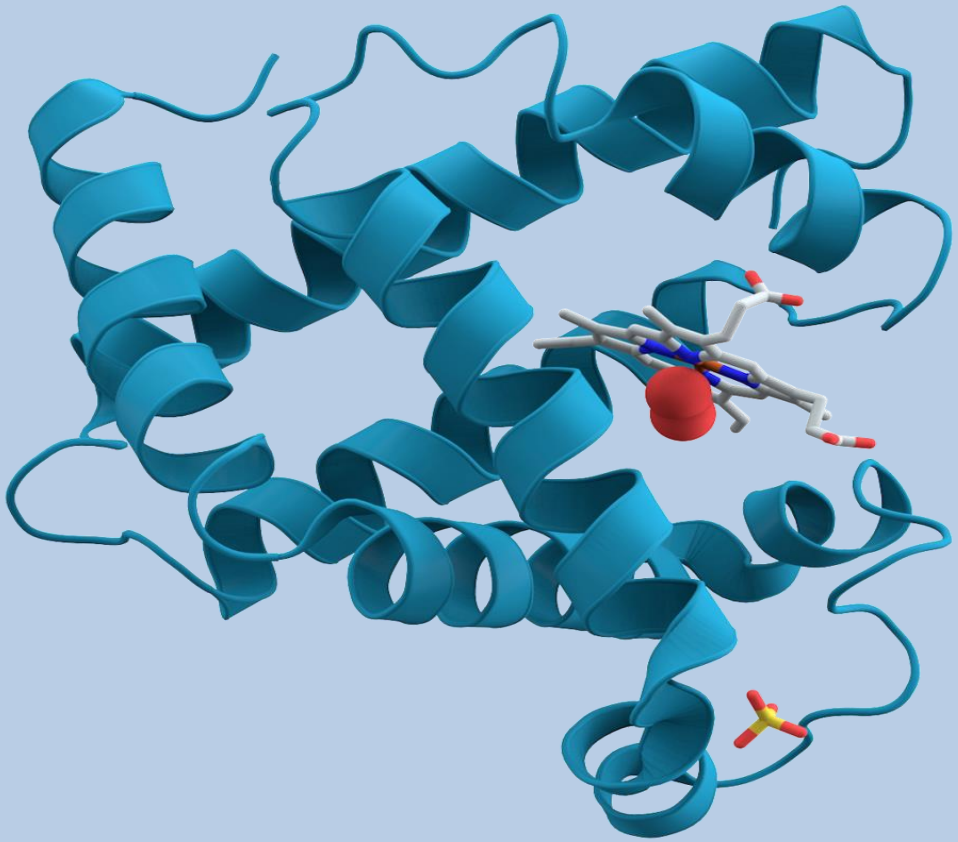


(3D structure of the protein myoglobin)

ABILITÀ LINGUISTICHE PER IL CORSO DI LAUREA IN BIOLOGIA
(1° anno, A.A. 2018-19)

POWER POINT PRESENTATION 4, 29 March/1 April 2019

Information about course on my home page:

unica.it → Facoltà → Facoltà di Studi Umanistici → Elenco docenti (cerca GRAY) → Didattica → Materiale Didattico

http://people.unica.it/geoffreymichaelgray/didattica/materiale-didattico/

Il seguente libro di testo, che contiene spiegazioni in lingua italiana, esempi ed esercizi, è un punto di riferimento indispensabile per il corso:

New Get Inside Language A1-B2+ Levels, M. Vince, G. Cerulli, M. Muzzarelli e D. Morini, Macmillan Education, 2017, ISBN: 978-1-380-00688-2.

Non è disponibile su Amazon.it. Può essere acquistato o ordinato presso la libreria SUKKA, Via G. Deledda 36, Cagliari. Tel. 070/6848476. Email: books@sukka.it

Non acquistare versioni di questo libro con ISBN diverso da quello citato sopra.

Il seguente libro non è essenziale ma è molto utile e divertente:

Beppe Severgnini: *L'inglese: Lezioni semiserie*

Rizzoli.

Disponibile su Amazon.it.

PRESENT PERFECT (use ‘have’/ ‘has’)

What interesting things **have you done** in your life? **Have you visited** any interesting cities or other places? **Have you travelled** abroad? Where? **Have you met** any interesting people? What’s the best restaurant / pizzeria /bar **you have been** to? Etc.

PAST SIMPLE (use ‘did’/ ‘does’)

What interesting things **did you do** last Saturday and Sunday? **Did you return home or did you stay** in Cagliari? Where **did you go**? Who **did you speak** to? What things **did you** read? What music **did you listen** to?

TODAY'S LESSON

1) Pronuniciation: consonants (voiced and unvoiced)

2) General English Lexis: The environment **(book 594-97)**

3) Grammar: verbs for talking about the future **(book 162-76, 186-88)**

4) Lexis for Biology: Atoms, isotopes and carbon-based molecules

The Phonetic Symbols of English

Vowels

Diphthongs

iː	ɪ	ʊ	uː	ɪə	eɪ		
e	ə	ɜː	ɔː	ʊə	ɔɪ	əʊ	
æ	ʌ	ɑː	ɒ	eə	aɪ	aʊ	
p	b	t	d	tʃ	dʒ	k	g
f	v	θ	ð	s	z	ʃ	ʒ
m	n	ŋ	h	l	r	w	j

Consonants

VOWELS

MONOPHTHONGS (1)

i: /spi:tʃ/ (speech) see	ɪ /pɪg/ sit pig	ʊ /bʊks/ good books	u: /mu:n/ moon
e /eksreɪ/ egg X-ray	ə /ə'merɪkə/ ago America	ɜ: /bɜ:d/ her bird	ɔ: /kɔ:k/ four cork
æ /kæt/ cat	ʌ /kʌp/ up cup	ɑ: /mɑ:sk/ ask mask	ɒ /bɒt(ə)l/ on bottle

DIPHTHONGS (2)

ɪə /tʃɪə(r)z/ here cheers	eɪ /pleɪn/ eight plane	aɪ	ɔɪ /pɔɪnt/ boy point
ʊə /tʊərɪst/ sure tourist	eə /tʃeə(r)/ there chair	aɪə /klaɪmə(r)/ my climber	aʊ /kaʊ/ now cow
əʊ /bəʊt/ no boat			

CONSONANTS

p /prezənt/ pen present	b /beɪbɪ/ bee baby	t /tɔ:k/ ten talk	d /drɔ:/ do draw	tʃ /tʃi:z/ chair cheese	dʒ /dʒə'pæn/ just Japan	k /kæʃ/ can cash	g /greɪps/ go grapes
f /fɪʃ/ five fish	v viper /vaɪpə/ very	θ /θri:/ thing three	ð /feðə(r)/ mother feather	s /sætən/ so Saturn	z 1-1= /zi:rəʊ/ zero	ʃ /ʃu:/ she shoe	ʒ /meʒə(r)/ television measure
m /meɪl/ me mail	n /nju:z/ nine news	ŋ /wɪŋ/ long Wing	h /hɑ:t/ house heart	l /legz/ love legs	r /rə'ku:n/ right racoon	w /wɜ:ld/ we world	j /jes/ yes

©Bill Ambler 1993 - Revised edition ©1995 – International Language Centre, Tokyo.

Pronunciation: consonants

Unvoiced: /s/ /p/ /t/ /k/ /f/ …

No use of vocal cords

Voiced: /z/ /b/ /d/ /g/ /v/ …

Use of vocal cords

Lexis for General English

La natura = English?

L’ambiente = English ?

Lexis for General English

La natura = John was interested in ~~the~~ nature, ~~the~~ wildlife and ~~the~~ birds

L'ambiente = Industrial development is causing widespread damage to the environment

The Environment (book 554-55)

1. A belief that animals should be treated well by people. Sometimes it is argued they should not be used for scientific experiments.
2. The variety of different types of plant and animal life in a particular region.
3. All the plants and animals in a particular area, considered as a system with parts that depend on one another.
4. A gas without colour or smell, produced when you breathe out or when substances containing carbon are burnt.

The Environment (book 554-55)

1. A belief that animals should be treated well by people. Sometimes it is argued they should not be used for scientific experiments. animal rights
2. The variety of different types of plant and animal life in a particular region. biodiversity
3. All the plants and animals in a particular area, considered as a system with parts that depend on one another. ecosystem
4. A gas without colour or smell, produced when you breathe out or when substances containing carbon are burnt. carbon dioxide (andride carbonica)

The Environment (book 554-55)

5. A poisonous gas without colour or smell, produced by the engines of vehicles.
6. The fact that the Earth is getting hotter because of carbon dioxide and other gases in the atmosphere is called the _____ _____ or _____ _____ .
7. Your carbon _____ is the sum of all emissions of greenhouse gases like CO2 (carbon dioxide), which were caused by your activities in a given time frame.
8. Benzina senza piombo.

The Environment (book 554-55)

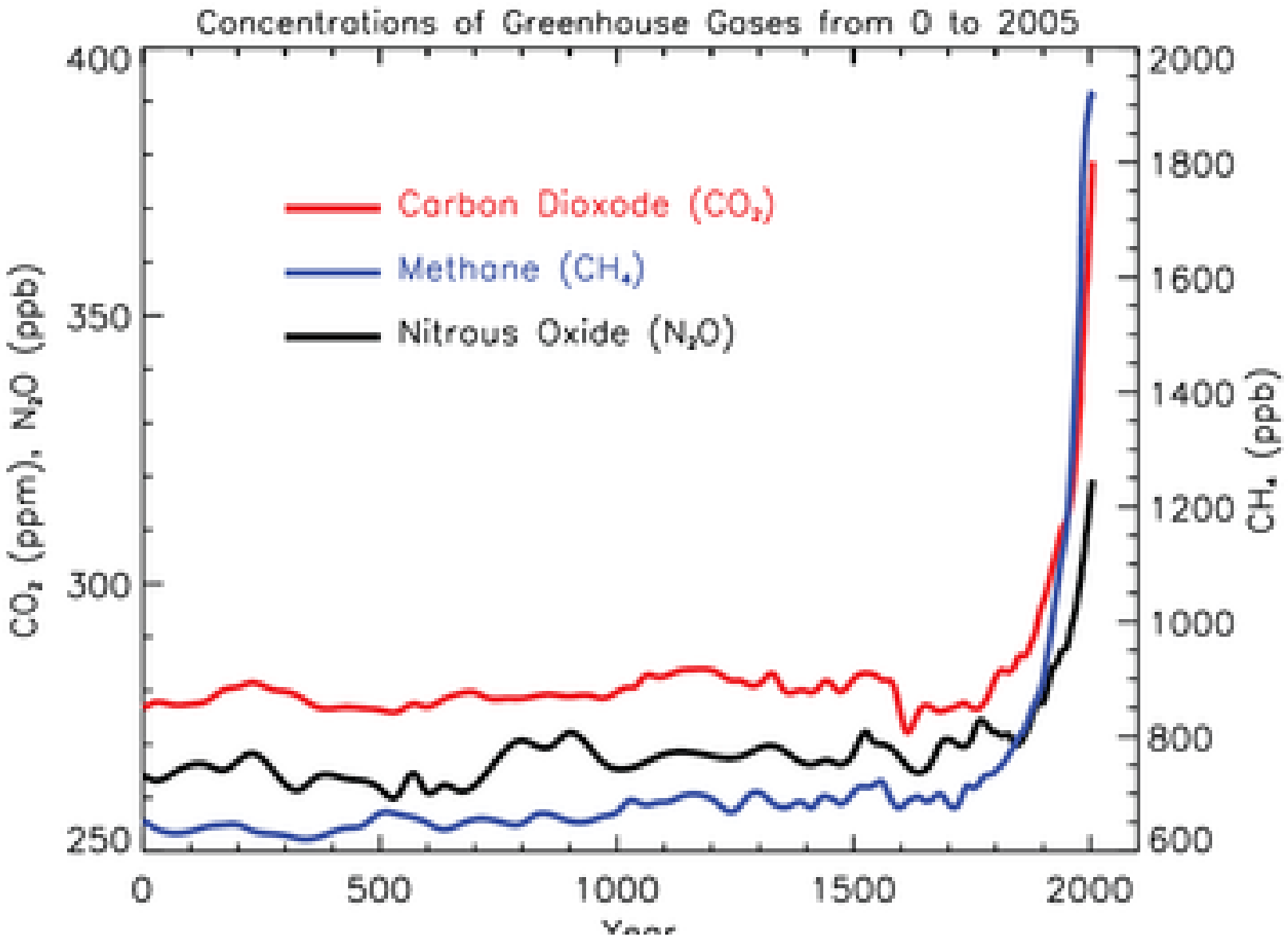
5. A poisonous gas without colour or smell, produced by the engines of vehicles. carbon monoxide (monosiddo di carbonio)

6. The fact that the Earth is getting hotter because of carbon dioxide and other gases in the atmosphere is called the greenhouse effect or global warming.

7. Your carbon footprint is the sum of all emissions of greenhouse gases like CO2 (carbon dioxide), which were caused by your activities in a given time frame.

8. Benzina senza piombo. Unleaded petrol.

The Environment



The Environment (book 554-55)

7. Inquinare
8. Pioggia acida
9. Uragano
10. Plants grown for food, usually on a farm.
11. A long period of time when there is little or no rain and crops die.
12. A serious lack of food that continues for a long time and causes many people in a country to become ill or die.
13. Last year, the _____ caused _____ failure and led to widespread _____ .

The Environment (book 554-55)

7. Inquinare / Inquinamento Pollute / Pollution
8. Pioggia acida Acid rain
9. Uragano Hurricane
10. Plants grown for food, usually on a farm.Crops
11. A long period of time when there is little or no rain and crops die. Drought
12. A serious lack of food that continues for a long time and causes many people in a country to become ill or die. Famine
13. Last year, the drought caused crop failure and led to widespread famine.

The Environment (book 554-55)

14. A type of animal or plant that may soon become extinct (specie in via di estinzione)
15. A large amount of water that covers an area that was dry before. (The southwest of England has been badly hit by _____s.)
16. Come pensi che l'uomo vivrà fra vent'anni?
17. Sono dell'opinione che fra cinquant'anni tutta l'energia sarà ad alimentare solare.
18. Se la plastica viene gettata nelle discariche, ci vogliono 450 anni perché si dissolva.

The Environment (book 554-55)

14. A type of animal or plant that may soon become extinct (specie in via di estinzione)
endangered species

15. A large amount of water that covers an area that was dry before. flood (The southwest of England has been badly hit by floods.)

16. Come pensi che l'uomo vivrà fra vent'anni? How do you think people will be living in twenty years' time?

17. Sono dell'opinione che fra cinquant'anni tutta l'energia sarà ad alimentare solare. I'm of the opinion that in fifty years all energy will be solar powered.

The Environment (book 554-55)

18. Se la plastica viene gettata nelle discariche, ci vogliono 450 anni perché si dissolva.
If plastic is thrown away in landfills, it takes 450 years to decompose.

GRAMMAR: PLAN OF COURSE

Lesson:

1: overview of exam

2. verbs to talk about the present

3: verbs to talk about the past

4: **TODAY: verbs to talk about the future**

5: modal verbs, passive forms, infinitive and ing- form

6: countable / uncountable quantities, articles and comparisons

7: zero, first and second conditionals (= periodo ipotetico)

8: Word order, relative clauses and subordinate clauses

Grammar: talking about the future. Going to / present continuous / will (book 162-76, 186-88)

When do we use these different verbs for the future?

She looks unhappy. She's going to cry.

I'm going to wear my new clothes on Saturday.

Mary's meeting Peter tomorrow at 8.30.

The melting of Artic sea ice will create more possibilities for oil exploration.

(In a bar:) I'll have a coffee,

Grammar: talking about the future. Going to / present continuous / will (book 162-76, 186-88)

She looks unhappy. She's going to cry. (= A future event or action that seems certain because of evidence that we can see now)

I'm going to wear my new clothes on Saturday. (= An intention or decision made before the moment of speaking)

Mary's meeting Peter tomorrow at 8.30. (= An arrangement made for a particular time in the future.)

Grammar: talking about the future. Going to / present continuous / will (book 162-76, 186-88)

The melting of Artic sea ice will create more possibilities for oil exploration. (A simple future fact.)

(In a bar) I'll have a coffee, please. (A decision, that we make now, at the moment of speaking.)

Example of 'will' as a simple, future fact.

In December 2015, in Paris, many countries in the world agreed to reduce global warming to below 2°C. But even if a drastic and immediate effort is made to reduce emissions (= the burning of fossil fuels), it **will** be necessary to do something more to stop the ice at the North Pole from disappearing (melting) completely in summer, possibly by 2030. This loss of summer Artic sea ice **will** have the following three negative consequences.

Examples of 'will' as a simple, future fact.

First, it will endanger many species, from polar bears to fish. Second, it **will** also cause further global warming. It will release more carbon-based gases such as carbon dioxide and methane into the atmosphere, and it **will** remove the ice that reflects solar radiation back into space. Third, it will disrupt weather patterns in the northern hemisphere. (A reduction of the difference between the temperature at the North Pole and the equator **will** affect wind patterns.)

Examples of ‘going to’ for a decision made before the moment of speaking.

Example: Imagine it is now 2025. What **are** the scientists and politicians **going to** do? Answer: Some are going to use wind pumps to bring very cold water under the surface of the sea to the surface. It will freeze and thicken the ice. Others **are going to** spray aerosol particles into the stratosphere so that they directly reflect sunlight back into space and produce a cooling effect. Others **are going to** spray sea water into the atmosphere above the North Pole. This will create clouds that will also reflect sunlight back into space and produce a cooling effect.

Injection of water particles into clouds

Imagine it is still 2025. You and your colleagues are political leaders or eminent scientists (geo-engineers). What **are you going to do** about climate change (and the melting of the ice)? Discuss the following proposals:

Make people pay for their carbon footprints || Increase the price of petrol and diesel || Install solar panels on all houses || Make Agip, Esso, Q8 and other fossil-fuel companies pay more taxes || Develop clean bio-fuels || Reduce low-cost flights || Design and use cheap electric cars || Turn Sardinia into a wind farm || Spray water into the atmosphere above the North Pole || Something else

What are you doing tomorrow? I'm seeing my friend at 8.30 (Use **present continuous** for an arrangement made for a particular time in the future)

What are you going to do after you graduate in biology? / get your degree in biology? I'm going to be a nurse. (Use **going to** for an intention or decision made before the moment of speaking)

What are they going to do this evening? (Use **going to** for a future event or action that seems certain because of evidence that we can see now)

Lexis for biology (read *Scientific American*)

Atoms, isotopes and carbon-based molecules

Atoms make up m_____, and the latter make up the substance of living things. The core of an atom, also called the n _____, contains two kinds of sub-atomic particles: protons that carry a p _____ charge and n _____ that have no charge. The nucleus is surrounded by e_____ that carry a positive charge but they have no m_____.

Atoms, isotopes and carbon-based molecules

Atoms make up molecules, and molecules make up the substance of living things. The core of an atom, also called the nucleus, contains two kinds of sub-atomic particles: protons that carry a positive charge and neutrons that have no charge. The nucleus is surrounded by electrons that carry a positive charge but they have no mass.

What is “mass”? In physics, mass is defined as a measure of a body’s resistance to changes in v _____ (‘inertial mass’), and also of the f _____ experienced in a gravitational field (‘gravitational mass’).

What is “mass”? In physics, mass is defined as a measure of a body’s resistance to changes in velocity (‘inertial mass’), and also of the force experienced in a gravitational field (‘gravitational mass’).

Atoms become i _____ when they gain or lose electrons. Positive (+) ions have m_____ protons than electrons; negative (–) ions have l_____ protons than electrons. Positive and negative charges attract one another, allowing atoms to form i_____ bonds, which should not be confused with covalent bonds.

Atoms become ions when they gain or lose electrons. Positive (+) ions have more protons than electrons; negative (–) ions have less protons than electrons. Positive and negative charges attract one another, allowing atoms to form ionic bonds, which should not be confused with covalent bonds.

An e _____ is a substance made of atoms that have the same number of protons. The four most common elements found in living things are hydrogen, carbon, n_____, and oxygen, all of which are found in air, plants and w_____.

An element is a substance made of atoms that have the same number of protons. The four most common elements found in living things are hydrogen, carbon, nitrogen, and oxygen, all of which are found in air, plants and water.

All atoms of an element have the same number of protons, but the number of neutrons can c_____. If the number of neutrons is different between two atoms of the same element, the atoms are called i_____ of that element. For example, carbon-12 and carbon-14 are two isotopes of the element carbon. Atoms of carbon-12 have 6 protons and 6 neutrons; atoms of carbon-14 still have 6 protons but they have 8 neutrons.

All atoms of an element have the same number of protons, but the number of neutrons can change. If the number of neutrons is different between two atoms of the same element, the atoms are called isotopes of that element. For example, carbon-12 and carbon-14 are two isotopes of the element carbon. Atoms of carbon-12 have 6 protons and 6 neutrons; atoms of carbon-14 still have 6 protons but they have 8 neutrons.

Acids are molecules that can split apart in water and release h_____ ions (H^+). **Bases** are molecules that can split apart in water and release h_____ ions (OH^-). The relative concentration of hydrogen to hydroxide ions is represented by the pH s_____ which ranges from 1 to 14. A pH of 7 is neutral. A solution that contains more hydrogen ions than hydroxide ions is a_____; a solution that contains more hydroxide ions than hydrogen ions is b_____. Most substances in the human body are centred around the neutral pH of 7. (A system of b_____ exists to help neutralise the b_____ if excess hydrogen or hydroxide ions are produced.)

Acids are molecules that can split apart in water and release hydrogen ions (H^+). **Bases** are molecules that can split apart in water and release hydroxide ions (OH^-). The relative concentration of hydrogen to hydroxide ions is represented by the pH scale which ranges from 1 to 14. A pH of 7 is neutral. A solution that contains more hydrogen ions than hydroxide ions is acidic; a solution that contains more hydroxide ions than hydrogen ions is basic. Most substances in the human body are centred around the neutral pH of 7. (A system of buffers exists to help neutralise the blood if excess hydrogen or hydroxide ions are produced.)

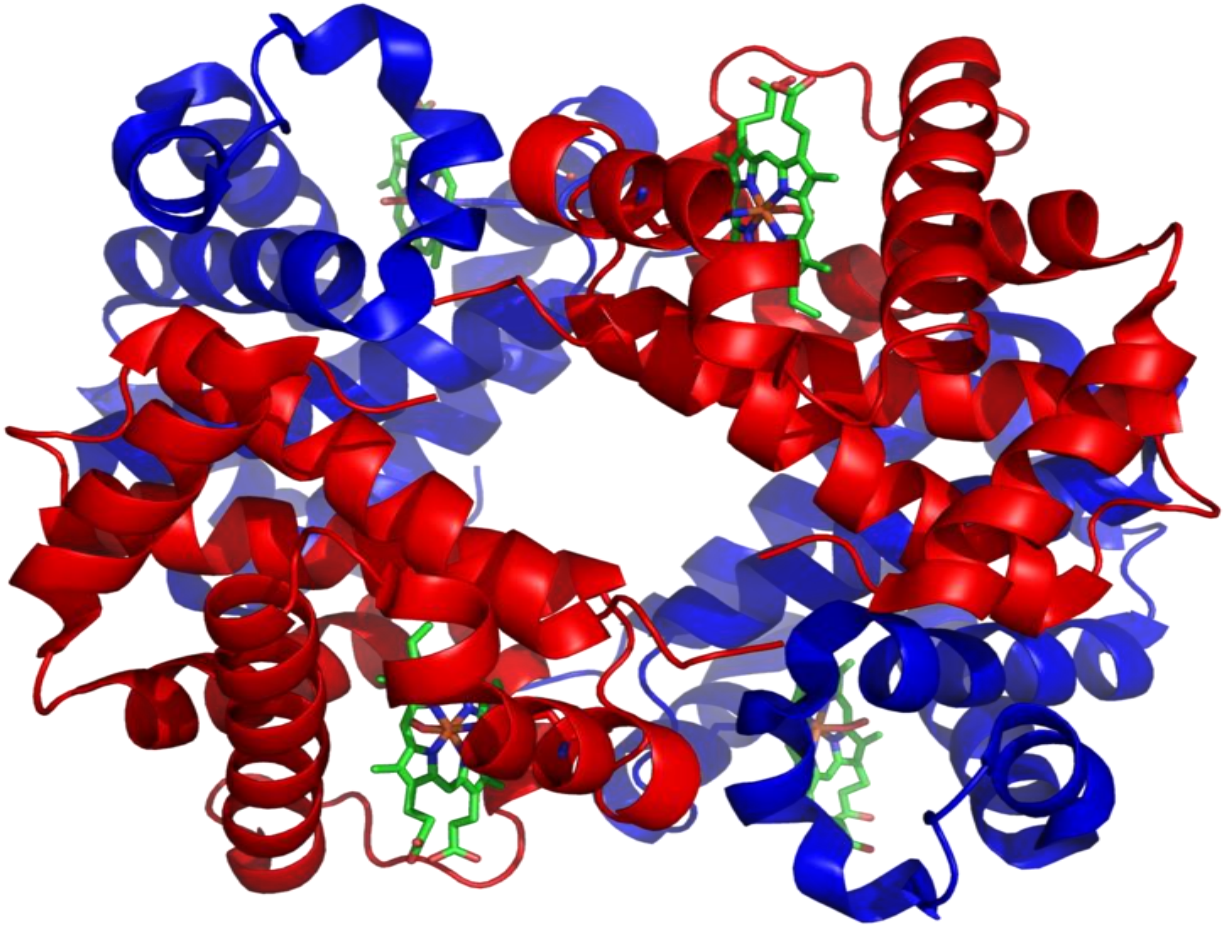
All living things rely on one particular type of molecule: c_____. Carbohydrates, proteins, nucleic acids and l_____ are four kinds of carbon-based molecules that are especially important for the structure and function of organisms. Regardless of the food source, all living things use food as a s_____ of carbon-containing molecules. Carbohydrates are energy-packed compounds. They provide energy very quickly but this energy does not last for l_____. Therefore, reserves of carbohydrates have to be replenished f_____ . Most of the names of carbohydrates end in *–ose*. For example, g_____ and fructose.

All living things rely on one particular type of molecule: carbon. Carbohydrates, proteins, nucleic acids and lipids are four kinds of carbon-based molecules that are especially important for the structure and function of organisms. Regardless of the food source, all living things use food as a supply of carbon-containing molecules. Carbohydrates are energy-packed compounds. They provide energy very quickly but this energy does not last for long. Therefore, reserves of carbohydrates have to be replenished frequently . Most of the names of carbohydrates end in *–ose*. For example, glucose and fructose.

Proteins are a_____ acids joined together by peptide bonds. Some proteins function as e_____ that speed up the rate of metabolic processes. Other kinds of protein reinforce cells and tissues (e.g., c _____ is a structural protein found in the connective tissue that joins muscles to b _____.) And there are also transport proteins that move materials around cells and around the body (e.g., h _____, which is found in red blood cells.

Proteins are amino acids joined together by peptide bonds. Some proteins function as enzymes that speed up the rate of metabolic processes. Other kinds of protein reinforce cells and tissues (e.g., collagen is a structural protein found in the connective tissue that joins muscles to bones.) And there are also transport proteins that move materials around cells and around the body (e.g., hemoglobin, which is found in red blood cells.

3D structure hemoglobin



Nucleic acids carry genetic information (see lesson 3). Lipids, which in non-scientific language are called f_____, have high-energy density. They allow living things to store lots of c_____in a small space.

Nucleic acids carry genetic information (see lesson 3). Lipids, which in non-scientific language are called fats, have high-energy density. They allow living things to store lots of calories in a small space.