



# Problem-Based Learning Platform User Guide

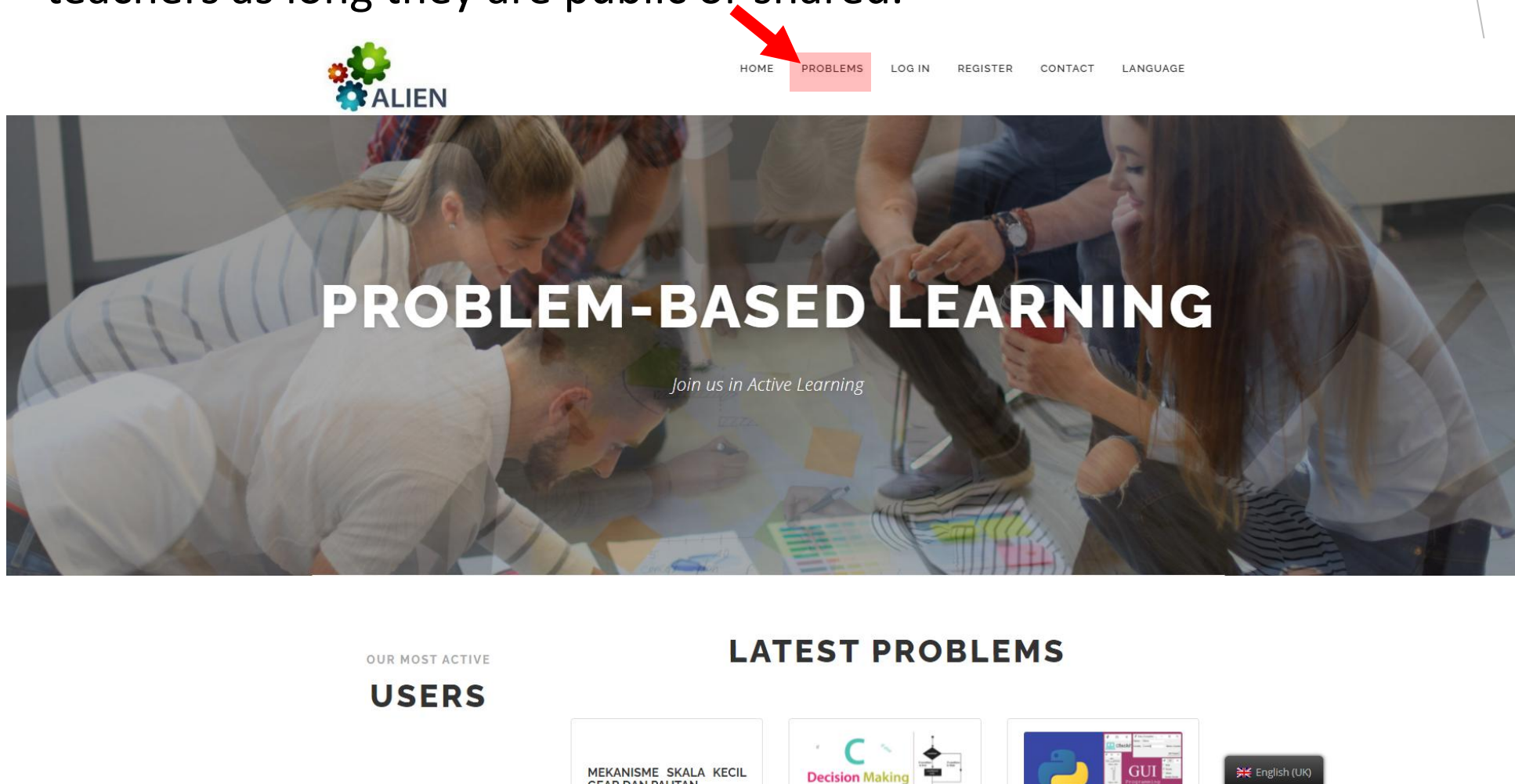
# ALIEN Problem-Based Learning

The ALIEN Problem-Based Learning (PBL) platform is meant to support a learner-centered pedagogical methodology in which students are assessed on their ability to go through a problem-solving process usually based on real-life situations.

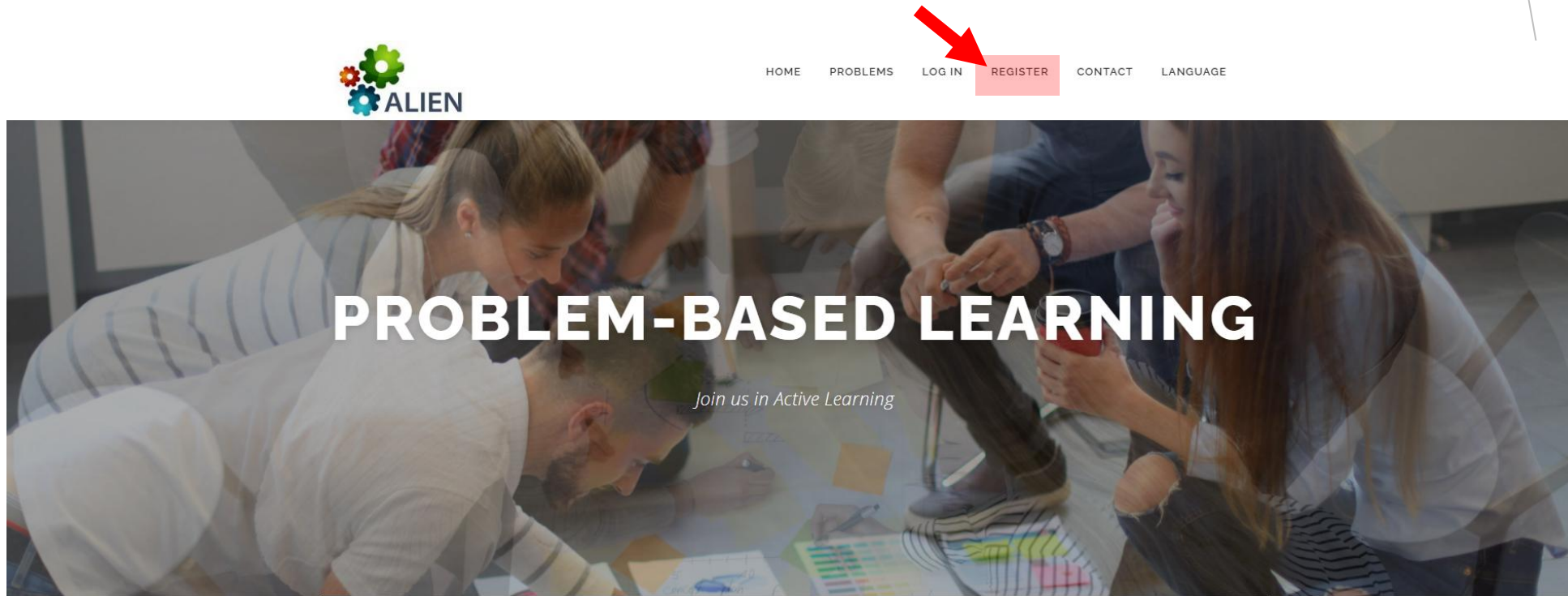
# ALIEN Problem-Based Learning

- Takes the Problem-Based Learning approach to the online world means creating the conditions to implement group work, research, collaboration, teacher support, etc. in an online context.
- Extends the normal space of operations.

In the ALIEN Problem-Based Learning Platform, even before registering or logging in, you can see all the available problems that were created by other teachers as long they are public or shared.



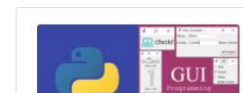
Register if you don't have an account or login if you already have an account.



OUR MOST ACTIVE

**USERS**

**LATEST PROBLEMS**



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
Fill all the details and submit.

Inform your contact partner so that your account is upgraded to a teacher account.



HOME PROBLEMS LOG IN REGISTER CONTACT LANGUAGE

[CREATE AN ACCOUNT](#)



Registering for this site is easy. Just fill in the fields below, and we'll get a new account set up for you in no time.

## Account Details


Username (required)

admin

Email Address (required)

Choose a password (required)

EQJnSYdShTfP



Strong

Hint: The password should be at least twelve characters long. To make it stronger, use upper and lower case letters, numbers, and symbols like ! " ? \$ % ^ & ).

## Profile Details

Name (required)

*This field may be seen by: **Everyone***

Affiliation (required)

*This field may be seen by: **Everyone***

Teacher code

*This field may be seen by: **Only Me***

Search ... **SEARCH**

## POINTS



0 Experience Points



0 Collaboration Points



0 Problem Points

## RANK

## RECENT PROBLEMS

## Mekanisme Skala Kecil Gear dan Pautan

### របៀបប្រើប្រាស់Decision Making ក្នុង

ការសរសេរក្នុង

## ការបង្កើតកម្មវិធី GUI នៅក្នុង Python

(Tkinter)

ईन्जिनियरिङ शिक्षामा HPC सुबिधा राख्ने

सम्भाव्यता अध्ययन गर्ने ।

આભાર માનવાનું મનિષી છે.

English (UK)



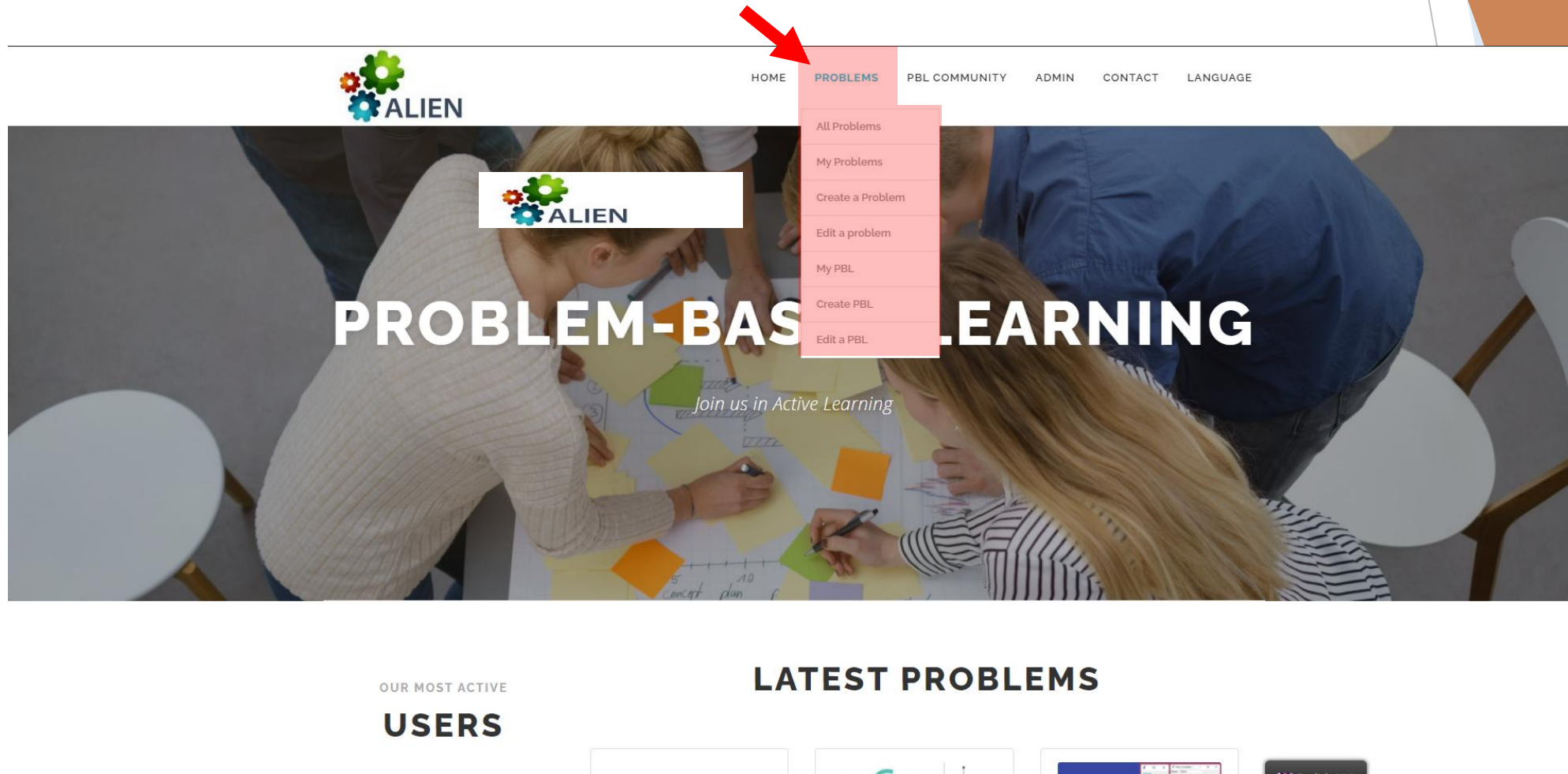
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When you login, you'll have access to this menu where you can configure your account. You'll also have access to your problems and will be able to create news ones.



# Step 0: Define the problem

## **BEFORE THE ACTUAL PBL IMPLEMENTATION**

- The teacher selects and formulates the topic and learning goals. He/she identifies and broadly defines the problem.
- The learning goals can relate to the curriculum of a special subject, or be related to some specific competence, skill, knowledge or technique.



# Step 0: Define the problem (1)

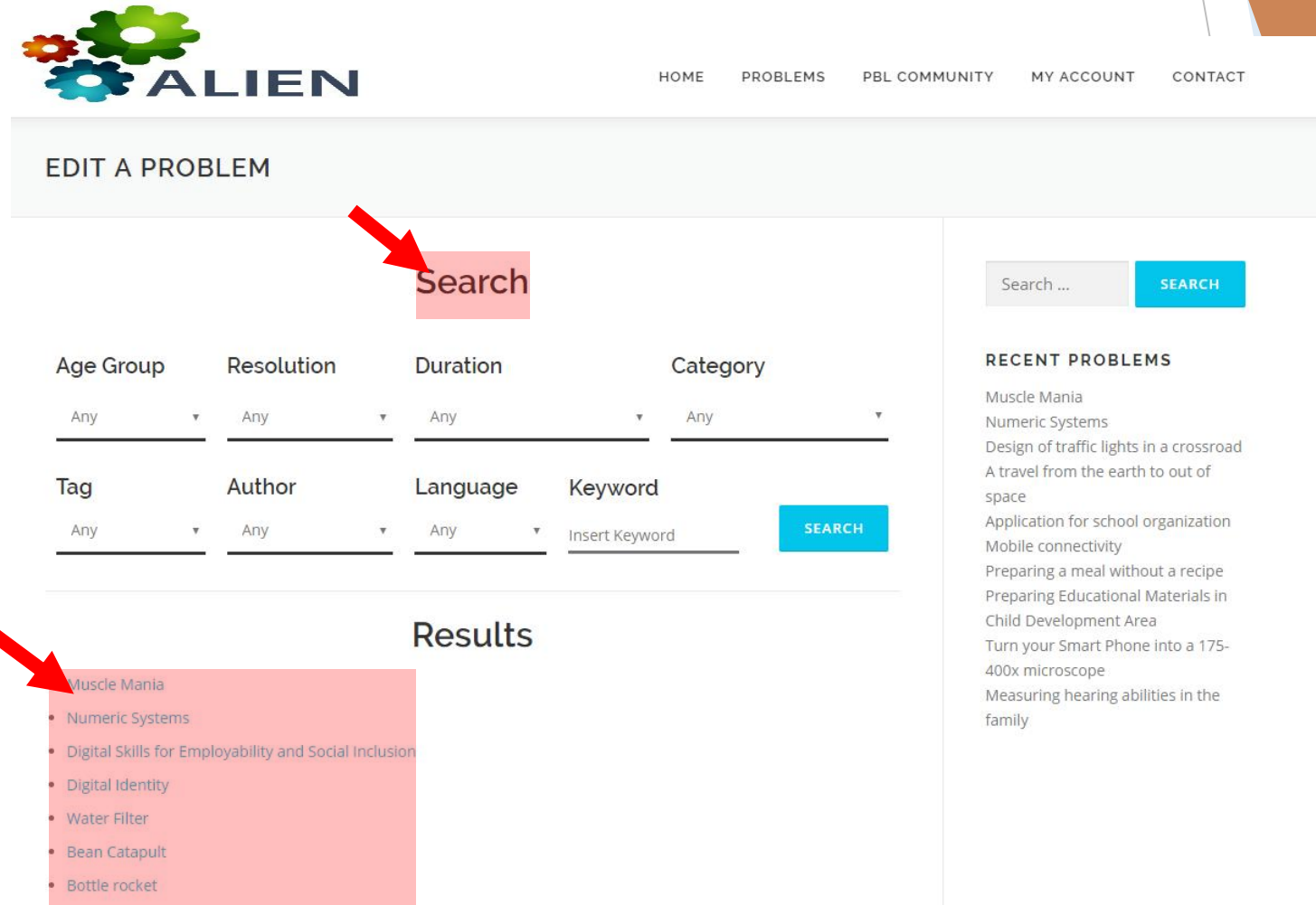
1. Establish Aims or Learning Outcomes.
2. Problem Definition: A real world scenario needs to be presented to the student(s). The problem statement may be as little as half a page of writing. It may involve images, videos, etc.
3. Resources: Prepare references, web links or anything relevant to the case
4. Team Structure and Mode of Interaction: Who is involved in the project, and what roles will each team member serve. How team members will communicate with each other, etc.

# Step 0: Define the problem (2)

5. Discussion Questions: Questions to be dealt with and tasks to be undertaken by the group in the course of pursuing a solution
6. Presentation of the result: How will the end result will be presented? Written form, orally?
7. Assessment: How will the result be assessed? Which criteria?

# Problems in ALIEN

In that case, you can filter the list by one of more criteria.



The screenshot shows the ALIEN website interface. At the top, there is a navigation bar with links: HOME, PROBLEMS, PBL COMMUNITY, MY ACCOUNT, and CONTACT. Below this is a header section titled 'EDIT A PROBLEM'. The main content area contains a search filter section with two rows of dropdown menus: Age Group, Resolution, Duration, Category, Tag, Author, Language, and Keyword. A red arrow points to the 'Search' button in the top right of the filter section. Below the filters is a 'Results' section. A red arrow points to the first result, 'Muscle Mania', which is highlighted in a pink box. To the right of the results is a sidebar titled 'RECENT PROBLEMS' listing several problem titles.

ALIEN

HOME PROBLEMS PBL COMMUNITY MY ACCOUNT CONTACT

EDIT A PROBLEM

Search

Age Group Resolution Duration Category

Any Any Any Any

Tag Author Language Keyword

Any Any Any Insert Keyword

SEARCH

Results

Muscle Mania

- Numeric Systems
- Digital Skills for Employability and Social Inclusion
- Digital Identity
- Water Filter
- Bean Catapult
- Bottle rocket

RECENT PROBLEMS

- Muscle Mania
- Numeric Systems
- Design of traffic lights in a crossroad
- A travel from the earth to out of space
- Application for school organization
- Mobile connectivity
- Preparing a meal without a recipe
- Preparing Educational Materials in Child Development Area
- Turn your Smart Phone into a 175-400x microscope
- Measuring hearing abilities in the family

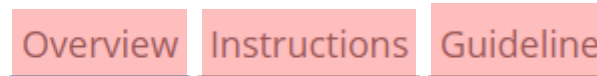
# Problems in ALIEN

Overview: provides general information about the problem

Instructions: is the information that students will get when solving the problem

Guidelines: is the information to help teachers facilitate problem solving

You can switch freely between the three pages. You can save a draft of the problem at any time. When you are done you can “Publish” your problem.



# Overview (1)

- Title of the problem: make it short, simple and enticing.
- Sharing: indicate if the problem can just be used by you (Private), can be used by others but not changed or edited (Public), or if you allow others to create new versions of your problem (Shared).
- Goals: indicate what are the pedagogical goals of your problem
- Learning Objectives: what are the learning objectives of your problem
- Context: what is the general (real) context of your problem. Why is it a problem?
- Thumbnail: you can upload a representative image of your problem.



# Overview (2)

- Resolution: is the problem to be solved individually or in groups?
- Duration: how long are students expected to take to solve the problem. Use this as an indicator if the problem can be solved in a single class or in more, for instance.
- Category: which category (or categories) does your problem fit into. Try to relate this to school curriculum coverage.
- Tags: indicate tags that characterize the problem. Users will also be able to find similar problems that use the same tags.
- Language: which language was the problem created in.

# Students' instructions

- Problem statement: this is the problem statement that students will see
- Instructions: these are the instructions or guidelines that students will see when solving the problem. Make them as detailed as possible...
- Solution: this is how students will know that they have reached a solution
- Resources: indicate here what resources will be available to students to know more about the problem. This is the place to indicate links to online websites or documents that students should consult...

# Teacher guidelines

- Teacher guidance: help the teacher help his/her students. Tell him/her what he should do to follow up his/her students.
- Resources: these are the resources that the teacher should prepare for the problem solution and hand over to the students. Namely, physical materials, books, equipment, etc.
- Early finishers (optional): what if there are students that finish earlier than the others? Give them something else to explore...
- Variations (optional): give teachers other possibilities to explore this problem.

# ALIEN Problem-Based Learning Platform



[HOME](#) [PROBLEMS](#) [PBL COMMUNITY](#) [MY ACCOUNT](#) [CONTACT](#)

## MY PROBLEMS



### MUSCLE MANIA

Students learn more about how muscles work and how biomedical engineers can help keep the muscular system healthy. Following the engineering design process, they create their own biomedical device ...

[ENGINEERING / ...](#)

POSTED BY [ADMIN](#)



### NUMERIC SYSTEMS

This problem is intended to provide students with a basic understanding of how numeric systems, from binary to hexadecimal, work.

[COMPUTER ENGINEERING / ...](#)

POSTED BY [ADMIN](#)



### DIGITAL SKILLS FOR AND EMPLOYABILITY SOCIAL INCLUSION

To help students to learn a range of tasks to improve digital competencies, problem solving and analytical thinking skills in an environment inspired by workplace. They will play the Employ game, w...

[LIFE SCIENCES](#)

POSTED BY [ADMIN](#)

Search ...

SEARCH

## RECENT PROBLEMS

Muscle Mania  
Numeric Systems  
Design of traffic lights in a crossroad  
A travel from the earth to out of space  
Application for school organization  
Mobile connectivity  
Preparing a meal without a recipe  
Preparing Educational Materials in Child Development Area  
Turn your Smart Phone into a 175-400x microscope  
Measuring hearing abilities in the family



# Step 0.5: Setup

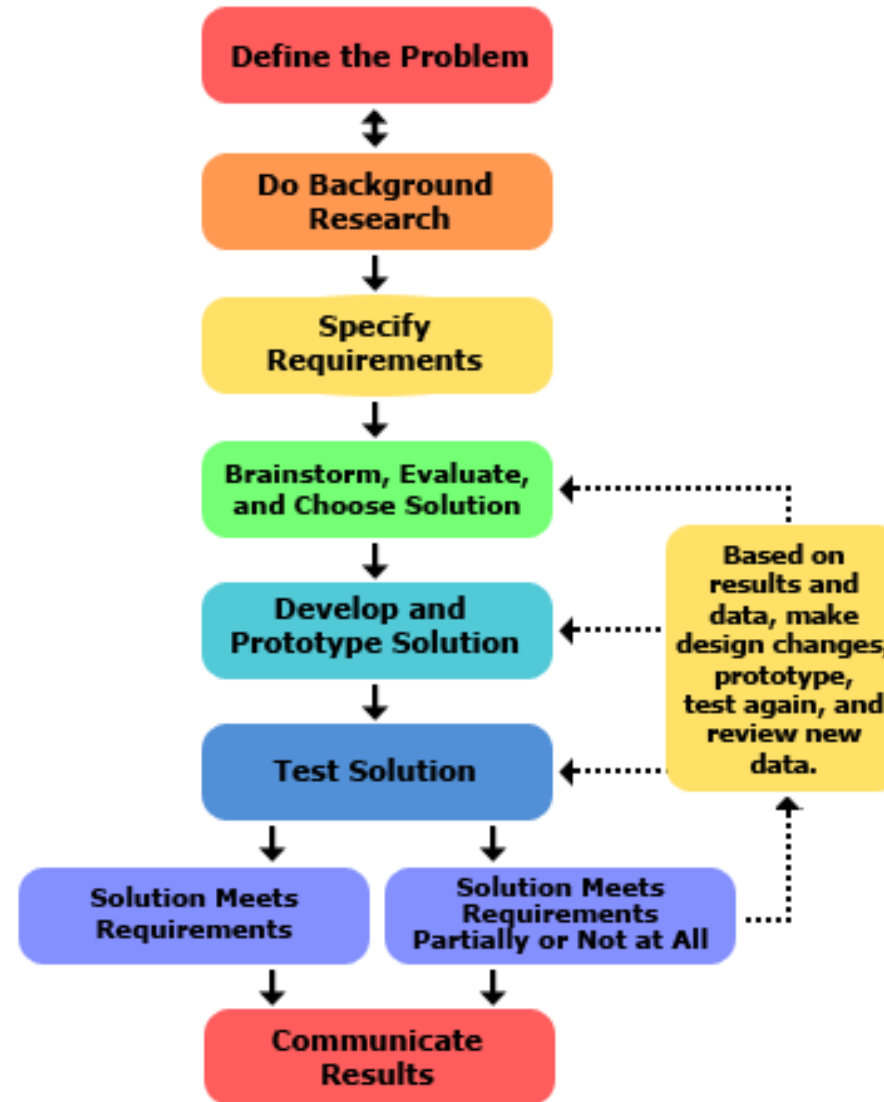
## PBL IMPLEMENTATION

### **PRE-STEP: Define groups, setup logistics (platform and other resources), organize platform and tools**

- The teacher informs and explains the students about their task and how they will work with the task.
- Teachers and students register at the platform. Teacher sets up groups, gather resources, etc.
- The students will get familiar with the platform and how to use the logbook to record what they did and what they learned from each resource they investigated.



# Stages



# Step 1. Explore the problem statement and topic. Background research.

- The students work in groups to analyze the problem statement. This means asking questions, juggle ideas, look into books and other resources (people) to understand what the problem statement is.
- The teacher needs to support this step by discussing the relevant need to know parts and how the students plan to gain the required knowledge.
- Students should submit a need-to-know-list so that the teacher has a clear indication of the starting point for the students as a basis for understanding and measuring the progression.

# STEP 2: Investigate the problem. Specify Requirements for the solutions

- Students collect data to answer the questions. They identify the requirements for the potential solutions and resources and tasks to undertake to solve the problem.

# STEP 3: Identify possible solutions. Brainstorm, evaluate and choose solution

- Students generate different solutions to the problem statement. They explain why they think that these are solutions and discuss if their merits and demerits.
- Solutions can take multiple forms – game, video, report, poster, diagrams, calculations, laboratory work, etc.
- Students finally choose what they consider to be the best solution.
- The teacher support the students by discussing the pros and cons of the solutions and making sure that the students are directed towards the learning goals of the exercise.

# STEP 4: Develop and prototype solution

- With the help of the teacher, when possible, students implement the selected solution.



# STEP 5: Test solution

- Students test the solution and measure results. And they iterate to step 4 if necessary (that is, results do not correspond to the problem solution, or are not efficient or should be improved).

# STEP 6: Present the findings. Communicate results

- The students present their findings to other students and the teacher. This can be done in oral presentations, through videos or others.
- Students fill-out a self-reflection form including questions how well they understand the questions now, and how the group work has been. The self-reflection represents a sort of review of how the process and learning process has been and can point to how the students can become better for the next project.

# PBL experiment

A PBL (or PBL experiment) is the actual implementation of a problem-based learning situation with students.



When you login, you'll have access to this menu where you can configure your account. You'll also have access to your problems and PBL implementations. You'll also be able to create new problems and new PBL.



# Create a PBL

The first thing to do is to choose a problem. You have a list of all the problems that you created and also the problems created by other teachers as public or shared.

You can use filters to limit the list of problems.

Then, choose a title for your PBL.



HOME PROBLEMS PBL COMMUNITY MY ACCOUNT CONTACT

CREATE PBLEX

## Search

Age Group Resolution Duration Category

Any Any Any Any

Keyword

Insert Keyword

SEARCH

## Result List

- Muscle Mania
- Numeric Systems
- Digital Skills for Employability and Social Inclusion
- Digital Identity
- Water Filter

Title: NUMERIC SYSTEMS

Search ...

SEARCH

## RECENT PROBLEMS

Muscle Mania  
Numeric Systems  
Design of traffic lights in a crossroad  
A travel from the earth to out of space  
Application for school organization  
Mobile connectivity  
Preparing a meal without a recipe  
Preparing Educational Materials in Child Development Area  
Turn your Smart Phone into a 175-400x microscope  
Measuring hearing abilities in the family



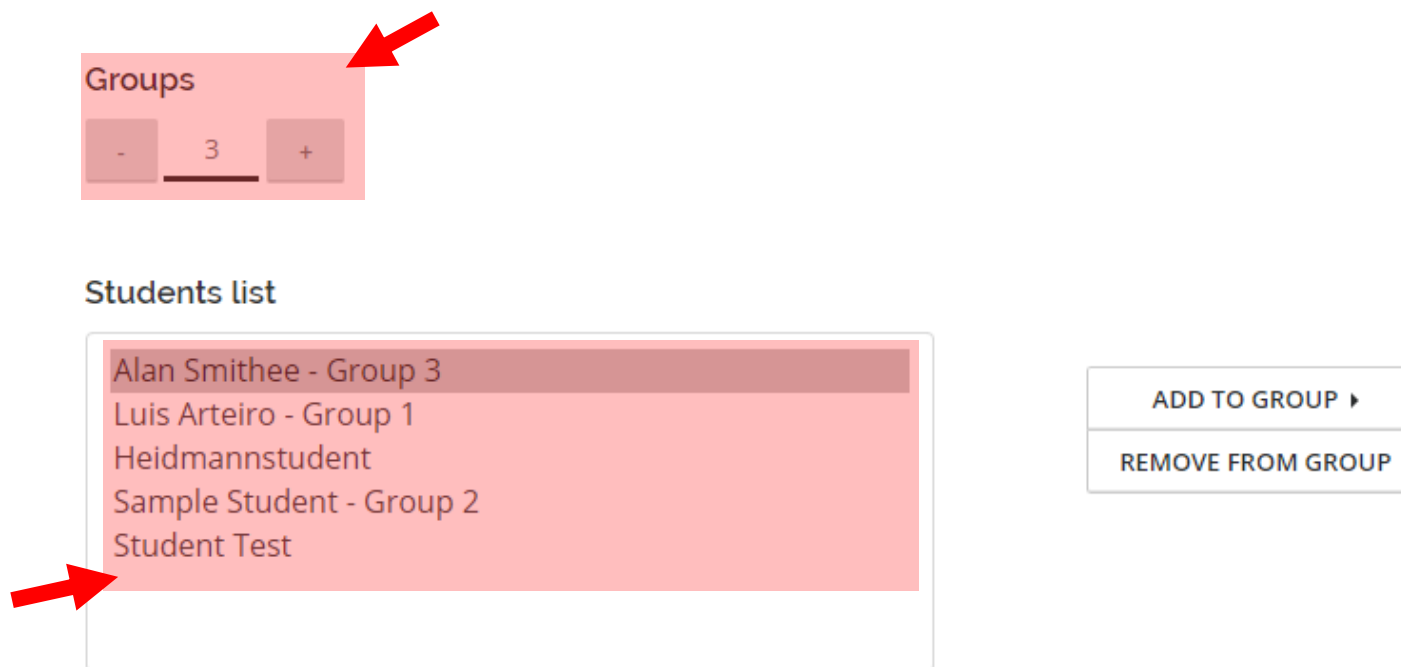


# Create a PBL

Then you should indicate how many student groups you'll have.

And allocate registered students to each group.

PBL codes will be generated in the end so that students can access the PBL without a registration.



The screenshot shows a user interface for creating a PBL. At the top, there is a 'Groups' section with a red arrow pointing to it. Below this is a numeric input field with a minus sign, the number '3', and a plus sign. Below the input field is a 'Students list' section with a red arrow pointing to it. The list contains five entries: 'Alan Smithee - Group 3', 'Luis Arteiro - Group 1', 'Heidmannstudent', 'Sample Student - Group 2', and 'Student Test'. To the right of the list are two buttons: 'ADD TO GROUP ►' and 'REMOVE FROM GROUP'.

# Create a PBL

A PBL has six stages. You should now indicate which of these stages require teacher approval before students are allowed to move to the next stage.

You can now  
create the PBL.


## Step approval required

- ☐ Step 1: Explore the problem statement and topic
- ☐ Step 2: Investigate the problem
- ☐ Step 3: Identify possible solutions
- ☐ Step 4: Develop and prototype solution
- ☐ Step 5: Test solution
- ☒ Step 6: Present the findings ( This step is required )

CREATE

# Create a PBL

You will get the codes for the different groups. These codes are available also on the “MY PBL” page in the MY ACCOUNT menu.



**PBLEX INFO**

**GROUP 1:** UOOXdJSBHkgG

Create a PBLEX

**GROUP 2:** 3bZSoeoTTjLg

**GROUP 3:** vpafUilu8i4y

CLOSE

# Doing the PBL

In the PBL you have access to each stage of the implementation and to the results submitted by the students.

If students are waiting for your approval to move to the next stage you can download the result here.

And accept or reject the document.

Step 1 Step 2 Step 3 Step 4 Step 5 Step 6 \*

### Communicate results

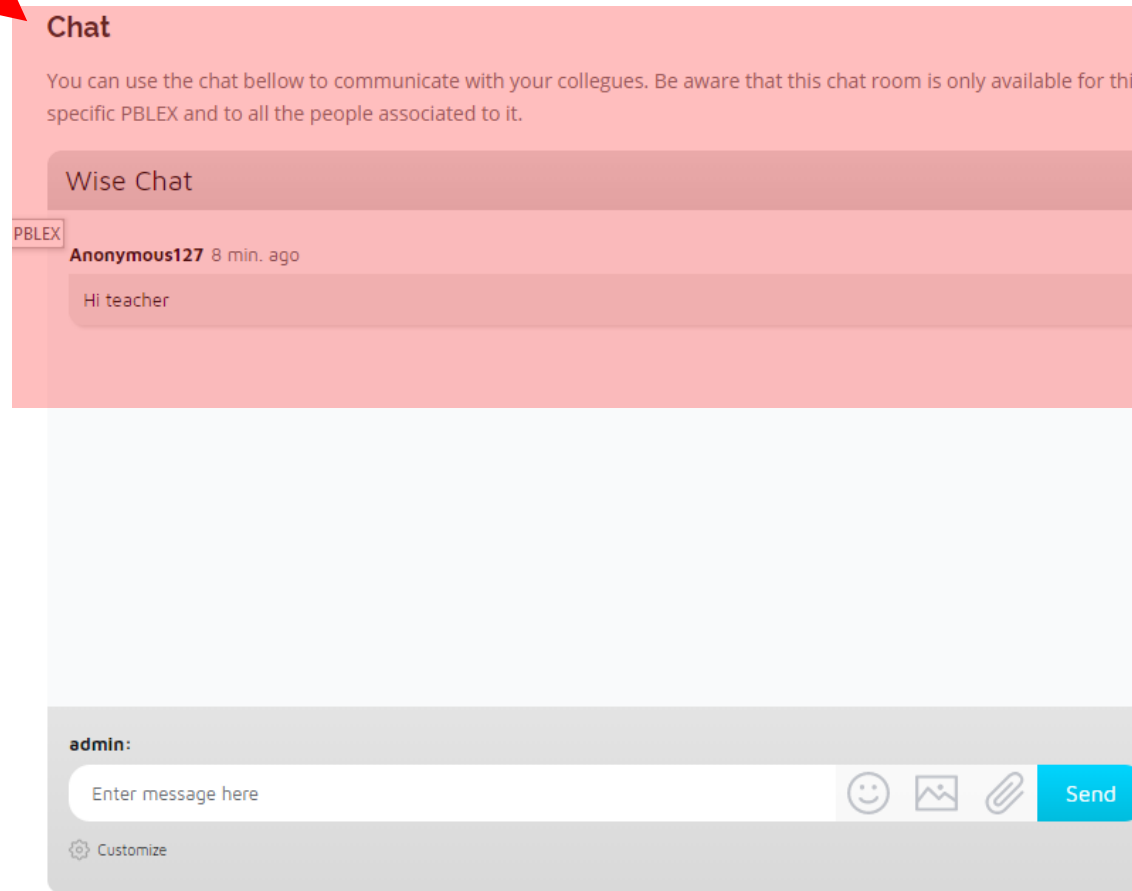
You (and your colleagues) should present your findings to other students and the teacher. This can be done in oral presentations, through videos or others agreed by and with the teacher. Depending on the teacher choice you should submit a report with the results

File Uploaded: Step6File.pdf

ACCEPT DECLINE

# Doing the PBL

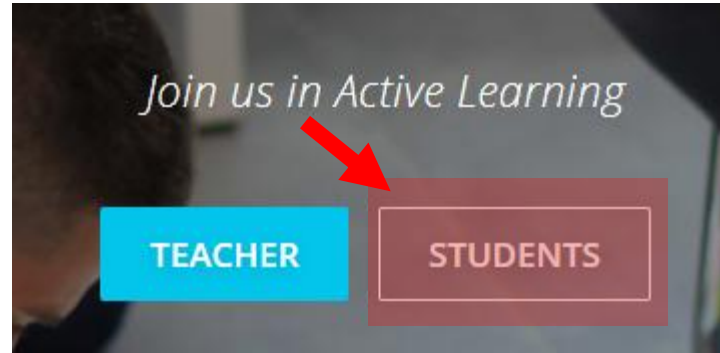
In the PBL you have access to a chat that will allow you to communicate with the group of students.



# Doing the PBL - Students

On the entry page there is a direct link to enter a PBL through a code.

Students should  
then enter the  
PBL code  
provided by the  
teacher.



Doing the PBLEX

**INSERT YOUR PBLEX KEY HERE!**

A screenshot of a search bar or input field. It is a dark grey rounded rectangle with a magnifying glass icon on the right. A red arrow points to a red rectangular area in the center of the bar, which contains a dashed line indicating where to enter text.

# Doing the PBL - Students

In the PBL, when required by the teacher, students have to provide a result. If the teacher accepts the results, students move to the next stage otherwise they have to repeat the same stage.

Step 1

Step 2

Step 3

Step 4

Step 5

Step 6 \*

**Define the problem**

You (and your colleagues) shall work to find out more about the problem to analyse. This means asking questions, looking into the material you have at hand to understand what the problem is. In the end you should submit a summary of what you (and your colleagues) have learned in the form of more detailed problem definition.

OPEN

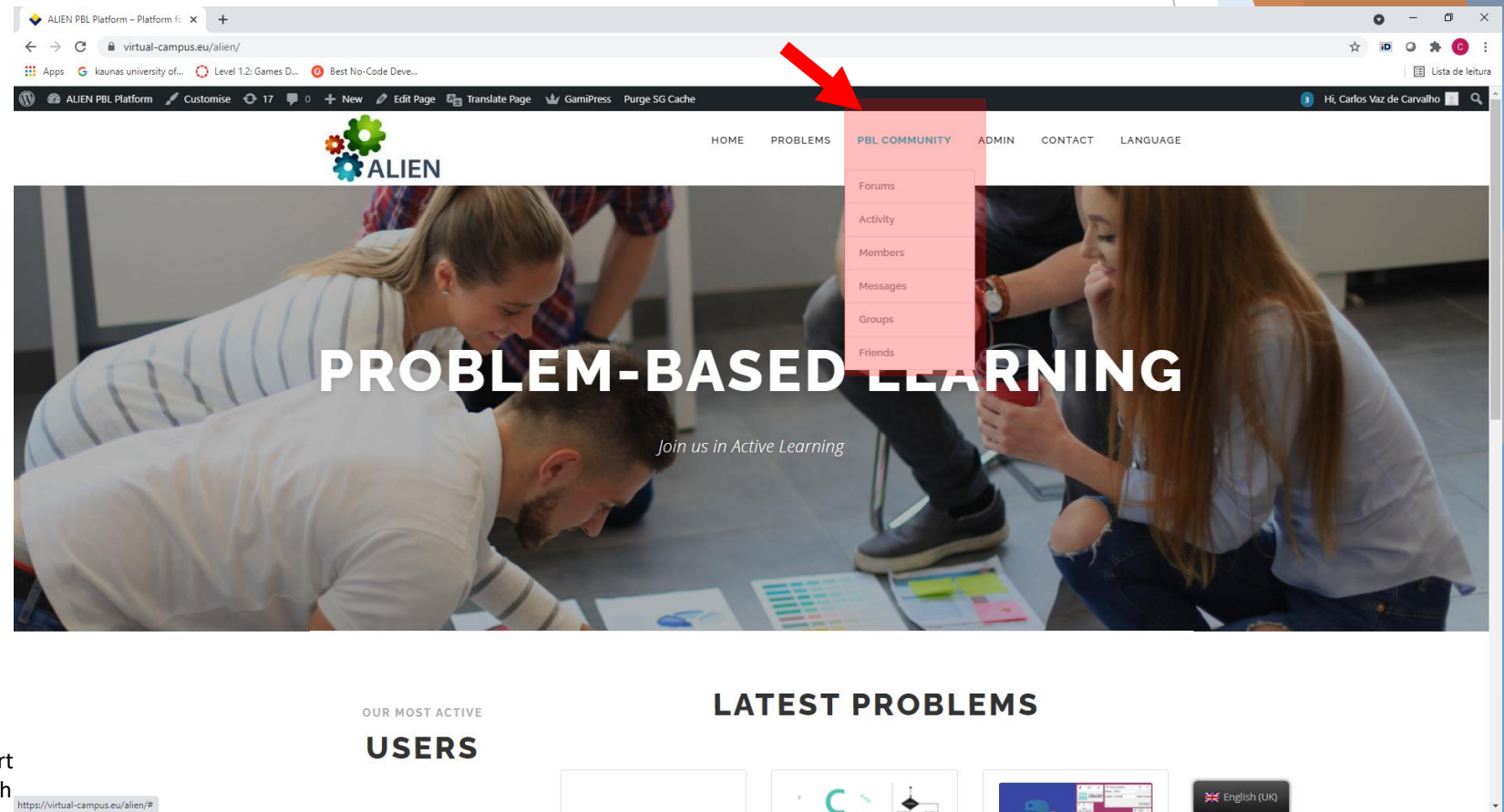
No file selected

SUBMIT



The ALIEN BL community is a group of teachers, researchers, educational managers and other practitioners that want to share ideas and experiences about Active Learning and PBL.

The community is supported by communication tools that you can find in the Community menu.



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For instance, you can participate in the forum discussions.

**FORUMS**

[Home](#) > [Forums](#)

SEARCH

Forum	Topics	Posts	Freshness
<a href="#">Problem-Based Learning (English)</a>	1	1	13 seconds ago admin

**PROBLEM-BASED LEARNING (ENGLISH)**

[Home](#) > [Forums](#) > [Problem-Based Learning \(English\)](#) [Unsubscribe](#)

This forum contains 1 topic, and was last updated by admin 6 minutes ago.

Viewing topic 1 (of 1 total)

Topic	Voices	Posts	Freshness
<a href="#">What do you think about PBL?</a> Started by: admin	1	1	6 minutes ago admin

The Activity functionality allows you to see everything that happened recently in the platform, like it is done on the Facebook® platform.

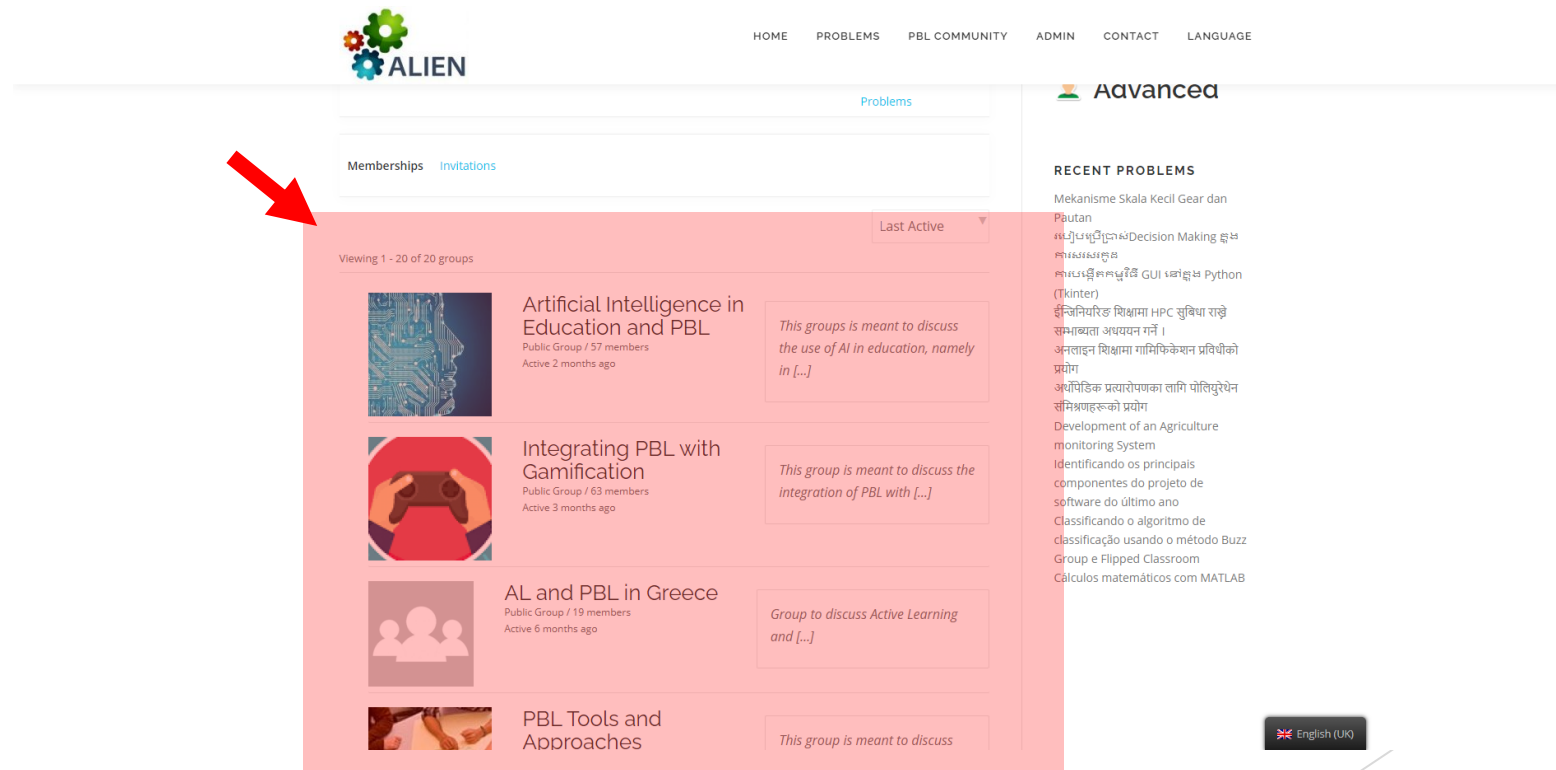
You can also, leave some messages or comments to the other participants.

The screenshot displays the ALIEN platform interface. At the top, the ALIEN logo is on the left, and navigation links (HOME, PROBLEMS, PBL COMMUNITY, ADMIN, CONTACT, LANGUAGE) are on the right. Below the navigation bar, the user's name "CARLOS VAZ DE CARVALHO" is shown. The main content area features a large profile picture of a man, a smaller profile picture labeled "@admin", and a status "Active right now". Below this is a navigation bar with links: Home, Activity, Profile, Notifications (15), Messages (4), Friends (45), Groups (20), Forums, Settings, and Problems. A red arrow points to the "Activity" link. Below the navigation bar is a section titled "Personal" with sub-links: Mentions, Favourites, Friends, and Groups. Another red arrow points to the "What's new, Carlos?" section. On the right side, there is a search bar, a "POINTS" section with a star icon (245 Experience Points), a heart icon (124 Collaboration Points), and a document icon (2 Problem Points). Below this is a "RANK" section showing a person icon and the word "Advanced". At the bottom right, there is a "RECENT PROBLEMS" section with a list of problems and a language selector set to "English (UK)".

The Messages functionality allows you to send internal messages to other participants.

The screenshot displays the ALIEN web application. At the top, the ALIEN logo is visible alongside navigation links: HOME, PROBLEMS, PBL COMMUNITY, ADMIN, CONTACT, and LANGUAGE. Below the header, a user profile section shows a profile picture and the text 'Active 39 seconds ago'. A navigation bar contains links for Home, Activity, Profile, Notifications (15), Messages (4), Friends (45), Groups (20), Forums, and Settings. Below this, a sub-navigation bar includes Inbox, Starred, Sent, and Compose. A red arrow points to the 'All Messages' tab, which is highlighted in a pink overlay. This overlay shows a list of messages with details like sender, time, and content. The main interface also includes a sidebar with 'RANK' (Advanced) and 'RECENT PROBLEMS'.

The Groups functionality allows you to invite a selected group of participants to discuss specific themes.



Finally, the Friends functionality allows you to see what your friends have been doing in the platform.

The screenshot shows the ALIEN platform interface. At the top, there is a navigation bar with links: HOME, PROBLEMS, PBL COMMUNITY, ADMIN, CONTACT, and LANGUAGE. The main header features the ALIEN logo and a user profile picture with the text "Active 1 minute ago". Below this, there is a navigation menu with links: Home, Activity, Profile, Notifications (14), Messages (3), Friends (45), Groups (20), Forums, and Settings. A red arrow points to a modal window titled "Viewing 1 - 20 of 45 active members". This modal displays a list of active members, including Tsvetelina (Active 3 hours, 46 minutes ago) and Christina Taka (Active 1 day, 3 hours ago). Each member entry includes a profile picture and a "Cancel Friendship" button. On the right side of the interface, there is a "RANK" section showing "Advanced" and a "RECENT PROBLEMS" section listing various problems.