

# Agri-CLIL

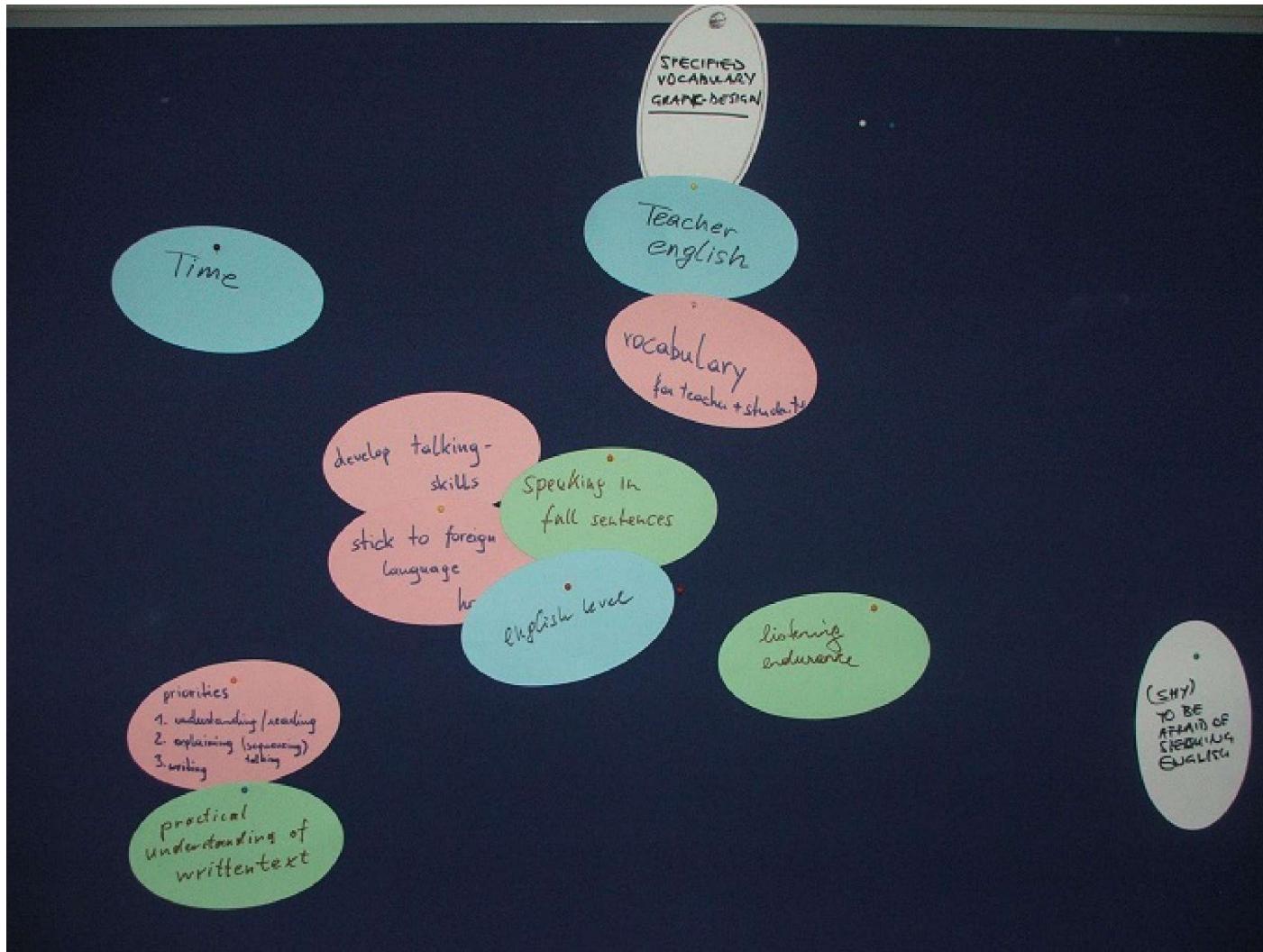
"Profession-specific CLIL for agricultural  
and forestry colleges"

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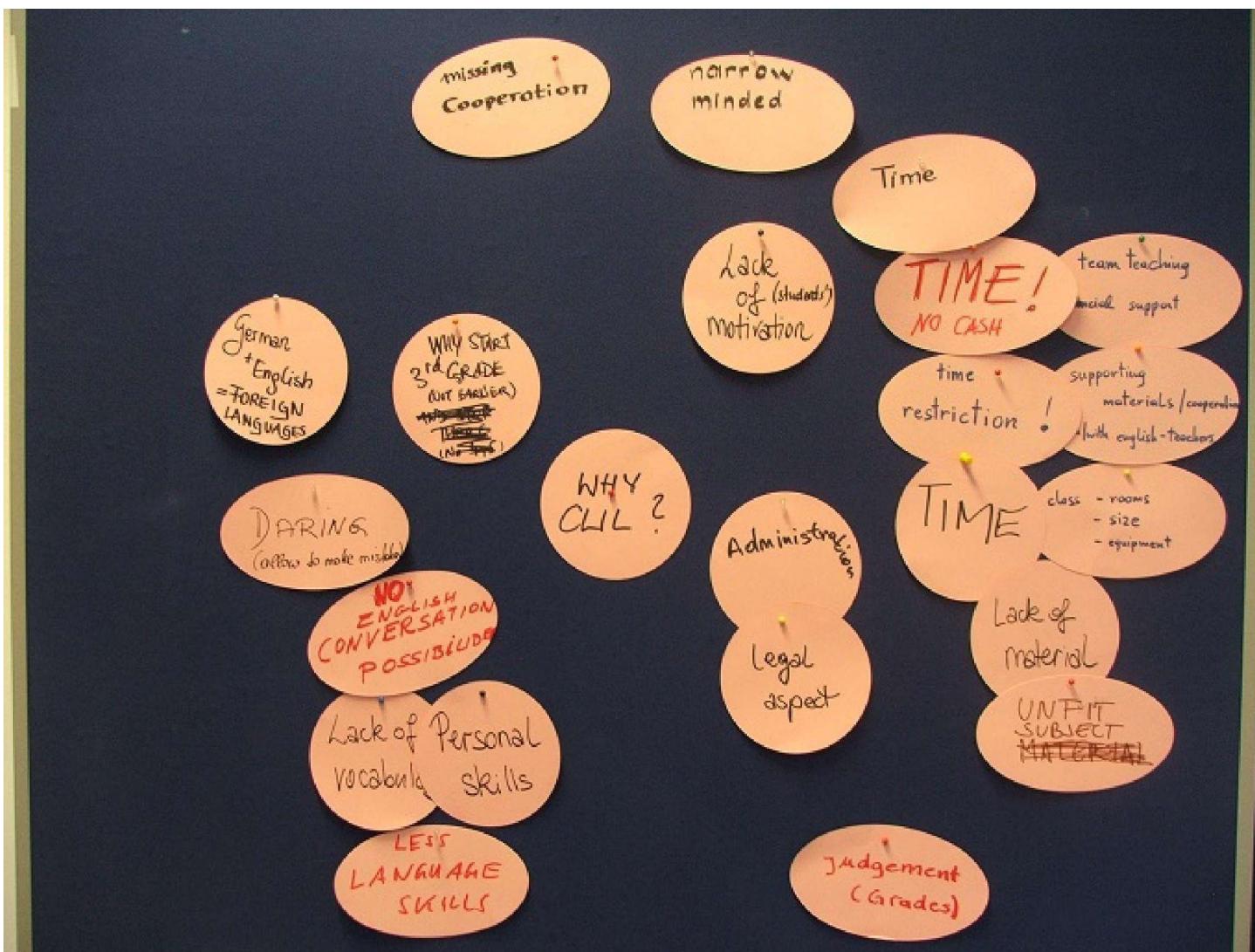
# Agri CLIL – key issues

- Classroom dynamics
  - Teacher experience and language ability
  - What goes on in the classroom?
  - What exactly students are asked to do (teachers?)
  - Students won't develop oral competence, if they don't speak in class
  - Subject / profession demands spoken skills, students should speak in class
  - A balance of skills?
  - Unwrapping curriculum objectives
    - What does 'analyse' mean?
    - What does 'know' mean?

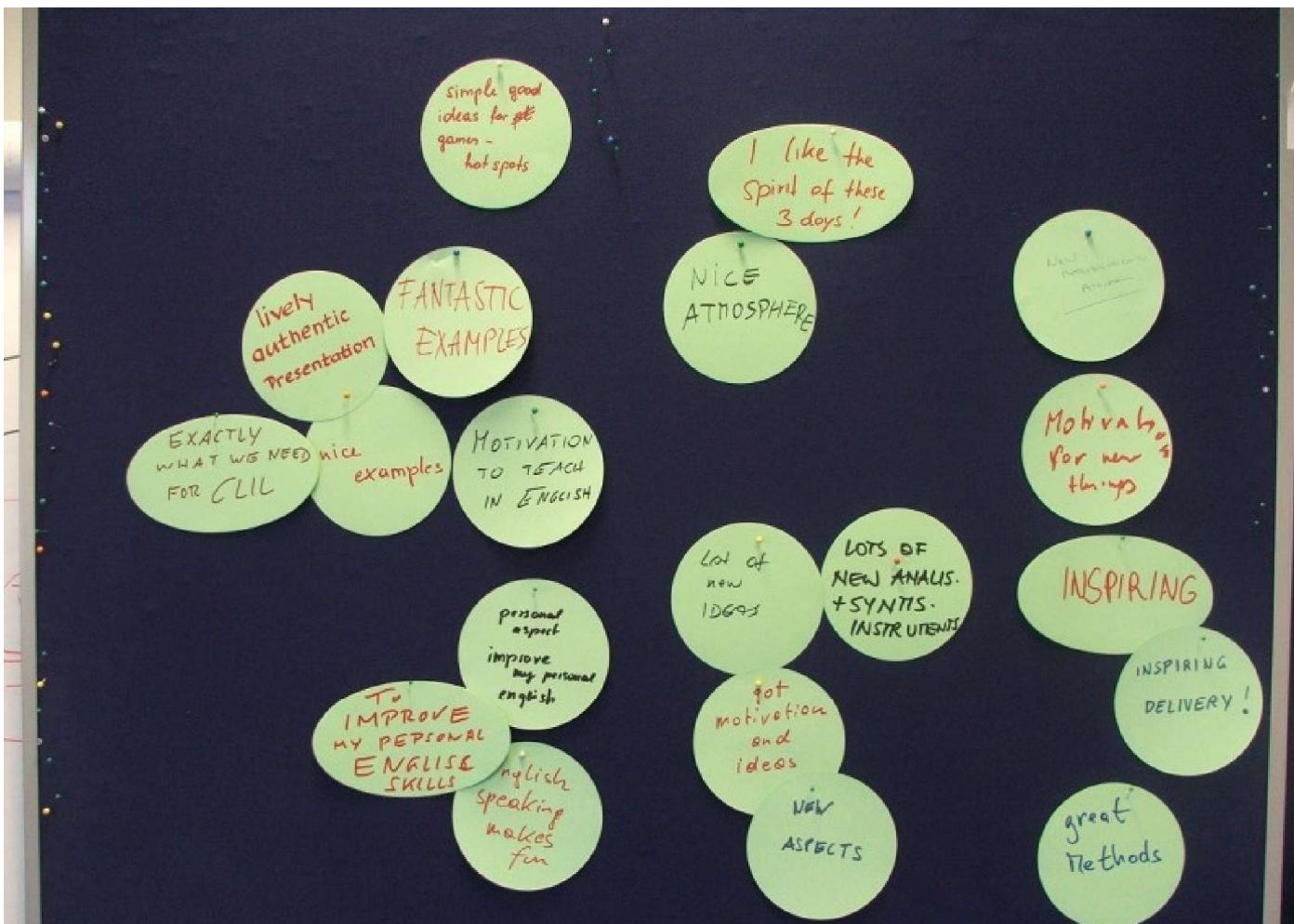
# CLIL past – feedback Needs



# CLIL past – feedback Challenges



# CLIL past – feedback Benefits



# Agri CLIL in the classroom

## Students 'doing' things

- One colleague describes his classes in the following way:

'All these techniques are fine where the students actually do things in the lessons, in my classes the students don't do anything. They listen to my input and explanations of the theory.'

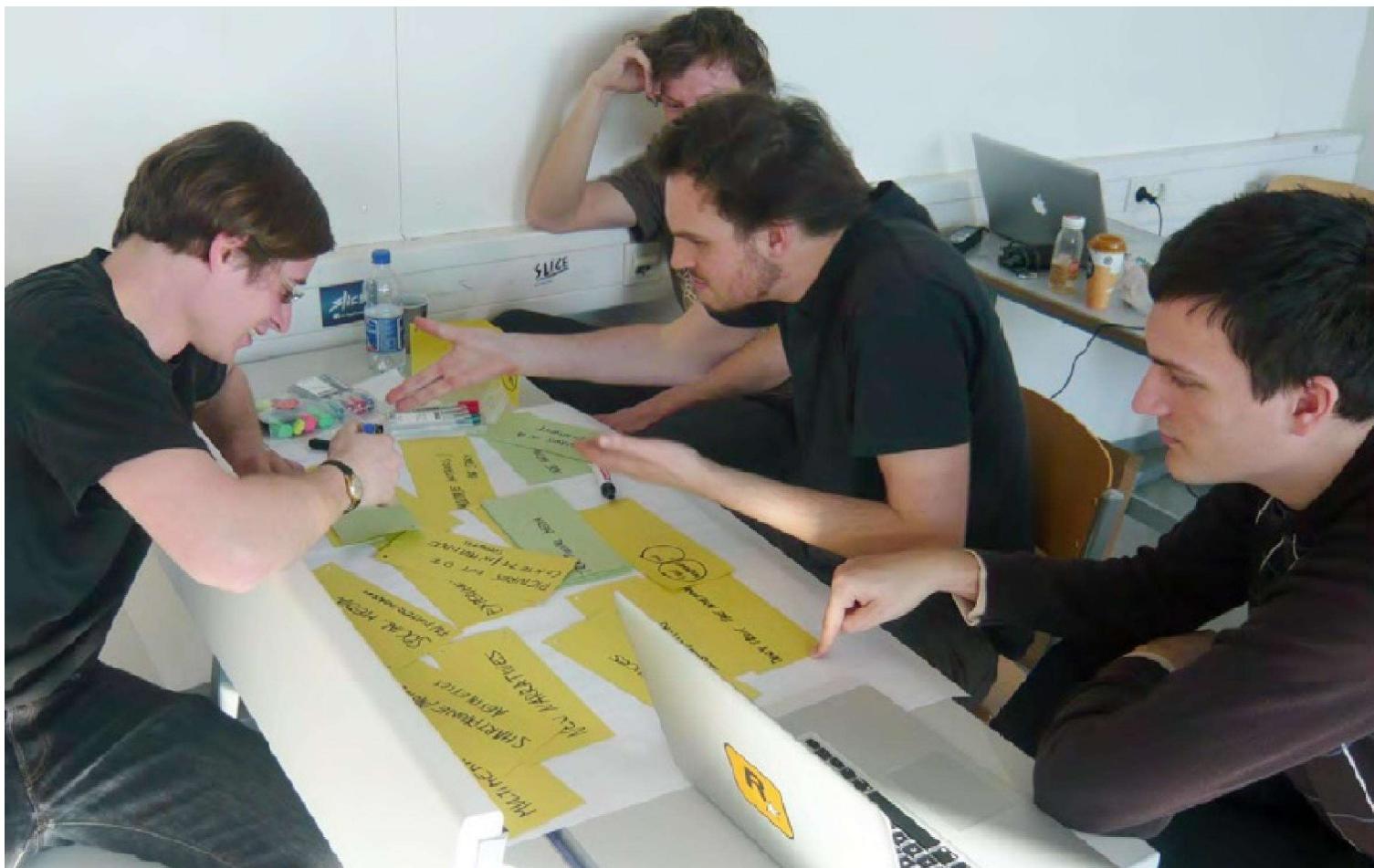
# CLIL in the classroom

## Red flag!

- CLIL is about method, and dynamics. Where a lesson goal is to deliver theory through teacher talk, the dynamic is restricted to that medium.
- Is such a context the best one to use a foreign language? Where teachers are confident in the foreign language, and the students are confident in the foreign language (this means that they are able to follow a foreign-language theoretical lecture, take notes, apply the theory to subsequent practice), there is a role for this approach.
- Beware of dedicating significant numbers of CLIL hours in the timetable to this kind of teaching.
- In subjects heavy in theoretical content, look for areas of the curriculum which lend themselves to developing communicative skills and avoid the areas of abstract content. Feel confident NOT to teach in English.

# CLIL in the classroom

## Good practice



# CLIL in the classroom

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## Good practice



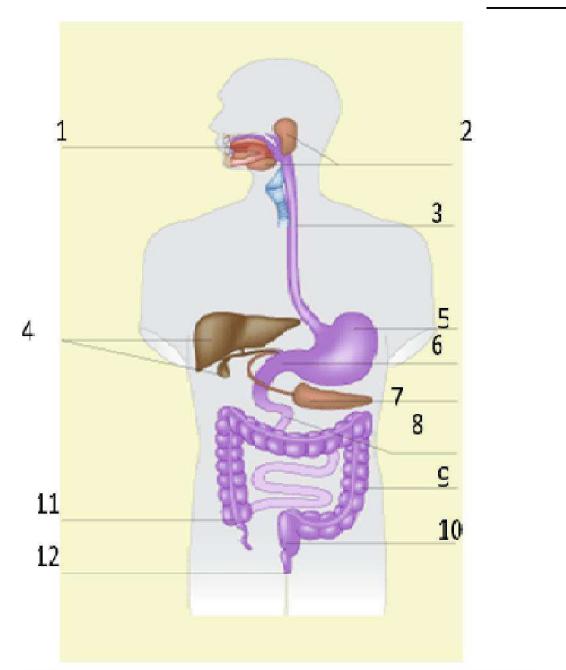
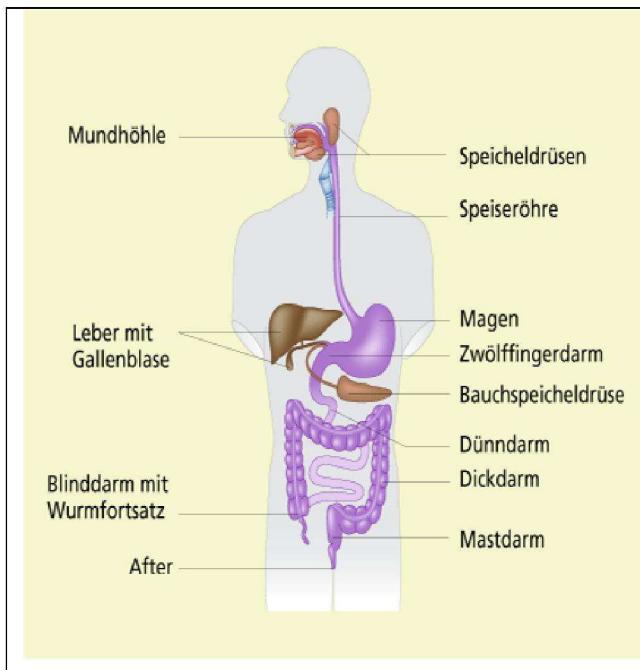
CLIL in the classroom  
Good practice

Getting students  
'doing' things in  
the class

# Agri CLIL in the classroom

- Turning the course curriculum into classroom practice
  - **Examples: subject-specific vocabulary**
  - Examples: guiding input media
  - Examples: guiding input text
  - Examples: general academic language
  - Examples: supporting written output
  - Examples: supporting spoken output

# Subject-specific terminology 1 - digestion



Watch the film (without the sound)  
Take notes on the digestion process

<https://www.youtube.com/watch?v=gcPOAiMDjes>



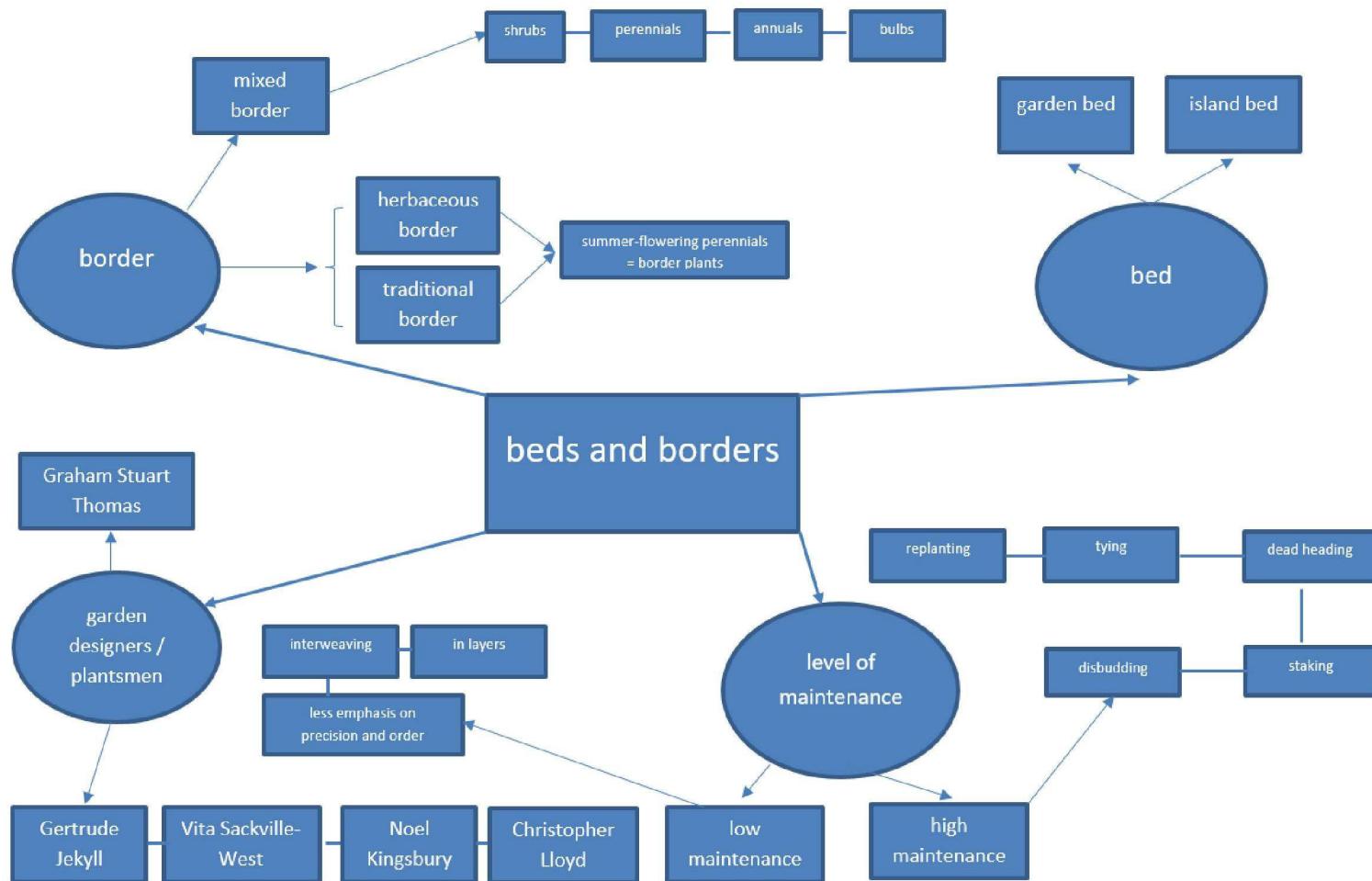
Get in pairs. Try to explain the digestion process in detail  
– describe what happens in this organ,  
using the list of vocabulary words

mouth  
digestion glands  
oesophagus  
stomach  
small intestine  
pancreas  
gall  
caecum, appendix  
large intestine – colon  
anus

**Organs:** anus, appendix, caecum, colon, digestion, gall bladder, glands, large intestine, mouth, oesophagus, pancreas, small intestine, stomach

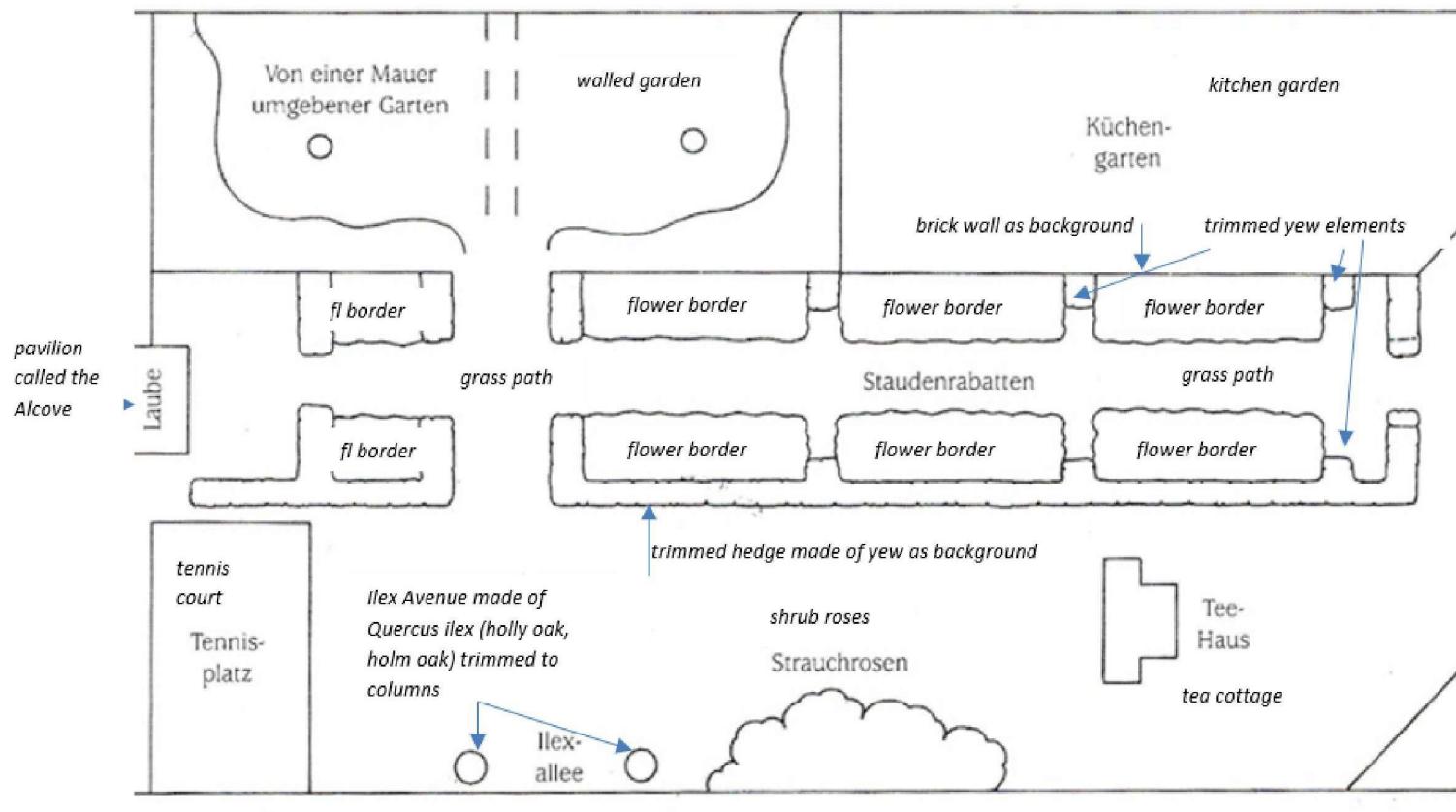
# Subject-specific terminology 2 – beds - borders

## 2. Beds and Borders: Mind Map



# Subject-specific terminology 2 – beds- borders

Garden plan of Arley Hall & Gardens (LORD, 1995)



## Task 1 - speaking: Teamwork with terms of the Marketing Mix

### Product

product life circle	diversification	program depth
product launch	brand	program width
product innovation	differentiation	

### Price

production costs	labour costs	competitors
price strategies	profit	margin
conditions of payment	conditions of delivery	sales discount

### Place

distribution	delivery	sale store
online shop	wholesaler	agents
retailers	logistics	sales conversation

### Promotion

communication	advertising	TV spots
sponsoring	Public Relations	customer information
personal selling		

# 'Doing' terminology



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# Input media – maths (gardening) as medium

Calculation:

$$\text{Total area} = \sum \text{areas of the trapezoids} + \text{area of the triangle} = \sum A_T + A_D$$

The area of the red polygon has to be calculated with the following formula:

$a_1, a_2, a_3 \dots a_n$  are the sides of the trapezoids along the 1cm stripes

Formula for the sum of all trapezoids:

$$\begin{aligned} \sum A_T = A &= \frac{a_1 + a_2}{2} \cdot h + \frac{a_2 + a_3}{2} \cdot h + \dots + \frac{a_{n-2} + a_{n-1}}{2} \cdot h + \frac{a_{n-1} + a_n}{2} \cdot h = (h \cdot a_1) \cdot \frac{1}{2} + h \cdot a_2 + \dots + h \cdot a_{n-1} + (h \cdot a_n) \cdot \frac{1}{2} = \\ &= [(a_1 + a_n) \cdot \frac{1}{2} + \sum_{n=1}^{n-1} a] \cdot h \end{aligned}$$

$h$  = height of trapezoid

$$\sum_{n=1}^2 a = 5.10 + 4.72 + 5.93 + 5.60 + 6.70 + 5.87 + 6.55 + 4.55 = 45.02 \text{ cm}$$

$$a_1 + a_n = 1.15 + 2.75 = 3.90 \text{ cm}$$

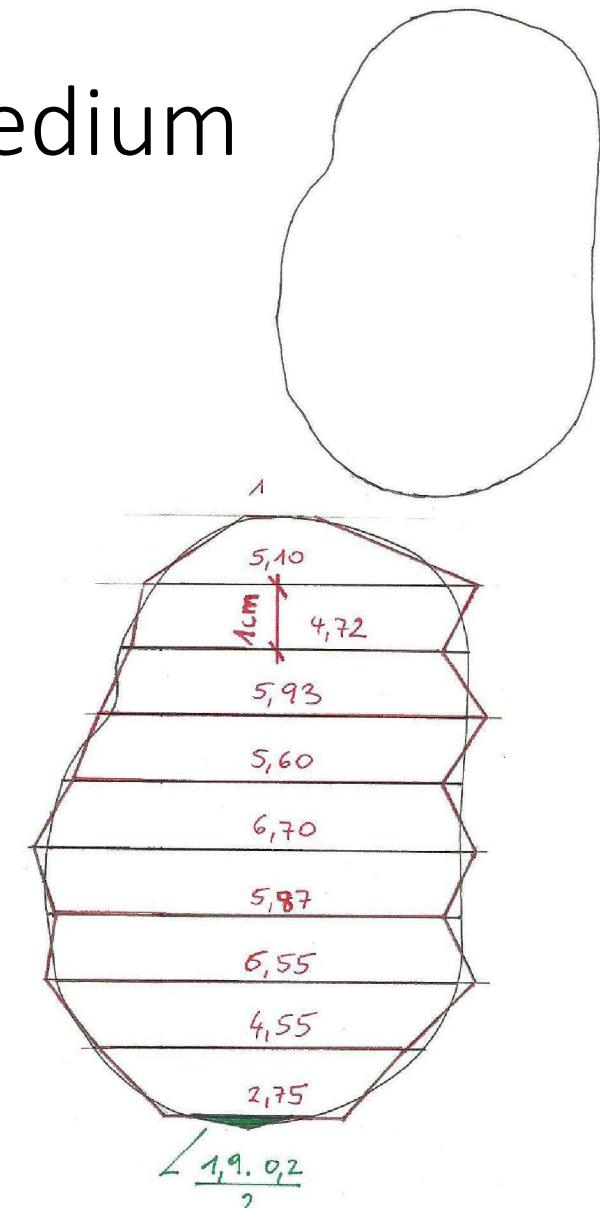
$$\sum A_T = (3.90 \cdot \frac{1}{2} + 45.02) \cdot 1 = 46.97 \text{ cm}^2$$

$$A_D = 1.9 \cdot 0.2 \cdot \frac{1}{2} = 0.19 \text{ cm}^2$$

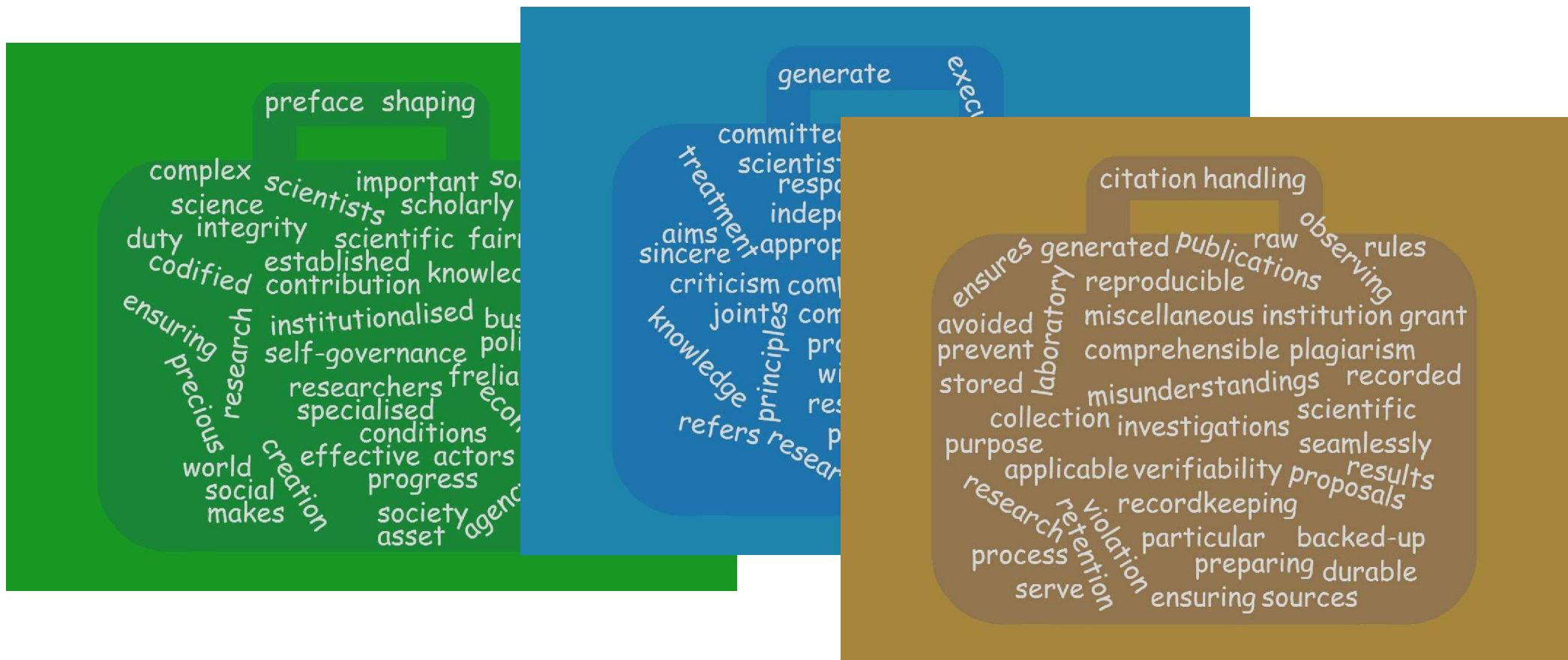
$$A = \sum A_T + A_D = 47.16 \text{ cm}^2$$

Calculation of the area in nature:

$$A = 47.16 \cdot 200^2 = 188640 \text{ cm}^2 = 188,64 \text{ m}^2$$



# Input Media - Research and Innovation (Wordle interpretation)



# HTL CLIL in the classroom

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# Guiding input text – Jigsaw research (food poisoning)

## 3. Internet Research (Homepage Foodsafety.gov)

<https://www.foodsafety.gov/poisoning/causes/bacteriaviruses/index.html>

Get in groups (number from 1-5) and open the above-mentioned homepage. Each group has to pick one type of bacteria (*Escherichia coli*, *Campylobacter*, *Clostridium botulinum*, *Bacillus cereus*, *Salmonella*, *Staphylococcus aureus*). Read the text and write down the most important information of your text in a mind-map. Give a short overview of sources, symptoms and prevention. Then change the group and inform the other group members about your text.



The screenshot shows the Foodsafety.gov website. The top navigation bar includes links for Blog, Multimedia, News, and Español. The main content area features a sidebar with links for Home, Recalls & Alerts, Keep Food Safe, Who's at Risk, Food Poisoning, Report a Problem, and Ask the Experts. The main content area is titled 'Food Poisoning' and includes sections for 'Symptoms', 'Causes', and 'Bacteria and Viruses'. The 'Causes' section lists *Bacillus cereus*, *Campylobacter*, *Clostridium perfringens*, *E. coli*, *Hepatitis A*, *Listeria*, and *Norovirus (Norwalk Virus)*. The 'Bacteria and Viruses' section provides a general overview of food poisoning causes and symptoms. On the right side, there are sections for 'Food Safety Recalls' (with a link to 'Voluntary Recall of Limited Amounts... Oct 12, 2018'), 'Food Poisoning' (with a link to 'Salmonella'), and 'General Information'.

# Guiding input text – T/F Lab Rules

Tick the right safety rules and correct the false statements. Afterwards compare your results with your neighbor and discuss your answers.

Safety rule	T	Corrected Rule
1. Never read and don't follow directions very carefully.		1. Read and follow all directions very carefully.
2. Never mix, touch, taste, heat, or inhale chemicals unless you are told, it is okay to do so by your teachers.	T	
3. Drink or eat in the lab.		3. Do not drink or eat in the lab.
4. Always wear protective equipment such as goggles, gloves, and an apron when these safety devices are needed.	T	
5. Handle all hot objects with clamps or tongs.	T	
6. Take extra precautions in handling dangerous chemicals (such as acid).		
7. You may perform any experiments if your teachers are not present. Everybody is to touch the equipment without permission.		7. Do not perform any experiments unless your teachers are present. No one is to touch the equipment without permission.
8. When lighting a Bunsen burner, never place a lit match at the edge of the nozzle before turning on the		8. When lighting a Bunsen burner, always place a lit match at the edge

# HTL CLIL in the classroom

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# General academic language – nutrition advice

## Benefits of Drinking Milk

Here are a few benefits you will get from drinking milk that you won't get by popping a vitamin or calcium supplement:



- Milk is full of nutrients that our body requires to operate properly. It contains vitamins (for red blood cells), calcium (for strong bones), carbohydrates (for energy), magnesium (for muscles), protein (for growth and healing processes), riboflavin B12 (for a healthy skin) and zinc (immune system).
- For strong bones, teeth, nails and good hair, drink a lot of milk as it is loaded with calcium that helps your body grow strong and flexible.
- Drinking milk can also protect you from tooth decay (Zahnfäule). You can convince your child about this by offering him/her a glass of chocolate milk. Don't worry; there are no records of tooth decay because of drinking milk with a chocolate flavour.
- Milk gives you many natural vitamins and minerals keeping you healthy and fit.
- Milk can be a good appetizer, especially when you are eating late. Drinking milk can also act as a stimulant, early morning or even during the afternoon.

## Giving advice

You are a dairy farmer and produce cow milk. What are the most important benefits of drinking milk for children? Give appropriate pieces of advice to a mother! Use the benefits mentioned in the handout and phrases from the LanguageBox below.

## *LanguageBox*

I would suggest doing/ going/ trying ...  
If I were you, I would ...  
You could...  
If I were in your shoes, I would...  
Another possibility would be to ...  
I would advise you to ...

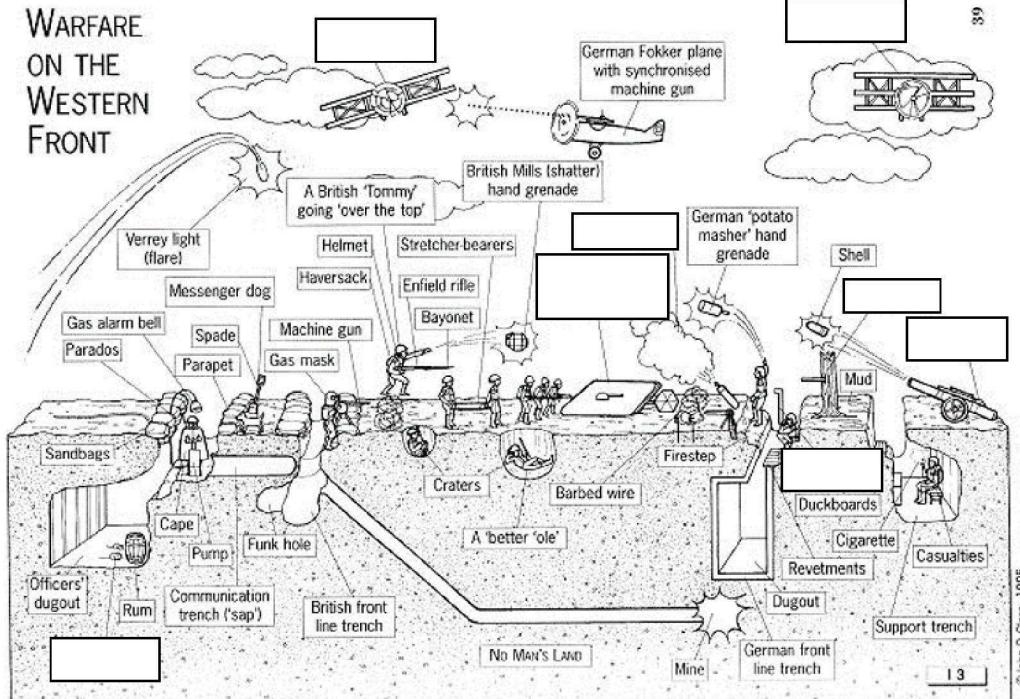
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# Supporting talk – paired speaking - WWI

## 2) Labelling pictures – new technologies in WWI

Have a look at the picture and label the different parts. Use the words from the box. Then get in pairs and compare your results.



Source: [http://www.johndclare.net/images/WWI\\_battlefield\\_thumb.JPG](http://www.johndclare.net/images/WWI_battlefield_thumb.JPG) (26th of April 2017)

1. Label the gaps linked to the pictures with the following phrases:

Group A	Definition
- artillery	
- triplane	
- gas	
- tank	
- barbed wire	

Group B	Definition
- sniper tree	
- periscope	
- biplane	
- steel helmet	
- rats	

2. Go online [www.dictionary.cambridge.org](http://www.dictionary.cambridge.org). Use the definitions to describe the missing terms to your partner in order to help him fill in the gaps in the picture.

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# Supporting written output – More than subject-specific vocabulary

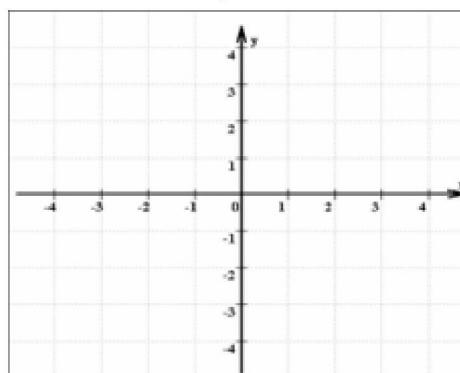
## Linear Graphs (linear functions, linear equations = straight-line graphs)

### Subject-specific language

#### The operations

- ( ) Brackets
- / to divide
- x to multiply
- +
- to subtract
- = to equal

#### The coordinate-system



x,y coordinates

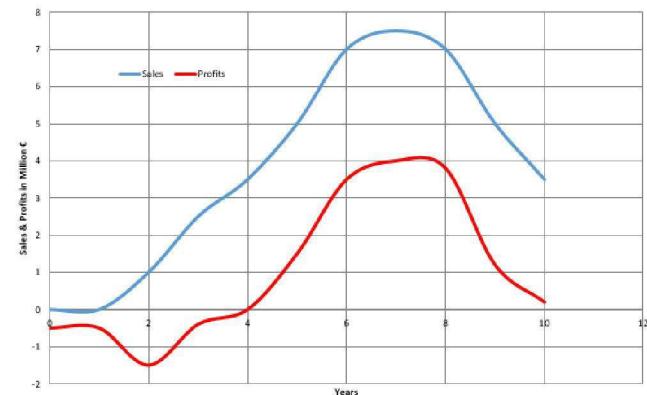
x-axis is the horizontal axis of a graph

y-axis is the vertical axis of a graph

origin (0/0) is the point where the two axes meet. The x-axis and the y-axis divide a plane into four quadrants.

to plot is to mark the position on a graph using the two coordinates, eg. The coordinates are (3,2)

# Supporting written output – Product life cycle



## EXAMPLES - POSSIBLE CAUSES

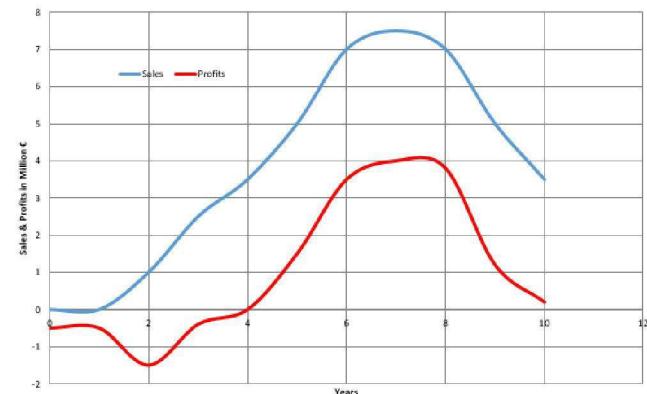
The rapid growth in profits in the fourth year  
The fall in profits  
The recovery  
The downturn

may / might / could

be due to  
have been caused by  
have been a result of

a change in management  
the launch of a new product  
the entry of a new competitor to the market

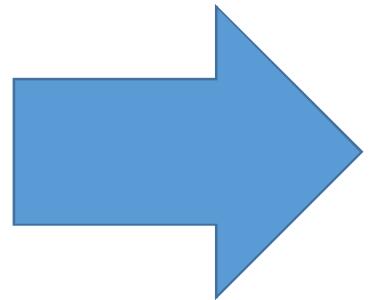
# Supporting written output – Product life cycle



## EXAMPLES – POSSIBLE EFFECTS

A large repayment of interest on loans	may / might / could	have resulted in	profits	increasing	rapidly
A change in management	would probably	result in	sales	rising	quickly
The entry of a new competitor			market share	going up	slowly

# Lessons in soil analysis



# CLIL – Soil Analysis

- 3 lab afternoons (four 50 min lessons per afternoon)
- Soil sampling
- Texturing
- pH testing
- Water holding capacity
- Settling test
- Salinity
- Ammonium, nitrate, lime concentration
- Soluble iron
- Ammonification
- Interpreting data in terms of soil quality

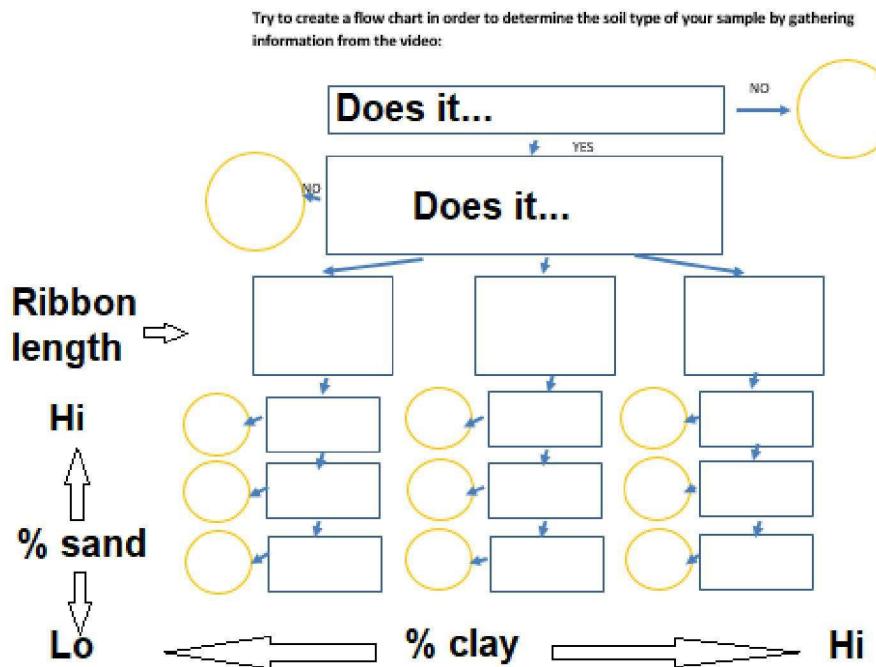
# Soil Texturing

- Students watch the following videos. The students should try to fill in the flow chart provided with the information given in the video.
- Video: Youtube: How to test your soil – texture 3:39min
- Video: Youtube: Soil texture by feel 4:04 min

- <https://www.youtube.com/watch?v=fufeaLBLGIk>
- <https://www.youtube.com/watch?v=GWZwbVJCNec>

# Soil Texturing



## Language Box:

sand – Sand	smooth – glatt, geschmeidig
silt – Schluff	ribbon – Band
clay – Ton	squeeze - drücken
loam - Lehm	knead - kneten
palm - Handfläche	silky - seidig
gritty – grobkörnig	moldable – formbar

Use your flow chart to explain to your lab partner how soil texturing works (like the expert in the video, using the following phrases from the language box provided):

## Language Box:

Mix the soil  
Rub the soil  
Work the soil  
If it feels / If you can hear / If it makes a ball ...  
When it...  
Then ...

# Soil Texturing – Expert Talk



# Soil Texturing

Use your flow chart to determine the soil type of your sample. Explain to your lab partner what you are doing (like the expert in the video, using the following phrases from the language box provided):

Date:

Used sample:

Lab partner:

Result:

**Language Box:**

Mix the soil

Rub the soil

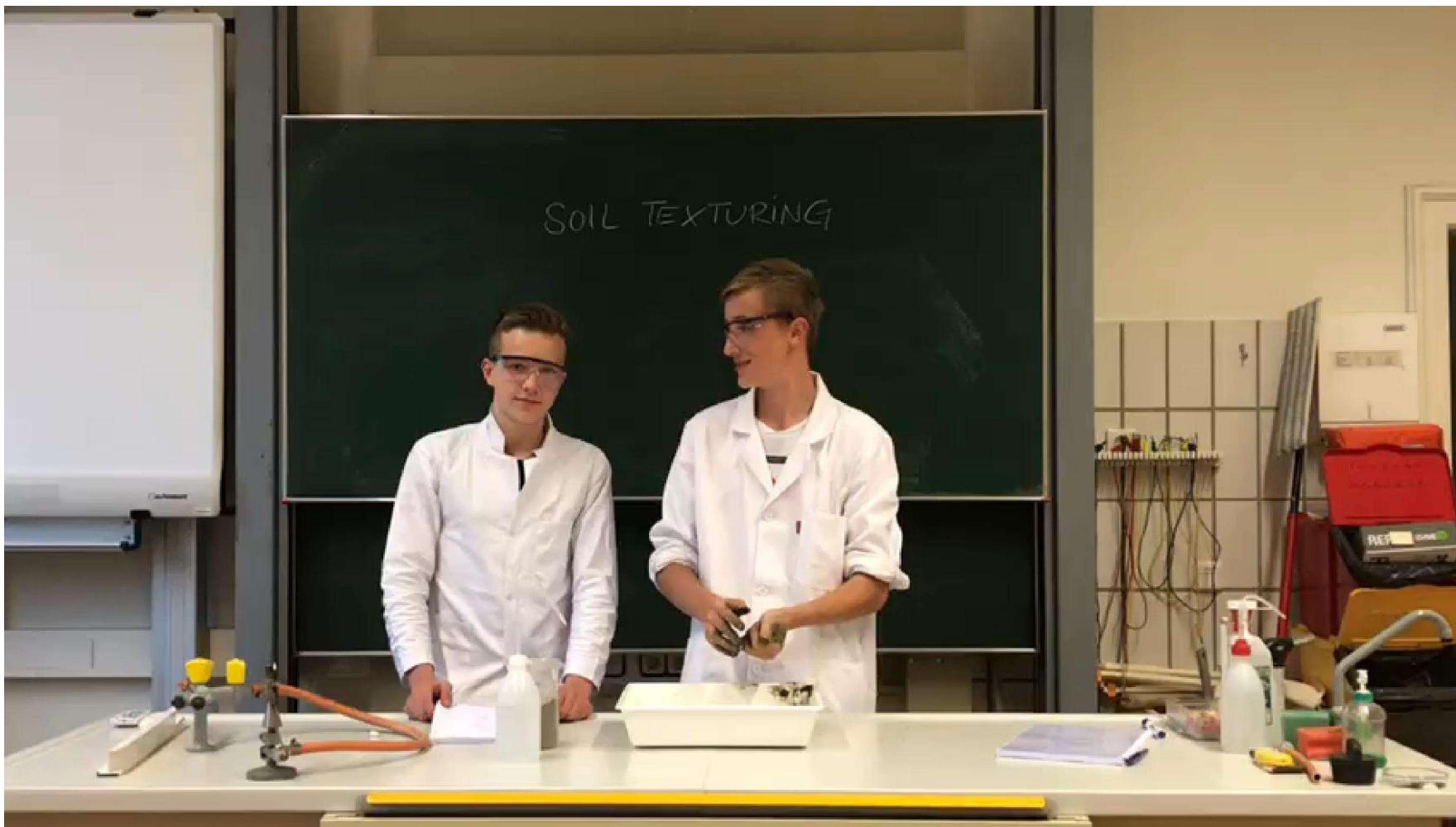
Work the soil

If it feels / If you can hear / If it makes a ball ...

When it...

Then ...

# Soil Texturing – Practical Work



# Soil Texturing – Practical Work



# pH Testing

**The lab group is split up into 3 equally sized groups. Members of group one get text 1 to read, members of group 2 get text 2 to read, members of group 3 get text 3 to read. They are asked to summarize the text using a mind map. Afterwards, they work together in their groups and explain to each other, what the text was about, and they complete their mind maps/notes. Then they get together in groups of 3 (one person from group 1, one from group 2, one from group 3). They explain to each other what their text was about. After that they change groups and repeat the task.**

# pH Testing – Group Reading Activity



# pH Testing

Material required: pH-meter, scale, beakers, sieve, magnetic stirrer, stir bar

Chemicals: 0.01 mol/L  $\text{CaCl}_2$ -solution

Method potential pH:

1. Put 20 ml of your sieved (2 mm) soil sample into a 100 ml beaker.
2. Add 50 ml of the 0.01 mol/L  $\text{CaCl}_2$ -solution (V/V ratio of soil to liquid should be 1:2.5).
3. Add the stir bar to the mixture and put the beaker on the stirrer.
4. Let the mixture stir for 15 minutes (ideally 1 hour, but due to time reason we reduced the time to 15 min)
5. Allow the solid particles to settle for approximately one minute.
6. Measure the pH with your pH-meter.

Potential pH: \_\_\_\_\_

Used sample: \_\_\_\_\_

Method actual pH:

1. Put 20 ml of your sieved (2 mm) soil sample into a 100 ml beaker.
2. Add 50 ml of deionized water (V/V ratio of soil to liquid should be 1:2.5).
3. Add the stir bar to the mixture and put the beaker on the stirrer.
4. Let the mixture stir for 15 minutes (ideally 1 hour, but due to time reason we reduced the time to 15 min)
5. Allow the solid particles to settle for approximately one minute.
6. Measure the pH with your pH-meter.

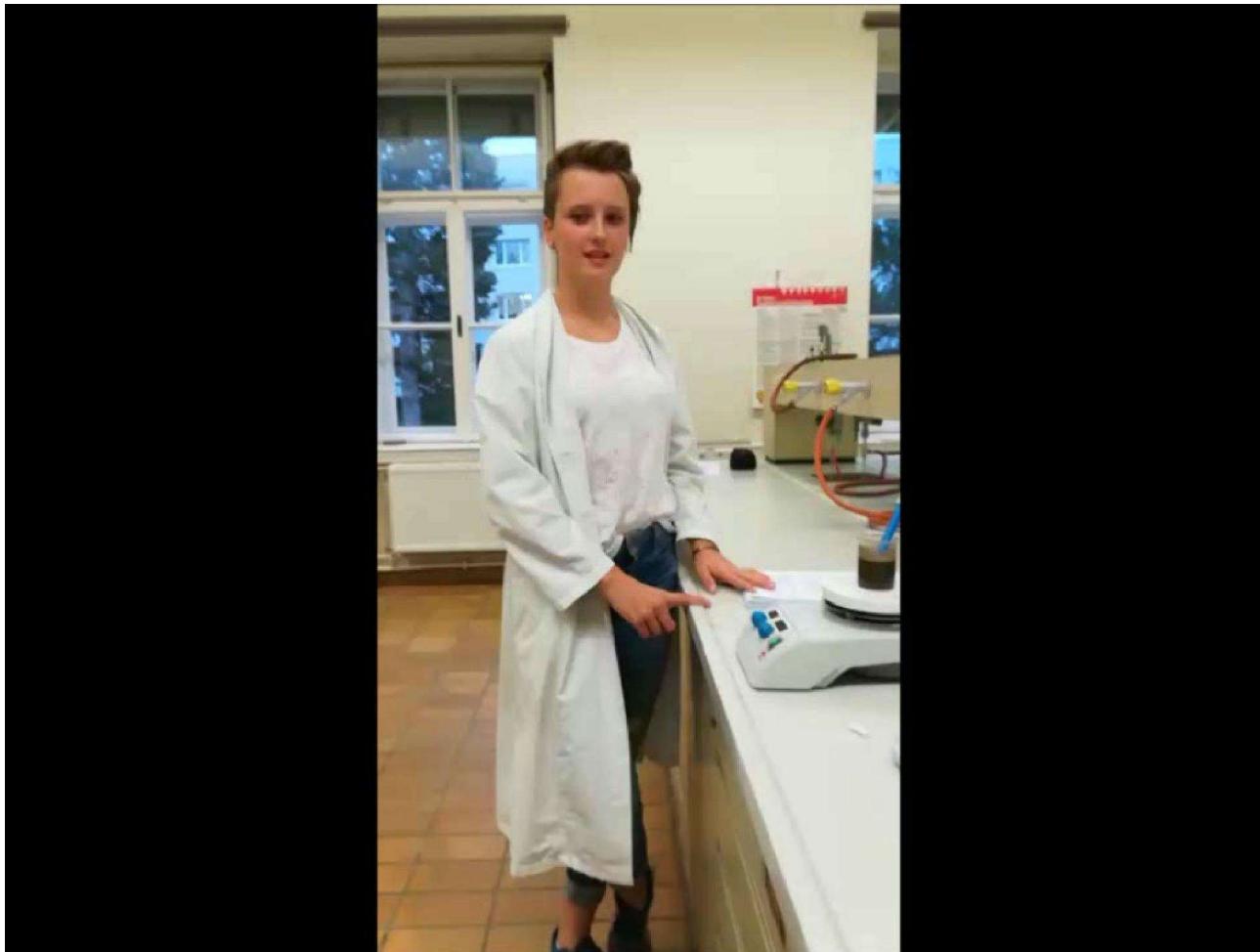
Actual pH: \_\_\_\_\_

Used sample: \_\_\_\_\_

**Delta pH: actual pH – potential pH: \_\_\_\_\_**

Discuss possible problems of your sample with your lab partner! Are there any possibilities to improve the soil quality in respect of actual and potential pH?

# pH Testing – Practical Work



# Protocol – Interpreting Data

## Part on pH Testing of a student's protocol:

...

### 2) pH-Testing

#### 2.1) Tools and material:

100ml beaker, CaCl<sub>2</sub>-solution, stirrer, pH-meter, deionized water

#### 2.2) Basics

It is important to know the pH of your soil because you should not fertilize soil, which is too acidic. To get the potential pH you should mix the soil with CaCl<sub>2</sub> solution and if you want to get the actual pH you must add deionized water when you have mixed them you can measure the pH level.

#### 2.3) Execution

Please follow the work instruction on the paper.

#### 2.4) Disposal

The soil sample is disposed in a bucket.

#### 2.5) Results:

Sample 20-30cm

Potential pH: 4,16

Actual pH: 4,38

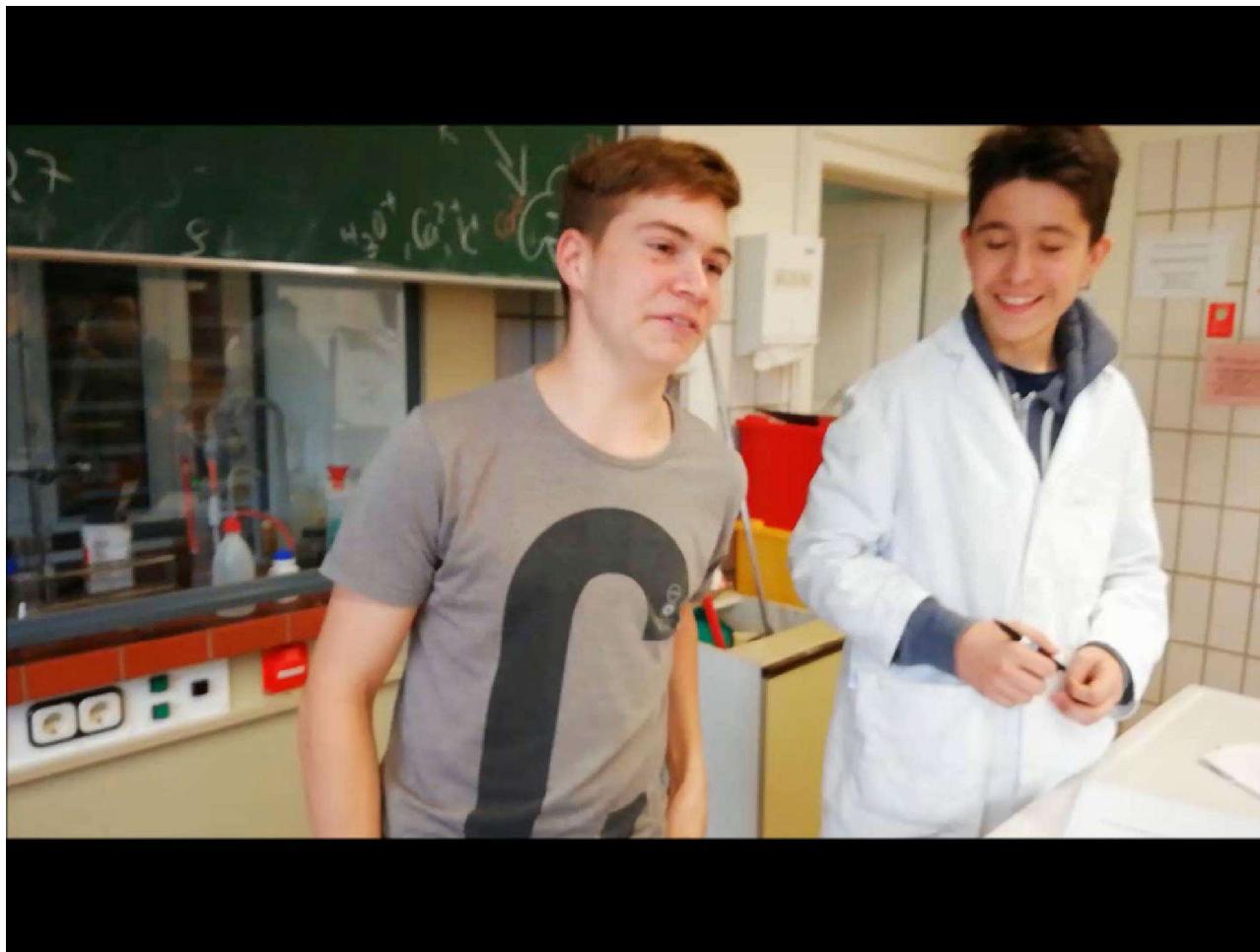
Delta: pH-actual-potential: 0,22

The soil is sour!

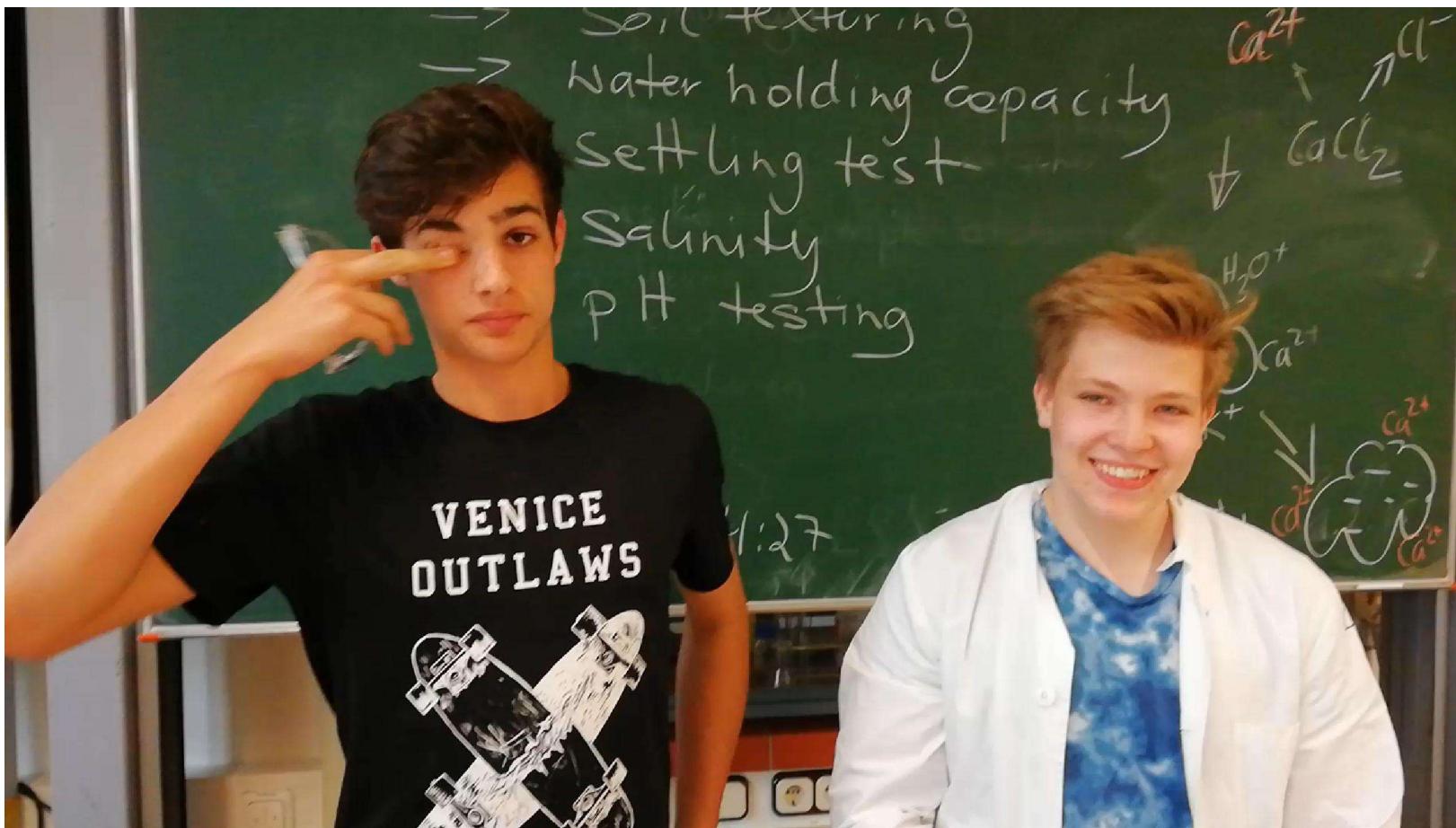
Fertilizing can lower the pH further. If you want to rise the pH, you should carbonate the soil!

...

# Feedback



# Feedback



# Feedback

