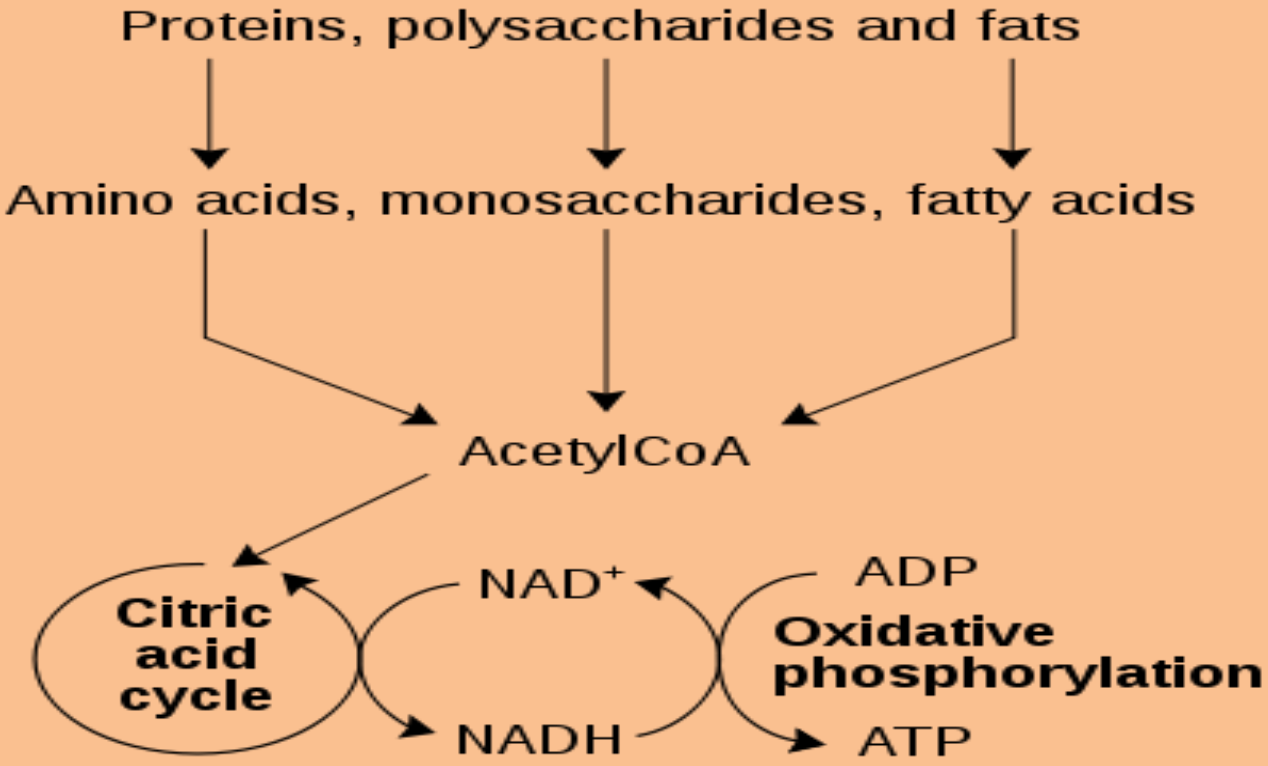


Metabolism: A simplified outline of the catabolism of proteins, carbohydrates and fats

ABILITÀ LINGUISTICHE PER IL CORSO DI LAUREA IN BIOLOGIA

(1° anno, A.A. 2018-19)

POWERPOINT PRESENTATION, 7: 26 and 29 APRILE

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.

- What did you do during / over the Easter holidays? I went to… (where?) / I stayed at home / I saw my friends /parents.

- Have you studied a lot recently? No, I haven't studied anything / Yes, I've studied a organic chemistry alot.

- When are you going to do the English exam? I'm going to do it on 20 June (the twentieth of June) / 5 July (the fifth of July) / 25 September (the twenty-fifth of September).

TODAY'S LESSON

1) Pronuniciation: **vowels and consonants**
2) General English Lexis: **Jobs and job interviews (book 574-77)**
3) Grammar: **zero, first and second conditional (book 472-77, 487-88)**
4) Lexis for Biology: **metabolism**

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)

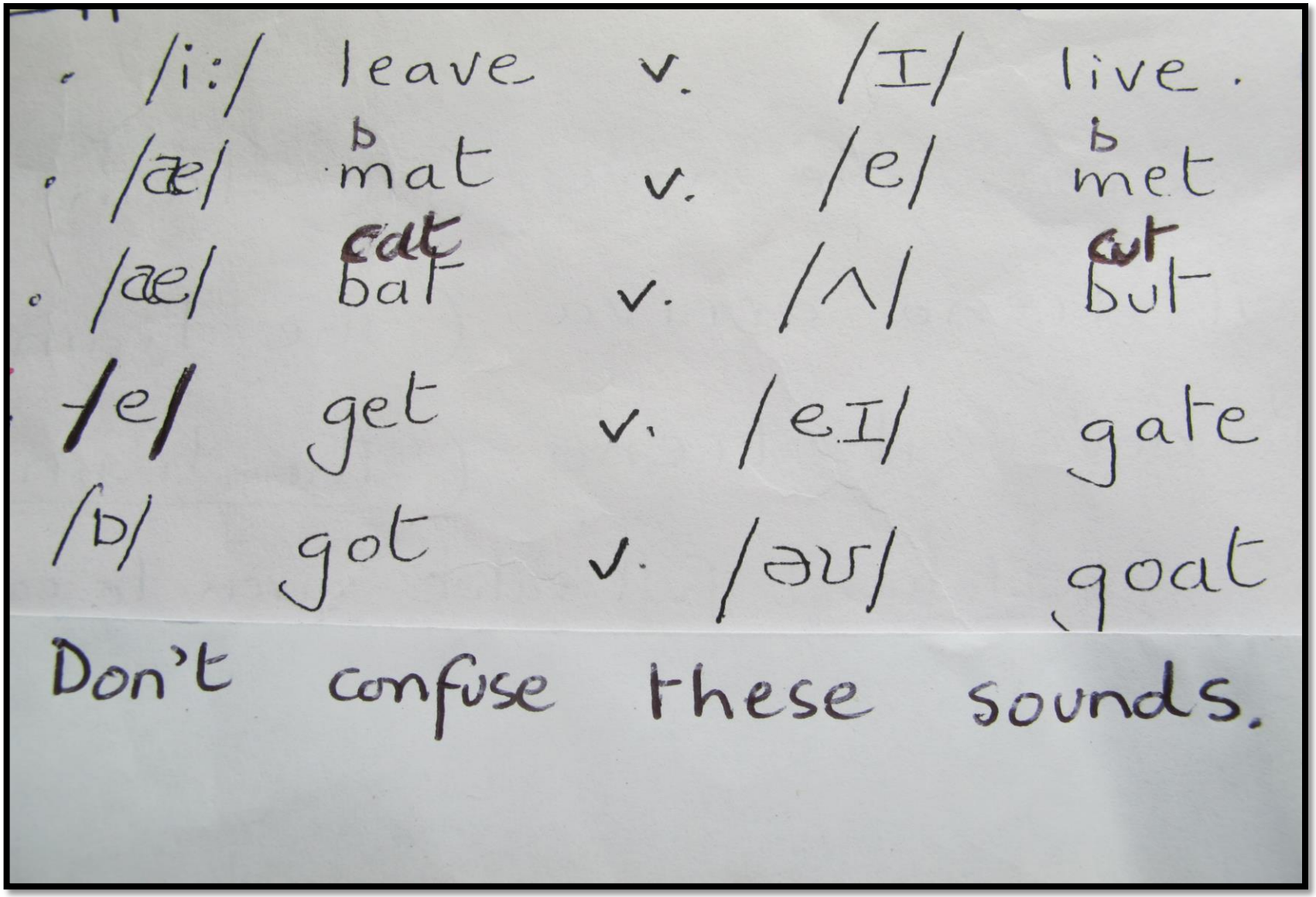
i: /spi:tʃ/ (speech) see	ɪ /pɪg/ sit pig	ʊ /bʊks/ good books	u: /mu:n/ moon
e /eksreɪ/ egg X-ray	ə /ə'merɪkə/ ago America	ɜ: /bɜ:d/ her bird	ɔ: /kɔ:k/ four cork
æ /kæt/ cat	ʌ /kʌp/ up cup	ɑ: /mɑ:sk/ ask mask	ɒ /bɒt(ə)l/ on bottle

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


/i:/ leave v. /I/ live.
/æ/ mat v. /e/ met
/æ/ bat v. /ʌ/ but
/e/ get v. /eI/ gate
/ɒ/ got v. /əʊ/ goat
Don't confuse these sounds.

Write the phonemes (= pronunciation symbols) for these words:

work

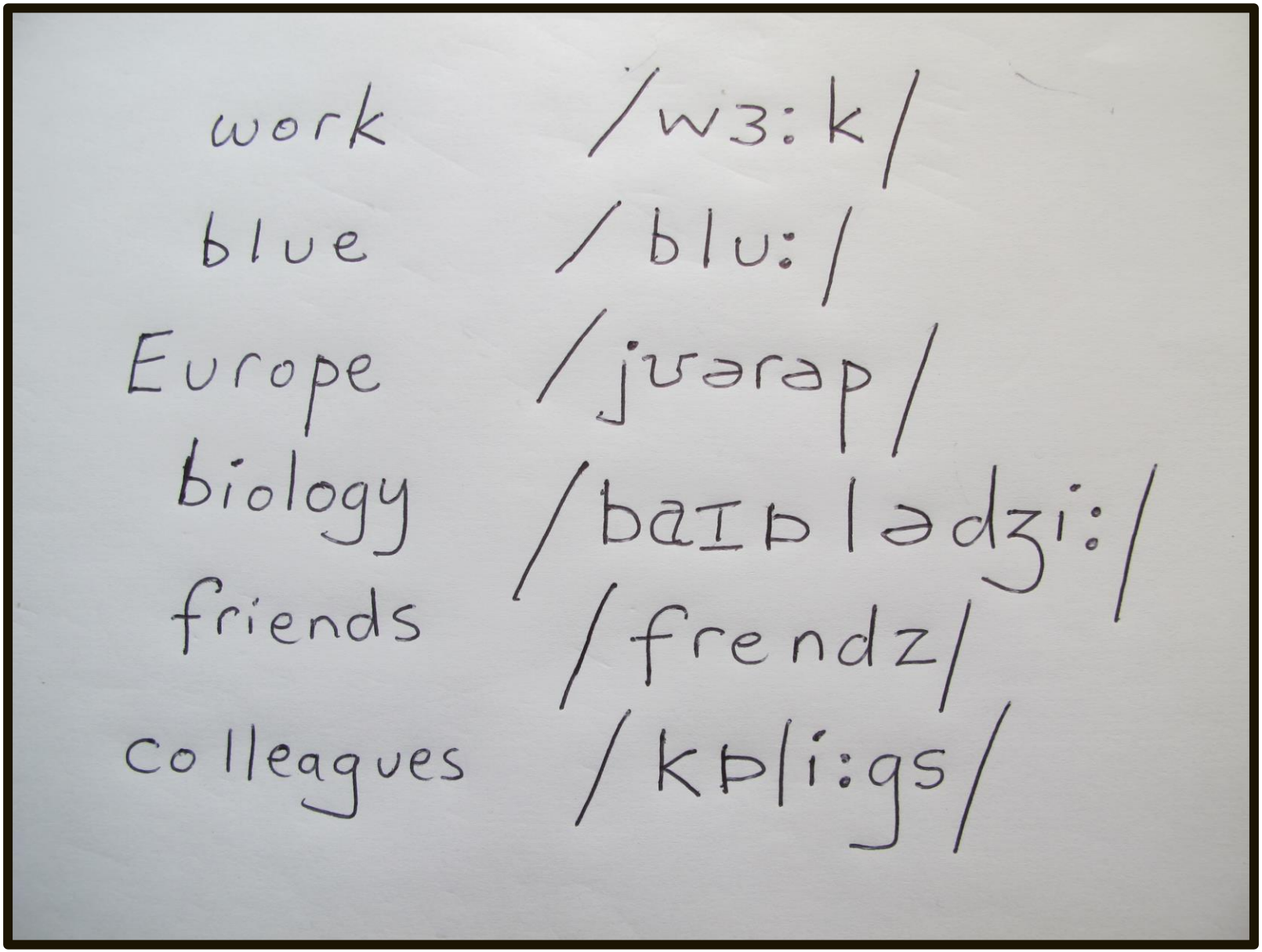
blue

Europe

biology

friends

colleagues


work /wɜ:k/
blue /blu:/
Europe /jʊərəp/
biology /baɪɒlədʒi:/
friends /frendz/
colleagues /kɒli:gs/

Avoid the final /ə/ sound

I wentə toə schoolə onə the busə

I went to school on the bus

Dodə youə havəə the timeə?

Do you have the time?

Lexis for General English

Work and Jobs (book 574-75)

What's the name of the job?

1) Someone who provides people with legal advice and services

2) A doctor who is trained to perform operations involving cutting, especially in a hospital

3) Someone who designs or builds things such as machines, roads, bridges and buildings

4) Someone who has a job in politics, especially in Parliament

5) Someone whose job is to cut or style people's hair.

Lexis for General English

Work and Jobs (book 574-75)

What's the name of the job?

1) Someone who provides people with legal advice and services **lawyer**

2) A doctor who is trained to perform operations involving cutting, especially in a hospital **surgeon**

3) Someone who designs or builds things such as machines, roads, bridges and buildings **engineer**

4) Someone who has a job in politics, especially in Parliament **politician**

5) Someone whose job is to cut or style people's hair. **hairdresser's / barber (men)**

Lexis for General English (book 576-77)

Applying for a job. Translate into English:

candidato a un impiego

essere disponibile a sostenere un colloquio

curriculum vitae

istruzione

annuncio di lavoro

titoli di studio

referenze

abilità

esperienza lavorativa

Lexis for General English (book 576-7)

Applying for a job. Translate into English:

candidato a un impiego **job applicant**

essere disponibile a sostenere un colloquio **be available for an interview**

curriculum vitae **CV**

Istruzione **education**

annuncio di lavoro **job advertisement / advert**

titoli di studio **qualifications**

referenze **references**

abilità **skills («corso di abilità linguistiche» = language skills course)**

esperienza lavorativa **work experience**

Lexis for General English (book 576-7)

Describing a job. Translate into English:

reparto

compiti, mansioni

contratto a tempo determinato

contratto a tempo indeterminato

contratto rinnovabile

turno

tirocinio

lavoro straordinario

orario di lavoro flessibile

Lexis for General English (book 576-77)

Describing a job. Translate into English:

reparto **department**

compiti, mansioni **duties**

contratto a tempodeterminato**fixed-termcontract**

contratto a tempo indeterminato **permanent contract**

contratto rinnovabile **renewable contract**

turno **shift**

tirocinio **training / apprenticeship**

lavoro straordinario **overtime**

orario di lavoro flessibile **flexible working hours = «gig economy»**

Lexis for General English (book 576-77)

At a job interview. Respond to the questions

1) I see from your CV that you have a degree in biology? Do you have any other qualifications?
2) How has your education prepared you for this job? (Why is biology relevant for this job?)
3) Do you have any previous work experience?
4) Can you tell me about your long-term career goals?
5) Can you work under pressure (stress)?
6) What are your strongest / weakest points?
7) Can you tell me about your interests?
8) Do you have any questions about this job?

Lexis for General English (book 576-77)

At a job interview. Respond to the questions

1) I see from your CV that you have a degree in biology? Do you have any other qualifications?

Well, at school I studied….

2) How has your education prepared you for this job? (Why is biology relevant for this job?)

Biology, especially knowledge of cell structure, is important because….

3) Do you have any previous work experience?

Yes, last summer I worked in / for /as….

Lexis for General English (book 576-77)

At a job interview. Respond to the questions

4) Can you tell me about your long-term career goals? **Yes, I would like to work in cosmetics / for the environment / as an endocronolgist who diagnoses diseases related to the glands / in nutrition as diet specialist / as a pharmacist / etc.**

5) Can you work under pressure (stress)? **Yes, I am very efficient…. / No, I hate stress.**

6) What are your strongest / weakest points? **I work too hard / I'm very motivated.**

7) Can you tell me about your interests? **I like walking / swimming / playing the guitar.**

8) Do you have any questions about this job?

What are the hours? Who **would** I work with?

Lexis for General English (book 576-77)

At a job interview. Respond to the questions

1) I see from your CV that you have a degree in biology? Do you have any other qualifications?
2) How has your education prepared you for this job? (Why is biology relevant for this job?)
3) Do you have any previous work experience?
4) Can you tell me about your long-term career goals?
5) Can you work under pressure (stress)?
6) What are your strongest / weakest points?
7) Can you tell me about your interests?
8) Do you have any questions about this job?

GRAMMAR:

8) Do you have any questions about this job?
What are the hours? Who **would** I work with?

Conditional (periodo ipotetico):

- zero conditional
- first conditional
- second conditional
- third conditional **level B2**

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

zero conditional (book 472-73).

When it **rains,** many people use an umbrella.

If you **heat** water to 100°C, it **boils.**

When do we use the zero conditional?

What tense are the verbs?

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

zero conditional (book 472-73). **= <u>CERTAINTY</u>**

When it **rains**, many people **use** an umbrella.

If you **heat** water to 100°C, it **boils.**

When do we use the zero conditional? **For facts that are always true. We communicate certainty**.

What tense are the verbs? **Present simple**

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

zero conditional (book 472-73).

When it **rains**, many people **use** an umbrella.

If you **heat** water to 100°C, it **boils.**

Ask and answer the questions: (Communicate certainty)

If you add 17 + 9, what do you get?

If you jump into very cold water, what happens?

If you mix yellow and blue, what happens?

If you don't watch TV, what happens?

If you don't sleep and eat, what happens?

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

first conditional (book 472-73)

If we **travel** by train instead of by car, we **will reduce** our carbon emissions /footprint.

If you **don't study**, you **won't (will not) pass** your exam.

When do we use the first conditional?

What tense are the verbs?

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

first conditional (book 472-73).= **real possibility**

If you **don't study**, you **won't (= will not) pass** your exam.

We will (= We'll) reduce our carbon emissions /footprint if we **travel** by train instead of by car.

- When do we use the first conditional? **To talk about a real / strong possibility in the future.**

- What tense are the verbs? **Present simple after 'if' + future with 'will' (or vice versa). (Mentre in italiano dopo 'if' si usa il futuro.)**

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

first conditional (book 472-73) **= real possibility**

If you **don't study**, you **won't (= will not) pass** your exam.

We will (= We'll) reduce our carbon emissions /footprint if we **travel** by train instead of by car.

Finish the sentences:

1) If it's a nice day tomorrow, I will … ||
2) If I find a good job, I will … || **3)** If you go swimming every day, you will be …||
4) If I have any free time this evening I will…|| **5)** You will … if you study hard.

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

first conditional (book 472-73) **= real possibility**

Finish the sentences (examples):

1) If it's a nice day tomorrow, I'll go for a walk in the country / on the mountains / along the beach.

2) If I find a good job, I will buy my own house / a big present for my parents.

3) If you go swimming every day, you will be very fit.

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

first conditional (book 472-73).

Finish the sentences: = real possibility

4) If I have any free time this evening I will see my friends / listen to music / go to bed early /wash my hair.

5) You will become more knowledgeable if you study hard.

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

second conditional (book 475-77).

- If I **knew** his telephone number, I **'d (= would)** call him.
- I **would reduce** fees for students if I **was/were the Prime Minister.**
- If I **was /were** you, I**'d (= would)** call the police.

When do we use the second conditional?

What tense are the verbs?

Grammar:

second conditional (book 475-77).

If I **knew** his telephone number, I **'d (= would)** call him.

I **would reduce** fees for students if I **was/were the Prime Minister.**

If I **was /were** you, I**'d (= would)** call the police.

- When do we use the second conditional? To talk about a **hypothetical, improbable and unlikely** situation in the future.

- What tense are the verbs? Past simple after 'if', 'would' + infinitive without 'to' (or vice versa)

second conditional (book 475-77).

If I **knew** his telephone number, I **would call** him.

I **would reduce** fees for students if I **was/were** a politician**.**

ASK YOUR PARTNER:

1) If you could live anywhere in the world, where would you live?

2) If you could choose any career, what would it be?

3) If your grandmother left you €100, 000, what would you do with it?

4) What would you do if you met the Prime Minister?

5) If you had to cook something this evening, what would it be?

second conditional (book 475-77).
(= Hypothetical, unlikely and improbable)

1) If you could live anywhere in the world, where would you live? **I would live in… because…**
2) If you could choose any career, what would it be? **I would like to become a … because ... .**
3) If your grandmother left you €100, 000, what would you do with it? **First of all, I would… Then I would … Finally, I would ……**
4) What would you do if you met the Prime Minister? **I'd (= I would) ask him to reduce fees for students.**

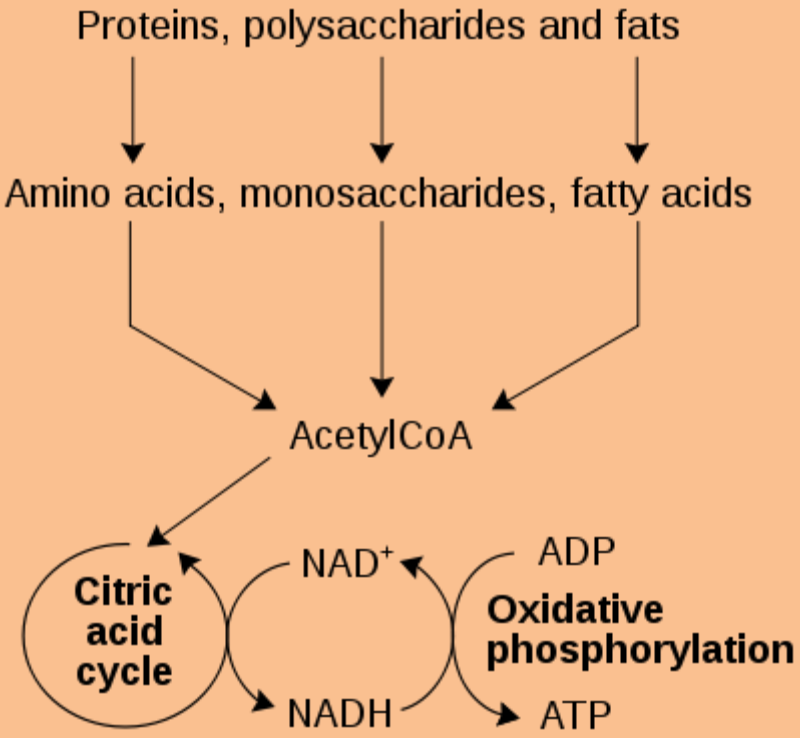
second conditional (book 475-77).

5) If you had to cook something this evening, what would it be?

I would cook vegetable moussaka with aubergines, courgettes, tomatoes and Parmesan cheese.

Lexis for biology (read *Scientific American*)

Metabolism



A simplified outline of the catabolism of proteins, carbohydrates and fats

Lexis for biology (read *Scientific American*)

Metabolism

The word metabolism describes all the chemical reactions that h_____ in the body. These reactions are of two kinds – a_____ reactions that make things (molecules) and c_____ reactions that break things down.

You can remember the meaning of 'catabolic' by associating it with 'catastrophe' (= 'destruction'/ 'meltdown').

Your body p_____ both of these reactions at the same time.

Lexis for biology (read *Scientific American*)

Metabolism

The word metabolism describes all the chemical reactions that happen in the body. These reactions are of two kinds – anabolic reactions that make things (molecules) and catabolic reactions that break things down. You can remember the meaning of 'catabolic' by associating it with 'catastrophe' (= 'destruction'/ 'meltdown'). Your body performs both of these reactions at the same time.

Lexis for biology (read *Scientific American*)

How do cells metabolise? The reactions that convert fuel to usable energy (ATP = a_____ t_____) include g_____, the K_____ cycle (aerobic respiration) and anaerobic respiration, and o_____ phosphorylation. Together, these reactions are referred to as c_____ respiration.

Lexis for biology (read *Scientific American*)

How do cells metabolise? The reactions that convert fuel to usable energy (ATP = adenosine triphosphate) include glycolysis, the Krebs cycle (aerobic respiration) and anaerobic respiration, and oxidative phosphorylation. Together, these reactions are referred to as cellular respiration.

Lexis for biology (read *Scientific American*)

Glycolysis, which is the process that b_____ d_____ glucose, occurs in the cytoplasm of e_____ cell. Glucose is the s_____ molecule that a carbohydrate can be broken into during d_____. Two molecules of ATP are required to s_____ each molecule of glucose rolling down the glycolytic p_____. In addition, two molecules of p_____ acid (also called pyruvate) are generated. They move into the cellular o_____ called the mitochondrion.

Lexis for biology (read *Scientific American*)

Glycolysis, which is the process that breaks down glucose, occurs in the cytoplasm of every cell. Glucose is the smallest molecule that a carbohydrate can be broken into during digestion. Two molecules of ATP are required to start each molecule of glucose rolling down the glycolytic pathway. In addition, two molecules of pyruvic acid (also called pyruvate) are generated. They move into the cellular organelle called the mitochondrion.

Lexis for biology (read *Scientific American*)

The Krebs cycle, sometimes called the t_____ acid cycle or citric acid cycle, also takes place in the mitochondrion. The Krebs cycle is a major biological pathway in the metabolism of e_____ multicellular organism. It is an aerobic pathway, r_____ oxygen. As the pyruvic acid enters the mitochondrion, a molecule called *nicotinamide adenine dinucleotide* (NAD+) j_____ it. The NAD+ is an electron c_____, that is, it carries energy.

Lexis for biology (read *Scientific American*)

The Krebs cycle, sometimes called the tricarboxylic acid cycle or citric acid cycle, also takes place in the mitochondrion. The Krebs cycle is a major biological pathway in the metabolism of every multicellular organism. It is an aerobic pathway, requiring oxygen. As the pyruvic acid enters the mitochondrion, a molecule called *nicotinamide adenine dinucleotide* (NAD+) joins it. The NAD+ is an electron carrier, that is, it carries energy.

Lexis for biology (read *Scientific American*)

The NAD+ results in carbon dioxide being r_____, and the high-energy molecule NADH is formed . The product of the overall reaction is *acetyl coenzyme*, which is a carbohydrate molecule that p_____ the Krebs cycle in motion. At the completion of the Krebs cycle, the high-energy molecules that are created d_____ the cycle move into the membrane of the mitochondrion, where they are passed down the e_____ transport chain. At the end of that chain, the molecules are used to form ATP from adenosine d_____ (ADP) and i_____ phosphate, and water is released.

Lexis for biology (read *Scientific American*)

The NAD+ results in carbon dioxide being released, and the high-energy molecule NADH is formed . The product of the overall reaction is *acetyl coenzyme*, which is a carbohydrate molecule that puts the Krebs cycle in motion. At the completion of the Krebs cycle, the high-energy molecules that are created during the cycle move into the membrane of the mitochondrion, where they are passed down the electron transport chain. At the end of that chain, the molecules are used to form ATP from adenosine diphosphate (ADP) and inorganic phosphate, and water is released.

Lexis for biology (read *Scientific American*)

Oxidative phosphorylation is also called the r_____ chain or the electron transport chain. The electron carriers produced during the Krebs cycle – NADH and $FADH_2$ – are created when NAD+ and FAD, respectively, a_____ 'reduced'. When a substance is reduced, it g_____ electrons. When a substance l_____ electrons, it is o_____. In the respiratory chain, oxidisation and reduction reactions o_____ repeatedly as a way of transporting energy.

Lexis for biology (read *Scientific American*)

Oxidative phosphorylation is also called the respiratory chain or the electron transport chain. The electron carriers produced during the Krebs cycle – NADH and $FADH_2$ – are created when NAD+ and FAD, respectively, are 'reduced'. When a substance is reduced, it gains electrons. When a substance loses electrons, it is oxidised. In the respiratory chain, oxidisation and reduction reactions occur repeatedly as a way of transporting energy.

Lexis for biology (read *Scientific American*)

Anaerobic respiration: sometimes oxygen isn't present, but your body still n_____ energy. So what happens? On these occasions, a "b___" system – an aerobic pathway – exists. L_____ acid fermentation generates NAD+ s_____ t_____ glycolysis can continue.

Lexis for biology (read *Scientific American*)

Anaerobic respiration: sometimes oxygen isn't present, but your body still needs energy. So what happens? On these occasions, a "backup" system – an aerobic pathway – exists. Lactic acid fermentation generates NAD+ so that glycolysis can continue.

In the next lessons we will do practice for the exam!