PROJECT BASED LEARNING IN THE CLASSROOM: MAKE STUDENTS' LEARNING REAL AND EFFECTIVE

Roberta Xuereb
Katya Borg
Justine Ellul

RESULTS 2.0
Reaching Every Student's Unique Learning Teaching Style

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STUDENTS NEED TO SOLVE REAL PROBLEMS THAT CONNECT TO A REAL CONTEXT.

JOHN SPENCER

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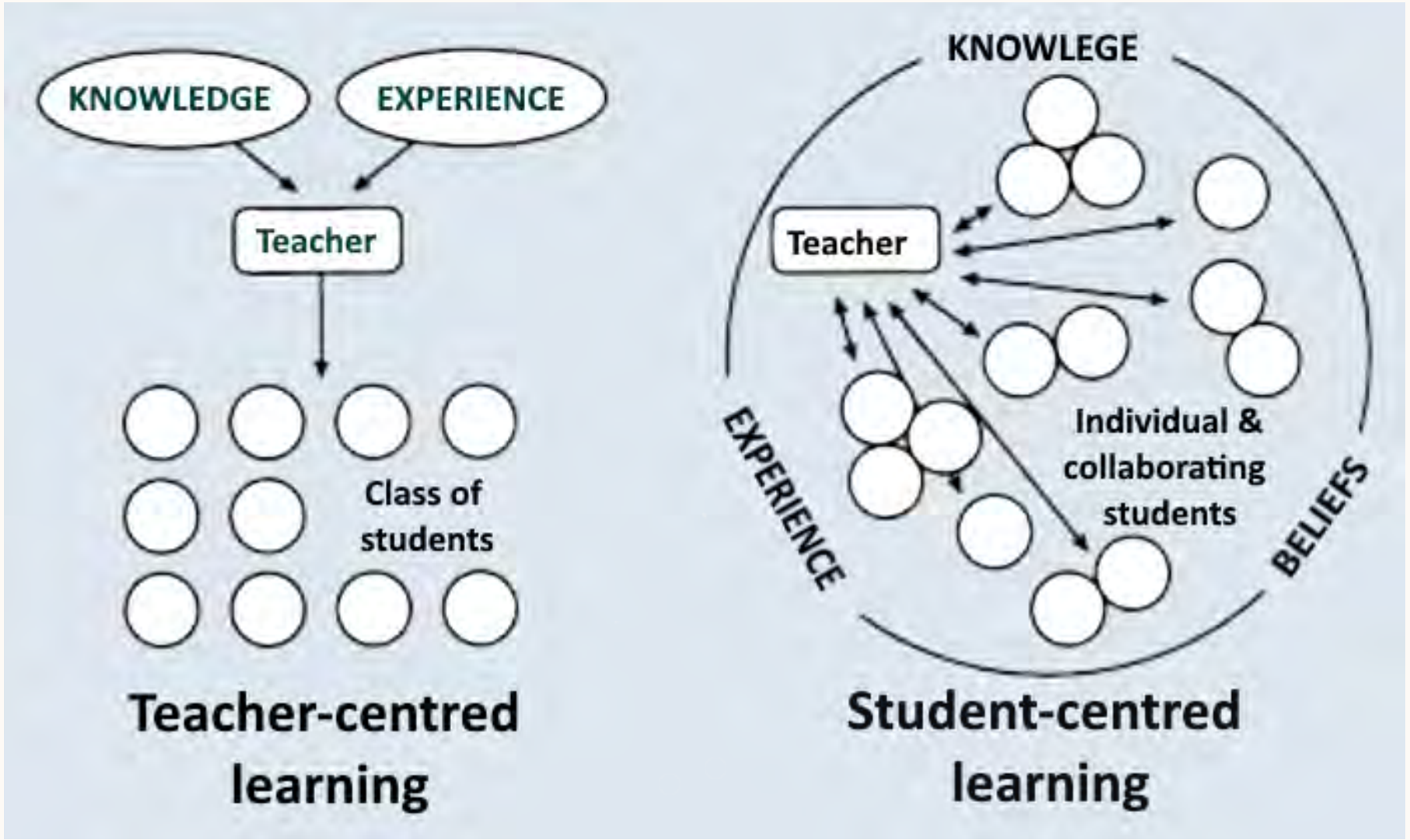
Project Based Learning is a teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging and complex question, problem, or challenge.

J. Larmer,
Setting the Standard for Project Based Learning

TEACHER- AND STUDENT-CENTERED LEARNING



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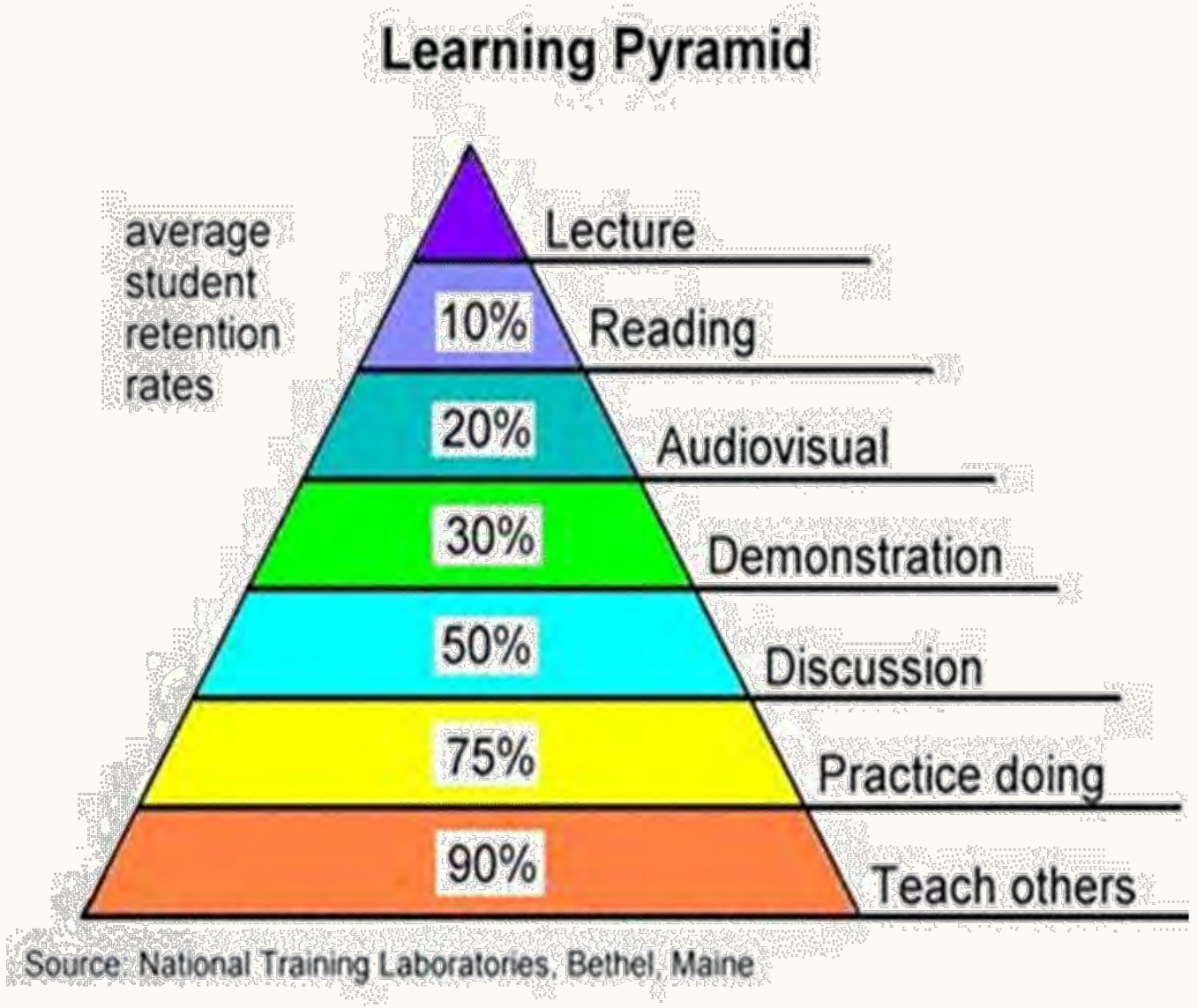
ACTIVE LEARNING



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Hard Skills

Teachable abilities or skill sets that are easy to quantify.

vs.

Soft Skills

Also known as "people skills" or "interpersonal skills."

你好吗？ Proficiency in a foreign language

A degree or certificate

Typing speed

Machine operation

html </> Computer programming

Communication

Flexibility

Leadership

Teamwork

Time Management

VARK LEARNING THEORY

Fleming came up with the idea for the Vark model while working as an inspector for the New Zealand education system.

“Everybody is a genius. But if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid”.

DIFFERENT TYPES OF LEARNERS

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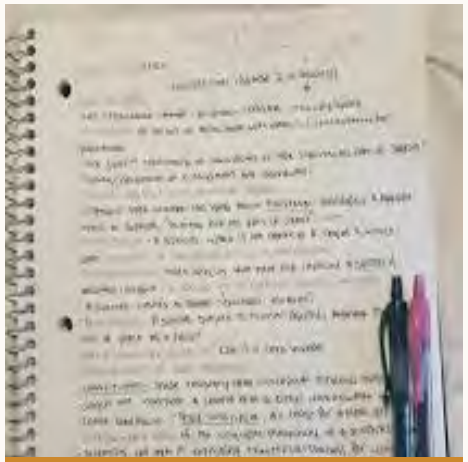
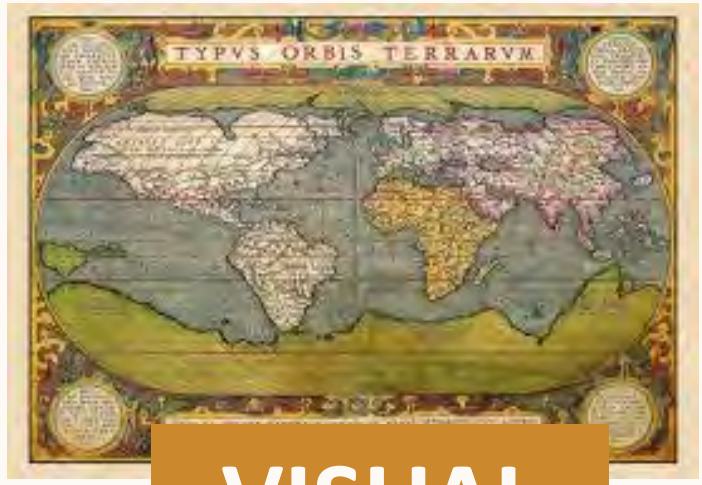
GUESS THE TYPE OF LEARNING STRATEGY

VISUAL

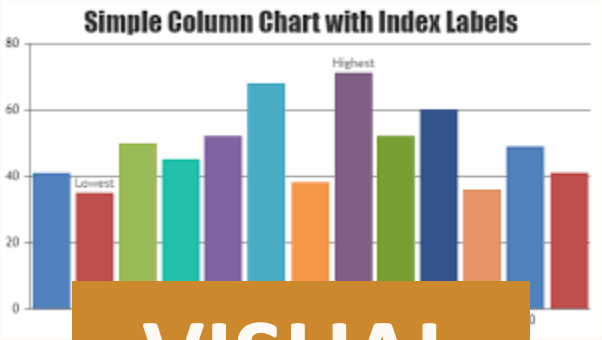
AUDITORY



READING / WRITING



VISUAL



VISUAL

KINESTHETIC

AUDITORY

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DID YOU KNOW??

Apparently…

- The least common single preference is Visual.
- About 70 % of the learners are multimodal.
- Prior to age 25 the database indicates that more people have a Kinesthetic preference.
- Men have more Kinesthetic responses and women more Read/write responses.
- Law students usually have larger proportions of Read/write than, say, nursing, where students are more likely to have Kinesthetic preferences.
- Graphic designers, performing arts and computer-systems students have a greater proportion of Visual preferences.

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AND YOU? WHAT TYPE OF LEARNER ARE YOU?

HTTP://VARK-LEARN.COM/THE-VARK-QUESTIONNAIRE/TEACHING-QUESTIONNAIRE/

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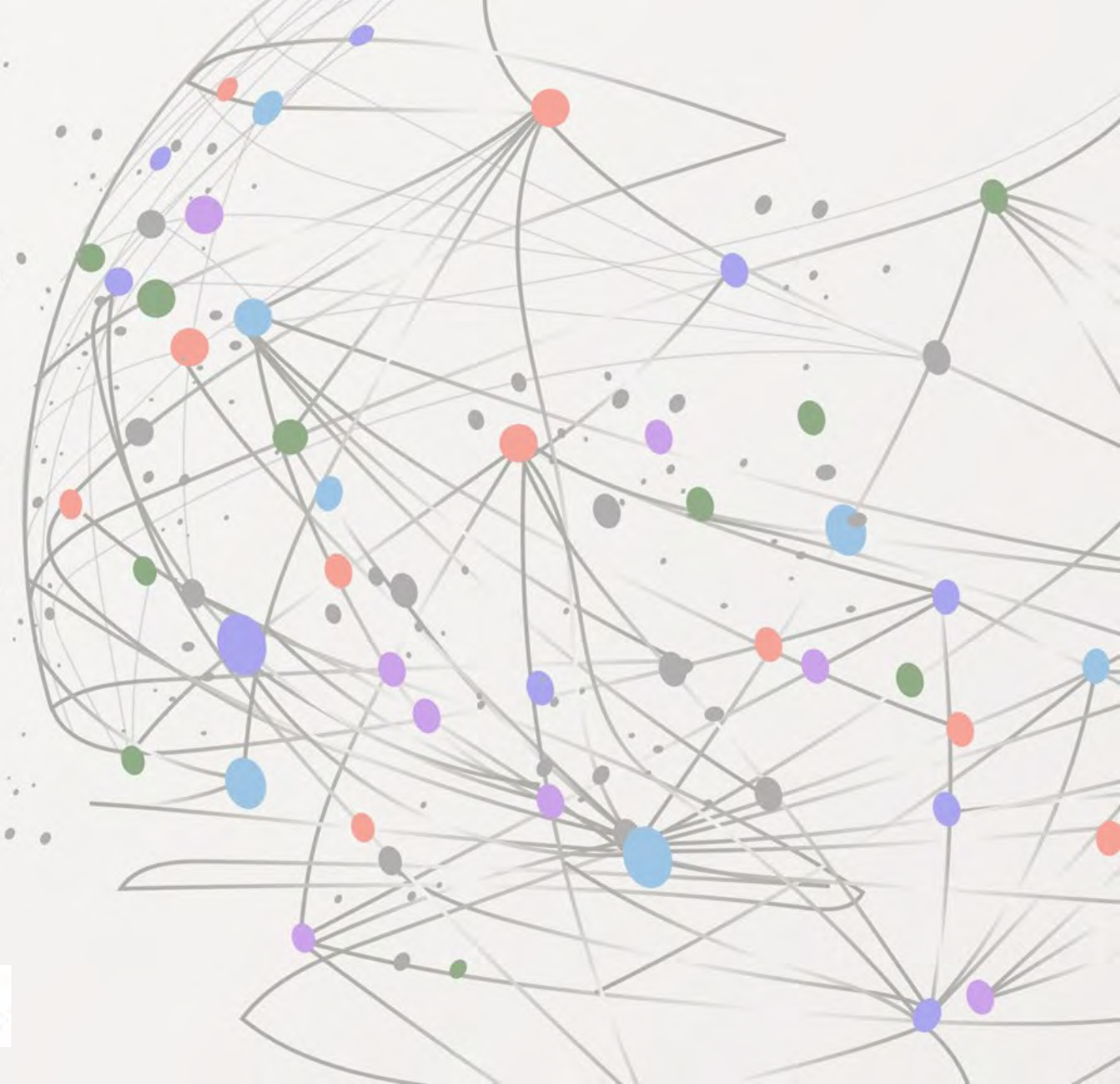
WE LIVE IN A WORLD WHERE WE NEED TO SOLVE PROBLEMS. THIS IS THE WAY WE NEED TO PRESENT EDUCATION TO OUR STUDENTS. TEACHERS MUST PUT STUDENTS ON A PATH THAT HELPS THEM BUILD KNOWLEDGE. THEY DO RESEARCH AND TOGETHER FIND A SOLUTION TO THE INQUIRY. THEREFORE, WITH PBL WE COMBINE KNOWLEDGE WITH RESEARCH.



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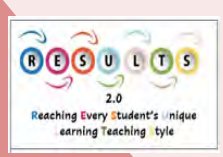
IS IT A PROJECT OR IS IT PROJECT BASED LEARNING?



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PROJECTS

Can be done alone

About the product

Teacher-directed

All projects have the same goal

Products are submitted to the teacher

Lack real-world relevance

Occur after the “real” learning

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PROJECT BASED LEARNING

Requires collaboration and teacher guidance

About the process

Student-directed

Students make choices that determine the outcome

Products are presented to an authentic audience

Based in real-world experiences or problems

Real learning occurs through the project

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TO SUM UP

Students have to solve a real-life problem

They do research and together find a solution to the inquiry.

They combine their knowledge with their research and with what they learn at school

Students present their solution to an audience

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PBL PROS

1

The students take active part in their **learning process**.

2

They become **responsible** for their learning and acquire **autonomy.**

3

They learn to work in groups and **challenge** themselves in solving problems connected to their lives.

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IN PBL…

The teacher is **Always** present! The teacher is a **Guide on Side**, that follows students' progress!

The teacher checks on and follows students learning and sources.

Real life Problems?

+ In this way students are more motivated; they see the point of their learning! They see that what they learn is connected to life, and not only to school!
+ A nice idea would be to ask them to find a solution to a problem of their community/school.

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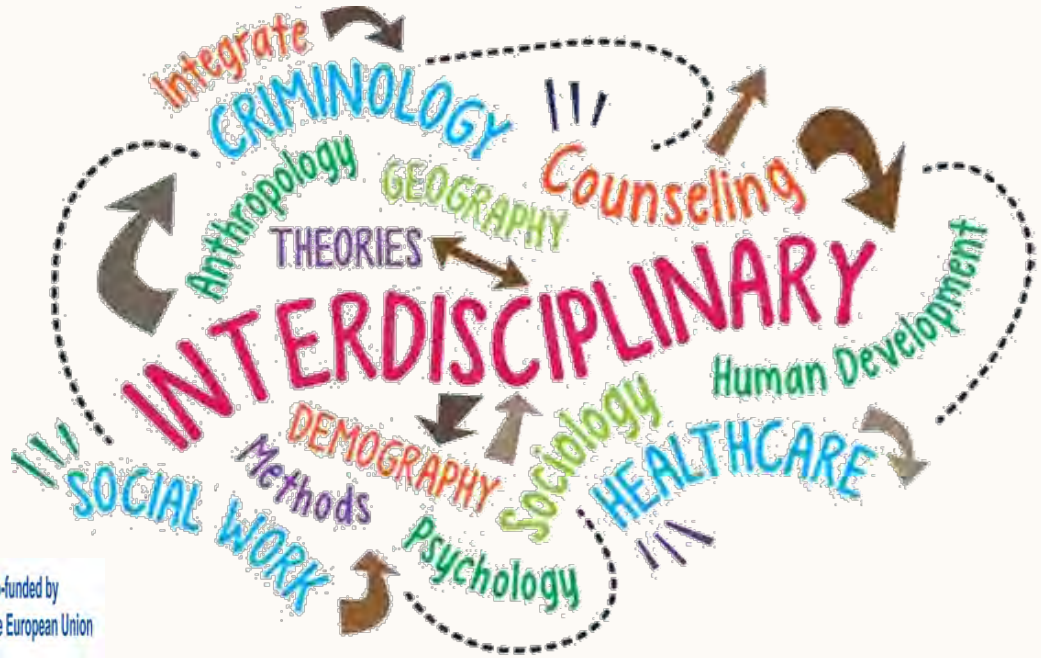
WHAT IS PBL?

- Interdisciplinary
- Challenging
- Connected to real-life
- Self-Directed



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PBL combines the teaching of content (hard skills) with the developing of soft skills. It improves:

- Effective communication with a teammate
- Communication with your audience
- Collaboration, so that each person is contributing equally
- Use technology
- Creative-thinking: “think outside the box”
- Critical thinking

PROJECT BASED LEARNING IN STEPS

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1. Entry Event

2. Introducing the Driving Question

3. Generating a List of Student Questions

4. Defining Major Products

5. Forming Student Teams

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How to find ideas for PBL?

- Issues in your school or community
- Current events (locally, nationally, globally)
- Real-world problems
- Content standards
- Your students' lives and interests

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1. ENTRY EVENT

"An entry event is essentially the project kickoff. This is what you do to get students engaged in the PBL activity right off the bat."

A. Smith, "Project Based Learning made simple"

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Entry events

- Dress up to match your theme
- Read a fun story
- Show an interesting video
- Make a picture slideshow
- Bring in a guest speaker
- Introduce your audience

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Soaring energy prices ordeal for European leaders as protests erupt in more countries

By GT staff reporters

Published: Sep 12, 2022 08:46 PM Updated: Sep 13, 2022 12:46 AM

EU rising energy prices Illustration: Liu Rui/GT

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2. INTRODUCING THE DRIVING QUESTION

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WHAT MAKES A GOOD DRIVING QUESTION

Open-ended enough to allow individual investigation

Relevant to students

Meaningful to students

Support self-directed learning

Involves authentic problem-solving

Lends itself to cross disciplinary work and collaboration

A DRIVING QUESTION CAN BE...

Exploration of a philosophical question

- When do we grow up?
- Who has power and how do they get it?

An investigation of a historical event or time period

- Was it necessary to get Americans involved in the Vietnam war?
- What do we know about life in East Germany before unification?

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A DRIVING QUESTION CAN BE...

A problem-solving situation

- How can we improve traffic flow in our city?
- What should we do about the cold lunches in our school cafeteria?

Examination of a controversial issue

- Should the population have access to handguns?
- Should Religion be taught in schools?
- Is war ever justified?

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A DRIVING QUESTION CAN BE...

A challenge to design, create or produce something

- How can we create a mural that represents our community's past and present?
- How can we design a website to share our poetry with the world?
- How can run a successful book club at our school?

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The Driving Question

How can you design a statistical report of the cost of utility bills per household, in different EU countries, over the past two years?

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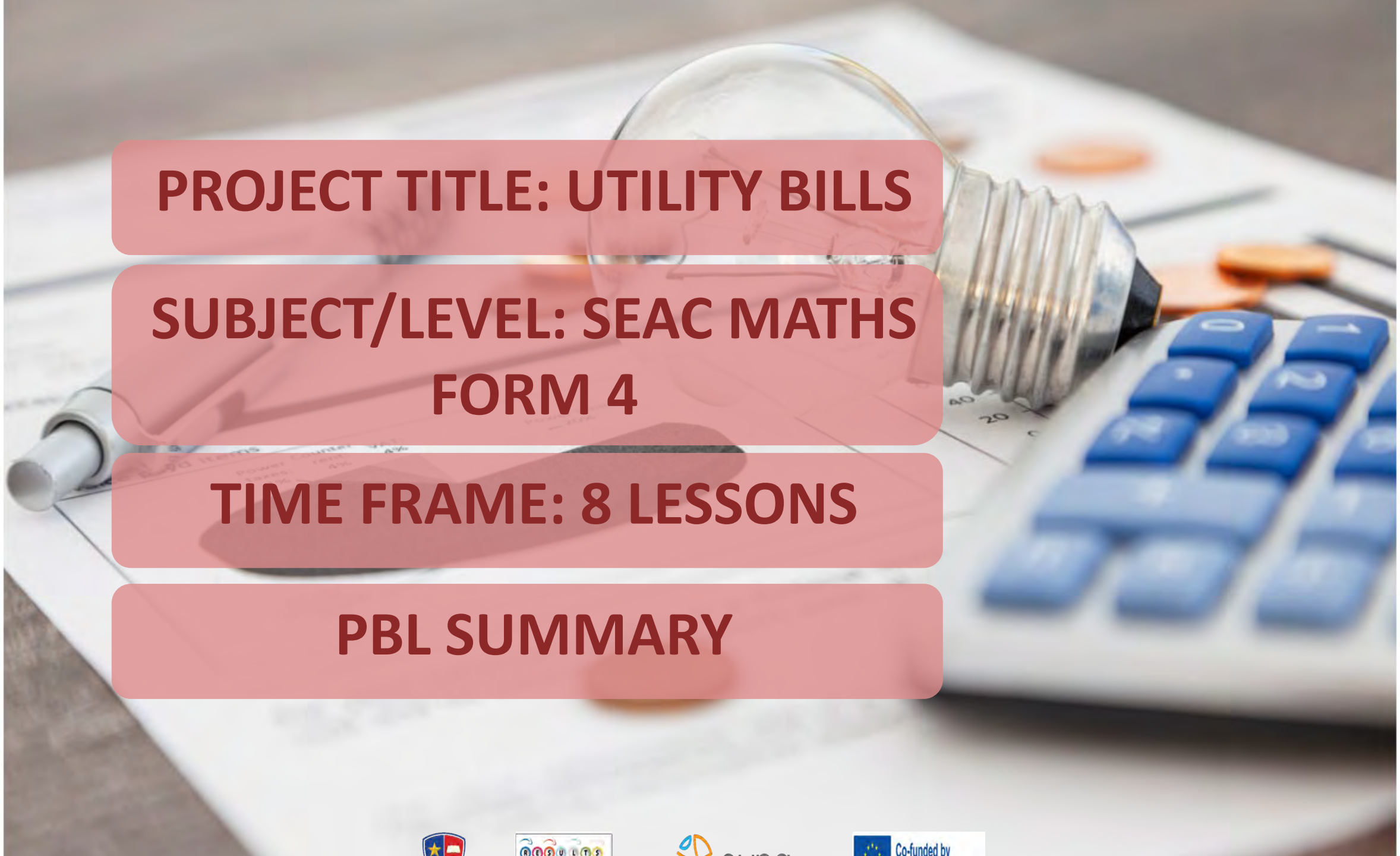

PROJECT TITLE: UTILITY BILLS

SUBJECT/LEVEL: SEAC MATHS FORM 4

TIME FRAME: 8 LESSONS

PBL SUMMARY

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LEARNING OBJECTIVES

To be able to work out the total of a utility bill

To be able to find the mean, median, mode and range of ungrouped data

To be able to create frequency tables and organise data

To be able to draw graphical representations (bar charts, pie charts and line graphs)

KEY VOCABULARY

RATES	AVERAGE	RANGE
MEAN	MEDIAN	MODE
BAR CHART	PIE CHART	LINE GRAPH

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TARGETED SOFT SKILLS

- READING INFORMATIONAL TEXT
- PRESENTATION OF IDEAS WITH EVIDENCE
- ENGAGE IN COLLOBORATIVE CONVERSATION
- ANALYTICAL SKILLS
- ICT SKILLS

What do we know?

3. GENERATING STUDENT QUESTIONS

What do we need to know?

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Key Student Questions

Why are these changes taking place?

What are the statistics of different EU countries?

What can be done to reduce the cost of utility bills?

RESEARCH

RALLY COACH

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Key Student Questions

How are utility bills calculated in Malta?

What is a fixed charge?

What are the rates for electricity and water consumption?

How is the total cost of a utility bill calculated?

FILL IN A BLANK UTILITY BILL TO FIND THE TOTAL COST

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Teacher to provide data sheets

Key Student Questions

What is the average cost of the utility bill per household, in a particular EU country, over the last 2 years?

MEAN

MEDIAN

MODE

Which is the best average to use? Why?

What is the range of the cost of utility bills?

QUIZ ON KAHOOT ABOUT AVERAGE AND RANGE

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Key Student Questions

How would you present the findings of the statistical analysis?

Which graphical representations would you use?

QUIZ ON DIFFERENT TYPES OF GRAPHICAL REPRESENTATIONS

BAR CHART
PIE CHART
LINE GRAPH

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Key Student Questions

Which software can be used to show your findings?

How can you effectively summarize all the information?

TIMED PAIR SHARE ABOUT THE CONCLUSIONS OF THEIR FINDINGS

LEARNING JOURNAL

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4. DEFINING MAJOR PRODUCTS

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Major Products

Research about the change in the cost of electricity bills

Filling in a blank Utility Bill to find the total cost

Research about what can be done to save energy

Report about the Statistical Analysis of Utility Bills in different EU countries

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EXAMPLES OF PRODUCTS

Assignment

Video

Blog

Website

Presentation

Public Product

Presentation of the Statistical Analysis Report for the Audience

Intended Audience: A person working at the NSO

5. FORMING STUDENT TEAMS

- Teacher decides
- Teacher decides, with student input
- Teacher manages process for students to decide

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HELPING STUDENTS GET STARTED

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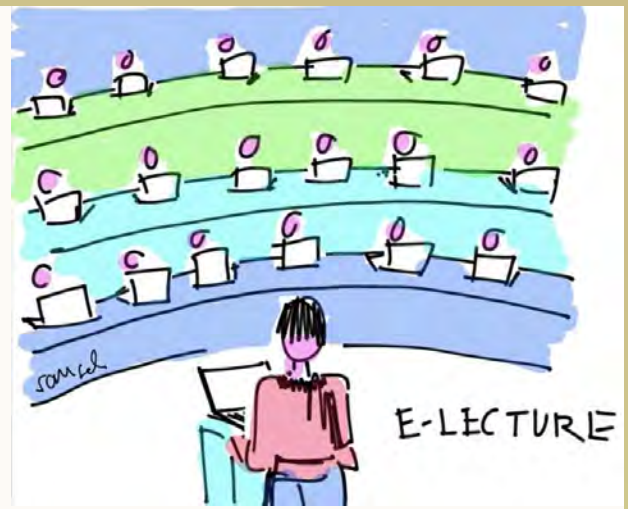
LECTURES IN PBL



"Contrary to some stereotypes, there's still room for lectures in PBL. During a project, the best way for students to learn something- once they see the genuine need to know it- might, in fact, be a lecture by a teacher."

J. Larmer, Setting the Standard for Project Based Learning

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Formative Assessment

- Exit Tickets
- Quiz
- Rally Coach
- Think Pair Share
- Timed Pair Share
- Rally Robin, Round Robin
- Learning Journal

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RALLY COACH

- The teacher assigns an exercise.
- In pairs, one student solves the problem while talking through his thinking aloud.
- The other listens, coaches where necessary and provides positive feedback.
- Roles are then reversed.

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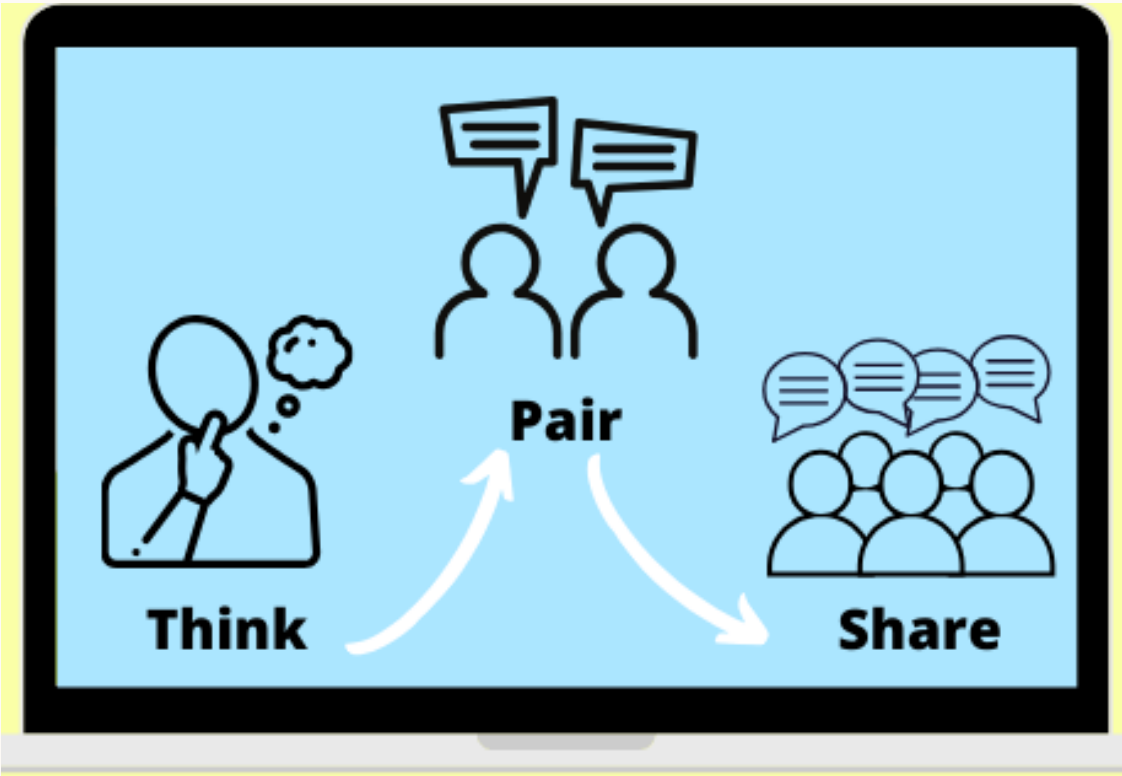

THINK PAIR SHARE

- The teacher poses a problem;
- Students think alone for a specified amount of time;
- Pairs work together to discuss or solve the problem;
- Students are called on to share what their pair came up with the class.

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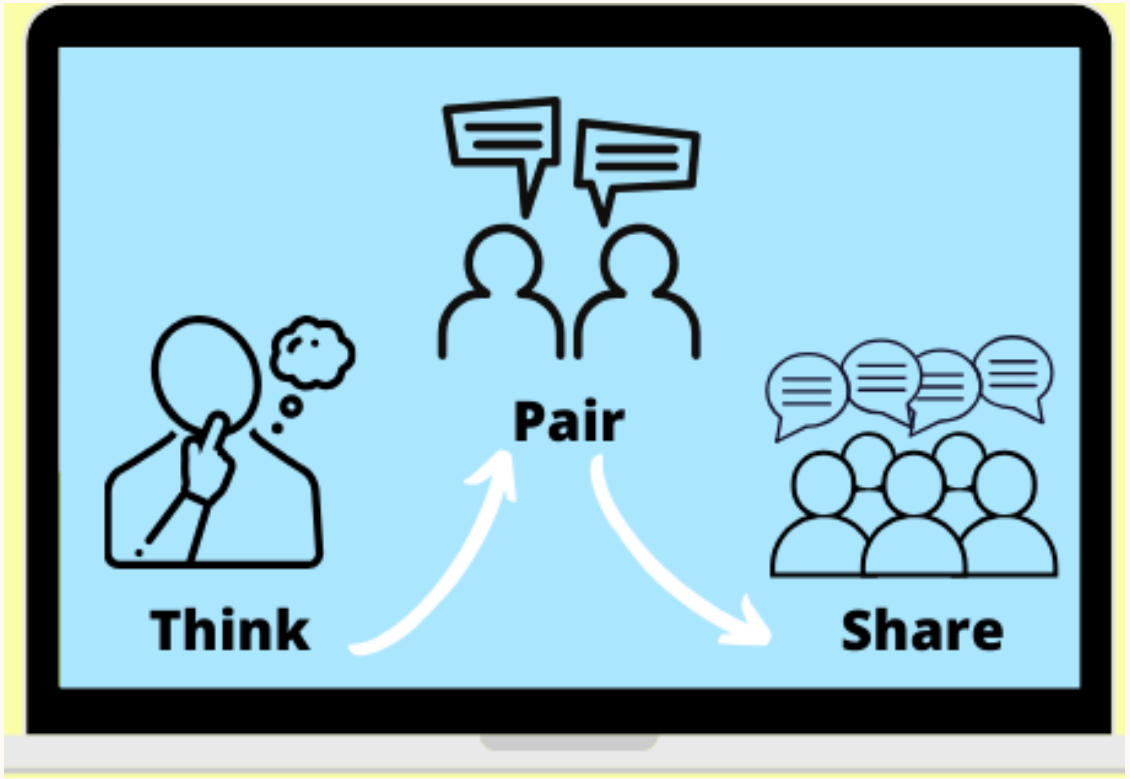
THINK PAIR SHARE



If I have it, I don’t share it.

If I share it, I don’t have it.

What is it?

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TIMED PAIR SHARE

- The teacher announces a topic and states how long each student will have to share;
- The teacher provides think time;
- In pairs, partner A shares their answer, partner B listens;
- Partner B responds with a positive statement;
- Students switch roles;
- Partner B shares their answer, partner A listens;
- Partner A responds with a positive statement.

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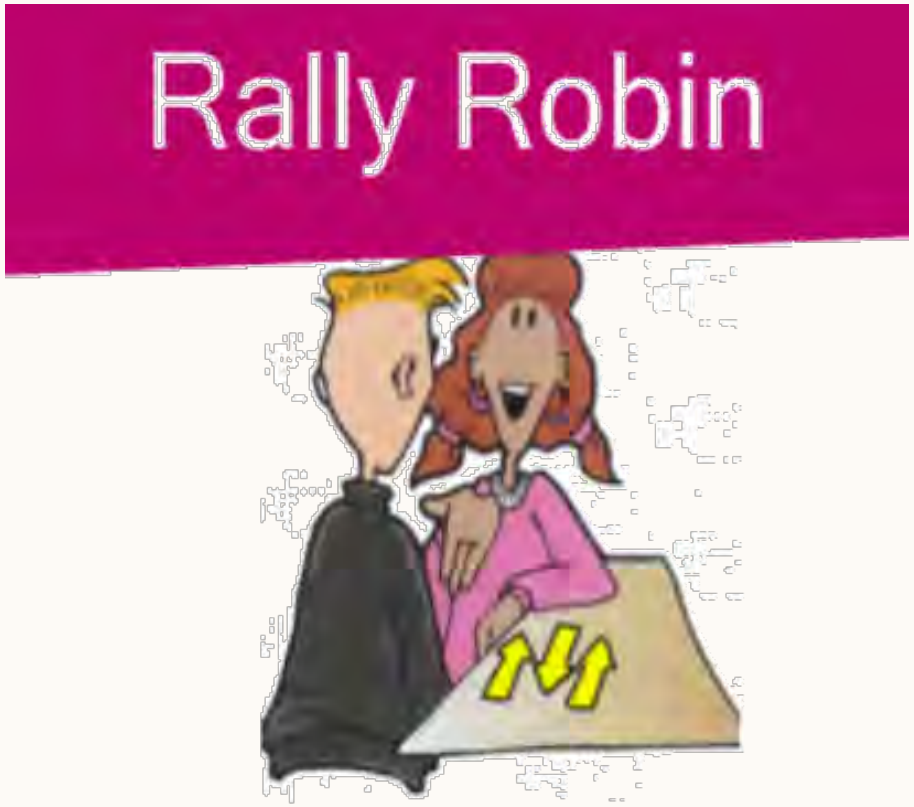

RALLY ROBIN

- The teacher poses a problem to which there are multiple possible responses or solutions.
- In pairs, participants take turns stating responses or solutions.

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ROUND ROBIN

- The teacher poses a problem to which there are multiple possible responses or solutions.
- In groups, participants take turns stating responses or solutions.

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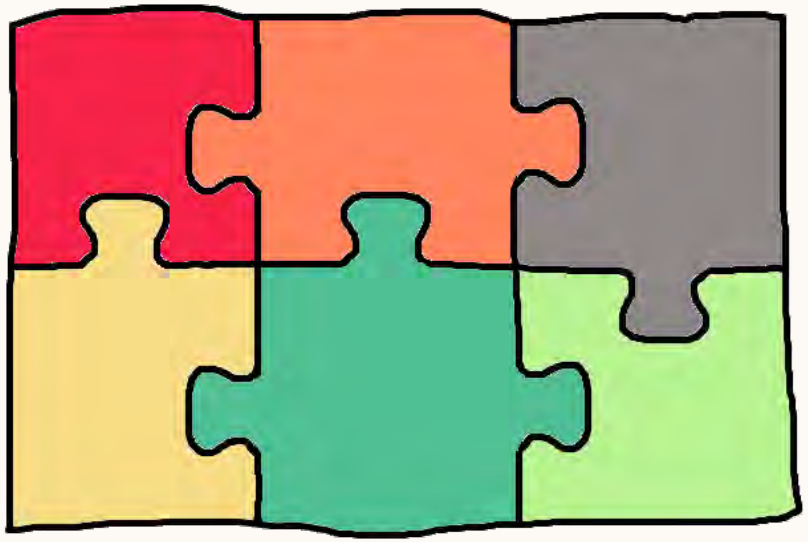
THE JIGSAW METHOD



JIGSAW

- The teacher presents a problem to be solved, a word to be spelled, a topic to be researched, parts of a chapter to be read, etc.
- Each student in each group has a specific responsibility, i.e., read pages 1-4, solve problem #3, etc.
- Each student performs their role individually.
- When each student has an answer they get together with the other students in each group who had similar roles, (Expert groups) and share their answers.
- Students in each Expert group share their ideas (Rally Robin).
- Students then return to their initial place.

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Summative Assessment

Rubrics

- Research and Information Gathering
- Planning and Critical Thinking
- End Product: Written Plan
- End Product: Design
- End Product: Presentation

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PUBLIC PRODUCTS

- Presentations
- Written products
- Media and technology products
- Constructed products
- Planning products

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Self Assessment and Self Reflection

Students´ journals → Give students the rubric → Verbally ask students about the quality of their work → Ask students to write a reflection plan

↓

SELF ASSESSMENT → SELF REFLECTION

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ENDING THE PROJECT

- Set an End Date
- Plan Your Wrap-Up Day
- Use Your Audience
- Create a Connection with the next topic

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BERLIN PBL COURSE OCTOBER 2022 PHOTOS

Katya Borg, Justine Ellul,
Roberta Xuereb

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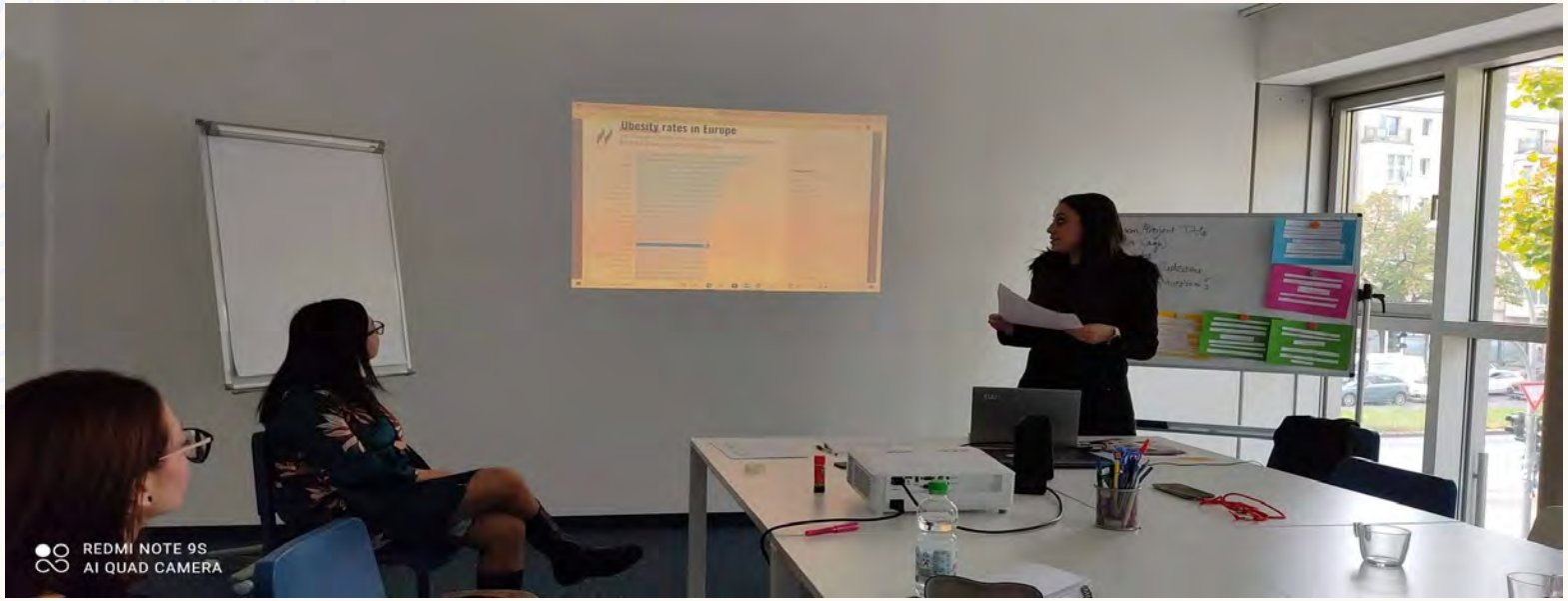

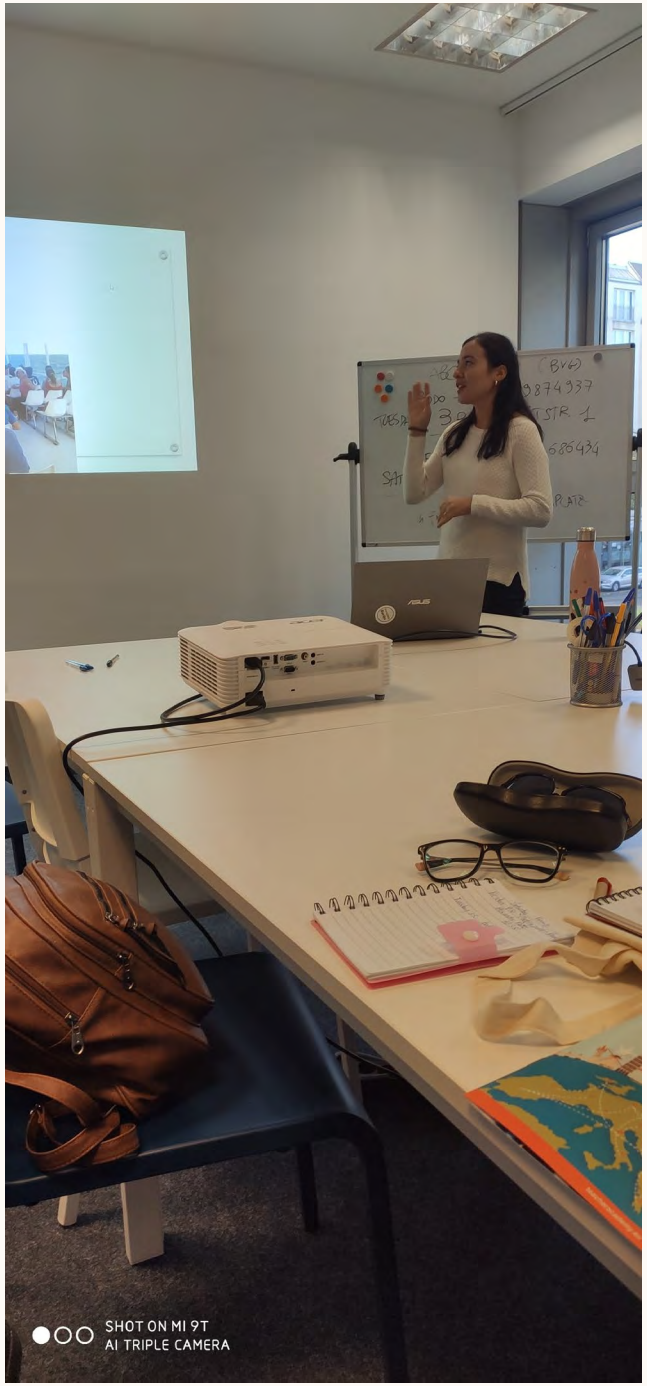

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CERTIFICATES

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COURSE PARTICIPANTS FROM MALTA, TURKEY, POLAND, PORTUGAL, SPAIN AND CZECH REPUBLIC

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A PHOTO WITH THE ITALIAN GROUP WHO WERE FOLLOWING ANOTHER COURSE

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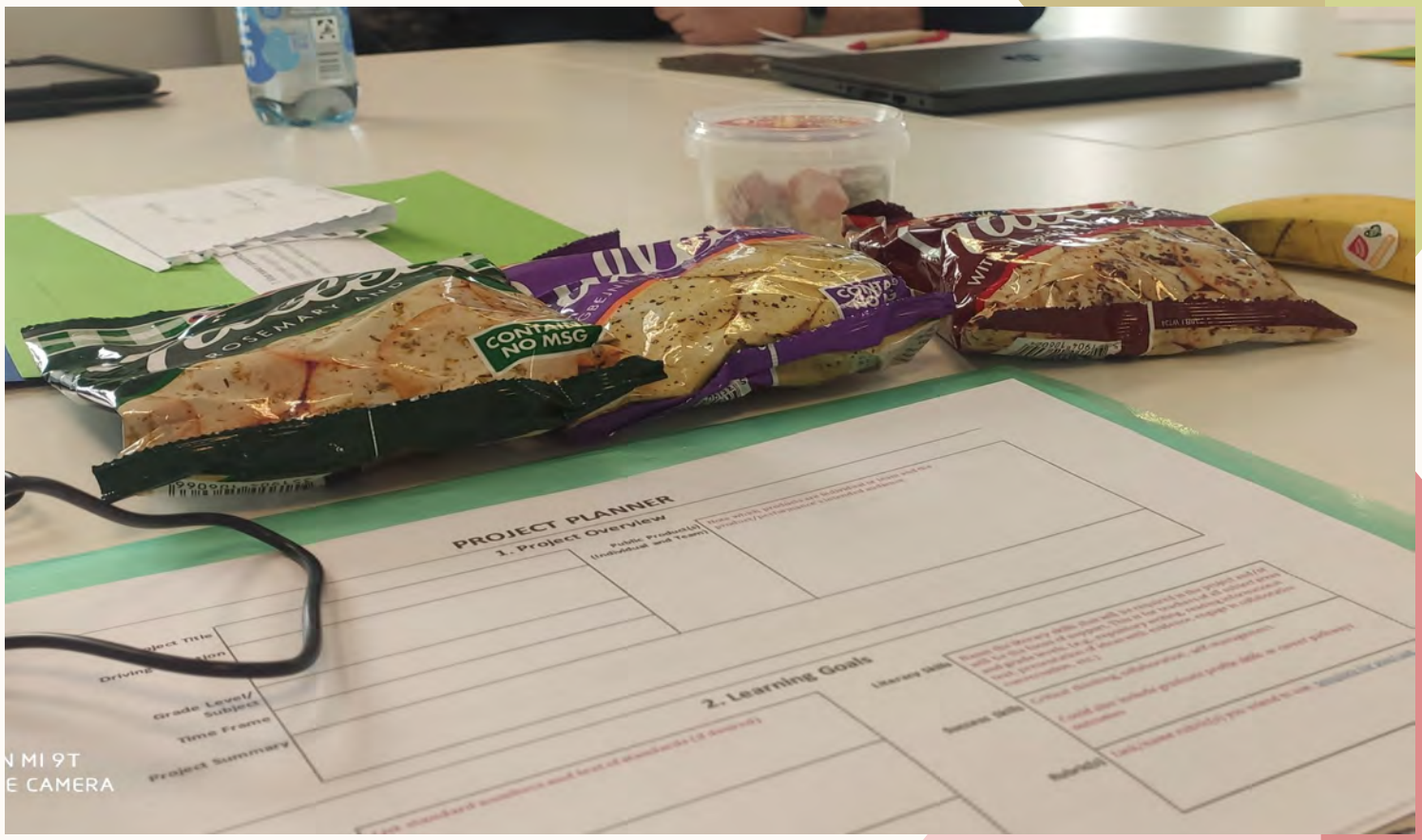
GIVING SOME MALTESE TREATS TO THE OTHER PARTICIPANTS



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EXPLORING BERLIN....

DAY 1 – ZOO & AQUARIUM

DAY 2 – BERLIN HISTORICAL TOUR

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DAY 3 – BERLIN WALL MEMORIAL

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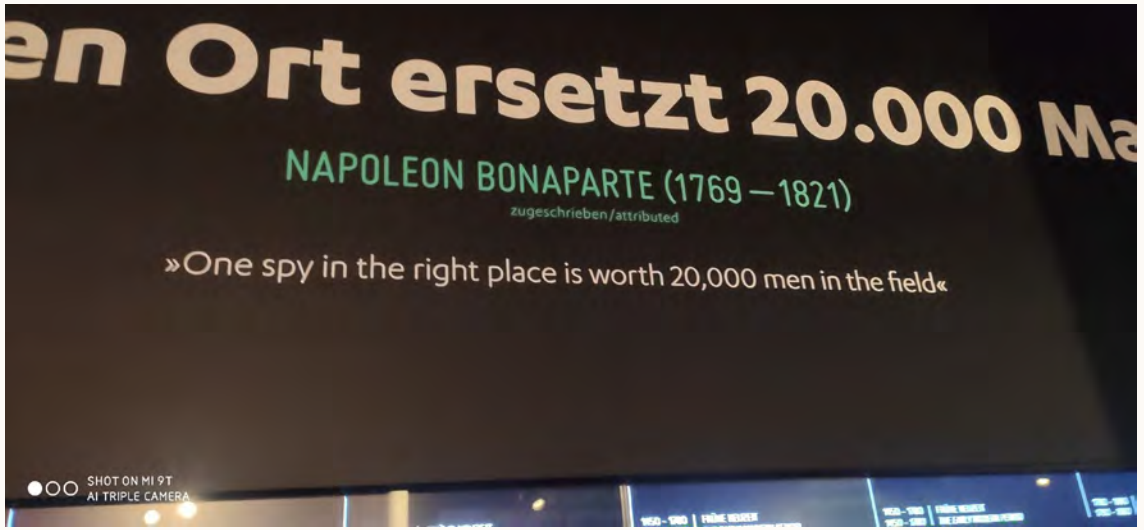
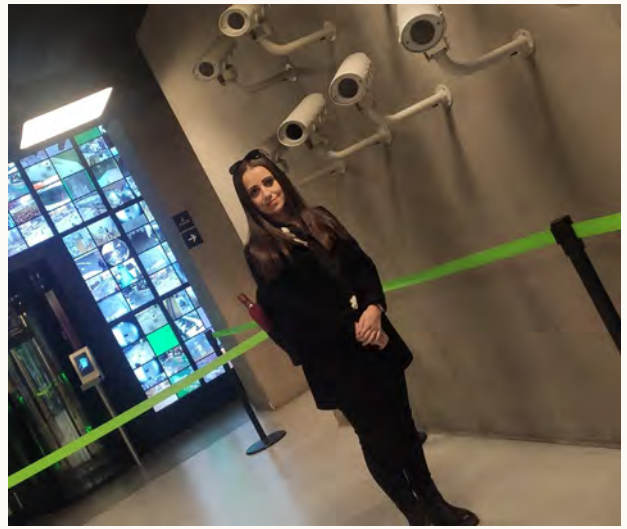
DAY 3 – GERMAN SPY MUSEUM





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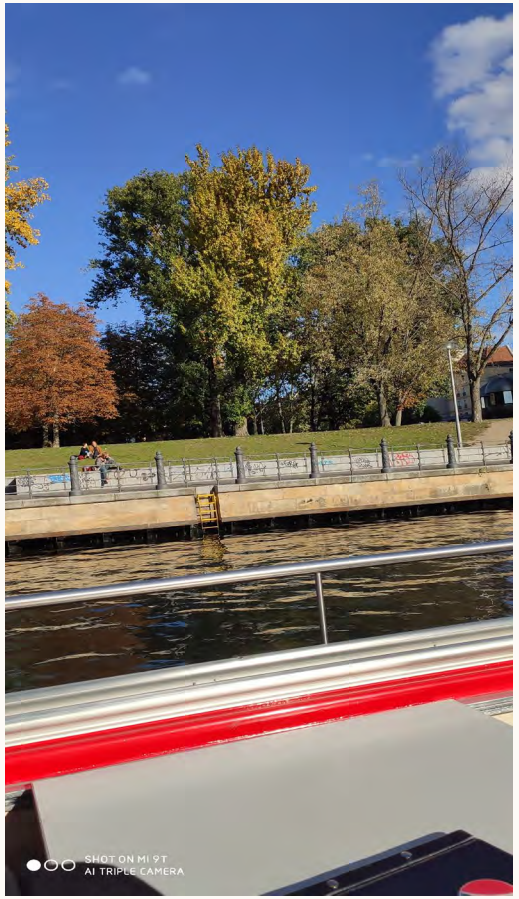
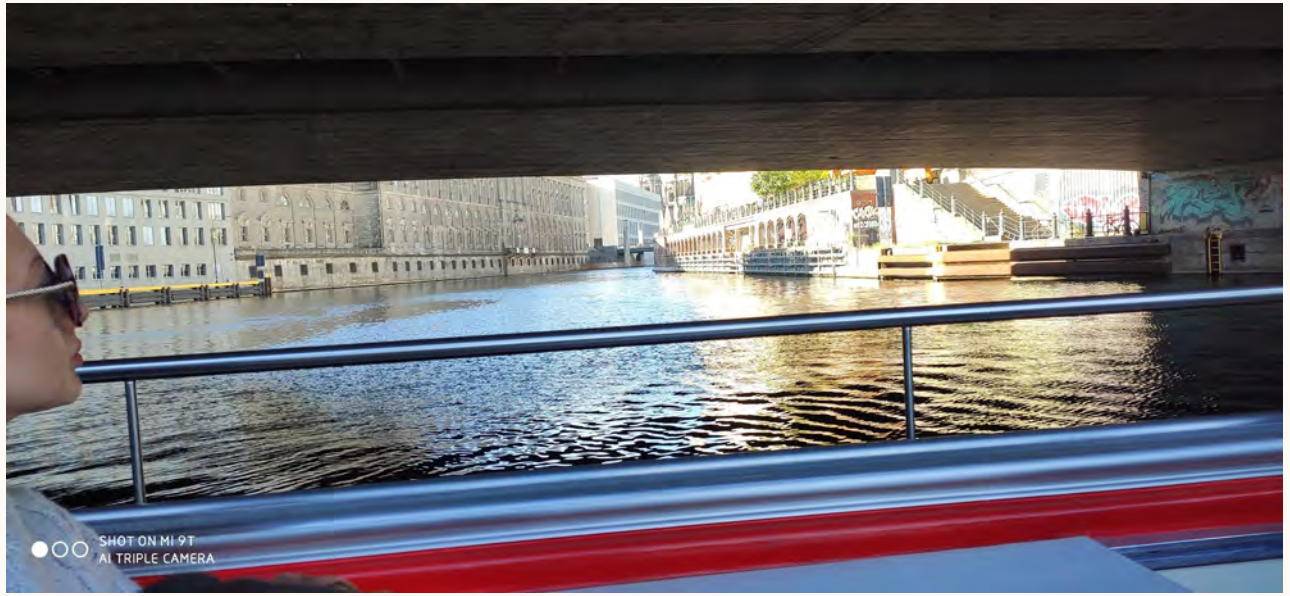
DAY 3 – RIVER BOAT TRIP





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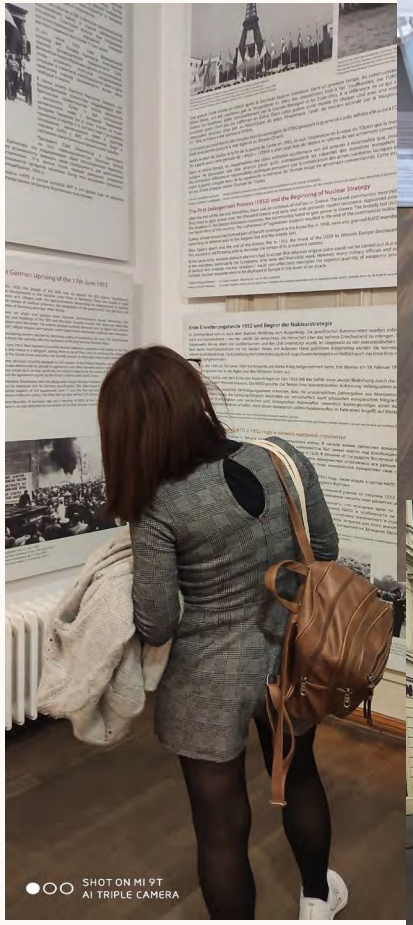
DAY 4 – CHECKPOINT CHARLIE



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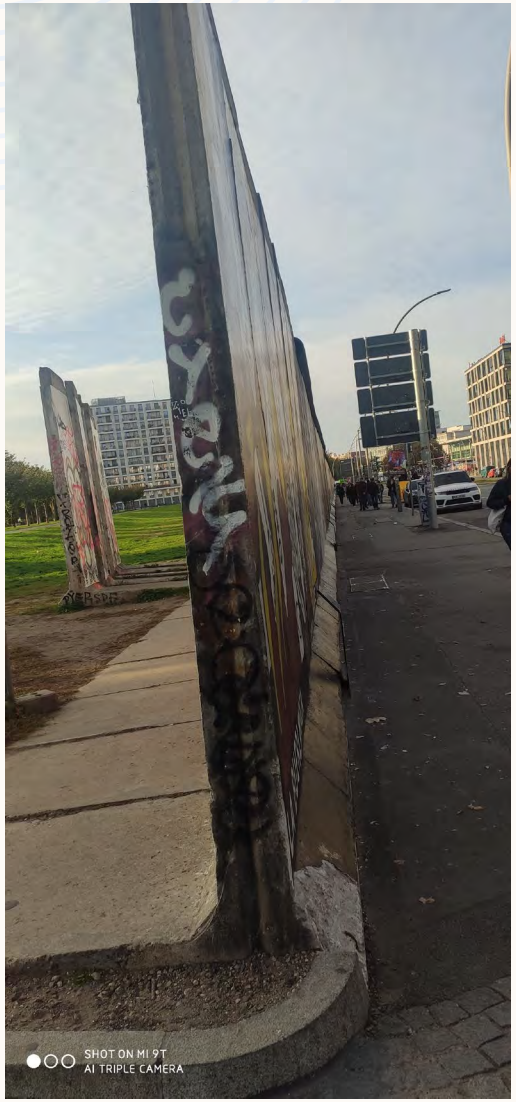
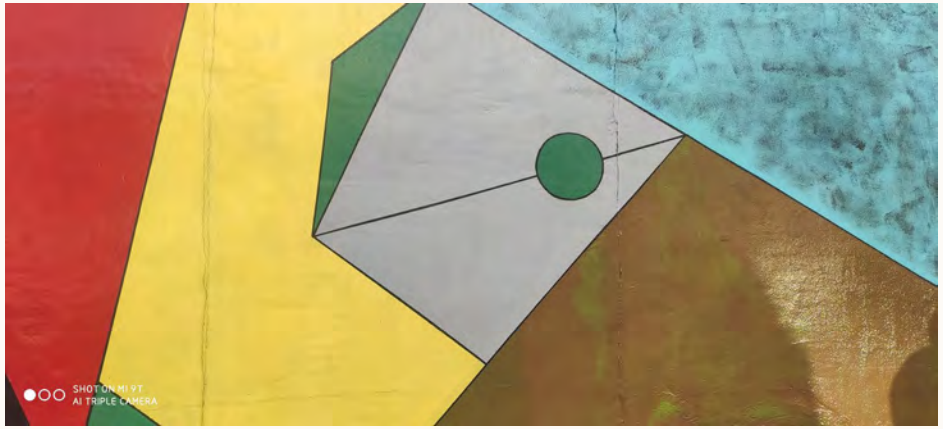
DAY 4 – EAST SIDE GALLERY





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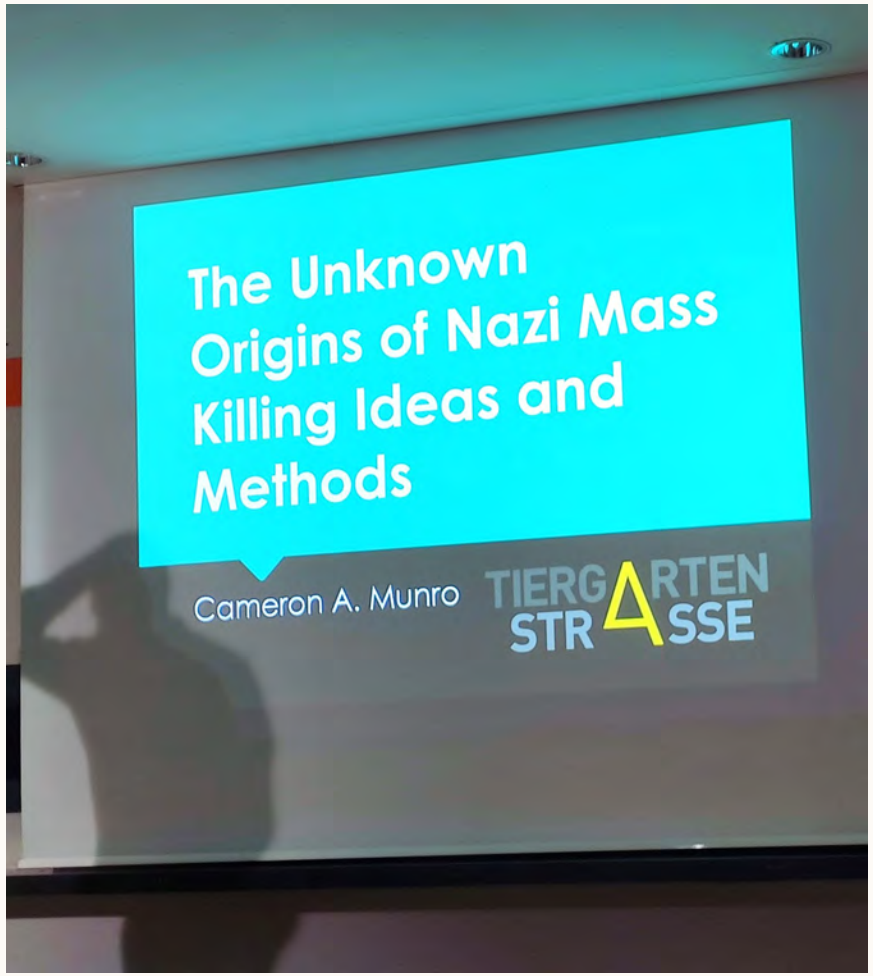
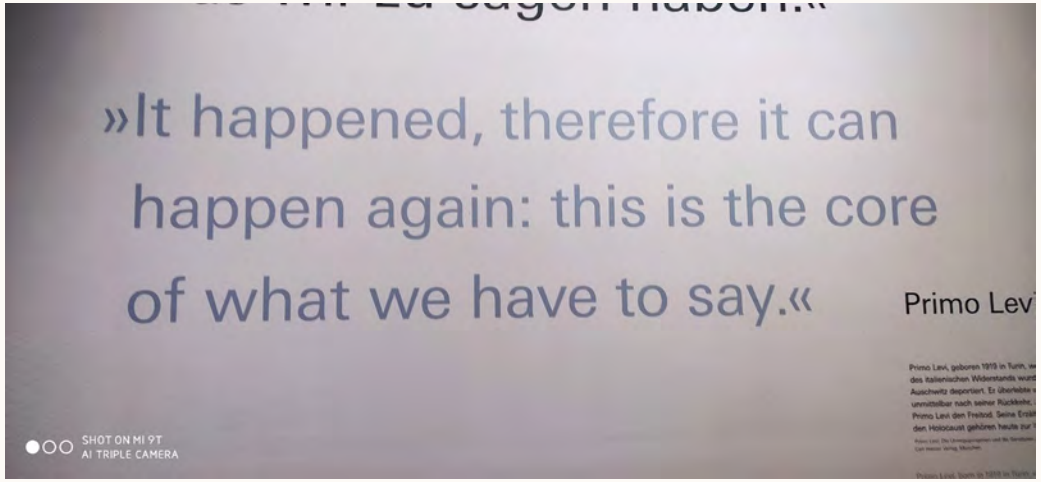
DAY 4 – HOLOCAUST MEMORIAL





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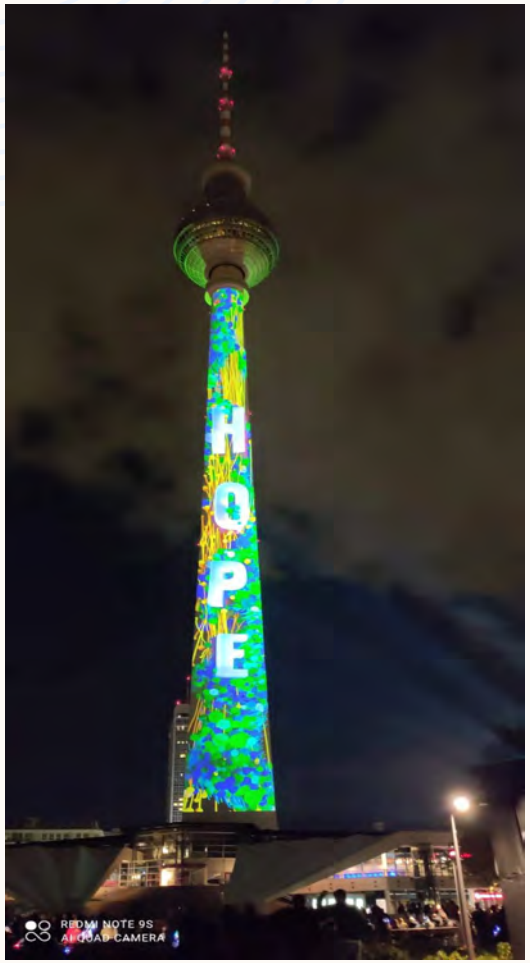
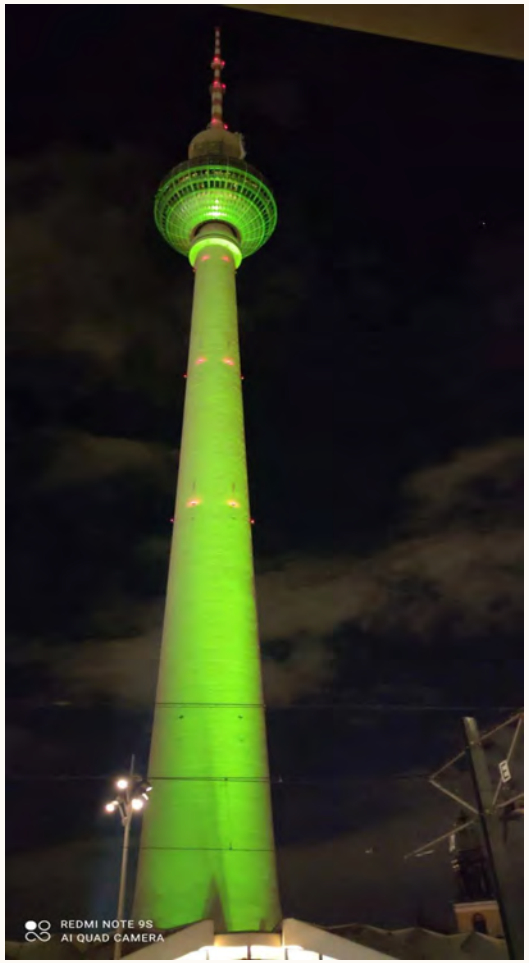
DAY 4 – FESTIVAL OF LIGHTS





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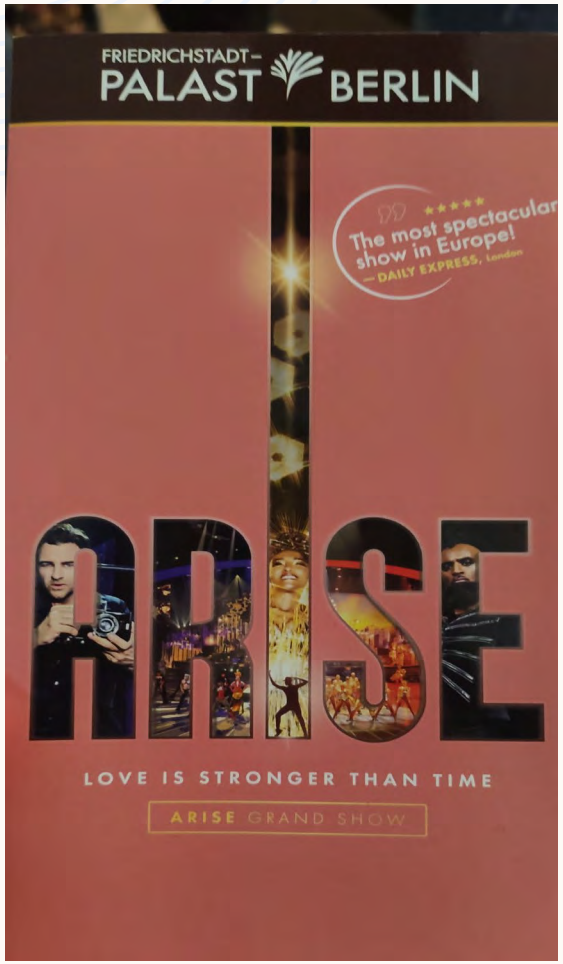
DAY 5 – MUSICAL



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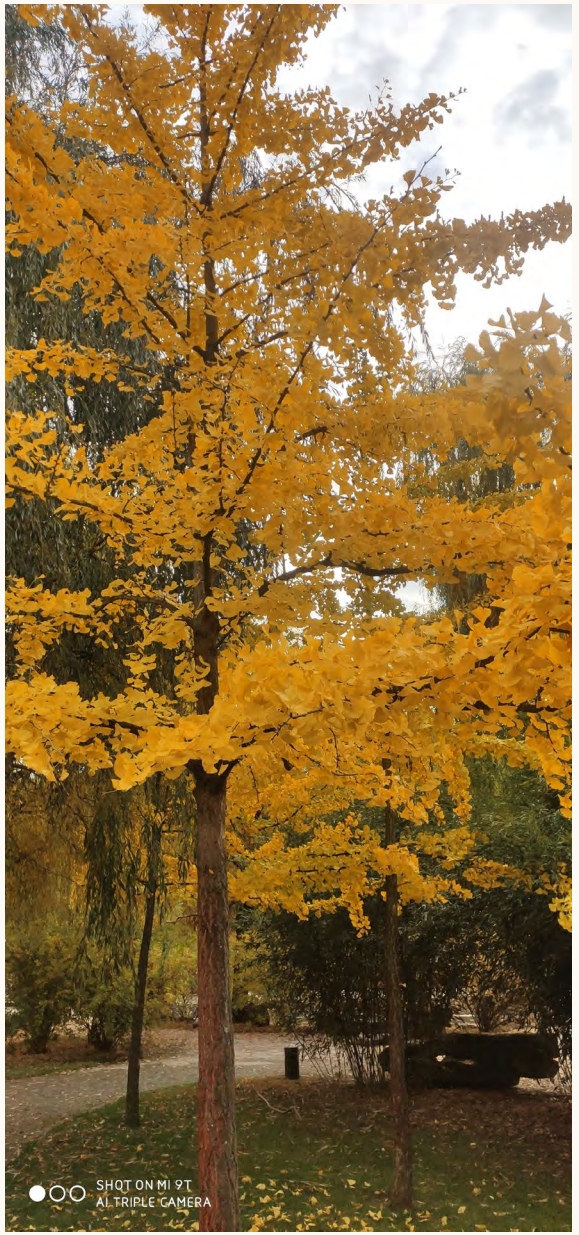
DAY 6 – POTSDAM

DAY 7 – GARDENS OF THE WORLD



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ANY QUESTIONS??

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