkazmoq

estuary dengizning quyilish joyi

to exist bor bo'lmoq

fall to'kilmoq, tushmoq, quyilmoq

fan-shaped- veershaklida, deltasimon

fine silt mayda loyli tuproq, dispers loy, loyli cho'kindi,

flood suv toshqini

flow oqim

folds burmalar,

gorge dara

heavy rain jala

hill adir, tepalik
to join quyilmoq, qo'shilmoq
layer слой
meander речная излучина, извилина реки, изгиб русла
реки, меандра
to melt erimoq
to merge quyilmoq, qo'shilmoq
mouth устье реки, речное устье
to near yaqinlashmoq
obstacles to'siqlar
pebbles tosh
rainfall yog'ingarchilik
sediment cho'kma, quyqum
shallow sayoz
o sink cho'kmoq
slope qiyalik
sluggish turg'un, harakatsiz, passiv
source manba
to split tilinmoq, bo'linmoq, yorilmoq
spring floods bahorgi toshqinlar
spring buloq
steep tik, qiyalik
still waters turg'un suv
stream soy, daryo, oqim
surrounding land yaqin atrofdagi hudud
to flood suv toshqini
to flow oqmoq, quyulmoq
tributary irmoq
trickle oqmoq
valley vodiya
wadi вади (высохшее русло реки), временный поток, текущий по вади, русло реки
water weeds suv o'tlari
to wear away eskirmoq
to weigh og'irlikni o'lchamoq

Ex. 2. Read and translate the text.

Water turns into a river when it flows naturally between two clearly defined banks. The water is provided by snow or rain. A portion of the water from rain or snowfall rushes off the ground and down the steepest slope, creating trickles of water in land folds. In the end, these trickles combine to become streams, which eventually join to form rivers. Streams that join the main river are known as tributaries. A small amount of precipitation falls to the ground, seeps through the rocks, and eventually reaches a layer of rock that is no longer capable of holding any more water. After then, the water rises to the surface and creates a spring.

A river enlarges as new tributaries join it as it flows toward the sea. The area of land that supplies water to a river is known as the drainage basin.

Valleys and gorges are formed by rivers in the landscape. Water that is rushing has a great deal of force. One cubic meter of water weighs one tonne. Rocks can be broken simply by being beaten by water. However, the sediment (stones and sands) load of the river is more crucial. A deeper and deeper route is carved out by swiftly moving water as it sweeps rocks and earth along.

The rate at which the earth is worn away by the water is influenced by both the slope of the river and the hardness of the rock. It has greater eroding force the steeper it is (wear away). If the sea level is dropping or the land is rising, rivers may easily cut through rocks. The mountains grew when the Colorado River carved out the Grand Canyon in the United States. The river has built a canyon that is 1.5 kilometers deep today.

A river can carry more silt and larger rocks, which allows it to flow more quickly. The larger stones, followed by sand and subsequently fine silt, are the first materials the river releases when its flow is diminished. This happens as the river exits the mountains and flows into still waters of a lake or the sea, or when the valley floor flattens out as it leaves the mountains.

Around the river's source, when it is much above sea level and flowing quite swiftly, its cutting power is at its peak. The river flows through streets and rocky terrain. As they progressively break up into smaller pieces of gravel, sand, and muck, the rocks grunt at one another. The river is still very little and shallow.

Stones are everywhere throughout its bed. In the center of the river's route, the flow is not as rapid. Given that it has more water, its bed is bigger and is surrounded by sand, tiny stones, and water weeds. The river runs around and weaves through the hills because it is too feeble to surge past large barriers. The water on the outside of a curve moves more quickly than the inside because it needs to cover a greater distance. By removing the bank outside of the bend, it widens the valley.

The river widens and slows as it approaches the sea, making vast arcs (known as meanders) around even the slightest obstructions. As it spreads out and slows down, the silt load it was carrying is reduced. It creates sand beaches on the inside of bends and small cliffs on the outside of meanders through erosion. When the river overflows its banks during a flood, mud and sand are thrown across the landscape. As it joins the sea, it leaves a delta of mud that resembles a fan.

In the summer and winter, the flow of many rivers varies wildly. In areas with severe winters, the top part of the river may freeze, decreasing flow. Flooding in the spring could be caused by melting snow and ice. Seasonal rain causes seasonal rain, which results in annual floods. Some rivers only last a brief period of time following a significant downpour, when water rushes off the parched, barren ground, carrying large rocks and sculpting deep canyons known as wadis. Other desert rivers evaporate or sink into the sand, and they eventually dry up before they reach the sea.

A river passes through three stages between its beginning on high ground and its meeting with the sea: the upper course, which flows quickly; the middle course, which flows more gradually and usually crosses a large valley. The final phase of a river's existence is gradual as it meanders out to sea. The river's broad mouth, where it empties into the ocean, is known as the estuary.

Around 8,000 million tonnes of silt are discharged into the ocean daily by rivers.

Ex. 3. Respond to the following inquiries about the text.

1. What is the origin of rivers? 2. Why does a river enlarge as it flows toward the ocean? 3. Exactly what does a drainage basin mean? 4. How much does one cubic meter of water weigh? 5. What happens to the sediments the river comes across on its journey? 6. What characteristics does the river have as it gets closer to the ocean? 7. Exactly what are wadis? 8. What is an estuary exactly? 9. What three stages does a river go through? Create a personality for them.

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