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STEAME ACADEMY
TEACHING FACILITATION LEARNING & CREATIVITY PLAN (L&C PLAN) - LEVEL 1
STUDENT TEACHERS: Alpha Trust Fintech

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1. Overview

Title	Alpha Trust Fintech
Driving Question or Topic	*CHow do we calculate life insurance premiums?* *Which are the most important types of life insurance?* *(health insurance, car insurance, home insurance, life insurance)* *What does an annuity mean? Can you name the most important annuities?* *What is Investing?* *Why Invest? Which are the most common investment options?* *Why is it important to invest in a life insurance policy?*
Ages, Grades, …	*Age selection 14-16* *10+12*
Duration, Timeline, Activities	*4 learning hours* *4 x 50 minutes* *4 activities*
Curriculum Alignment	Basics of Probability Actuaries and their work (the role of actuaries) Basic actuarial calculation Risk and insurance Introduction on budgeting, spending wisely Introduction to investing Insurance. Different types of insurance: health, car, home, life Expected value of various events to help set insurance premiums. Calculating the life insurance premiums
Contributors, Partners	
Abstract - Synopsis	*The objective of this L&C plan is to describe how student teachers can approach STEAME education to empower high-school students with the basics notions of actuarial mathematics, including the concepts of risk, probability, and how actuaries use math to predict and manage financial uncertainties.*
References, Acknowledgements	https://www.actuariayfinanzas.net/images/sampledata/FundamentalsofActuarialMathematics_S.DavidPromislow2015.pdf https://www.math.umd.edu/~slud/s470/BookChaps/01Book.pdf https://noter.math.ku.dk/Intro_act_math.pdf https://webapps.ilo.org/wcmsp5/groups/public/@ed_emp/@emp_ent/documents/publication/wcms_116165.pdf https://thedocs.worldbank.org/en/doc/651581495591040439-0050022017/original/understandingfinancialeducation.pdf

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2. STEAME ACADEMY Framework*

Teachers' Cooperation	*Two teachers cooperate to fulfill the objectives of the topic under debate.* *Teacher 1 (Math)– will provide knowledge on how we calculate life insurance premiums, the basics mathematics concepts* *Teacher 2 (Economics Science) – will provide knowledge on the main investment options, life insurance policy and how a client of a bank/ assurance company can obtain a life insurance policy*
STEAME in Life (SiL) Organization	*Meeting with bank representatives or assurance company* *Entrepreneurship – STEAME in Life (SiL) Days.*
Action Plan Formulation	*Work plan and steps with clear goals and activities for student teachers. The following topics will be covered by teachers involved in project:* *Activities of Teacher 1:* *1.1 Basics of Probability* *1.2. Actuaries and their work (the role of actuaries)* *1.3 Basic actuarial calculation* *1.4 Risk and insurance* *51.5 Applications (excel sheets)* *Activities of Teacher 2:* *2.1 Introduction budgeting, spending wisely* *2.2 Introduction to investing* *2.3. Insurance. Different types of insurance: health, car, home, life* *2.4 Expected value of various events to help set insurance premiums.* *2.5 Calculating the life insurance premiums* *3. Evaluation - Each teacher follows the assessment methodology: assesses students' teamwork, knowledge, presentation and communication skills, abilities*

* *under development the final elements of the framework*

3. Objectives and Methodologies

Learning Goals and Objectives	*1- Knowledge* • *Define key terms: Balances and reserves, life table* • *Explain the the importance of life annuities* • *Calculate annuity premiums* • *Calculate life insurance premiums* • *Explain the importance of the role of actuaries, providing real-world examples* *2- Skills* • *Analyze the importance of financial education.* • *Construct a budget including a life insurance policy* • *Perform simple examples regarding life insurance premiums* *3- Attitudes* • *To acknowledge positive impact of a good financial education (basics of money management, including earning, saving, spending, and investing) in the lives of the students involved*

Learning Outcomes and expected Results	• *Commitment- to equip high-school students with practical entrepreneurial experiences, and ethical business practices and also to cooperate in solving practical tasks.* • *Recognize the value of interdisciplinary knowledge- A good financial education involves mathematics (financial and actuarial mathematics), and economics (budget management, including life insurance policy), offering a multidisciplinary STEAME experience..* • *Students who engage with Alpha Trust FinTech will help students gain a foundational understanding of financial literacy and develop skills that will be useful throughout their lives and practices in a real-world business context.* • *Students will demonstrate competence in developing an optimum budget* • *Students will gain knowledge about how actuaries work in insurance, finance, and other industries to help companies make smart decisions* • *Students will acquire knowledge in using math to predict and manage risks, especially in finance and insurance.* • *Students will develop practical skills in calculating annuity premiums, life insurance premiums.* • *Students will acquire hands-on skills in calculating annuity premiums, life insurance premiums using informatics (excel sheets or programs such R programming language for example)*
Prior Knowledge and Prerequisites	*Students should have general knowledge on solving simple math calculation.Also to have good communications skills and the ability to work in a team.*
Motivation, Methodology, Strategies, Scaffolds	*Motivating students to get involved in Alpha Trust Fintech can be achieved by highlighting various aspects that appeal to their interests, aspirations, and personal development:* ***Engage in practical, experiential learning opportunities.*** *• Students get to actively participate in constructing and calculate a real and optimum budget* ***Develop entrepreneurial skills and business acumen.*** *• Students have the chance to learn about how to use math in order to predict and manage risks, especially in finance and insurance.* ***Explore science, technology, engineering, mathematics, and entrepreneurship (STEAME) concepts.*** *• Alpha Trust Fintech involves mathematics (Probability, Actuarial Mathematics), economics (basics of money management, including earning, saving, spending, and investing), and technology (digital skills-online Alpha Trust Fintech), offering a multidisciplinary STEAME experience* ***Make a positive impact on the local community.*** *• Participating in community engagement events, workshops, and initiatives allows students to contribute to the community and raise awareness about financial education.* ***Develop leadership skills and responsibilities.*** *• Students can take on leadership roles within the program, leading teams, organizing events, and actively contributing to the success of Alpha Trust Fintech.* ***Build social connections and teamwork skills.*** *• Collaborating with peers, educators, and community members (bank representatives or assurance companies) fosters a sense of camaraderie and teamwork, creating a positive social environment.* ***Experience personal growth and self-discovery.*** *• The diverse activities within Alpha Trust Fintech provide opportunities for personal development, self-reflection, and the discovery of individual strengths and interests.* ***Involve parents in the learning process.***

	•Parents can actively participate in workshops, community events, and even contribute their expertise, creating a supportive and involved community around the students. ***Future Opportunities: Open doors to future educational and career opportunities.*** *• Participation in Alpha Trust Fintech can be highlighted on resumes and college applications, potentially leading to opportunities in financial and actuarial mathematics, in order to predict and manage risks, especially in finance and insurance* *By emphasizing these motivations, Alpha Trust Fintech can create a program that resonates with a diverse range of student interests, encouraging active involvement and a positive learning experience.* *To obtain the learning outcomes, it can be used project-based learning (PBL), in terms of developing critical thinking, problem-solving, and collaboration skills.* *The projects which we can develop might be:* ● *Mathematics: Discuss how Actuaries play a crucial role in many industries, especially insurance and finance and highlight important skills- besides strong math skills, actuaries need to be good at problem-solving, data analysis, and communication* ● *Economics Science: Discuss how we use different ways to invest money, such as savings accounts, stocks, bonds, mutual funds, life insurance in real world* ● *Parents: Involvement through workshops, meetings with local actuary which will describe their daily tasks, challenges, and what they enjoy about their job.*

4. Preparation and Means

Preparation, Space Setting, *Troubleshooting Tips*	*Classroom White boards and markers* *Double sided adhesive tape* *Laptop per student/LCD projector*
Resources, Tools, Material, Attachments, Equipment	*Students will work in the classroom or in a computer lab in order to acquire new knowledge. They can visit a bank or a insurance company to have a better understanding of how actuaries work in insurance, finance, and other industries to help companies make smart decisions.* *Teachers should have appropriate learning resources presentations, including real-world scenarios, discussing the education and skills needed to become an actuary.*
Health and Safety	*Students and teachers work in a healthy and safe environment*

5. Implementation

Instructional Activities, Procedures, Reflections	*Lesson1 Introduction in Financial Education* *1. Teacher's Actions:* *Math Teacher* • *Introduce the students to the mathematical calculations needed and to the interpretation and meaning making out of the results, in collaboration with the science and IT teachers* • *Presents basic knowledge such as notions used in financial and actuarial mathematics (calculus, percentage, probability notions.*

- *Incorporate technology, such as interactive apps or online platforms, to make the learning experience dynamic. Teaching the construction of electronic questionnaires (e.g. Google Forms) or data entry (in Excel Spreadsheet or other Database).*

Economics Science:

- *Introduce the main notions about budget management (income, expenses, savings), spending wisely*
- *Introduce the basic concept of investing and how it can help grow money over time*
- *2. Student Tasks*
- *Fill a simple budget template it out a based on a hypothetical income and expenses scenario.*
- *Create their own simple game with probabilities and outcomes*
- *In small groups, students create a budget for a common scenario (e.g., planning a birthday party within a budget).*

Lesson2 Actuarial Mathematics

Math Teacher

- *Explain the role of actuaries: "Actuaries use math to help businesses understand and manage risks. They often work with insurance companies to set prices for policies based on how likely certain events are to happen"*
- *Introduce the concept of expected value: "Expected value is a way to predict the average outcome of a random event based on its probabilities."*
- *Encourage students to find an example of risk management in real life (e.g., insurance, finance, sports) and write a short paragraph about how math is used to manage that risk.*

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Economics Teacher

- *Explain the importance of Insurance. Present different types of insurance: health, car, home, life*
- *Provide students with handouts that include real-world actuarial problems and solutions*
- *Discuss the education and skills needed to become an actuary (Besides strong math skills, actuaries need to be good at problem-solving, data analysis, and communication)*

2. Student Tasks

- *Discuss and understand the importance of actuarial mathematics*
- *Will be encourage to discuss how actuaries work in insurance, finance, and other industries to help companies make smart decisions*
- *Design a meaningful poster to underline how actuaries might calculate the probability of an event like a car accident or a natural disaster.*

Lesson3 Life Insurance Policy

Math Teacher

- *Introduce the main notions to understand: Risk and insurance*
- *Define Annuity: "An annuity is a way to save money for the future. You pay money into an annuity over time, and later it pays you back in regular amounts."*
- *Explain the main types of Annuities: Fixed Annuities, Variable Annuities, Immediate Annuities, Deferred Annuities*

Economics Science Teacher

- *Discuss real-life examples where insurance and annuities would be useful*
- *Invite a financial planner or insurance agent to speak to the class about their work and answer questions.*
- *Facilitate Q&A sessions to allow students to engage directly with professionals in the field.*

2. Student Tasks

	• *Understand and discuss the fundamental concepts of insurance and annuities,* • *Make a poster with the risk activities and insurance activities.* *Lesson4 Practical Aspects of life Insurance* *Math Teacher* • *Introduces the possibilities to solve a mathematical problem with help of a mathematical software (Excel spreadsheets, R programming language or other program language in order to solve a whole class of tasks)* • *Divide students into small groups. Give each group a scenario (e.g., a car accident, a house fire).Each group decides how much they would pay for insurance and what the insurance would cover.* • *Discuss each scenario and how insurance helps manage the risk.* *Economics Science Teacher* • *Show a short video explaining annuities and their benefits for long-term savings and financial security.* • *Divide students into small groups. Give each group fake money and an "annuity contract." Let them decide how much money to put into their annuity each month. Simulate a few "years" and then start paying out the annuity. Show how their decisions affect their payments.* • *Foster teamwork by assigning roles in event planning, promotion, and execution.* *2. Student Tasks* • *Create multimedia projects related to Insurance and risk management, highlight the projects in school exhibitions or community events.*
Assessment - Evaluation	*Formative Assessment:* • *The teacher will check for understanding through classroom discussion. The teacher will help facilitate discussion and correct misconceptions, if necessary.* • *The exit ticket at the end of the lessons will help gauge student understanding.* • *The opening discussion will allow the teacher to check for understanding of the material as well as the end of class discussion about the results.* *Continuous formative evaluation involves:* • *Quizzes and Problem-Solving Exercises: Regular quizzes assessing knowledge of budget management (income, expenses, savings), spending wisely, concept of investing and how it can help grow money over time, expected value, insurance, insurance policy, risk management* • *Group Presentation Rubrics: Evaluating group presentations about the concepts of insurance and annuities focusing on accuracy in data representation, depth of analysis, and understanding of this process.* • *Calculation Accuracy Checks: Assessing the accuracy of calculations made during sessions related to a budget, cost analysis, insurance policy, life insurance policy* • *Peer and Self-Assessment: Encouraging students to assess their and their peers' work during group activities, fostering a reflective approach to understanding and teamwork.*
Presentation - Reporting - Sharing	*The results will be discussed by participating teachers, students, and other partners, and will be published on the school website and on social media.*
Extensions - Other Information	All information presented will be uploaded to the school website and social media posts. Projects can be further developed into case studies in order to predict future risk cases and the optimum insurance policy or life insurance policy, which will be considered.

STEAME ACADEMY Prototype/Guide for Learning & Creativity Approach
Action Plan Formulation

Major steps in the STEAME learning approach:

STAGE I: Preparation by one or more teachers

1. Formulating initial thoughts on the thematic sectors/areas to be covered
2. Engaging the world of the wider environment / work / business / parents / society / environment/ ethics
3. Target Age Group of Students - Associating with the Official Curriculum - Setting Goals and Objectives
4. Organization of the tasks of the parties involved - Designation of Coordinator - Workplaces etc.

STAGE II: Action Plan Formulation (Steps 1-18)

Preparation (by teachers)

1. Relation to the Real World – Reflection
2. Incentive – Motivation
3. Formulation of a problem (possibly in stages or phases) resulting from the above

Development (by students) – Guidance & Evaluation (in 9-11, by teachers)

4. Background Creation - Search / Gather Information
5. Simplify the issue - Configure the problem with a limited number of requirements
6. Case Making - Designing - identifying materials for building / development / creation
7. Construction - Workflow - Implementation of projects
8. Observation-Experimentation - Initial Conclusions
9. Documentation - Searching Thematic Areas (AI fields) related to the subject under study – Explanation based on Existing Theories and / or Empirical Results
10. Gathering of results / information based on points 7, 8, 9
11. First group presentation by students

Configuration & Results (by students) – Guidance & Evaluation (by teachers)

12. Configure STEAME models to describe / represent / illustrate the results
13. Studying the results in 9 and drawing conclusions, using 12
14. Applications in Everyday Life - Suggestions for Developing 9 (Entrepreneurship - SIL Days)

Review (by teachers)

15. Review the problem and review it under more demanding conditions

Project Completion (by students) – Guidance & Evaluation (by teachers)

16. Repeat steps 5 through 11 with additional or new requirements as formulated in 15
17. Investigation - Case Studies - Expansion - New Theories - Testing New Conclusions

18. Presentation of Conclusions - Communication Tactics.

STAGE III: STEAME ACADEMY Actions and Cooperation in Creative Projects for school students

Title of Project: _____
Brief Description/Outline of Organizational Arrangements / Responsibilities for Action

STAGE	**Activities/Steps** Teacher 1(T1) Cooperation with T2 and student guidance	**Activities /Steps** **By Students** Age Group: ____	**Activities /Steps** Teacher 2 (T2) Cooperation with T1 and student guidance
A	Preparation of steps 1,2,3		Cooperation in step 3
B	Guidance in step 9	4,5,6,7,8,9,10	Support guidance in step 9
C	Creative Evaluation	11	Creative Evaluation
D	Guidance	12	Guidance
E	Guidance	13 (9+12)	Guidance
F	Organization (SIL) STEAME in Life	14 Meeting with Business representatives	Organization (SIL) STEAME in Life
G	Preparation of step 15		Cooperation in step 15
H	Guidance	16 (repetition 5-11)	Support Guidance
I	Guidance	17	Support Guidance
K	Creative Evaluation	18	Creative Evaluation