# Integrating E-Learning and Open Educational Resources into Classroom

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# Participation in projects:

2010 – Job Shadowing  as a part of EU Comenius Lifelong Learning Program in Science Department of Ellowes Hall College - UK

2011 – European Science on stage Festival – Copenhagen – Denmark

2012 – First place of my students in National competition “Life without tobacco smoke”

2013 – Educational Leaders Training Program  - in Teachers College of Columbia University – New York

2014 – International Nano Technology Science Education Congress – Istanbul - Turkey

2015 – Next step to Healthy Europe – Zakopane - Poland

Erasmus+

Lifelong Learning Programme


TECHNOLOGY

# Open Educational Resources Used in the Biology Classroom

***EcoMuve:***

http://ecolearn.gse.harvard.edu/ecoMUVE/overview.php

***Open Science Resources:***

http://www.openscienceresources.eu/

***Inspiring Science:***

http://www.inspiringscience.eu/participate/resources

***School Lab:***

https://school-lab.org/index.php/en/

***Go Lab:***

http://www.go-lab-project.eu/

# Interactive Methods of Teaching and Learning

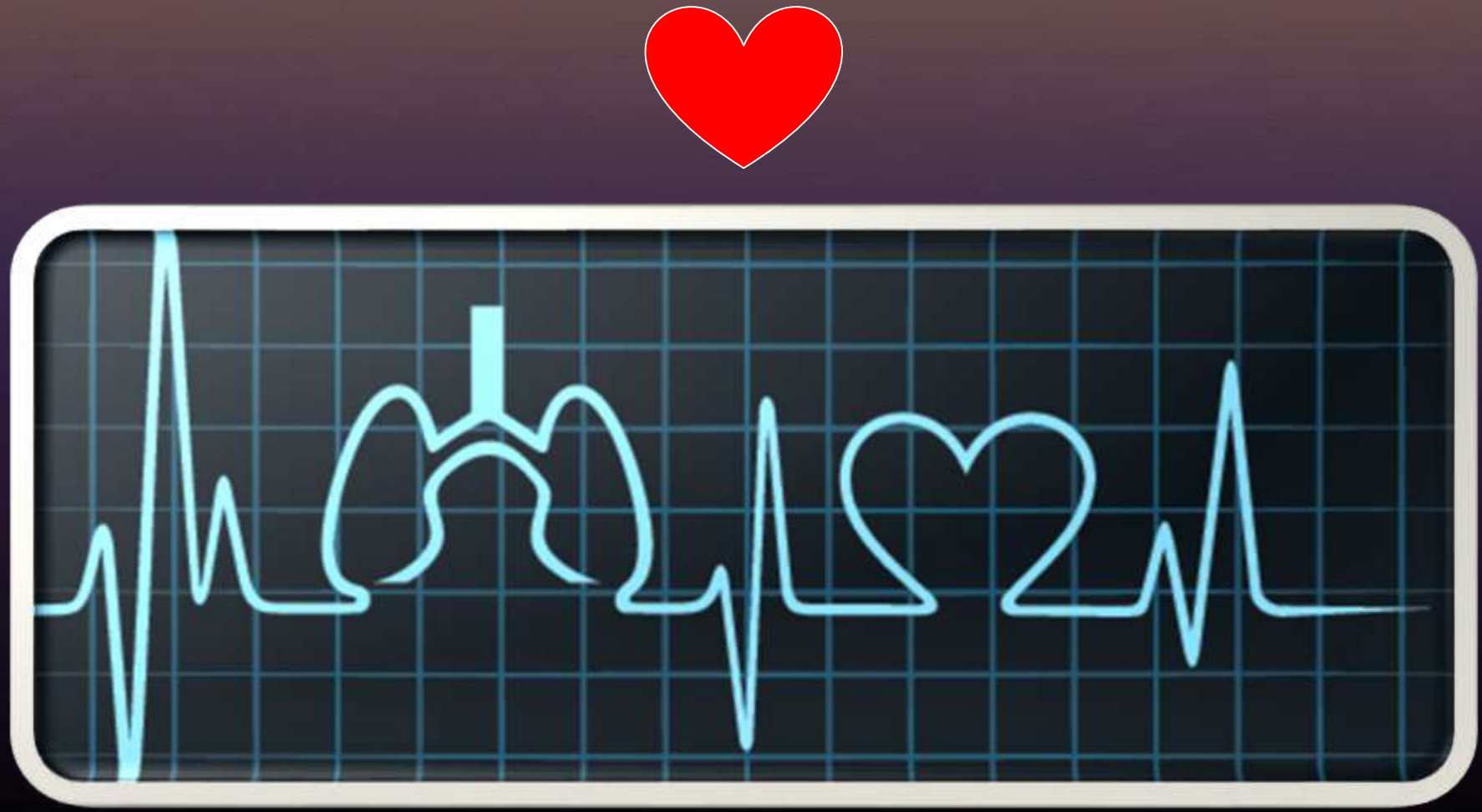
Topic 1: Basic Life Processes –Respiration

Topic 2: Health Related Knowledge About Cardiovascular System

Topic 3: Youth exchange Next step to healthy Europe

# Topic 1: Respiration – Basic Life Process

Biology Project Created by Zhelyan and Yoana – 11 grade



# Respiration

- Respiration
- Respiratory system
- Gas exchange
- Air composition when breathing
- Circulation
- Diseases

# Respiration

What does the process respiration mean?

- **Oxidation of food**
- **Release of energy**

- **...just like combustion**

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# Respiration

## The main points:

Food (usually glucose or sugar) “burns” using oxygen

- Releasing useful energy
- Producing carbon dioxide and water as waste products

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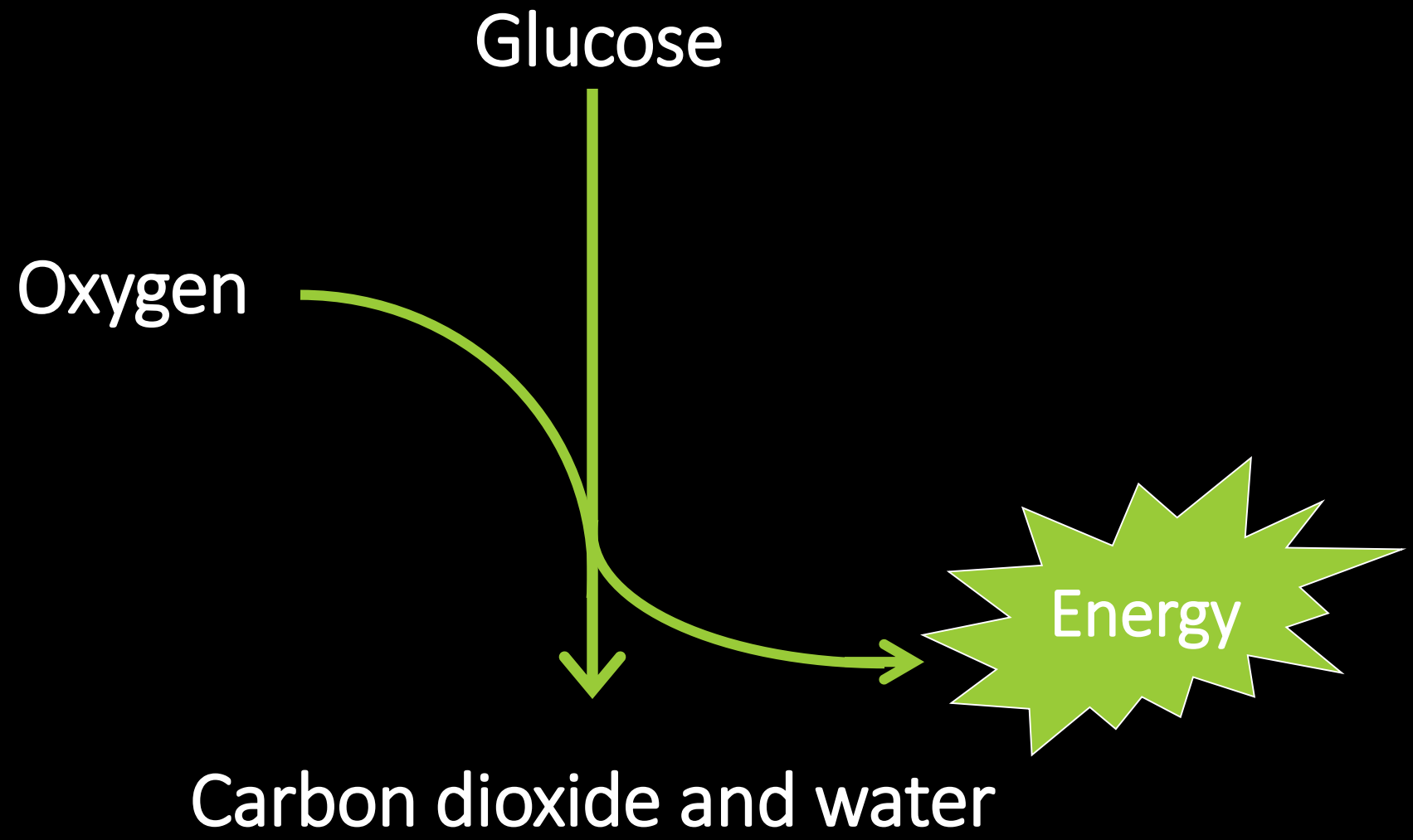
# Respiration

## In other words…

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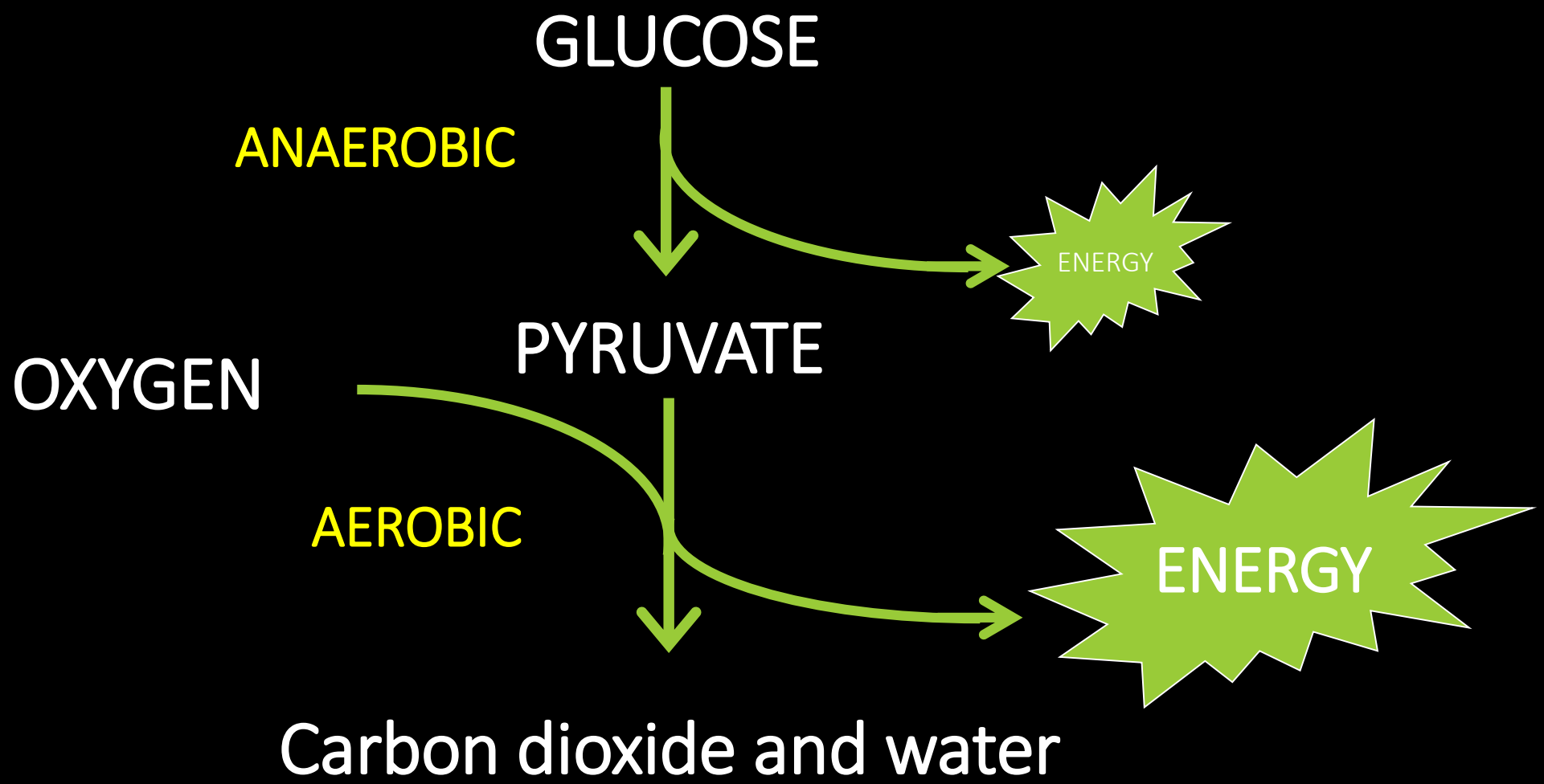
# Respiration

There are two basic stages

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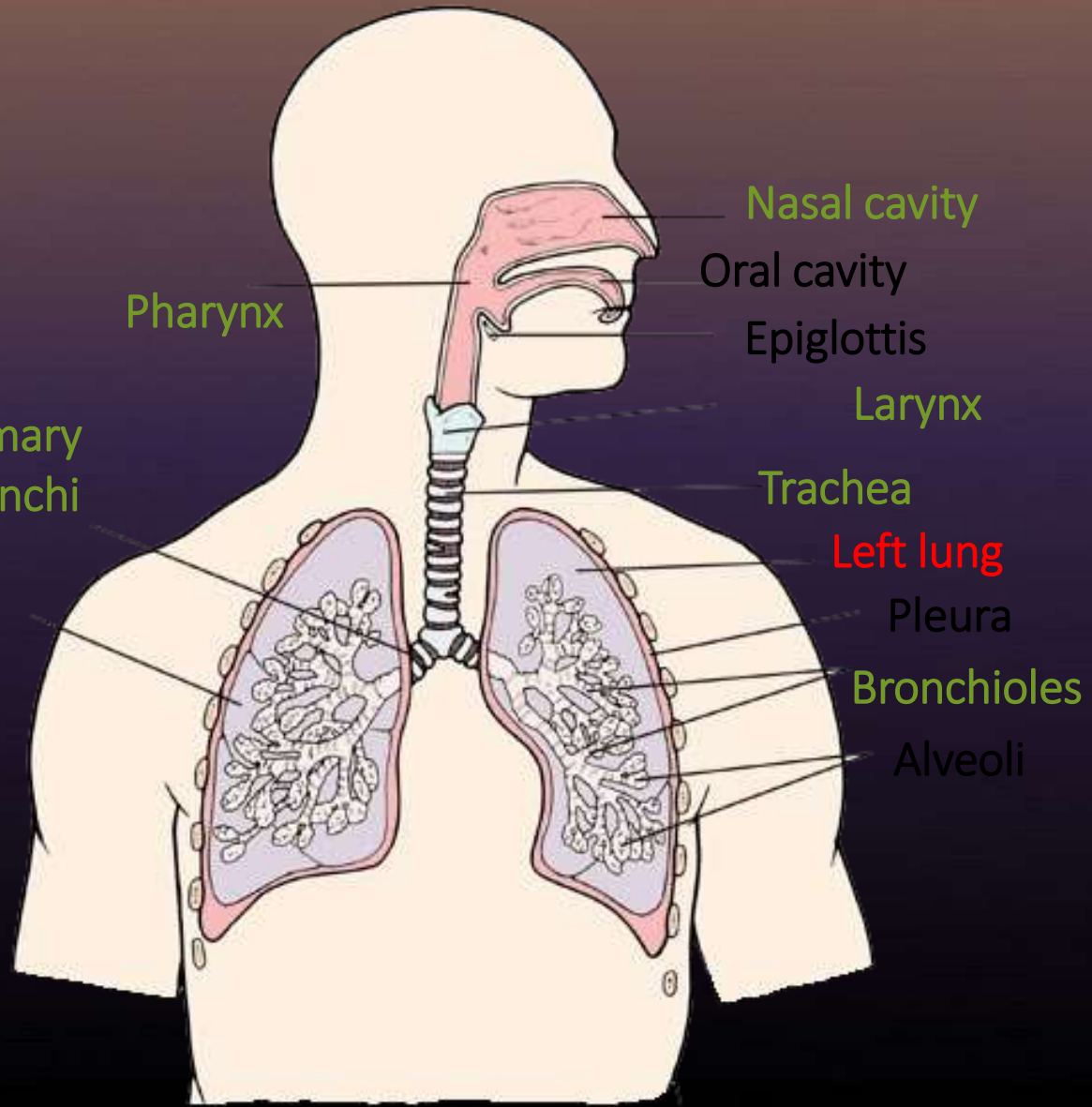
# Respiratory system

Respiratory ways

Main respiratory organs

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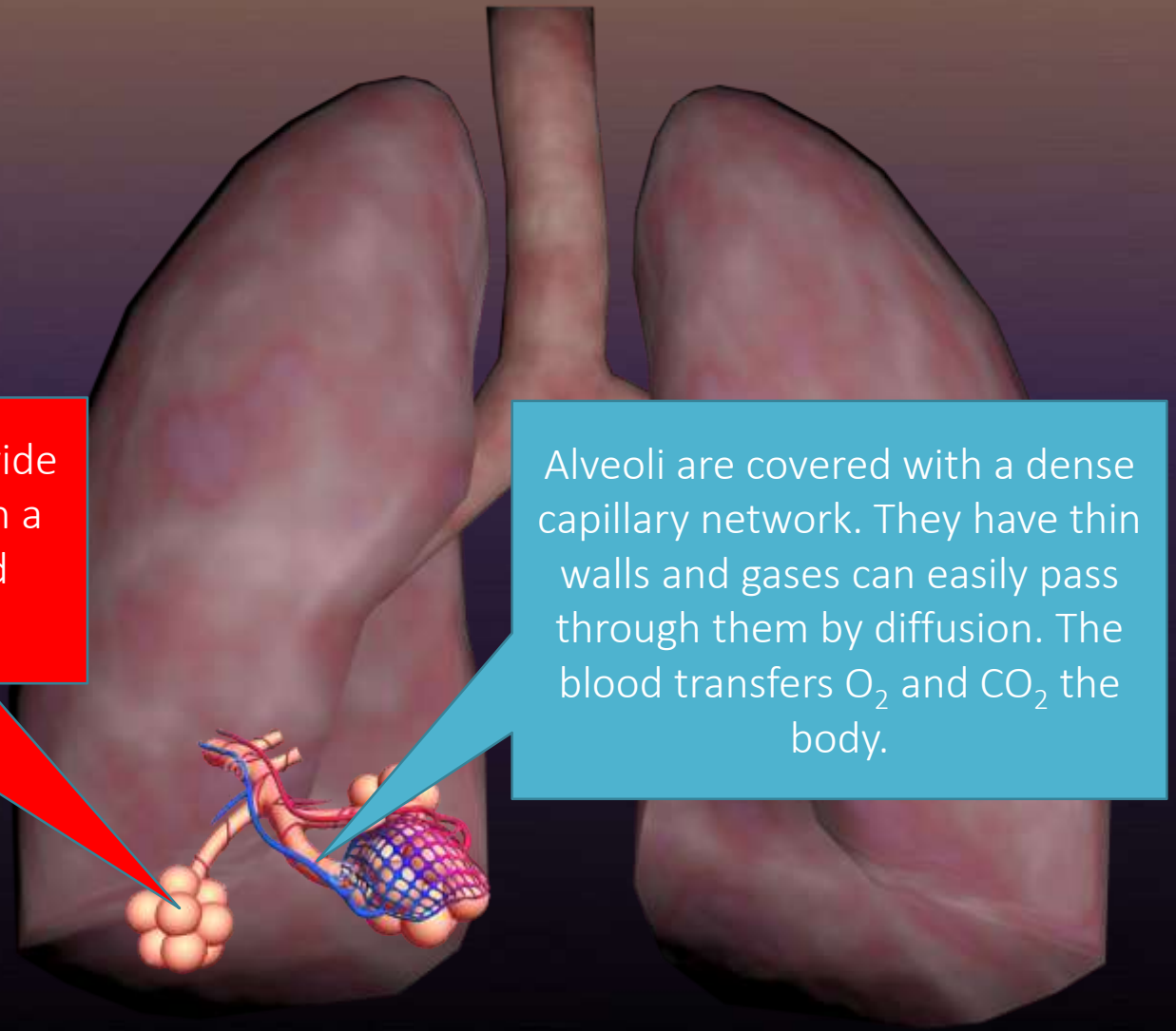
# Gas exchange



In the lungs, the bronchi divide into bronchioles that end in a thin-walled air sacs called *alveoli*.

Alveoli are covered with a dense capillary network. They have thin walls and gases can easily pass through them by diffusion. The blood transfers $O_2$ and $CO_2$ the body.

Alveoli are very good at exchanging gases because…

1)They have a LARGE surface area

2)They have a good blood supply

3)They are moist

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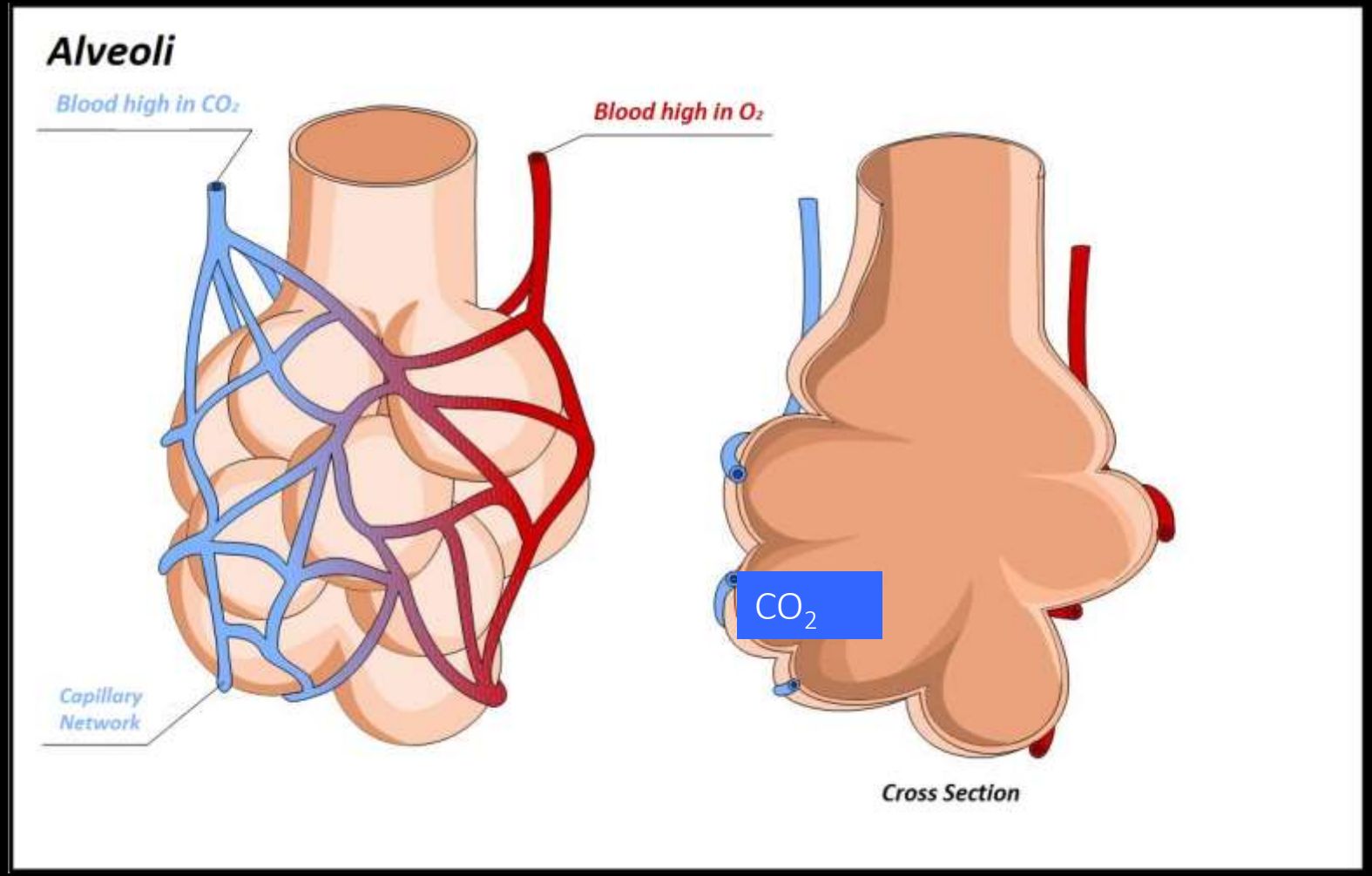
# Gas exchange

Oxygen diffuses in and carbon dioxide diffuses out of blood in the lungs:

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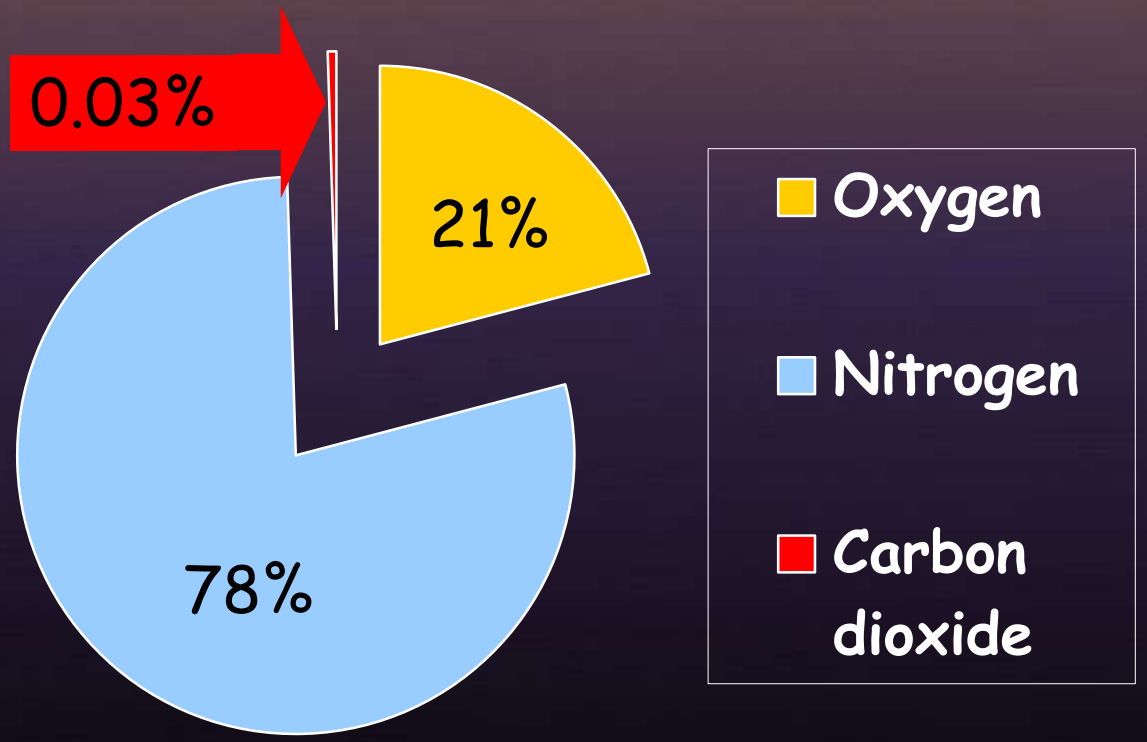
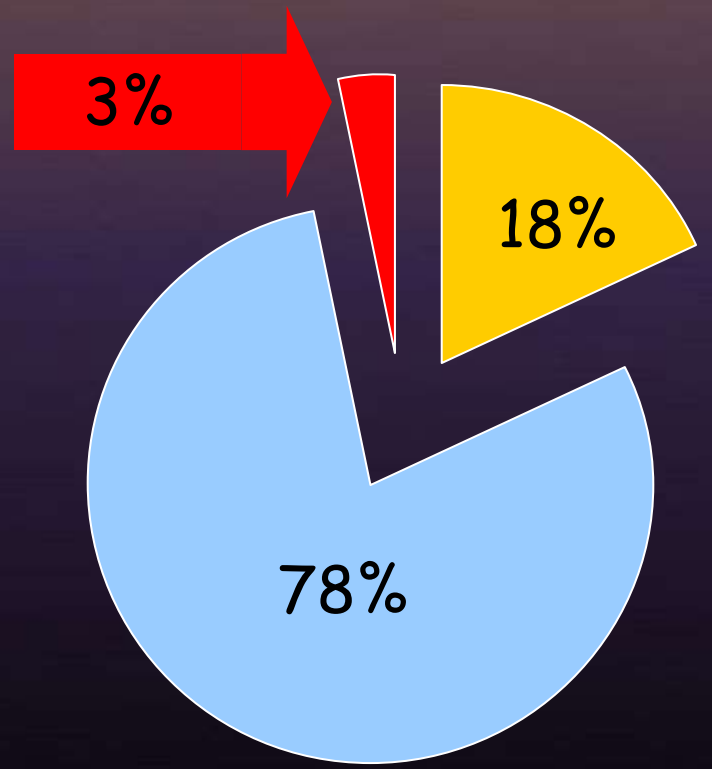
# Air composition when breathing

## Air breathed in




## Air breathed out

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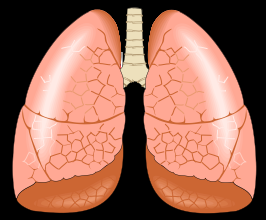
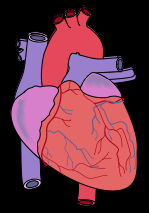
# Circulation

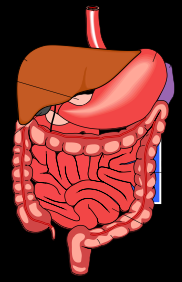
1) Blood gets pumped from the heart to the lungs and picks up oxygen



2) The blood is then taken back to the heart…



3) The heart pumps the blood to the intestine (where oxygen and glucose are removed)…



4) … and to the rest of the body (where oxygen is removed)

5) After the oxygen and glucose have been removed for respiration the blood is sent back to the heart and starts again



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# Topic 2: Health Related Knowledge about Cardiovascular System /CVS/

**Presented by class 9 ‘b’**

# Groups and their Tasks

- **Group №1**

♥ Task: ***Structure and function of CVS*** *(parts of blood, blood vessels and chambers of the heart)*

- **Group №2**

♥ Task: ***What are the worst types of diseases that could happen to our CVS?***

- **Group №3**

♥ Task: ***How our choices can impact the health of our CVS?*** *(examples of activities that may damage the CVS)*

# Groups and their Tasks

- **Group №4**

♥ Task: ***How our lifestyle affects the health of CVS?*** *(How can you avoid diseases of CVS?)*

- **Group№ 5**

♥Task: *Write a poem/song or draw a birthday/St. Valentine's Day card for your friend. Use a symbol of a heart.*

Use the Internet to research a cardiovascular health topics.

Use technology  to create power point presentation, and video taping of your presentations.

Time for work: 20 min

## ORGANIZATION

- PLANNING
- CONTRIBUTE
- USE THE GROUP`S EXPERIENCE

## CRITICAL THINKING

- RESEARCH
- EXPERIMENT
- EXPLAIN
- THINK OVER
- GET INVOLVED

## COMMUNICATION

- LISTEN TO THE OTHER
- ASK QUESTIONS
- BE CLEAR
- BE SPECIFIC

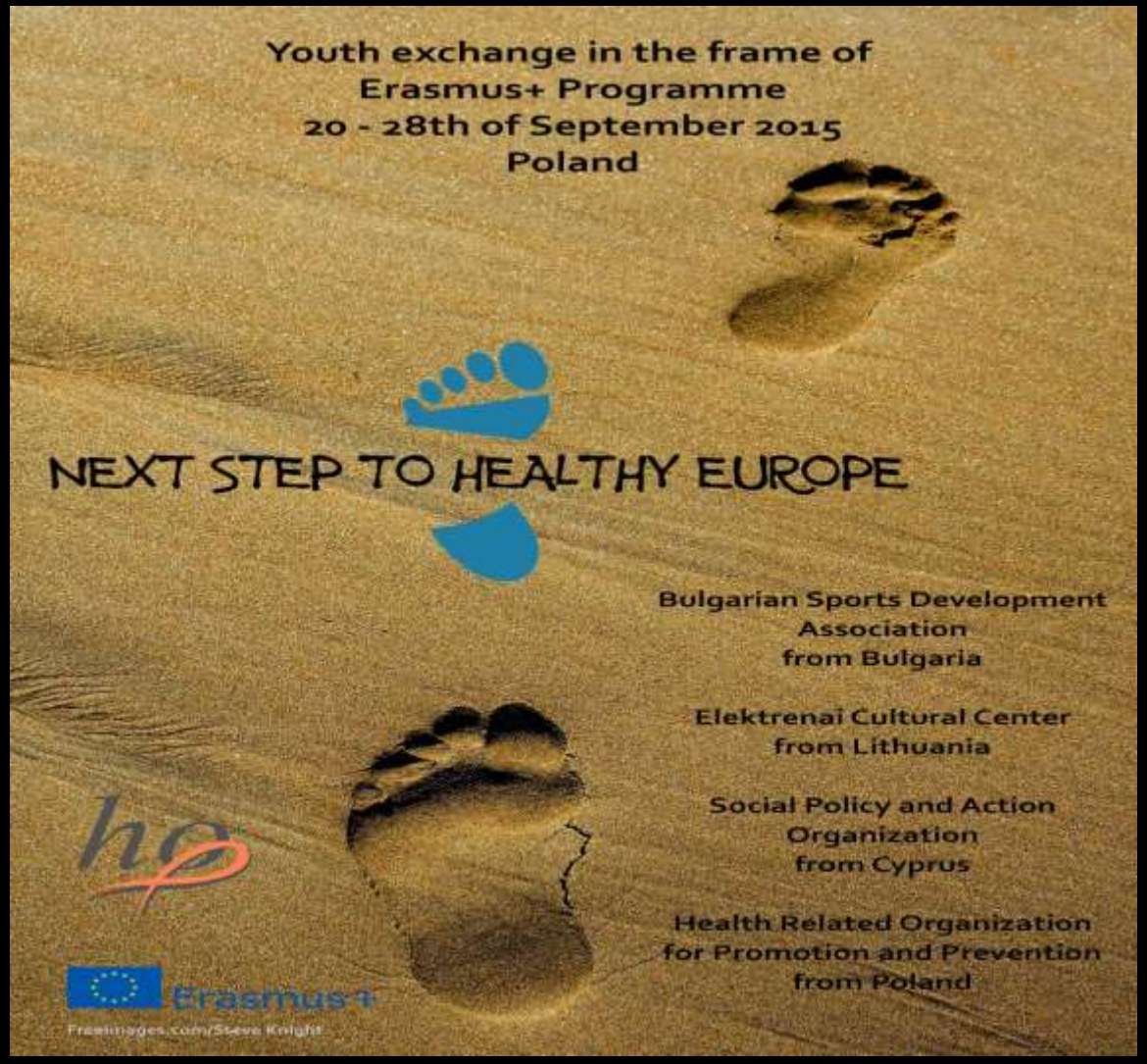
## COLLABORATION

- SHARE IDEAS
- PRESENT YOUR IDEAS
- SHARE MATERIALS
- SUPPORT OTHERS
- DON’T GET DISTRACTED
- RESPECT OTHERS

# Health related knowledge about Cardiovascular System

| Criteria | Category | | | |
|---|---|---|---|---|
| | Excellent 6 | Very Good 5 | Good 4 | Sufficient 3 |
| Scientific Knowledge | Explanations by all group members indicate a clear and accurate understanding of scientific principles underlying the construction and modifications. | Explanations by all group members indicate a relatively accurate understanding of scientific principles underlying the construction and modifications. | Explanations by most group members indicate relatively accurate understanding of scientific principles underlying the construction and modifications. | Explanations by several members of the group do not illustrate much understanding of scientific principles underlying the construction and modifications. |
| Information Gathering | Accurate information taken from several sources in a systematic manner. | Accurate information taken from a couple of sources in a systematic manner. | Accurate information taken from a couple of sources but not systematically. | Information taken from only one source and/or information not accurate. |
| Collaboration with peers | Almost always listens to, shares with, and supports the efforts of others in the group. Tries to keep people working well together. | Usually listens to, shares with, and supports the efforts of others in the group. Does not cause "waves" in the group. | Often listens to, shares with, and supports the efforts of others in the group but sometimes is not a good team member. | Rarely listens to, shares with, and supports the efforts of others in the group. Often is not a good team member. |
| Oral presentation | Interesting, well-rehearsed with smooth delivery that holds audience attention. | Relatively interesting, rehearsed with a fairly smooth delivery that usually holds audience attention. | Delivery not smooth, but able to hold audience attention most of the time. | Delivery not smooth and audience attention lost. |

# Topic 3: Youth exchange Next step to healthy Europe



Youth exchange under the Erasmus + Programme.

Implemented in autumn 2015 in Zakopane, Poland

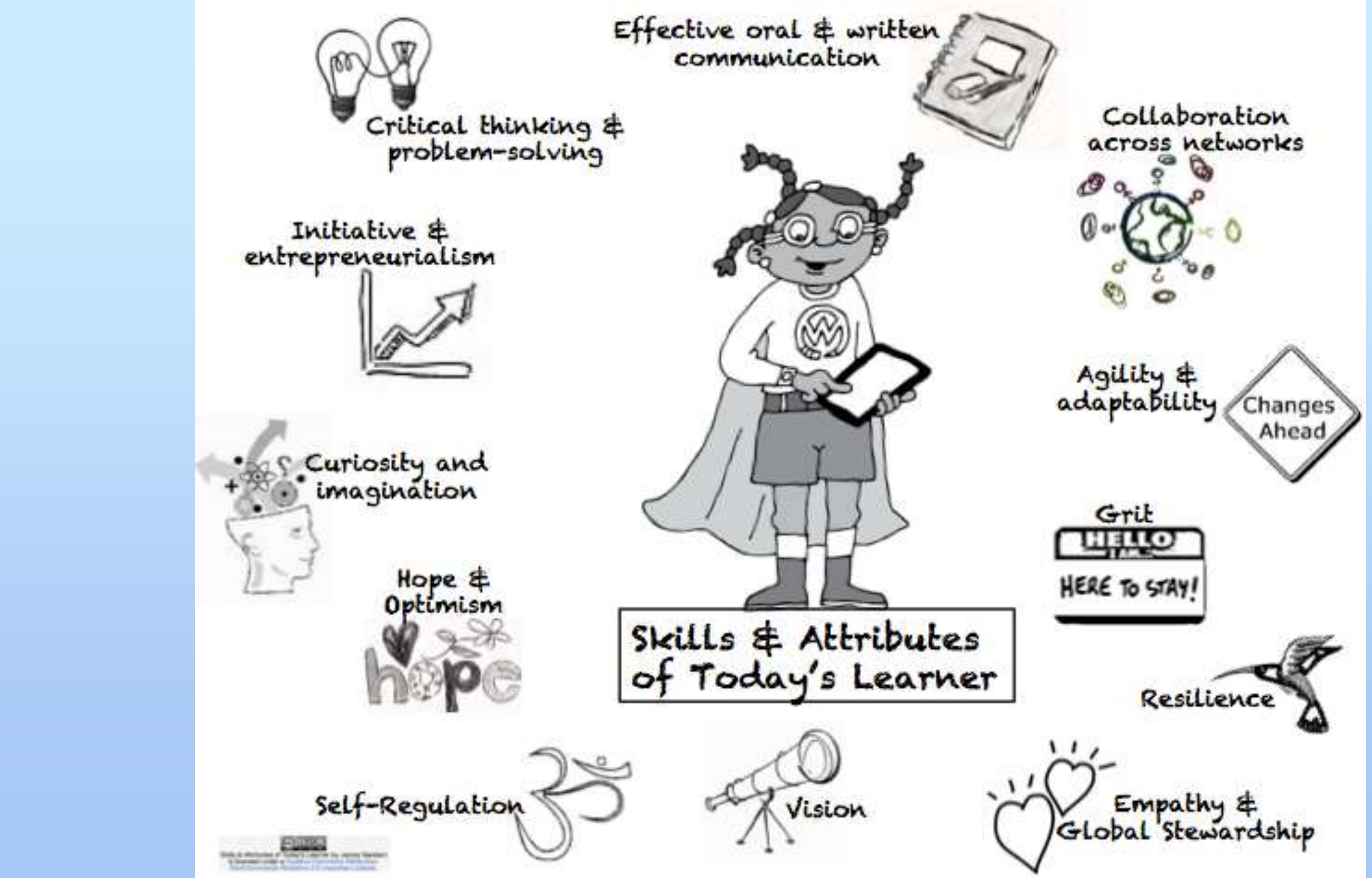
Participants were from 4 European countries: Bulgaria, Cyprus, Lithuania and Poland.

Main topic of the exchange was connected with health promotion, especially in the field of patient’s rights.

Participants have learnt how to build and implement a health campaign among local society. They shared their knowledge about first aid in advanced cases.

All activities were provided in non - formal education methods.

# Our group photo


Effective oral & written communication
Critical thinking & problem-solving
Collaboration across networks
Initiative & entrepreneurialism
Agility & adaptability
Changes Ahead
Curiosity and imagination
Grit
HELLO
HERE TO STAY!
Hope & Optimism
hope
Skills & Attributes of Today's Learner
Resilience
Self-Regulation
Vision
Empathy & Global Stewardship