Economy – solidarity walk

Age-group: 14 - 15 years old
Number of hours: aprox. 12 hours
Short description of activity:
Within the scope of the Sustainable Development Goals, the students' concern is how can they help to achieve these goals? In this context came the idea of organizing a fundraising event for UNICEF. For this event, students will have the opportunity to explore mathematics and finance content, as well as develop digital skills, solidarity, creativity and critical and computational thinking. Given the context, students are expected to mobilize CT skills such as the following:

- **Problem decomposition** (analysis and discussion of the problem – organizing the UNICEF fundraising event)
- **Abstraction** (analyze essential information):
  - Analysis and discussion of the country/region with the most urgent need for assistance
  - Geographic location of the country or region to be assisted through UNICEF - google Earth, data gathering - google Sheets, …)
- **Recognize certain patterns in a sequence of an algorithm or procedure** (definition of steps to achieve the objective (which can be applied in other similar problems/contexts - gather the necessary resources to carry out the fundraising event)
- **Automation** (creation of an App that identifies the type and time of physical activity in relation to caloric consumption - it connects the learning developed with the healthy eating project with this one - scope of the comparison of food consumption between developed and developing countries and the needs of these ones)

The students should (Goals)

Math
- Define the data to be collected, select the source and method of data collection, proceed with its collection, selection and organization.
- Understand and fluently use mental calculation strategies to operate with real numbers, mobilizing the properties of operations.
- Formulate and test conjectures/generalizations, from the identification of regularities common to objects under study, namely using technology.

Art
- Recognize the importance of images as a means of mass communication, capable of conveying different meanings (economic, political, social, religious, environment, among others).
- Understanding the "power games" of images and their ability to mystify or demystify the reality.

Technologies

- Distinguish the phases of carrying out a project: identification, research, development and evaluation.
- Differentiate technical requirements, constraints and resources for the realization of projects.
- Produce technical artifacts, objects and systems, adapting material and technical means to the idea or objective.
- Select the most appropriate technological solutions for the implementation of collaborative work and synchronous and asynchronous communication that are intended to be carried out, within the scope of activities and/or projects.
- Know and use the potential of digital applications of data representation and statistics.

Finance

- Distinguish fixed expenses from variable expenses.
- Establish the relationship between income and expenses, highlighting the notion of balance.
- Prepare a budget, identifying income and expenses and calculating the respective balance.
- Make decisions bearing in mind that budget is limited.
- Analyze tax on products/services

Physics and chemistry

- Apply the concepts of distance traveled and average speed in the analysis of daily rectilinear movements.
- Classify rectilinear movements, without inversion of direction, as uniform, accelerated or retarded, based on the velocity values.
- Construct and interpret velocity-time graphs for rectilinear movements, without inversion of direction, applying the concept of average acceleration.
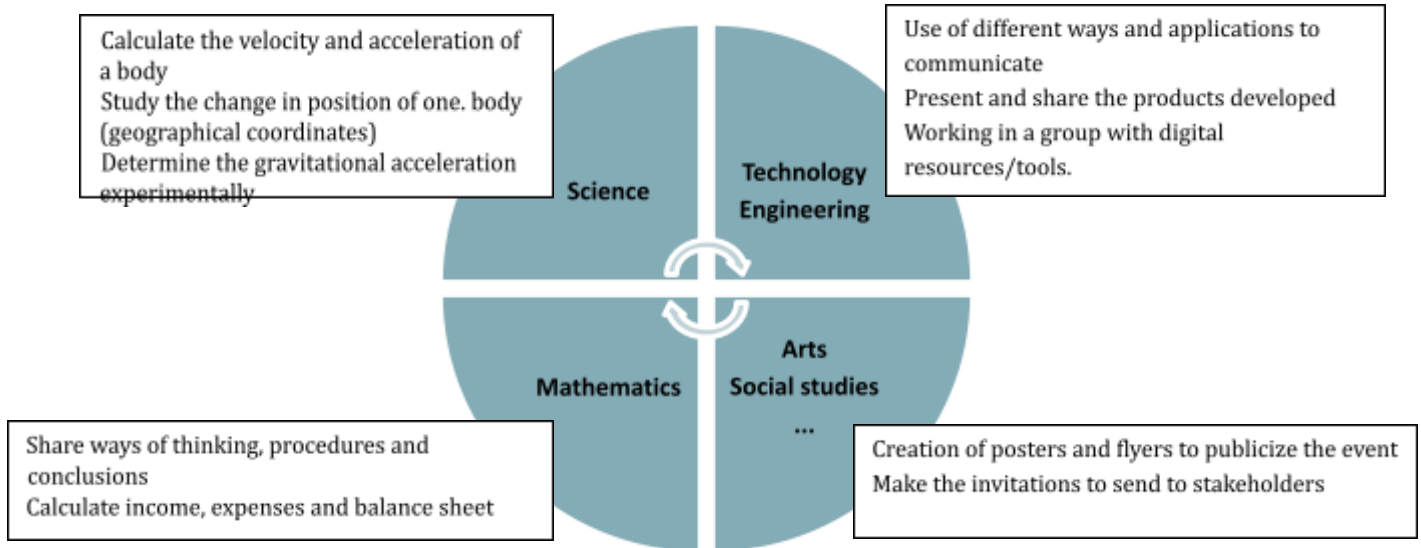
Realistic STEAM-context

(short description including problem(s) to be tackled)

In the activities to be developed during 14 sessions, it's intended that students analyze and discuss problem situations, based on real contexts. As a starting point, ways/means of fundraising can be discussed by the class to carry out at end of the school year that could be linked to an outing - fundraising event - Walk for the wellbeing of others, whose implementation involves costs. It's intended those students develop the event that include carrying out activities that promote the involvement, direct and/or indirect, of the educational community (target audience of a fundraising event, direct collaborators in the production of materials, …). Despite the need for guidance from a teacher, students will be responsible for the planning process (from identifying the problem situation to achieving objectives, including logistical and financial issues).

(short justification of STEAM-integration)

Glossary

Taxes
Expense
Revenue/income

Calculate the velocity and acceleration of a body
Study the change in position of one. body (geographical coordinates)
Determine the gravitational acceleration experimentally

Science

Technology Engineering

Use of different ways and applications to communicate
Present and share the products developed
Working in a group with digital resources/tools.

Mathematics

Arts
Social studies
...

Share ways of thinking, procedures and conclusions
Calculate income, expenses and balance sheet

Creation of posters and flyers to publicize the event
Make the invitations to send to stakeholders

Methodology

Based on learning by doing (with different levels: from imitation to creation)

The activities that are presented below follow a sequence.

- 200 min Citizenship /Geography
- 400 min Technology/Arts/ ICT/Programming
- 100 Mathematics / Physics and chemistry

Part	Description	Timing
1	Objective: In the context of the Sustainable Development Goals (SDGs), students will carry out a detailed study of the socio-economic conditions of developing countries for further discussion to raise funds to donate to the country/region with the most urgent need for assistance, through UNICEF. • To implement this idea, students, oriented by teacher, have to: . establish the desirable value to raise . plan the solidarity walk to achieve the expected value . analyze the resources needed for this event . predict the cost/budget of producing the event . establish the minimum value of the cost of ticket registration to attend the event In this context, the teacher explains the concepts of income, expenses and the relationship between the two, asking questions such as: - Can the registration fee for the solidarity walk be considered income? - How much is the registration fee for the event? - With the organization of this activity, what expenses are foreseen? - … During the discussion of ideas among students, it is important that, based on the teacher's explanation, they consider ways to maximize income and minimize expenses. In this discussion, students should be led to ask themselves about: - Possible ways to raise funds with the activity; - Relate them to possible income and expenses, - Select the best fundraising methods according to profit maximization. Among the diversity of possible proposals for the realization of the event and the SDGs, more specifically that of "Zero Hunger and Sustainable Agriculture", the teacher may suggest associating learning developed with the "Healthy Food" project to this activity. Thus, the teacher can suggest the creation of an App that relates the need and type of physical activity with caloric consumption - very different between developed and developing countries. After the debate of ideas, and the fundraising event has been decided (solidarity walk), it is necessary to proceed with the production of materials and the promotion of the event.	200 min

5	So, the suggestion is to divide students into groups (each group with 2 or 4 students) and ask them to: - compare the Mediterranean diet with diets from other countries; - analyze economic growth and the Human Development Index (HDI) between countries (European, African and Asian); - select the countries that need help (most urgently); - geographically locate these countries (google maps or google earth); - characterize the development of these countries; - create a logo and poster to publicize/promote the event; - contact school grouping partners to ask for their support/participation in the implementation of the event; - share the work being developed on the Teams platform (where channels were created for sharing materials and information); - use the tables available in the annex to start organizing what they understand by income and expenses. For this last point, students should fill in the attached table (see annex 2) to discuss expenses and income inherent to the event. For example: Expenses: - purchase of t-shirts and protein kits (to be distributed to participants) - logo printing on t-shirts - publicity - invitations printing Income: - sale of tickets registration to participate in the event; - donations. CT: Decomposing problems (analyzing a discussion around a problem - organizing a fundraising event for UNICEF) Abstraction (analyzing essential information: Analysis and discussion of the country/region with the most urgent need for assistance) Locate the geographic area or region to be assisted through UNICEF – google earth, data collection – Google sheets	
2	Objective: Discuss with the students the taxes to be paid, for example, in the purchase of t-shirts for the participants of the solidarity walk. Present and analyze the purchase receipt for the total number of t-shirts. Focus attention, in particular, on the value of VAT and explain its meaning. Discuss with students' questions such as: Why should we (all) pay taxes? What are taxes for? What percentage of tax rates applied to different products? Is it the same in all areas, for example in health, transport and other goods (clothing, ...)? As a group, analyze the possibilities of areas where taxes are used (for example, fuel CT:	50 min

	Data analysis (analyzing tax rates to be collected and understanding that there are reference charts for services and products)	
3	Objective: Establish the route and promotion of the activity Planning the solidarity walk requires organization and teamwork. Thus, for this stage, the class is also divided into groups and specific tasks are assigned: 1. Plan the route: use digital tools like Alltrails to define it and GPX Viewer to visualize/follow it. Inform students that they must provide participants with support (digital and/or paper) of the route to be carried out and prepare a tutorial on how to use the Apps. On the day of the race, they must ensure that internet support is not needed to consult the route, therefore is necessary to import them in advance, at the place of departure. 2. Create dissemination materials: ask students to organize information, for example, in posters and/or informative pamphlets about the activity and registration QR. Discuss what information to put and on what support (Canva, Powtoon, ...). Ask each group to create a logo that will be used on t-shirts and all materials associated with the event. 3. Define the promotion strategy: discuss with students the information and means of dissemination to promote the event, for example, on the school webpages and on the school social networks; on the webpage of parents' association and the regional press. The display of promotional information can be measured by the frequency of views, etc. 4. Create an App that, based on the caloric consumption, adapts the time and physical activity to be developed 5. Plan how many fluid intake boosters there will be along the walking path. 6. Inform the authorities (Police and Firefighters) of the test and carry out all the steps with them. CT: Parallelization (dividing the organization of the event into small independent parts that, once carried out, lead to the conclusion of the evidence) Decomposing problems (breaking down event organization into doable tasks) Pattern Recognition & Algorithms & Procedures (defining the steps to be taken to achieve the goal that can be applied to other similar issues/contexts – gathering the resources needed to organize a fundraising event) Automation (creation of an App that identifies the type and time of physical activity in relation to the scope of caloric consumption of the comparison of food consumption between developed and developing countries and the needs of these	350 min
4	Objective: Assign the tasks to be carried out on the day of the solidarity walk The day of the activity requires the involvement of the class in the execution of tasks related to the logistical aspects. Divide the class into pairs and assign the following tasks: - delivery of the kit for the activity (t-shirt and dorsal with the name and number and protein kit), according to the registration made in advance	~50 min

	- support at reinforcement posts. CT: Parallelization (dividing the organization of the event into small independent parts that, once carried out, lead to the conclusion of the evidence)	
7		
5	Objective: Send an invitation to a UNICEF representative to attend the event Make the balance sheet to calculate the final revenue of the event carried out using the attached tables. Invite a UNICEF representative from the nearest delegation to deliver the amount raised. CT: Collection and analysis of data relating to income and expenditure to deliver the balance to a UNICEF representative)	50 min

Organization

Materials:
● T-shirts
● Protein Kits
● …

Use of ICT: (only mention when relevant)

Opening of classroom: (only mention when relevant)

Coaching

Useful questions:

• Part 1 of methodology
  o Can the registration fee for the solidarity walk be considered income?
  o How much is the registration fee for the event?
  o With the organization of this activity, what expenses are foreseen?
  o What is the maximum number of participants you want to reach?
  o Will it be necessary to pay firefighters and GNR to ensure safety on the day of the event?
  o What other expenses do you consider to be incurred with the event?

• Part 2 of methodology
  o Why should we (all) pay taxes?
  o What are taxes for?
  o What percentage of tax rates applied to different products? Is it the same in all areas, for example in health, transport and other goods (clothing, …)?

• Part 3 of methodology

- o What information do you consider essential and attractive to put, for example, on posters and/or pamphlets?
- o What digital tools do you know that could help us create these materials?
- o What is a logo for? Will it be essential?
- o What is the promotion strategy to adopt for the promotion of the event?

- Part 4 of methodology
  - o Running the race involves a lot of logistics. What elements do we need and what are their functions?
  - o How and with what support will the registrations of kit deliveries/deliveries of jerseys/… be carried out?
  - o What information can we give to participants at the reinforcement points regarding the food to be delivered?

- Part 5 of methodology
  - o What is the final value that we raise?
  - o Could this value have been maximized? In what way?
  - o What can we say to the UNICEF member we invite to receive our donation regarding their use of the money?
  - o What relevant information do you know about the receiving country?

Stimulation of self-management: (concrete opportunities/remarks adapted to the project)

Stimulation of cooperation: (concrete opportunities/remarks adapted to the project)
   Teamwork:
- Groups consist of 4 students.
  - o Creation of groups of a maximum of 4 students to work throughout the different sessions
- Competences needed in a group:
  - o Shared discussion of the problem;
  - o Division of tasks;
  - o Negotiated (discussed) and oriented interactions to allow the sharing of resources (cooperation) with a view to achieving a common objective;
  - o I confront ideas and opinions with a view to building knowledge;
  - o Reflection and discussion in relation to the defined objectives and/or results

Formative assessment: (concrete description/summary adapted to the project)
Students should be encouraged to focus on the process rather than the end result. Teachers must communicate frequently with each other to observe student improvements or learning needs. Teachers must monitor the entire process carried out by each group, giving concrete and concise feedback, validating the work carried out.

Adaptations

- General ideas:
- Ideas with younger/older children: (3-6 <-> 6-9 / 9-12 <-> 12-15)

Tips & tricks

(only mention when relevant, e.g. background information, …)

Annex 1 - Table related to income and expenses

1. Budget for the event

Expenses	Income
Purchase of materials …	Ticket registration …
Total expenses	**Total income**
Balance	