

Agri-CLIL

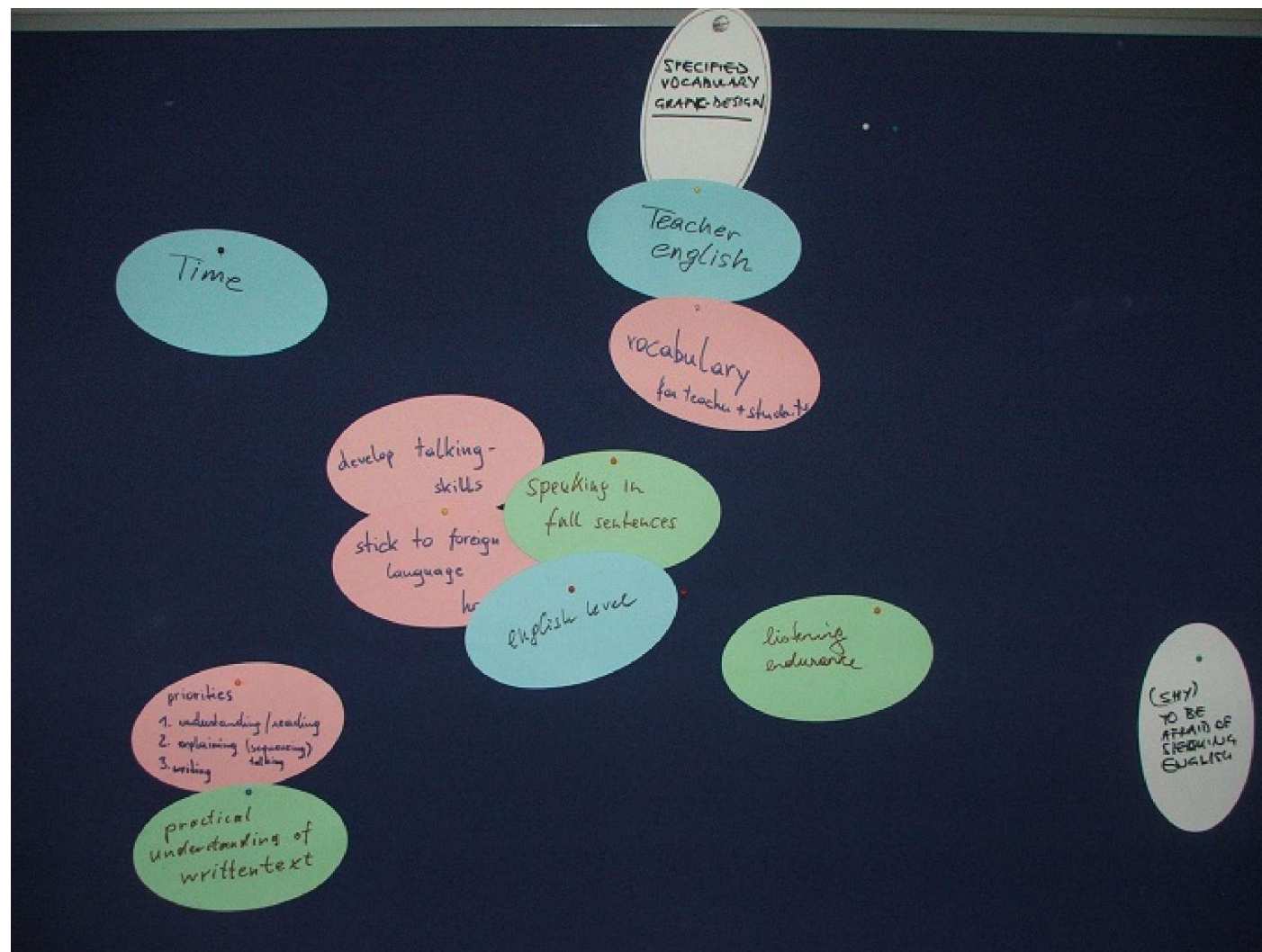
'Profession-specific CLIL for agricultural
and forestry colleges'

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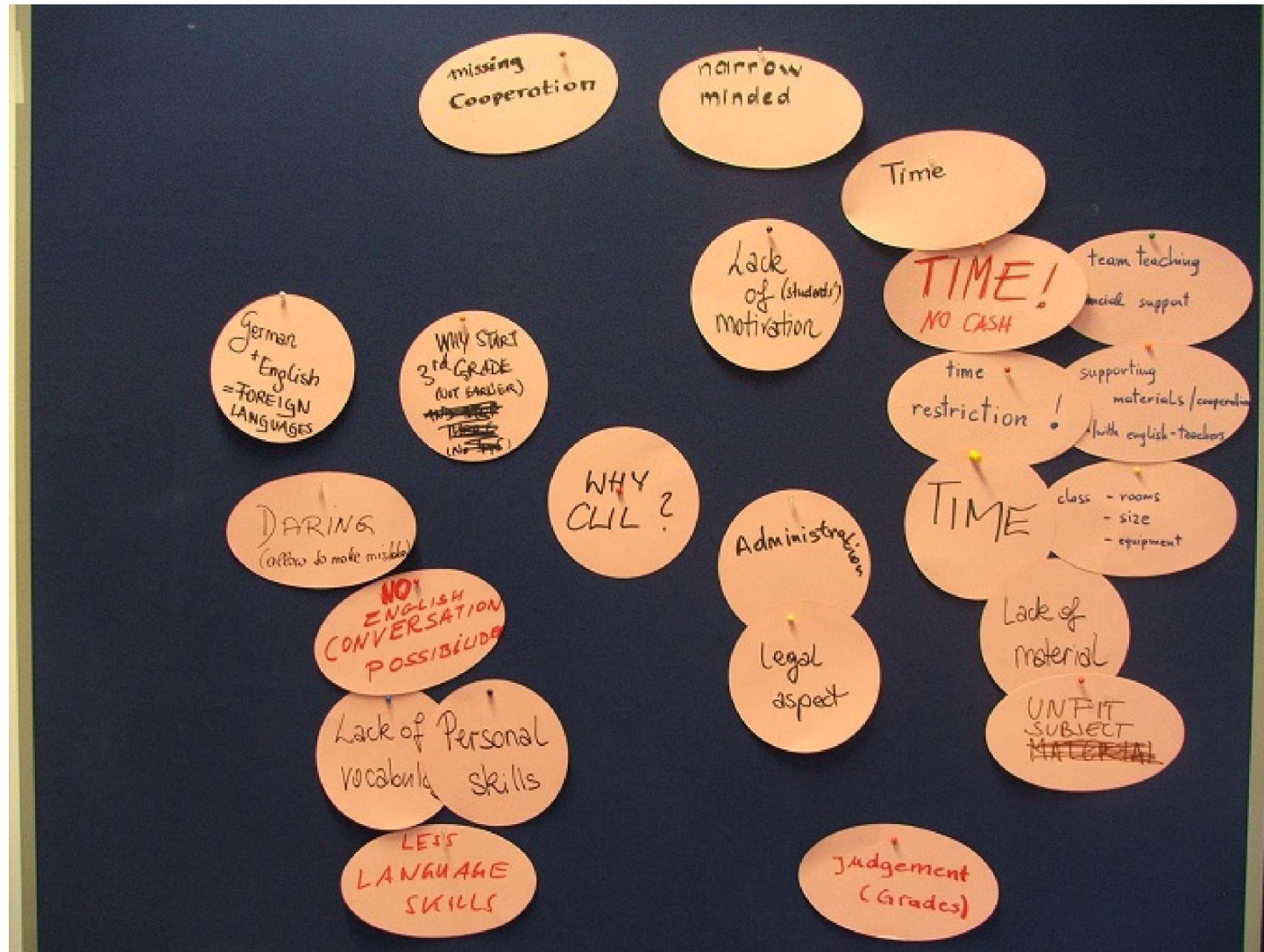
Agri CLIL – key issues

- 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

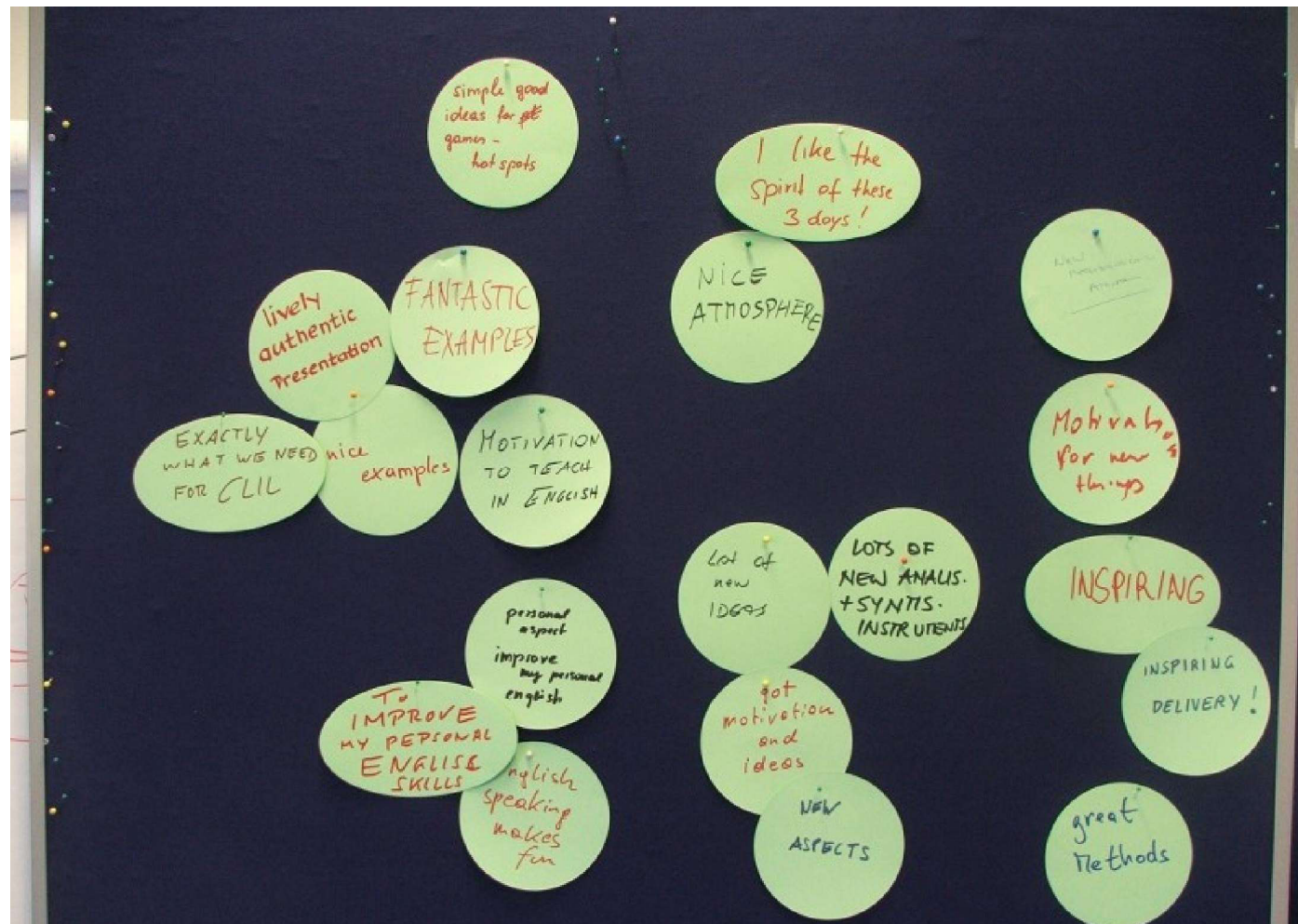


CLIL past – feedback Challenges



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.'

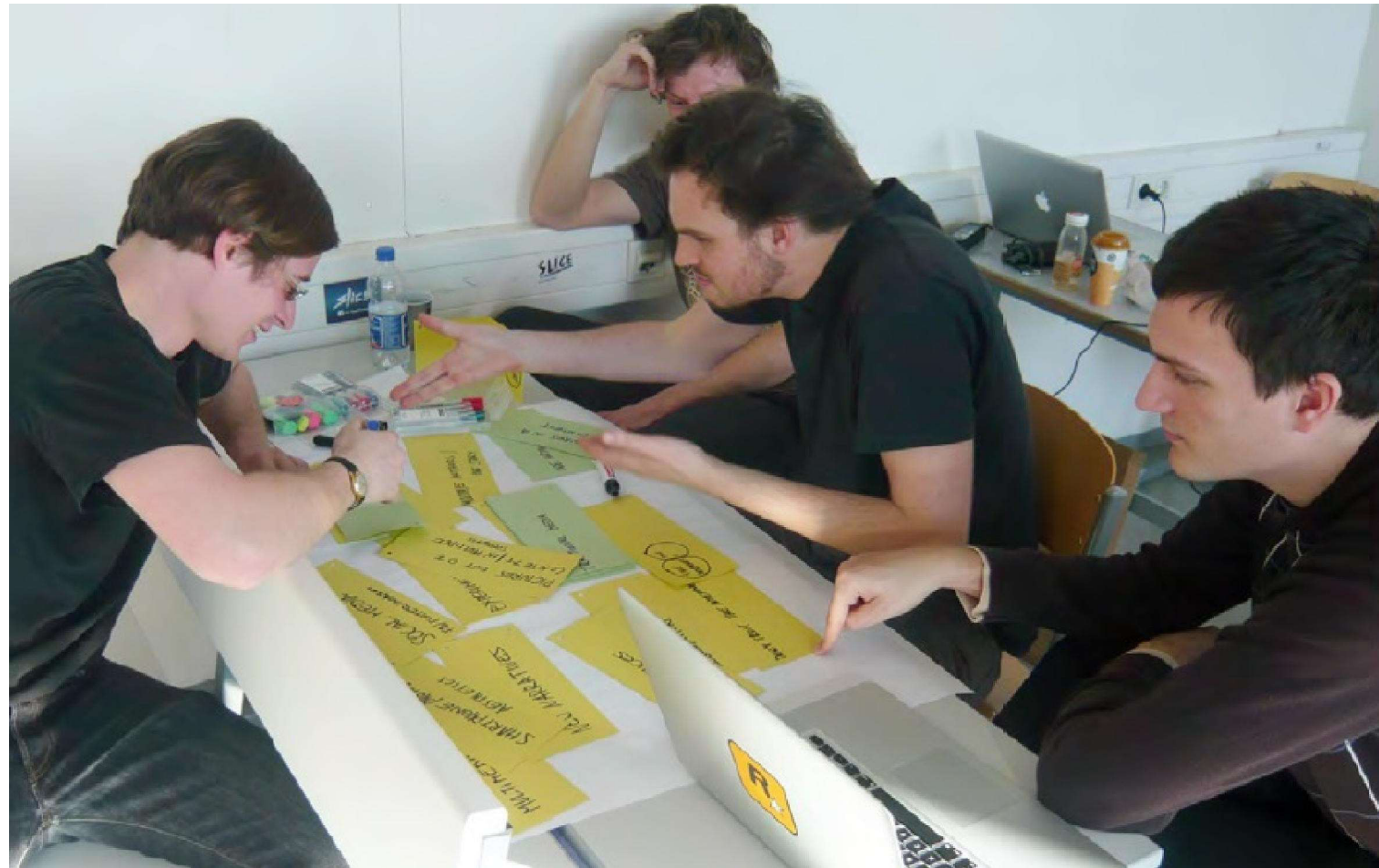
CLIL in the classroom

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

Good practice



CLIL in the classroom

Good practice



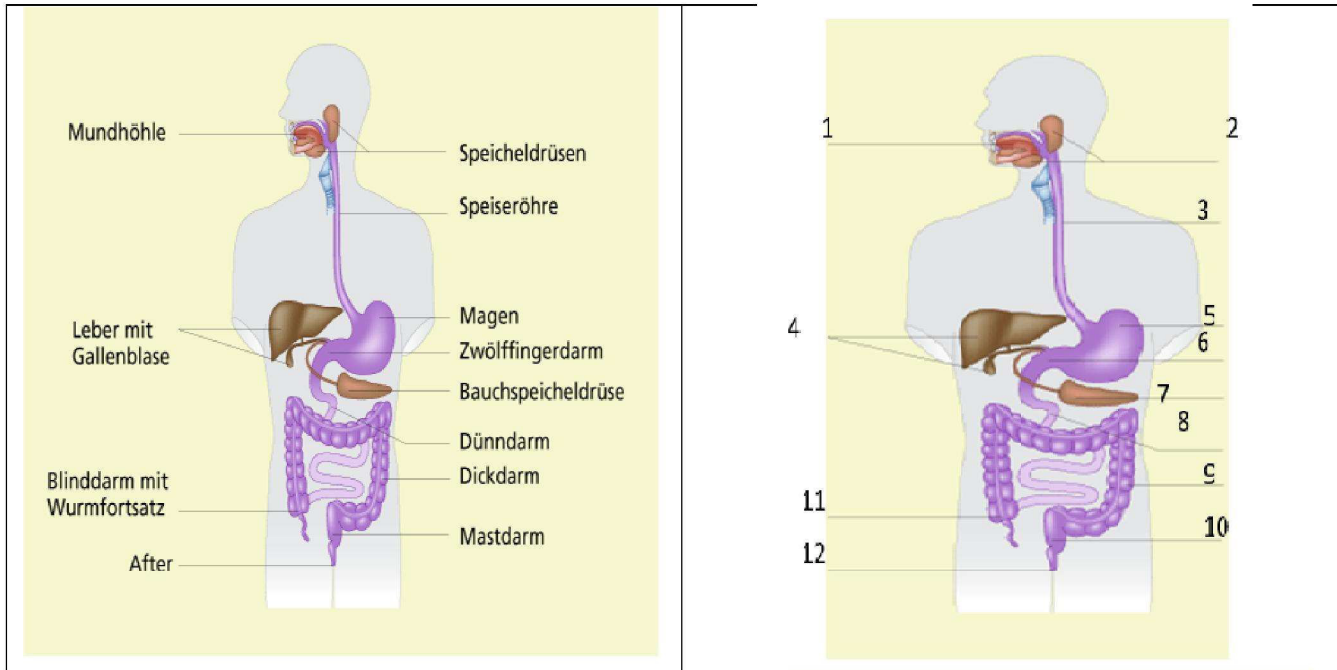
CLIL in the classroom
Good practice

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=gcP0AiMDjes>



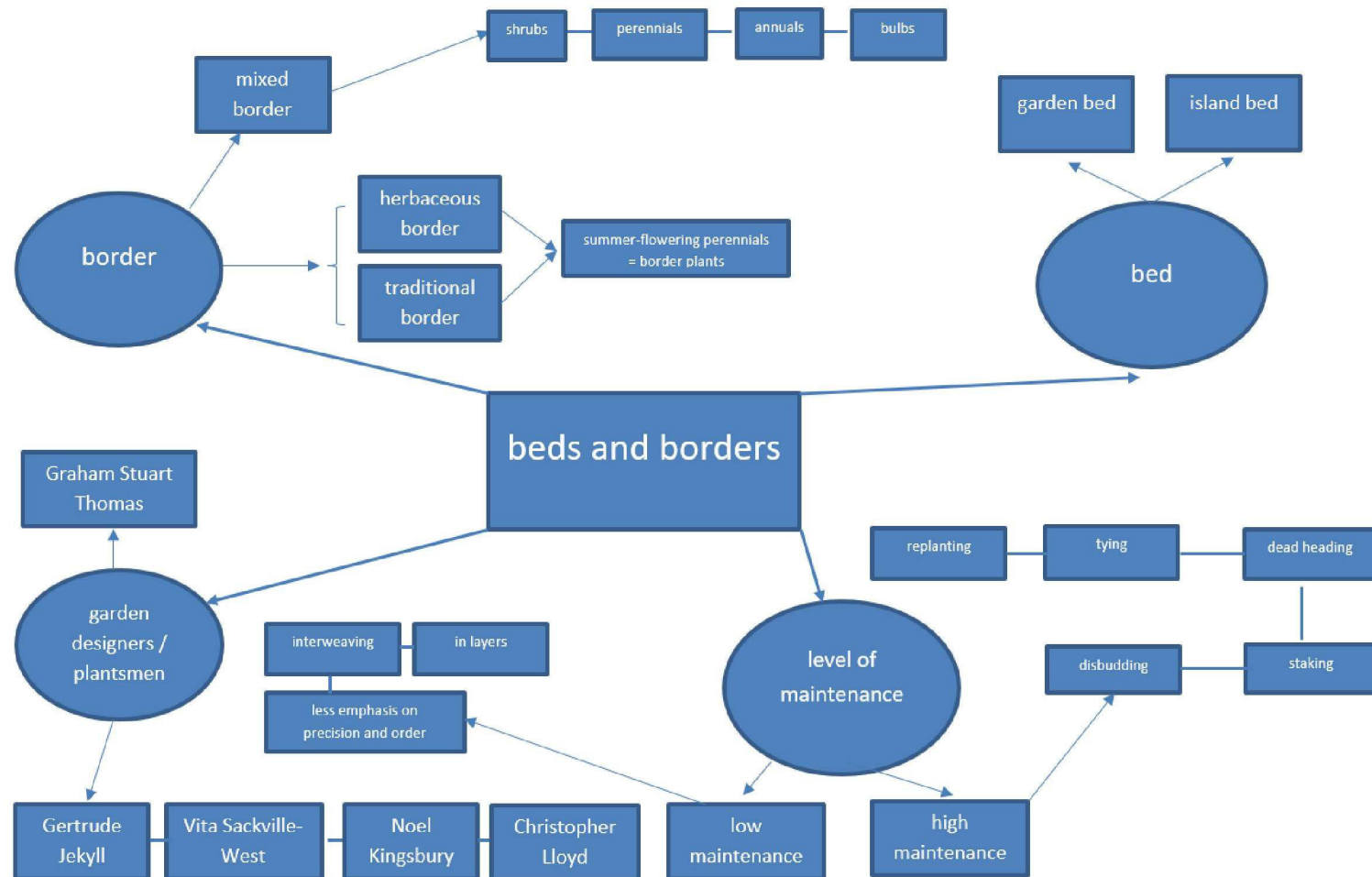
Get in pairs. Try to explain the digestion process in detail
– describe what happens in this organ,
using the list of vocabulary words

mouth
digestion glands
oesophagus
stomach
small intestine
pankreas
gall
caelum, appendix
large intestine – colon
anus

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

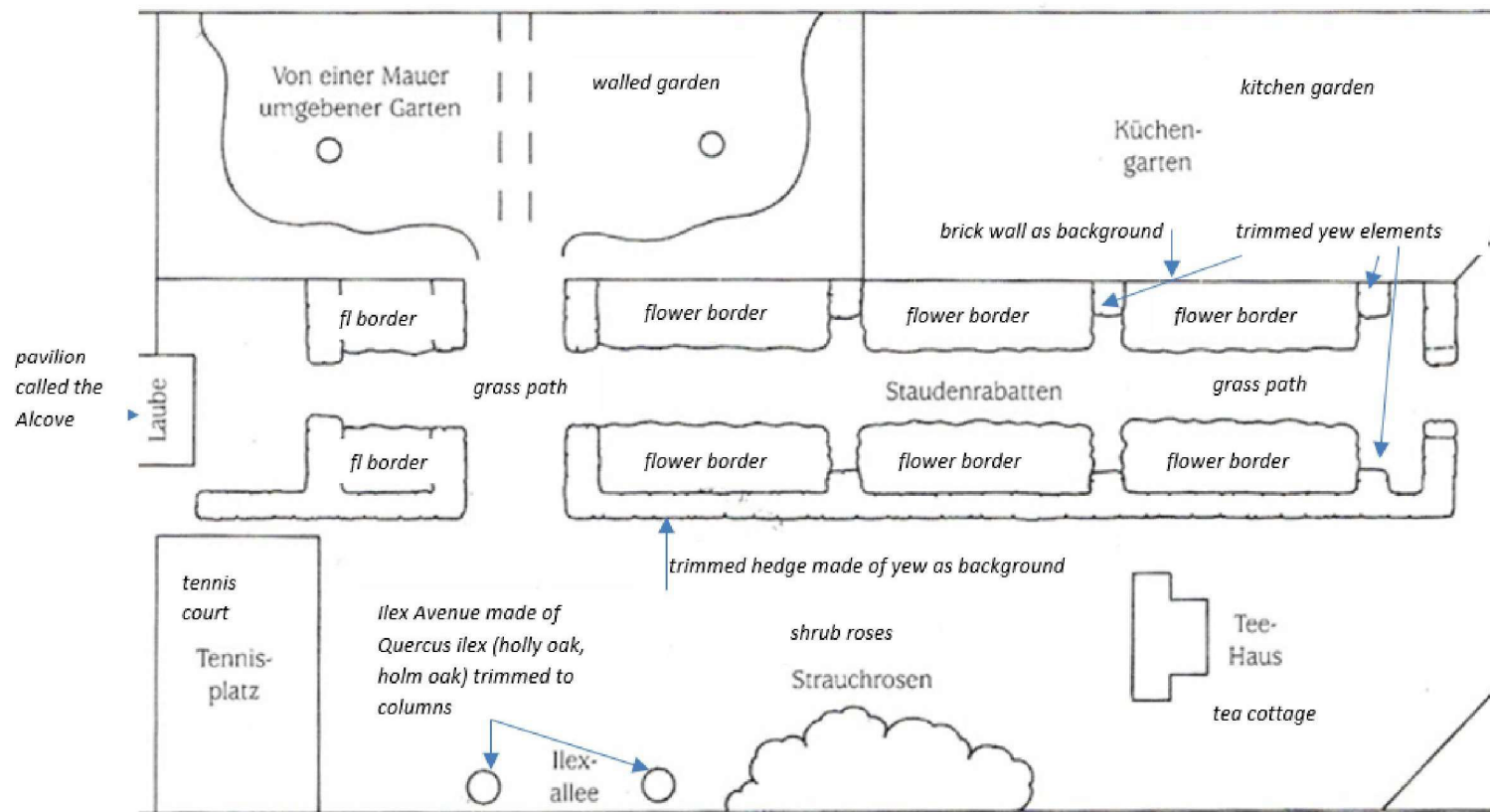
Subject-specific terminology 2 – beds - borders

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:

Total area = \sum areas of the trapezoids + 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:

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

h = height of trapezoid

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

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

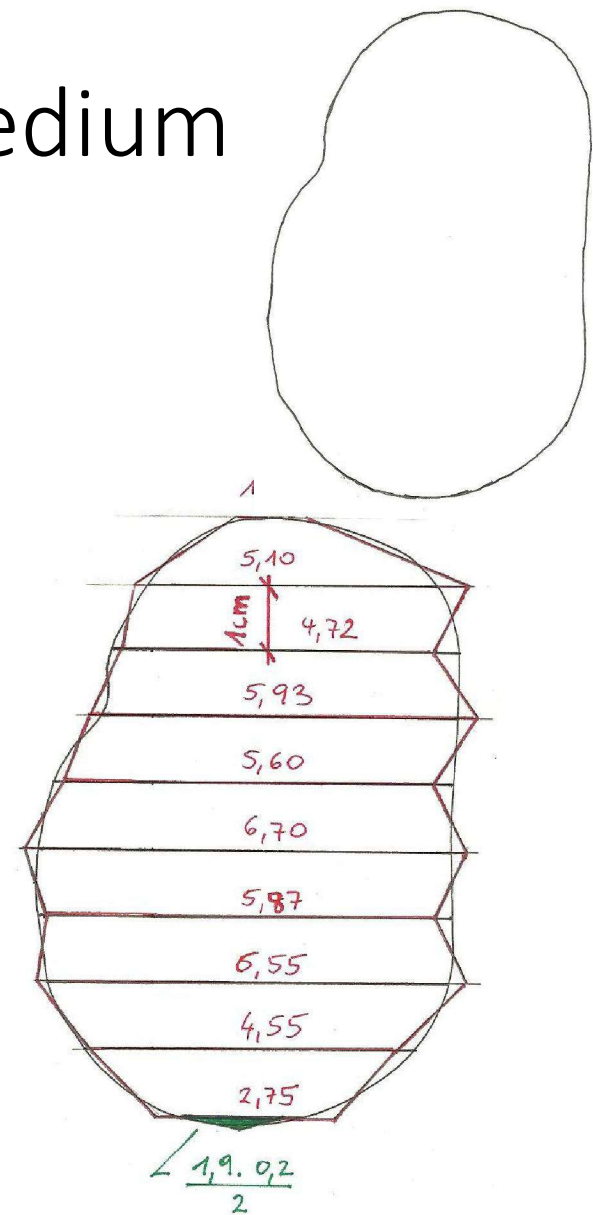
$$\sum A_T = (3.90 \cdot \frac{1}{2} + 45.02) \cdot 1 = 46.97 \text{ cm}^2$$

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

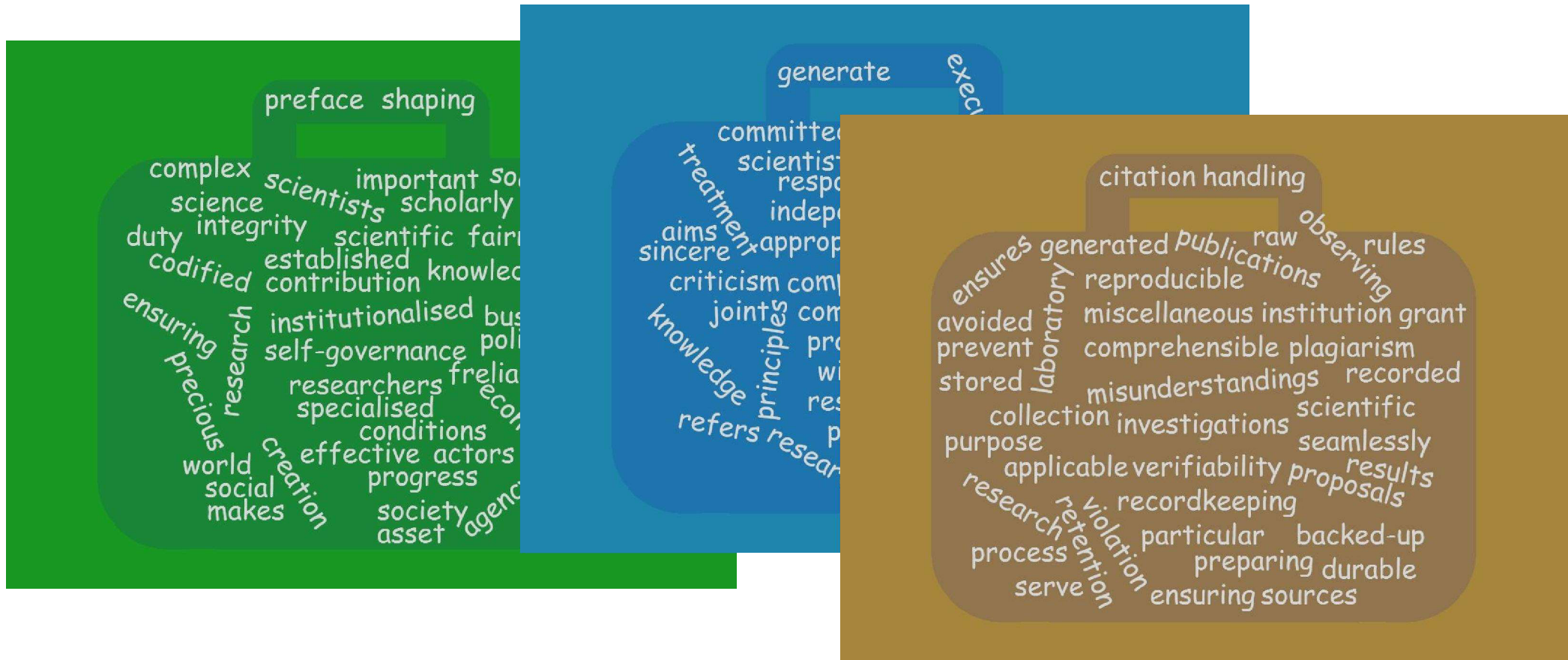
$$A = \sum A_T + A_D = 47.16 \text{ cm}^2$$

Calculation of the area in nature:

$$A = 47.16 \cdot 200^2 = 188\,640 \text{ cm}^2 = 188.64 \text{ m}^2$$



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.



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 ...

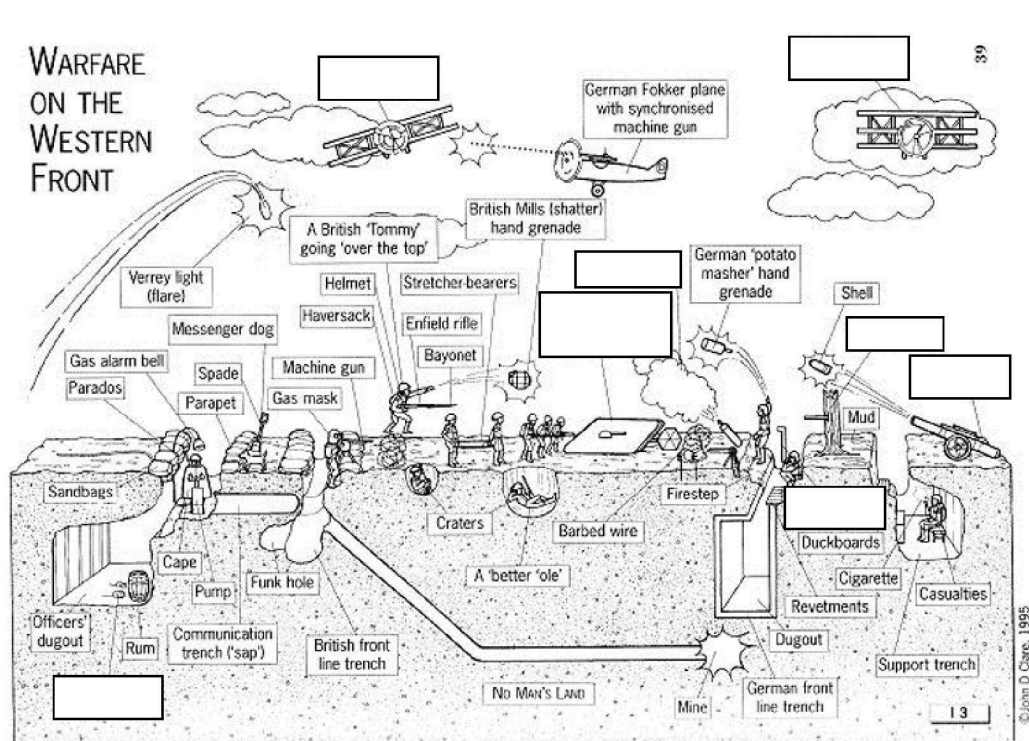
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Supporting talk – paired speaking - WWI

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.



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

Group A	Definition
<ul style="list-style-type: none"> - artillery - triplane - gas - tank - barbed wire 	

Group B	Definition
<ul style="list-style-type: none"> - sniper tree - periscope - biplane - steel helmet - rats 	

2. Go online 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

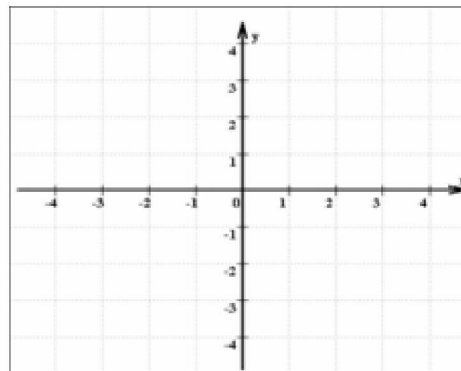
Linear Graphs (linear functions, linear equations = straight-line graphs)

Subject-specific language

The operations

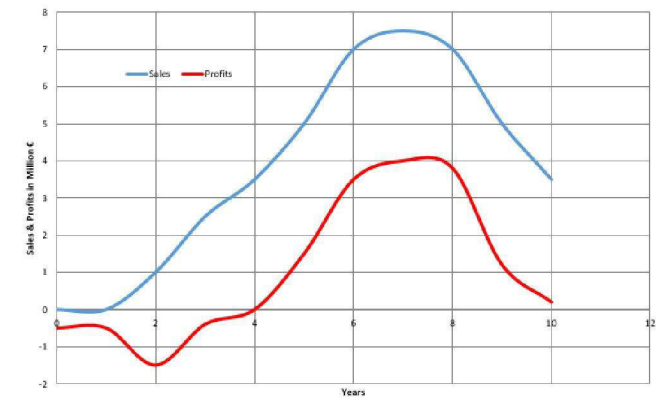
()	Brackets
/	to divide
x	to multiply
+	to add
-	to subtract
=	to equal

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)

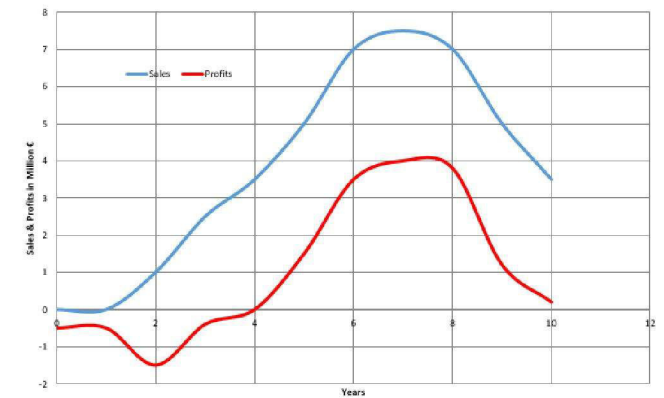
Supporting written output – Product life cycle



EXAMPLES - POSSIBLE CAUSES

<p>The rapid growth in profits in the fourth year</p> <p>The fall in profits</p> <p>The recovery</p> <p>The downturn</p>	<p>may / might / could</p>	<p>be due to</p> <p>have been caused by</p> <p>have been a result of</p>	<p>a change in management</p> <p>the launch of a new product</p> <p>the entry of a new competitor to the market</p>
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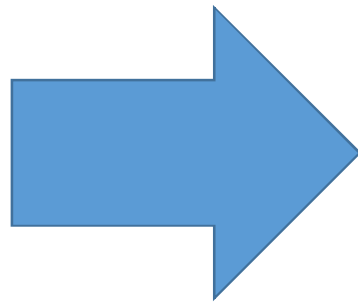
Supporting written output – Product life cycle



EXAMPLES – POSSIBLE EFFECTS

<p>A large repayment of interest on loans</p> <p>A change in management</p> <p>The entry of a new competitor</p>	<p>may / might / could</p> <p>would probably</p>	<p>have resulted in</p> <p>result in</p>	<p>profits</p> <p>sales</p> <p>market share</p>	<p>increasing</p> <p>rising</p> <p>going up</p> <p>falling</p> <p>decreasing</p> <p>declining</p>	<p>rapidly</p> <p>quickly</p> <p>slowly</p> <p>gradually</p>
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Lessons in soil analysis



CLIL – Soil Analysis

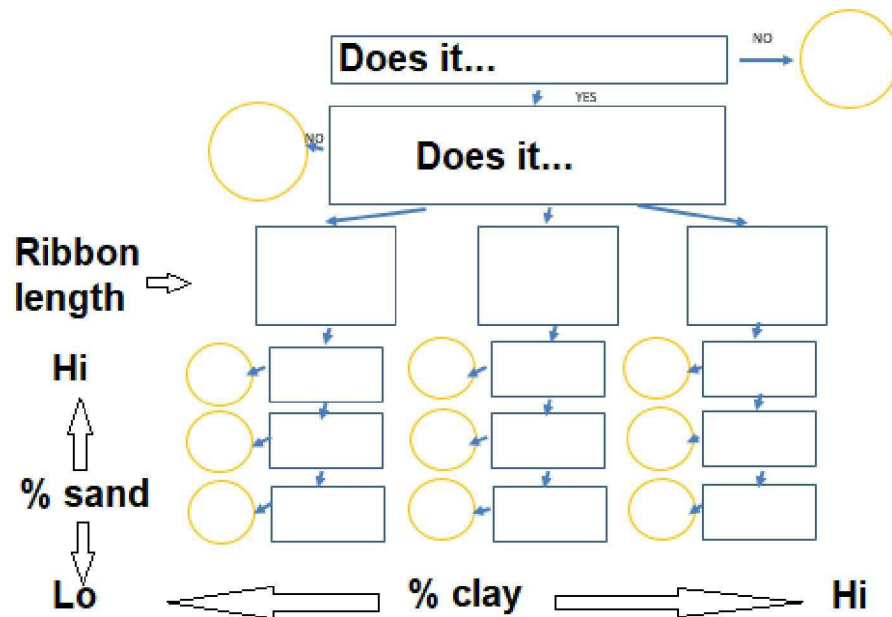
- 3 lab afternoons (four 50 min lessons per afternoon)
- Soil sampling
- Texturing
- pH testing
- Water holding capacity
- Settling test
- Salinity
- Ammonium, nitrate, lime concentration
- Soluble iron
- Ammonification
- Interpreting data in terms of soil quality

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=fufeaLBLGk>
- <https://www.youtube.com/watch?v=GWZwbVJCNeC>

Soil Texturing

Try to create a flow chart in order to determine the soil type of your sample by gathering information from the video:



Language Box:

sand – Sand

silt – Schluff

clay – Ton

loam - Lehm

palm - Handfläche

gritty – grobkörnig

smooth – glatt, geschmeidig

ribbon – Band

squeeze - drücken

knead - kneten

silky - seidig

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 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 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.

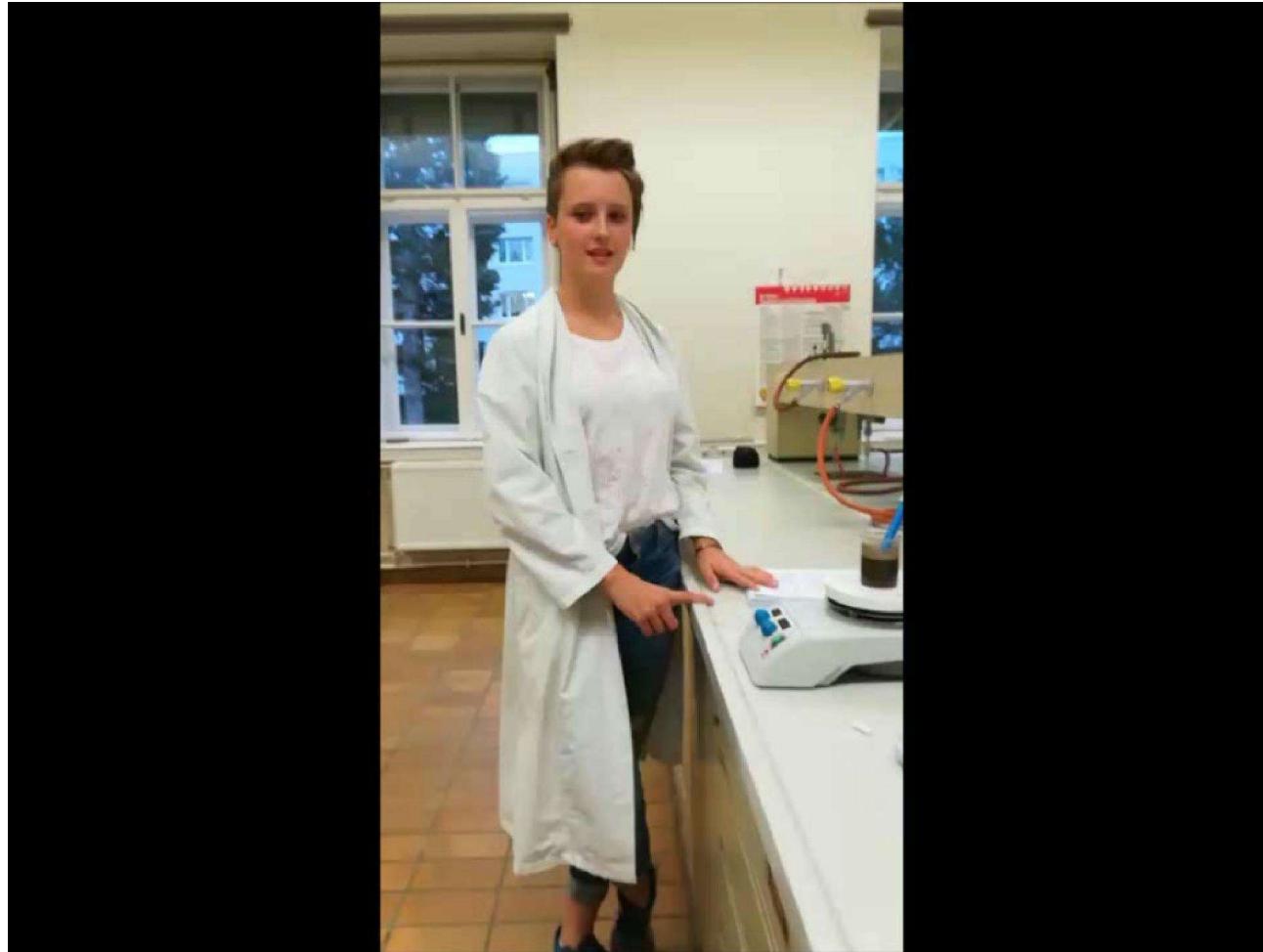
Actual pH: _____

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, CaCl₂-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 CaCl₂ 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

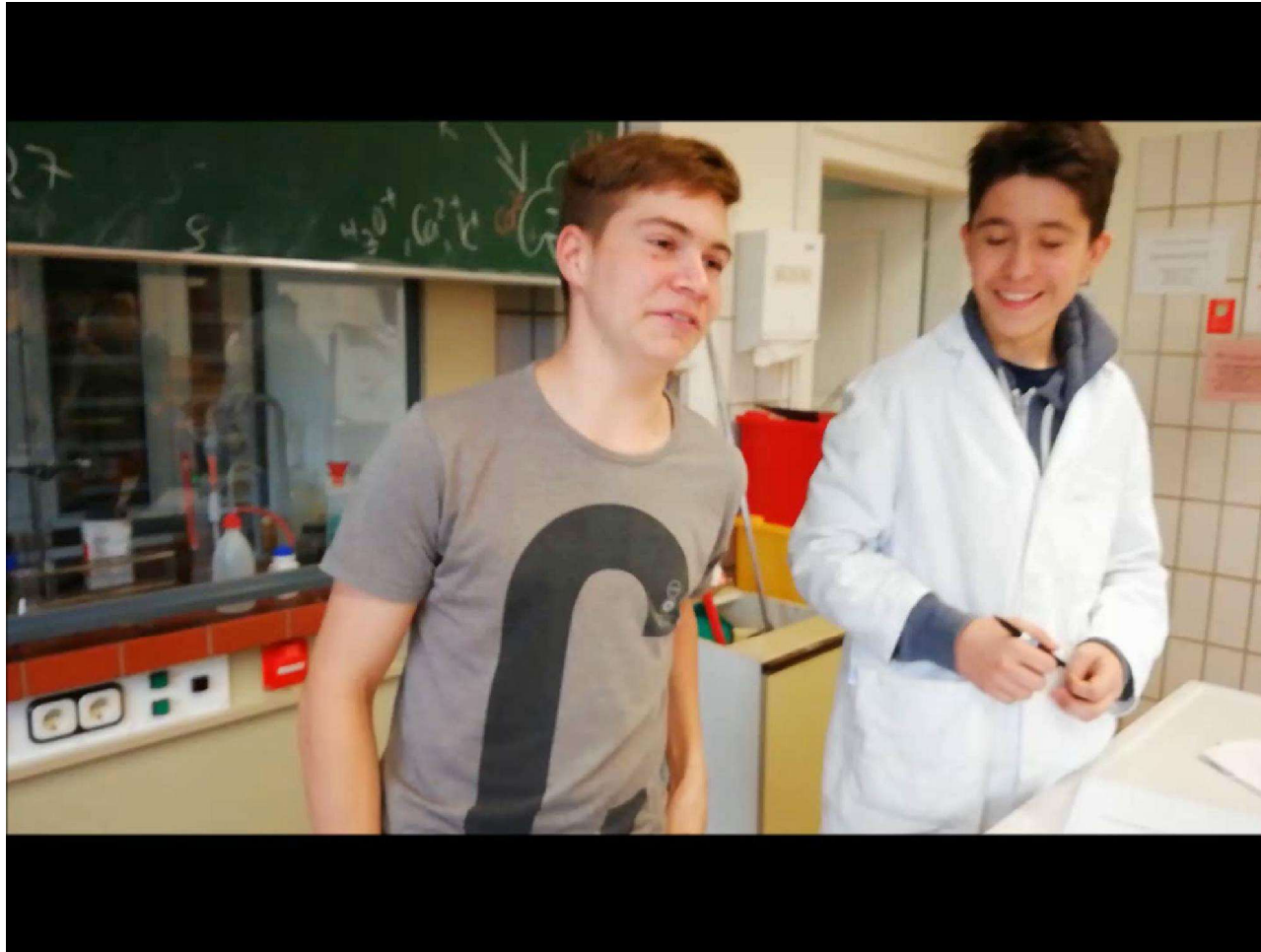
Delta: pH-actual-potential: 0,22

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

