PAFSE: Partnerships for Science Education

Project approved under Horizon 2020: Science with and for Society
Call: H2020-SwafS-2018-2020
Topic: Open schooling and collaboration on science education

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101006468.

PAFSE Partnerships for Science Education

4 Countries

Partners

NOVA

PRP Prevenção Rodoviária Portuguesa

University of Minho

Escola Nacional de Saúde Pública
UNIVERSIDADE NOVA DE LISBOA

Adam Mickiewicz University Poznań

ISEL Instituto Superior de Engenharia de Lisboa

University of Ioannina

CTI Diophantus

INESCTEC

University of Cyprus

MAIN GOALS

- **Create regional health education clusters of schools based on partnerships between universities, research centers, museums, civil society organizations, and industry with the involvement of the local community.**
- **Ehance the levels of scientific literacy and prepare community to address public health challenges**
- **Increase students' interest in STEM disciplines and health-related professions**
- **Engage students in project-based learning and inquiry based learning.**
- **Provide an inclusive educational environment supported by a web platform for collaboration and dissemination of the teaching-learning experiences and educational resources**
- **To guarantee the sustainability and the continuation of open schooling approaches to health education and community preparedness beyond the period of initial funding.**
- **To have impact on the student's interests, competencies, and choices related to science curricula and careers**.

PAFSE Partnerships for Science Education

WORK PACKAGES

Project management	**WP1** PROJECT MANAGEMENT AND CO-ORDINATION Governance, management, and coordination of the project	**WP8** ETHICS REQUIREMENTS
Technical activities & demo & overall improvement	**WP2** DESIGN AND DEVELOPMENT OF DIGITAL EDUCATIONAL ENVIRONMENT, EDUCATIONAL RESOURCES, EDUCATIONAL SCENARIOS, AND SURVEYS STEM educational resources and scenarios as well as the web-based infrastructure that will make the model viable on an international scale **WP3** ENACTMENT AND REFINEMENT OF EDUCATIONAL SCENARIOS Classroom enactments, evaluation and refinement of the scenarios	**WP4** TEACHER PREPARATORY AND PROFESSIONAL DEVELOPMENT WORKSHOPS Preparation of teachers to set up the scenarios and introduces a model of scale-up in engagement and continuous professional development of teachers **WP5** NETWORKING AND PARTNERSHIP SUSTAINABILITY Strategy and capabilities to create, maintain and expand the health education clusters at different geographies
Evaluation & Dissemination	**WP6** PROJECT EVALUATION AND QUALITY ASSURANCE Quality assurance and evaluation measures with emphasis on the project' key performance indicators and anticipated impacts	**WP7** COMMUNICATION, DISSEMINATION AND EXPLOITATION Introduces a series of tasks that safeguard the transferability of products and outcomes and their dissemination and exploitation at a pan-European level

1 **Educational Scenarios, DLO´s, DER´s, Workshops – development & Assessment**

2 **Pilots: Workshops for teachers and scenarios - refinements & regional scale up;**

3 **Workshops for teachers - Large-scale dissemination.**

Topics

- **Sustainable Mobility**
- **Crash risk factors**
- **Road traffic crashes, a public health issue**

Concepts

- Science Approach
- Inquiry Based Learning
- Project Based Learning
- Open schooling
- Open-source digital resources

Assessment

- Outcome assessment - Knowledge, Attitudes and Behaviours; Science careers
- Process Assessment Teaching Learning Sequence

Scenario Development

Scenario Structure

- **Context**
- **Scientific content and its relevance to public health education**
- **Subject**
- **Target** (Science classes Grade)
- **Estimated duration**
- **Classroom organization requirements**
- **Glossary** (general; scientific; pedagogical)
- **Indicative literature**

Competences/Learning Goals/outcomes (Knowledge, Beliefs, Skills, Attitudes/ Behaviour)

Assessment methods: Formative and summative

Content (relevant to learning goals & research topics)

Digital Learning Objects (DLO)

Digital Educational Resources (DER)

Supplementary Learning Resources and Educational Activities

Teaching-Learning Activities

School Research Project

Open School Event

Sustainable Mobility

- Sustainable mobility
- Environmental protection and social and economic dimension
- EcoMobility
- Quality of life and road safety
- **School Research Project – Mobility patterns - Survey**

Road traffic crash risk factors

- A public health problem
- Speed
- Safety equipment
- Distraction, Fatigue
- DUI
- **School Research Project – Opinions, attitudes, behaviours - Survey**

Road traffic crashes, a public health issue

- Concept of public health, road traffic crashes as a major issue
- Road safety indicators based on road crash statistics, international and national level
- Risk behaviours in traffic
- **School Research Project – Roadside observations**

Sustainable Mobility

- Energy unit: joule (J) and calorie (cal)
- Fossil energy
- Renewable energy: kW; MW
- Environmental pollution and noise
- Greenhouse gas emissions: carbon dioxide, sulphur dioxide, carbon monoxide, nitrogen oxides
- Noise scale - decibels (Db) and hertz frequency (Hz).
- Optical phenomenon – Retroreflection.
- Safe and appropriate measures/ behaviours for vulnerable road users

Road traffic crash risk factors

- Newton's Laws
- Speed
- Inertia
- Mass
- Forces and Movement
- Friction
- Acceleration
- Deformation
- Pressure
- Kinetic energy
- Energy Dissipation
- Absorption/elimination of alcohol/drugs and medicines by the human body
- Widmark formula (how BAC level is calculated)

Road traffic crashes, a public health issue

- Road traffic crashes as a major issue in public health
- Measures of disease burden: mortality, mortality rate, quality-Adjusted Life-Years (QALYs), Disability-Adjusted Life-Years (DALYs)
- Risk factors and patterns of risky behaviour in traffic
- Road safety indicators (road crash statistics, and roadside observations)
- Probabilities and statistics: - percentages, rates, frequency tables, graphs. - population and sample. - data collection, data, and dataset

Other Scenarios

Non-communicable diseases

Sustainable Development Goals

Looking after myself and others:

Healthy Eating

Looking out for my community:

Vaccines development and the science that responds to hesitancy

Looking after myself and others: Substance Tobacco

History of pandemics: what do we know about powerful viruses and their impact?

Workings and malfunctions of human Immunological memory

The mathematical representation of an epidemic: the case of SIR (Susceptible, Infectious, or Recovered) modeling

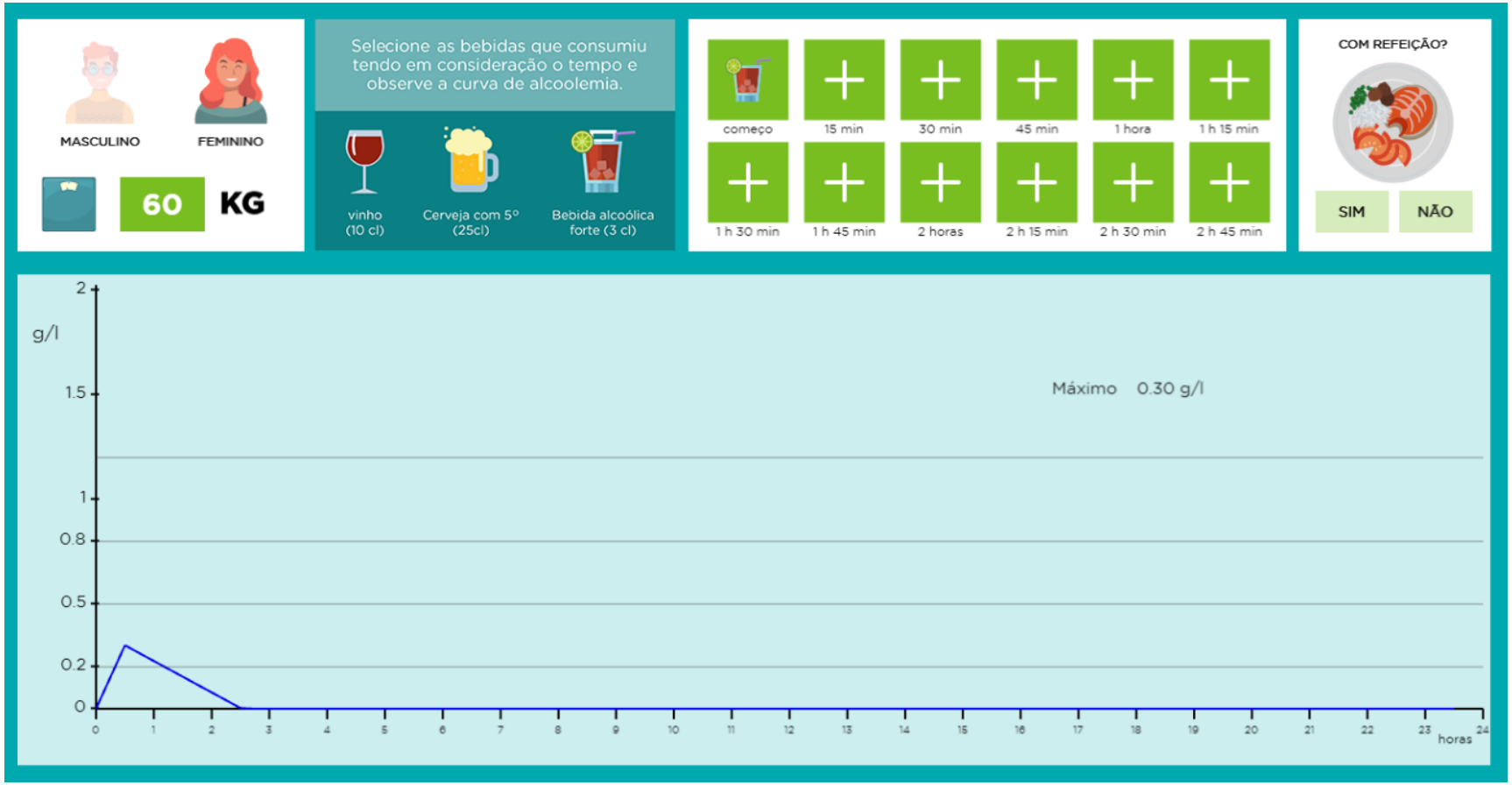
Social determinants of health during an epidemic/pandemic outbreak

Artificial Intelligence responses when clinical symptoms appear

Digital Learning Objects and Digital Education Resources

Pillars of Sustainable Mobility activity

Digital Learning Objects and Digital Education Resources



Alcohol simulator

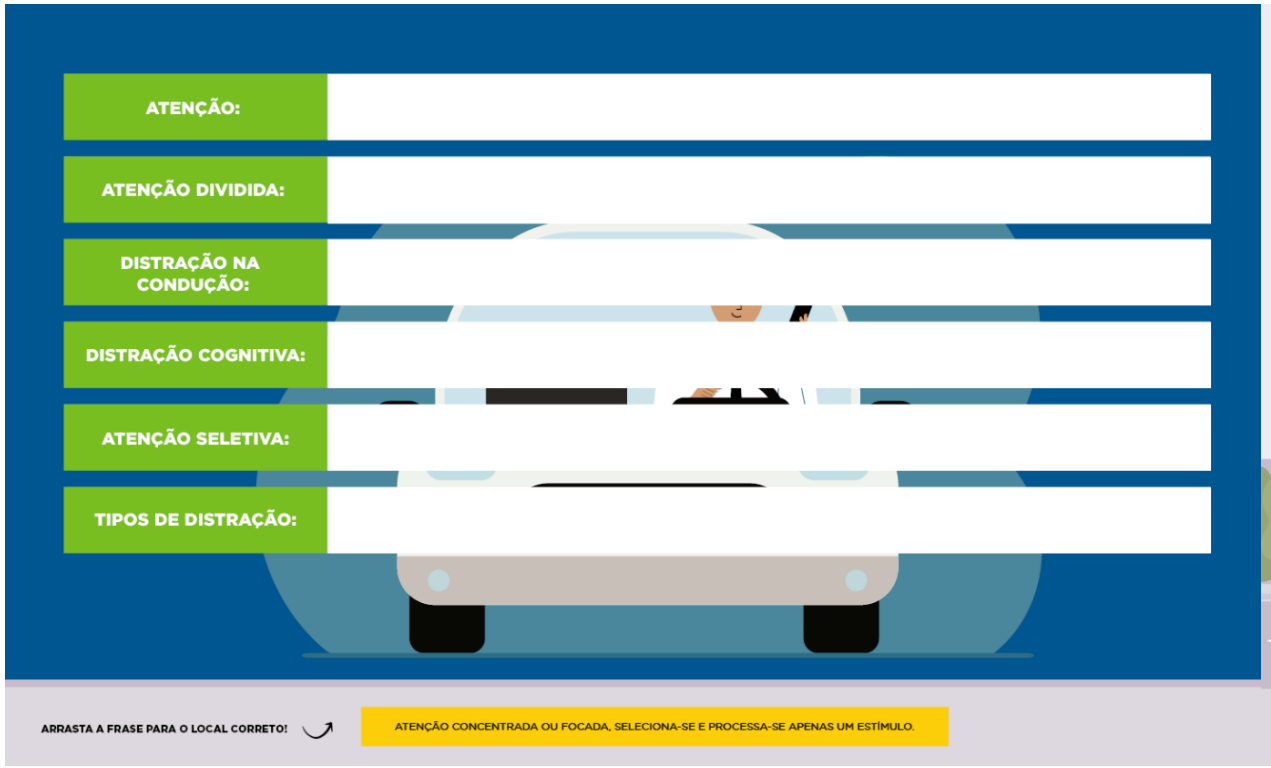
Digital Learning Objects and Digital Education Resources

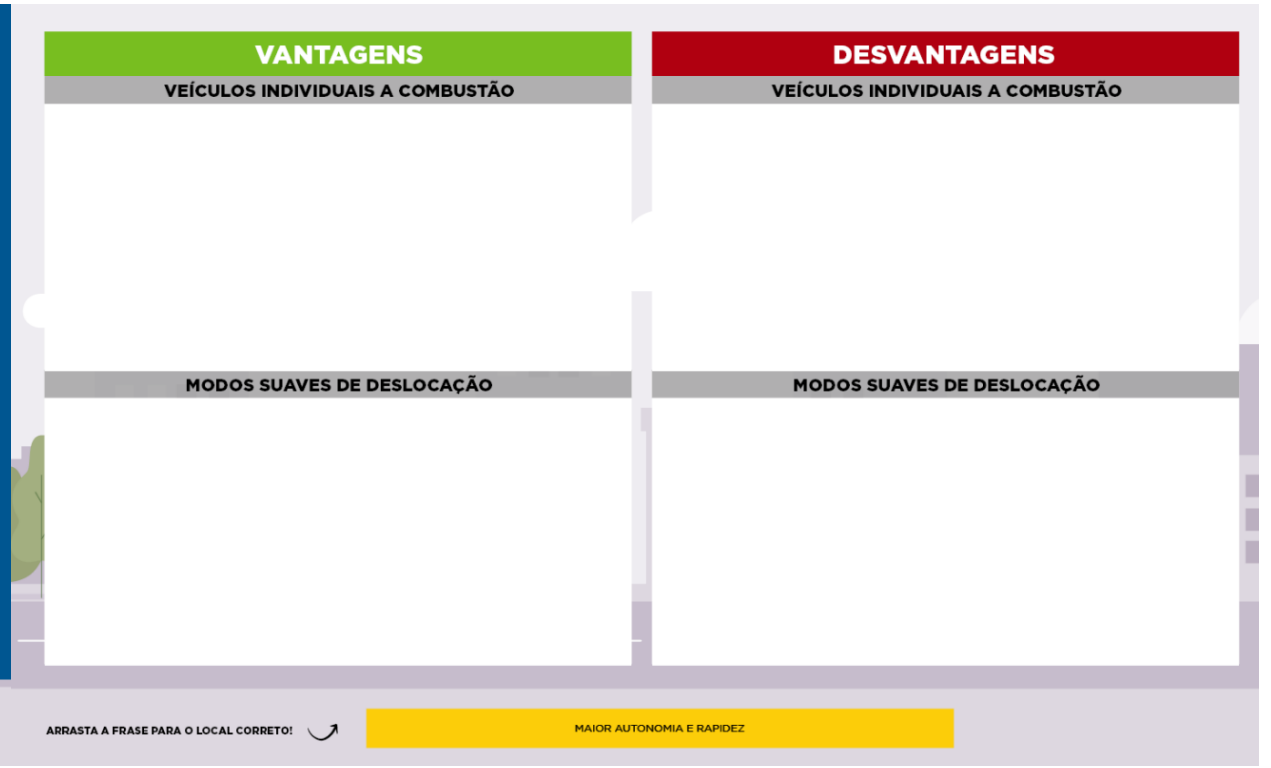
Run over simulator

Digital Learning Objects and Digital Education Resources

Fiel of view simulator

Digital Learning Objects and Digital Education Resources

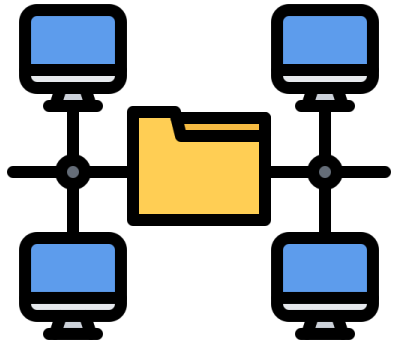




Distraction – Drag & Drop Activity

Benefits and Disadvantages of individual combustion vehicles and smooth travel modes – Drag & Drop Activity

Educational Platforms



e-me

e-me Digital Educational Platform
e-me4all.eu
(European edition, for all)

Workshops

Objective: to provide teachers with knowledge and Strategies to implement learning scenarios

- PAFSE Project - Partnerships for Science Education
- Structure and philosophy of learning scenarios
- Web platforms - Photodentro Pafse and E-me
- Road accidents and young people
- Learning scenario
- DLO´s & DER´s
- School research project
- Project management

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