Progress bar

Include in a visual representation in a presentation or exercise of how much there is left to do.

Exercises to go:

Poll by raising hands

Ask a question that can be answered by yes/no and ask for the answers by a raised arm.

„Who has prepared classes for more than 10 people?”

Brainstorming

Ask an open question and collect answers on the board. Do not comment or criticize anything (even if the answer is wrong!).

„What is important to prepare a successful lesson”

Check & Cross

Write 8-15 concepts on the board.

Ask each student to briefly explain one of their choice. Mark each word that has been explained.

Blooms taxonomy

anchor

feedback

Lesson plan

content reduction

concept map

learning objective

2D Feedback

Ask everybody to add a cross in the plot.

For me, preparing lessons is

Upside down

Ask for the opposite of what you would like the students to learn.

Collect their suggestions.

„How to prepare the worst lesson possible?”

Discuss and Debrief

Ask a question and give students time to write down answers and discuss them with their neighbour.

After 1-2 minutes, collect results.

„What methods for teaching have you seen during this workshop?”

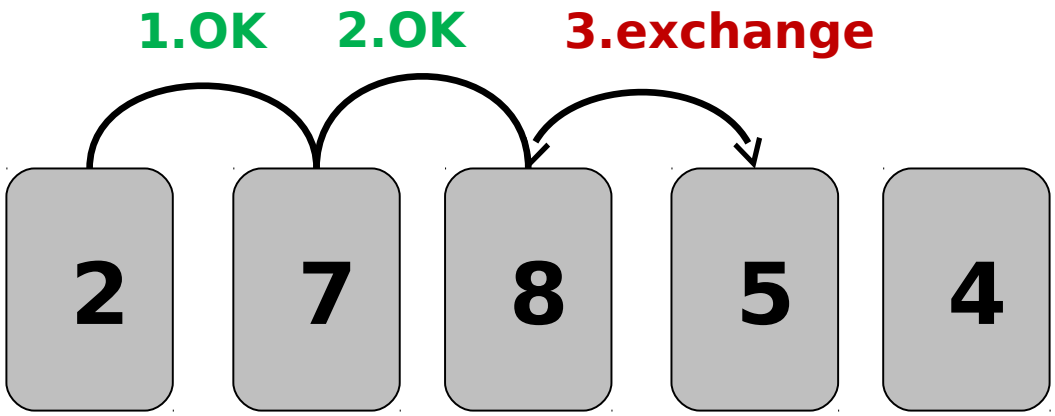
Simulation: Bubblesort

1) Shuffle the cards and lay them out in a row.

2) Look for a smaller card that is on the left of a bigger one.

3) Exchange the two so that the smaller card is on the left.

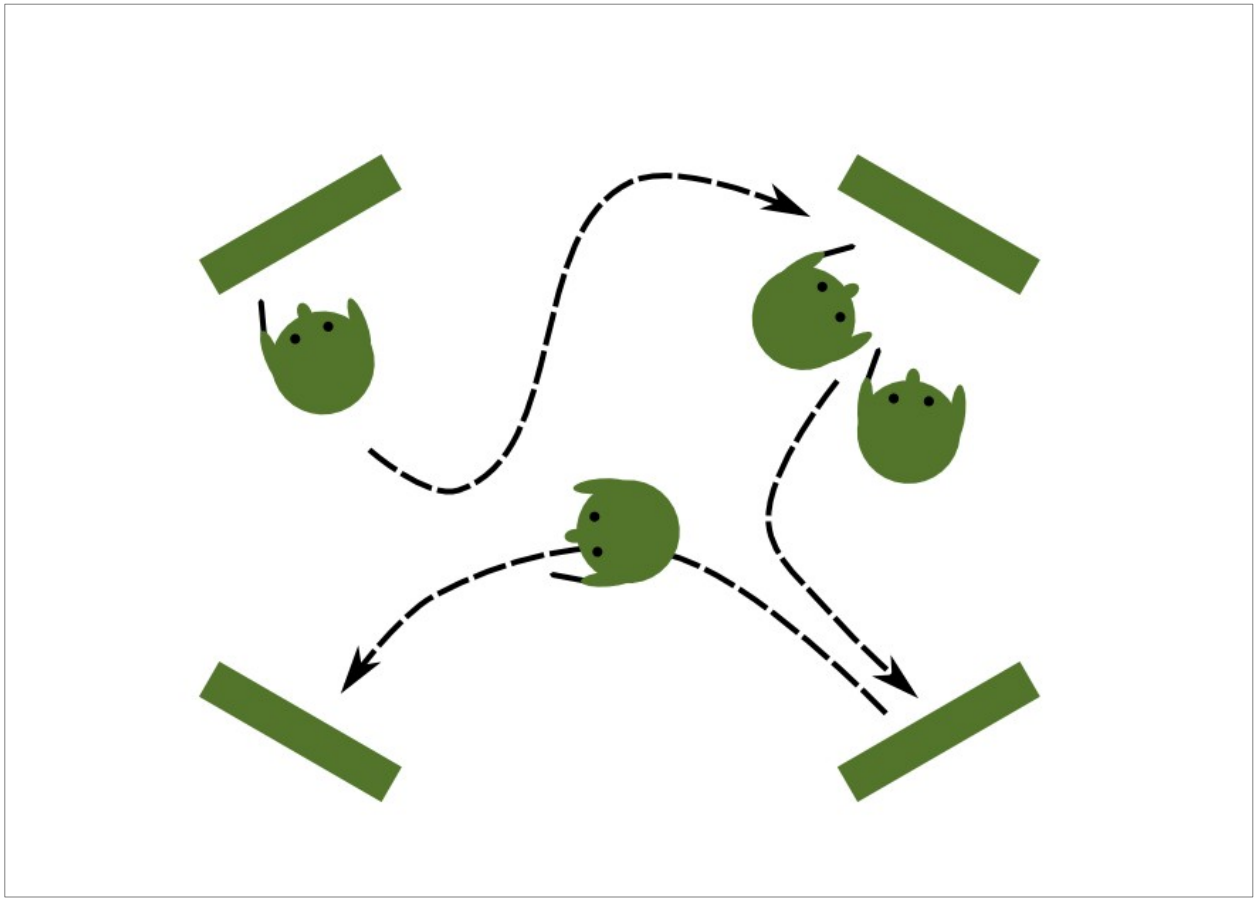
4) Repeat steps 2) and 3) until everything is sorted.



Four Corners

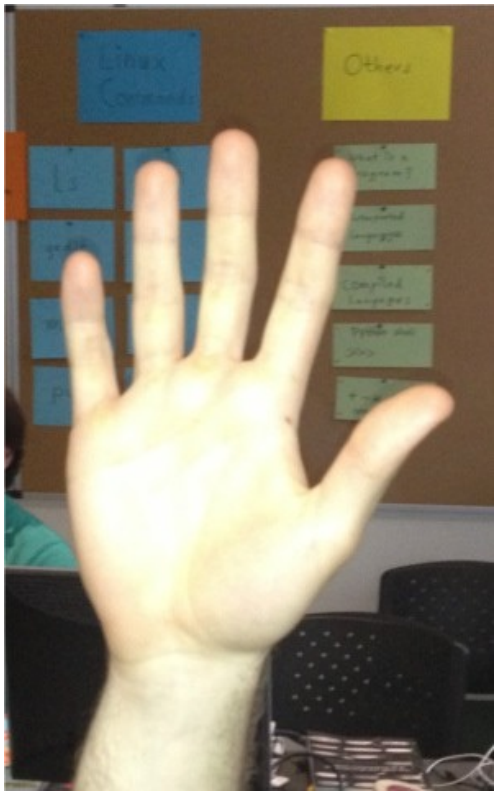
Prepare 4 questions on separate sheets of paper.

Give pens to the students and let them work the room.



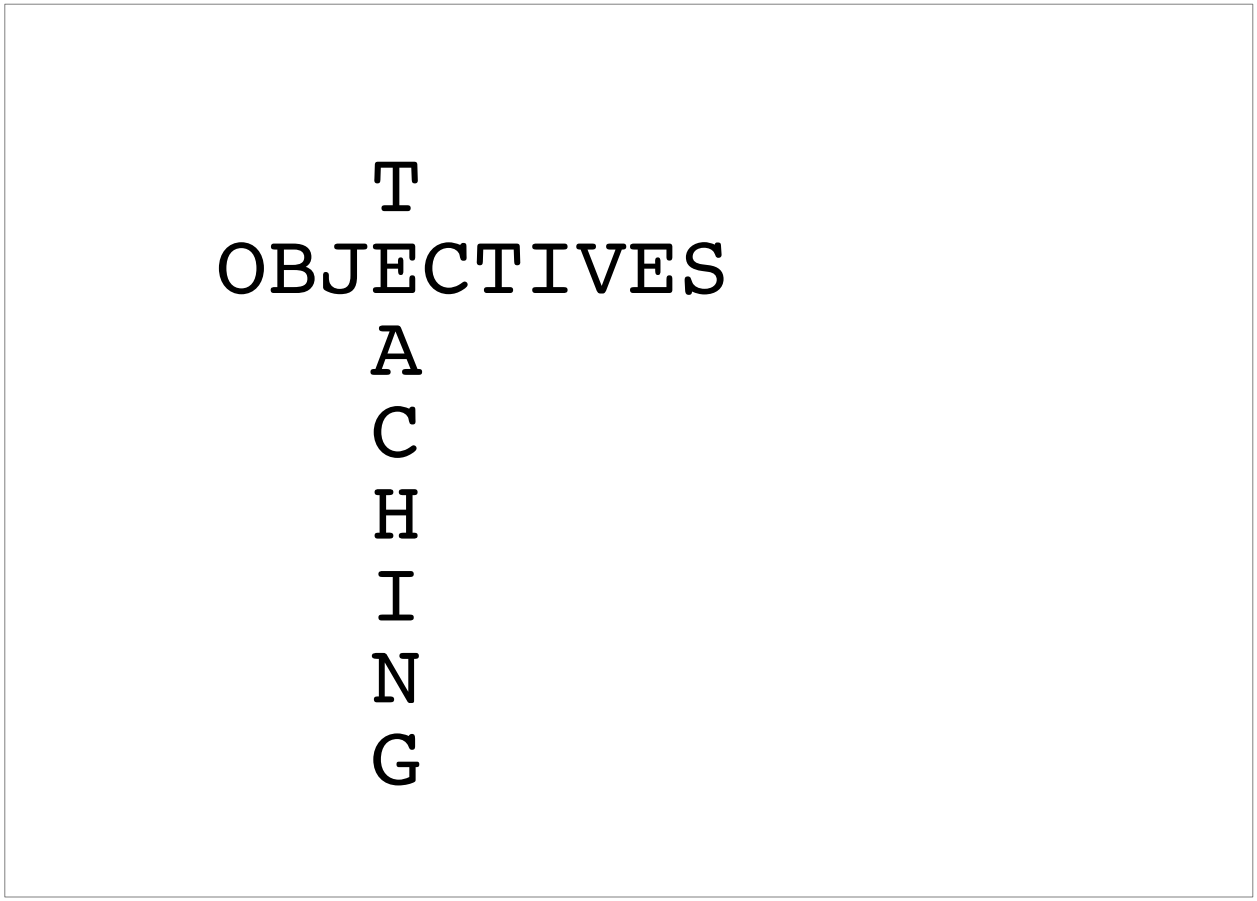
Fist or Five

Ask students to rate their learning success by showing between zero and five fingers. Gives you a rough impression how they feel at the end of a learning module.



Crossword

Write one word on an empty board. Ask students to insert concepts they learned during the day.



Badges

Award the class badges for achievements during a course.

You can present them with a few badges so that they can set their own objectives for the next lesson.

Molecular Puzzle

The paper pieces represent components of the transcription machinery in yeast.
Assemble the transcription complex on the board or a large piece of paper. Draw a piece of DNA so that transcription can occur.

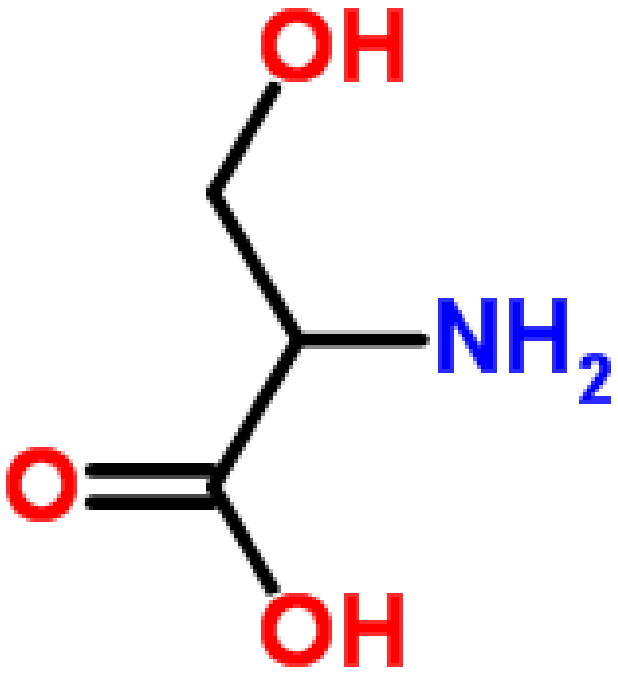
(may require extra knowledge)

Structural Formula

The formula depicts the amino acid serine.

Reconstruct the structure from the given atoms.

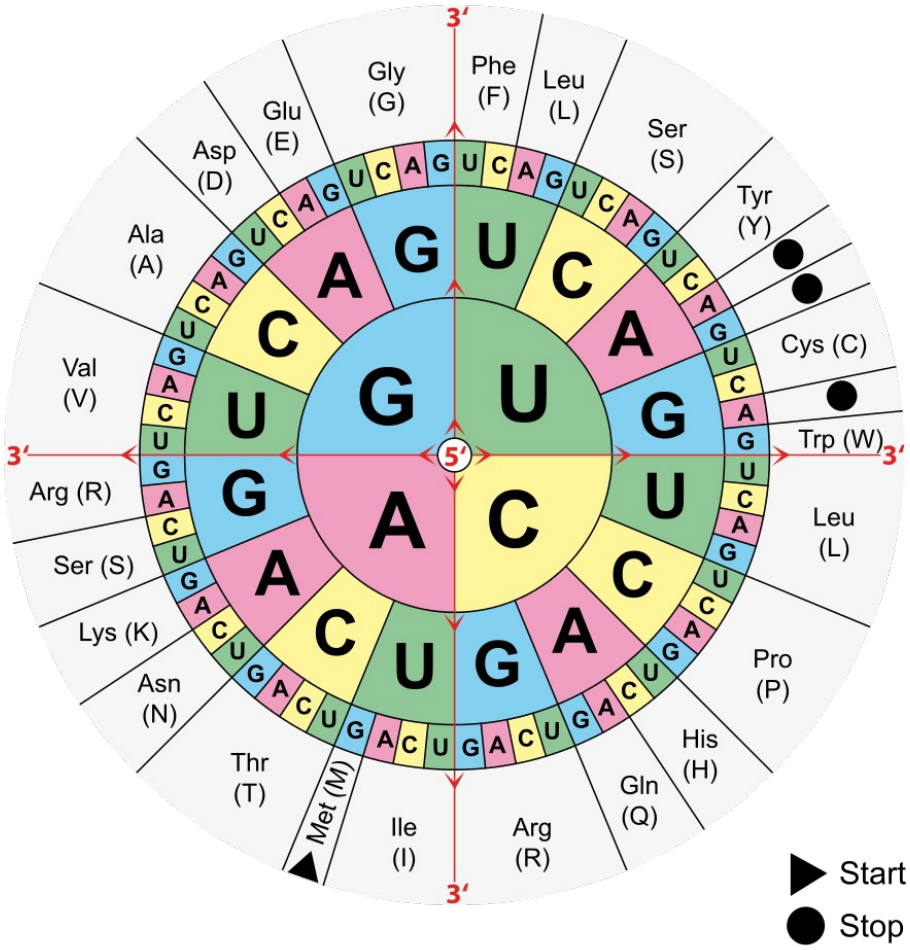
Identify acidic and basic parts of the molecule.



Example: Translation

You are given a part of the mRNA of hemoglobine:
AUGGUGCAUCUGACUCCUGAGGAGAAGUCUGCC

Translate it to a protein sequence using the triplet code. Begin with the start codon AUG.



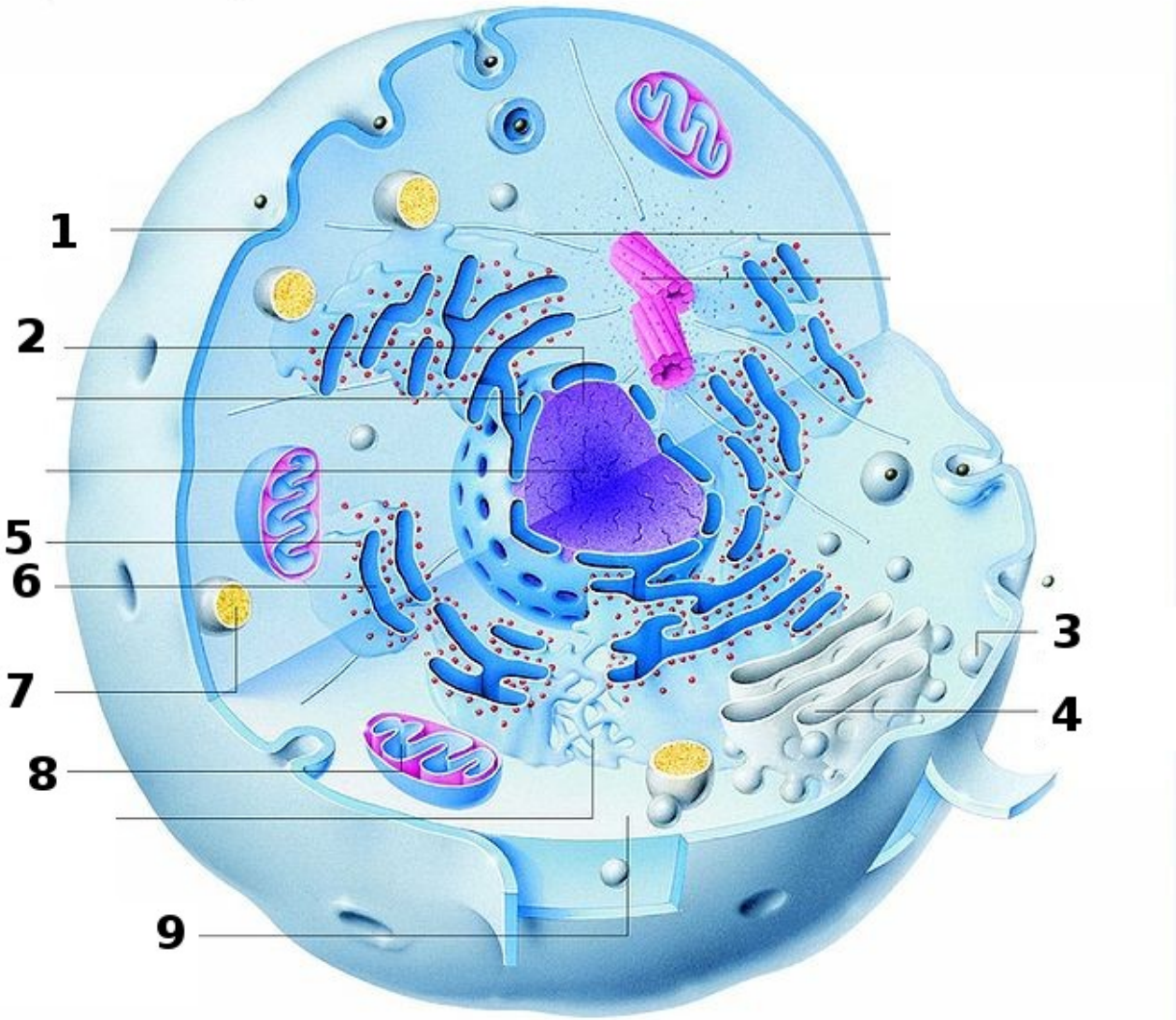
Pros and Cons

Collect pros and cons on the board.

The Pros and Cons method

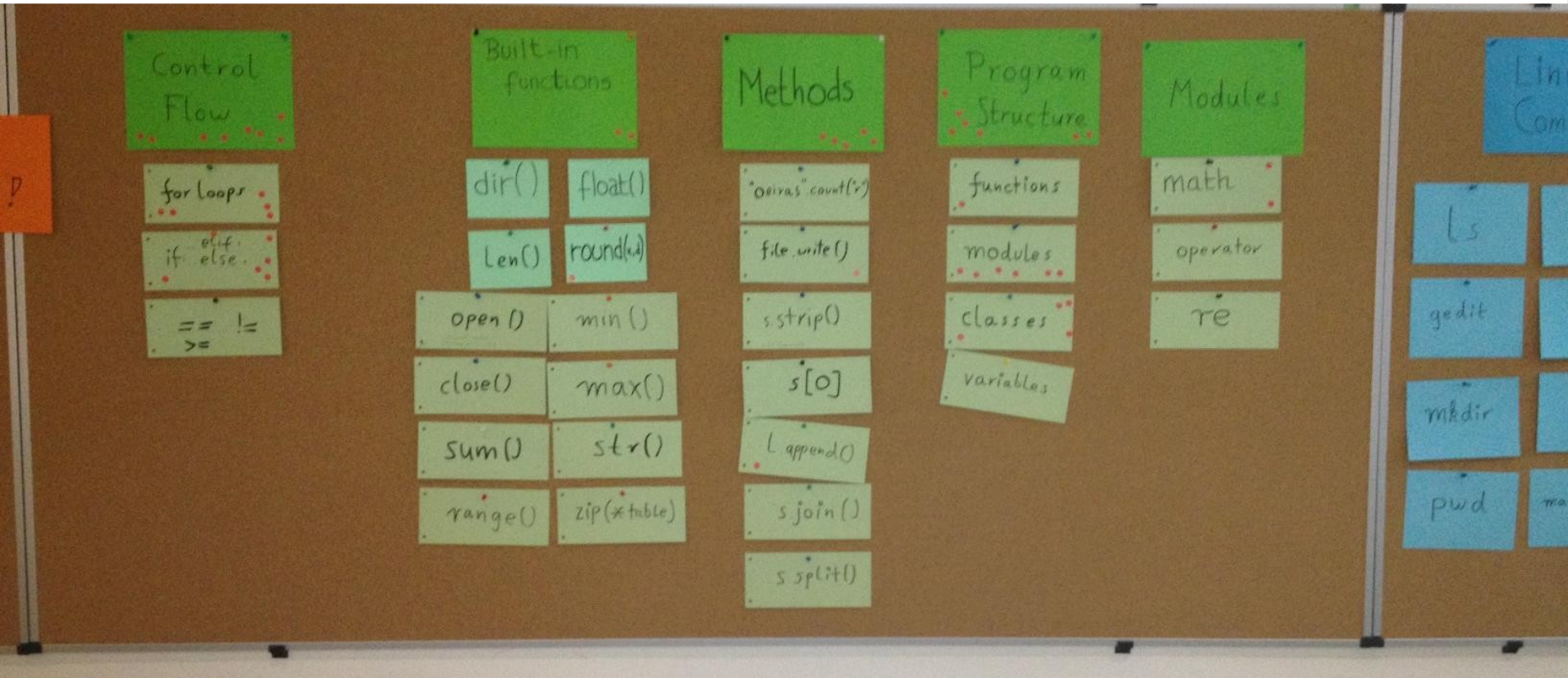
advantages	disadvantages
• focused discussion • can be used to compare two concepts • no preparation	• needs a board • students need some knowledge already

Name components of the cell



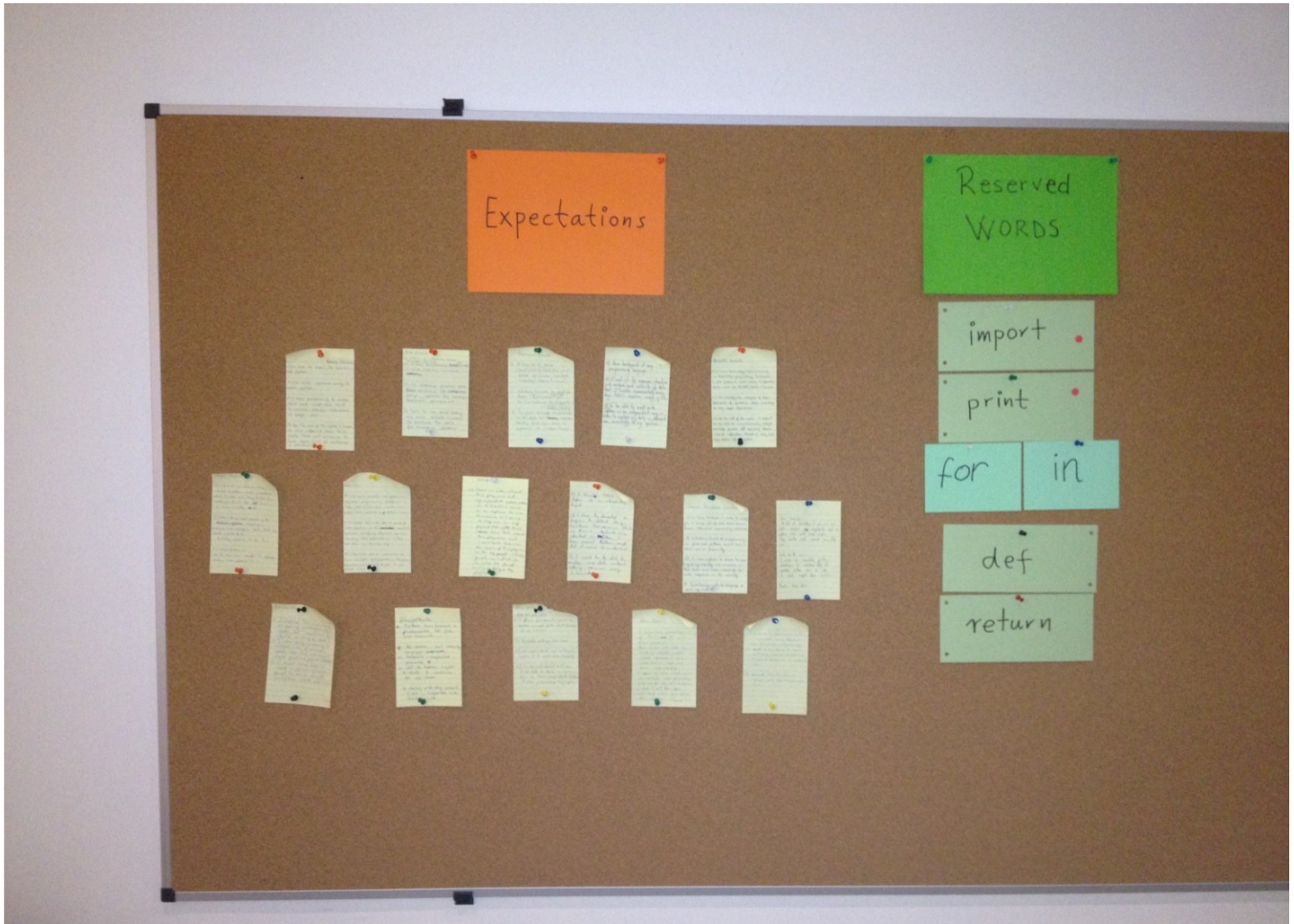
Knowledge Capacitor

Collect everything done so far in a visible place, so that students can recall concepts and see their progress.



Expectations

Collect expectations from students at the beginning of a course, review them at the end.



Example: Neurochemistry

Attach the 9 neurochemistry cards to the board using magnets in random order.

Ask the students to sort them. Moderate the discussion.

Memory

Place the cards face down on a table.

Students take turns turning a card and explaining the concept on it.

Example: Functional Groups

Name the chemical groups on the cards.

Motivation: sim email from your PI

From : boss@amu.edu.pl
To : you@amu.edu.pl
Subject: Interpreting BLAST results

Dear PhD student,

On the conference last week, I got a nice idea from a conversation with M.Portant. I made some BLAST queries with a couple of sequences of Phenylalanine-tRNAsynthetases (PheRS) from different organisms. The results need some cleanup, however. I saved the sequences in a set of files in the FASTA format. All files are in the same directory, and have the ending „.fasta”.

Because the sequence diversity of the aminoacyl-tRNA synthetase family is very high, there are probably many sequences from other aaRS proteins among the results. It is therefore necessary to filter out sequences that do not have the right tRNA specificity (marked by Phenylalanine, Phe etc in the sequence name). I think we might get something out of that that fits into your project. Could you find all the sequences for Phe and put them into a single FASTA file? We could then pass it to an alignment program. Your new programming skills might come in handy for that.

Best,

B.Bossy

Find Pairs

Data Types in Python

Find the matching pairs of expressions and values.

`1023`	`boolean`
`[2, 4, 8, 16]`	`integer`
`True`	`list`
`17.54`	`string`
`"my fat cat"`	`float`