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“INNOMATH - Innovative enriching education processes for Mathematically Gifted Students in Europe”

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Title of Content: **Module 7 : Raising the entrepreneurial mindset in school students through learning activities**

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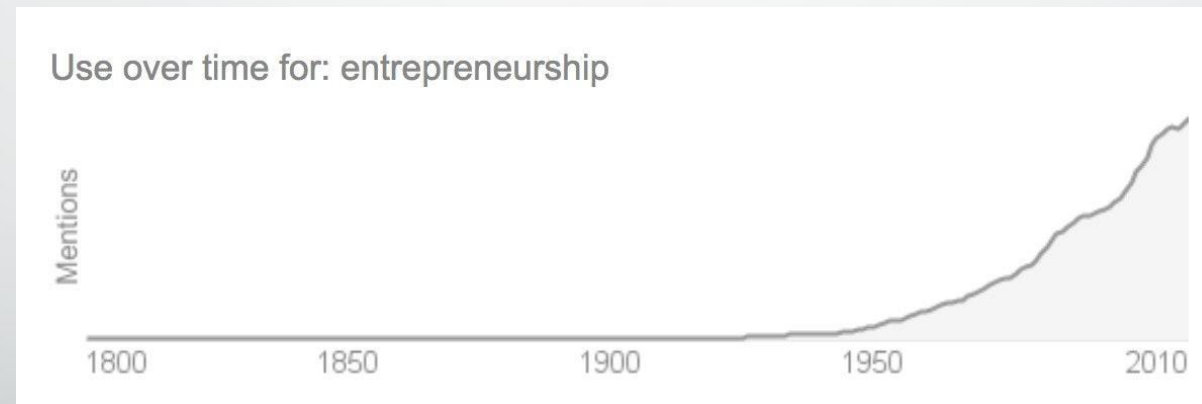
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Entrepreneurship

While the definition of entrepreneurship has stayed constant for decades, the possibilities for aspiring entrepreneurs sure have come a long way.

Think about it: 100 years ago, what options did an entrepreneur have? If you didn't have the skill to make something, and didn't have the capital to buy something, you were out of luck.

Fast forward to today, and there are 582 million entrepreneurs in the world. The opportunities have exploded. That's a big reason why, according to Google, usage of the term looks like this:



What is Entrepreneurship?

Entrepreneurship is the ability and readiness to develop, organize and run a business enterprise, along with any of its uncertainties in order to make a profit. The most prominent example of entrepreneurship is the starting of new businesses.

Meaning of Entrepreneur

- The entrepreneur is defined as someone who has the ability and desire to establish, administer and succeed in a startup venture along with risk entitled to it, to make profits.
- The best example of entrepreneurship is the starting of a new business venture.
- The entrepreneurs are often known as a source of new ideas or innovators, and bring new ideas in the market by replacing old with a new invention.

WHY involve students with Entrepreneurship

- While typical students appreciate the importance of academics, they may limit their focus to the more traditional disciplines: English, history, mathematics, science, foreign language, and fine arts.
- Many students, however, understand that entrepreneurship courses enhance their education by teaching the art of communication, time management, negotiation, and collaboration.
- Indeed, [entrepreneurship](#) is not just another subject; it is a mindset that helps individuals develop nimble thinking so they can identify problems and find solutions that create value.
- These analytical and interpersonal skills transcend the workplace, which is why entrepreneurship is so important for students.



Why Entrepreneurship is So Important for Students

Today, many visionary students aspire to run their own business, mainly because they seek autonomy, financial security, and vocational flexibility. Indeed, some of these young adults will inherit a family business, hoping to fortify and extend the legacy. By contrast, others will launch a startup to meet an emerging need in the community. These individuals will benefit from entrepreneurship courses that show them how to innovate, lead, collaborate, and persevere.



Why Entrepreneurship is So Important for Students

Nonetheless, many students have no intention of pursuing a career in business. Instead, they gravitate to public service, healthcare, education, or the arts. Interestingly, these students also need to develop skills that prepare them to innovate, lead, collaborate, and persevere; that is why entrepreneurship is so important for all students.

ENTREPRENEURSHIP FOR STUDENTS: LEAD THROUGH COLLABORATION

- Entrepreneurial students tend to work in teams.
- They share responsibilities as they practice active listening.
- They have recurring opportunities to write and present clear, articulate speeches.
- They develop effective communication skills that apply to every facet of life and any career path

Practice makes all

- In order to help the students develop entrepreneurial mindset we need to bring them into the action of business doing. Project based work can help in this goal as it brings the first needed element, the element of cooperation.
- In the following content we discuss Learning and Creativity Plans in replacement of Lesson Plans that school teachers can use in collaboration with other teachers to support project based work and learning in school students with entrepreneurship ideas and activities.
- Separate full Learning & Creativity Plans will be provided to trainees.

Learning & Creativity Plan

A customized e-shop

- Driving question: What i need to know about the costs, revenue and profit in my business?
- AGES:15-16
- Duration: 4 LEARNING HOURS
- 8 ACTIVITIES



Five activities for two learning periods of 90 min (first lesson) include the analysis and the calculation of a firm's profit, the analysis of its costs and how this firm creates and increases its revenue. So, for all these reasons, in the second period of 90 min (second lesson), every group of students designs and creates a customized e-shop, that formulates a real problem. In this way, they understand the mechanism of the market in action.



Project Framework

Teachers' Cooperation:

- 1st Teacher: Economist
- 2nd Teacher: Technology Specialist and/or Computer Scientist

Learning Goals and Objectives

By the end of the L&C Plan, students should *define* and *calculate* (in euros):

- total revenue
- total fixed costs
- total variable costs
- total costs
- average total costs
- profit

Learning Outcomes and Expected Results

- After the project, learners will be able to investigate the market and become more competitive using new technologies. This procedure develops their critical mind and fosters their curiosity about new markets and about their future as entrepreneurs. Their communicative skills and their ability to collaborate will be enhanced, as they will be obliged to make decisions as partners.
- The result will be the virtual e-shop with the aid of spreadsheet for billing and pricing the product

Prior Knowledge and Prerequisites

- Basic knowledge of mathematics and spreadsheet document, global market perception (comparing prices and features)

Motivation, Methodology, Strategies, Scaffolds

- The main methodologies and techniques of the course are based on inquiry-based learning. In this way, students are encouraged to explore the material, prioritize data, ask questions and share ideas.
- Students are involved in designing and conducting their own scientific research after having some queries and case studies.
- In addition, students get the chance to explore economic terms more deeply and learn from their own first-hand experience.
- Students have the opportunity to investigate a problem and find possible solutions, make comments and questions to test ideas, think creatively and use their intuition.

Preparation, Space Setting, *Troubleshooting* *Tips*

- A free design platform of the Internet will be the basic tool and with the use of spreadsheet document, children will make the appropriate calculations for the final pricing of the product.
- Tablets and laptops in the classroom, will be necessary for students, in order to investigate the market and of course to develop their e-business.
- According to lesson activities students could work or individually or in groups of 4-5 students or in plenary session.

Resources, Tools, Material, Attachments, Equipment

- "The logo Game" application:
- apps.apple.com/us/app/logo-game-quiz/id953721694
- Infographic "Fixed vs Variable Costs":
- napkinfinance.com/napkin/fixed-cost-vs-variable-cost
- Calculation of the profit:
- news.wtm.com/wp-content/uploads/2016/12/Profit-Feature.jpg
- Kahoot: kahoot.it/
- Template for e-shop: www.umlet.com



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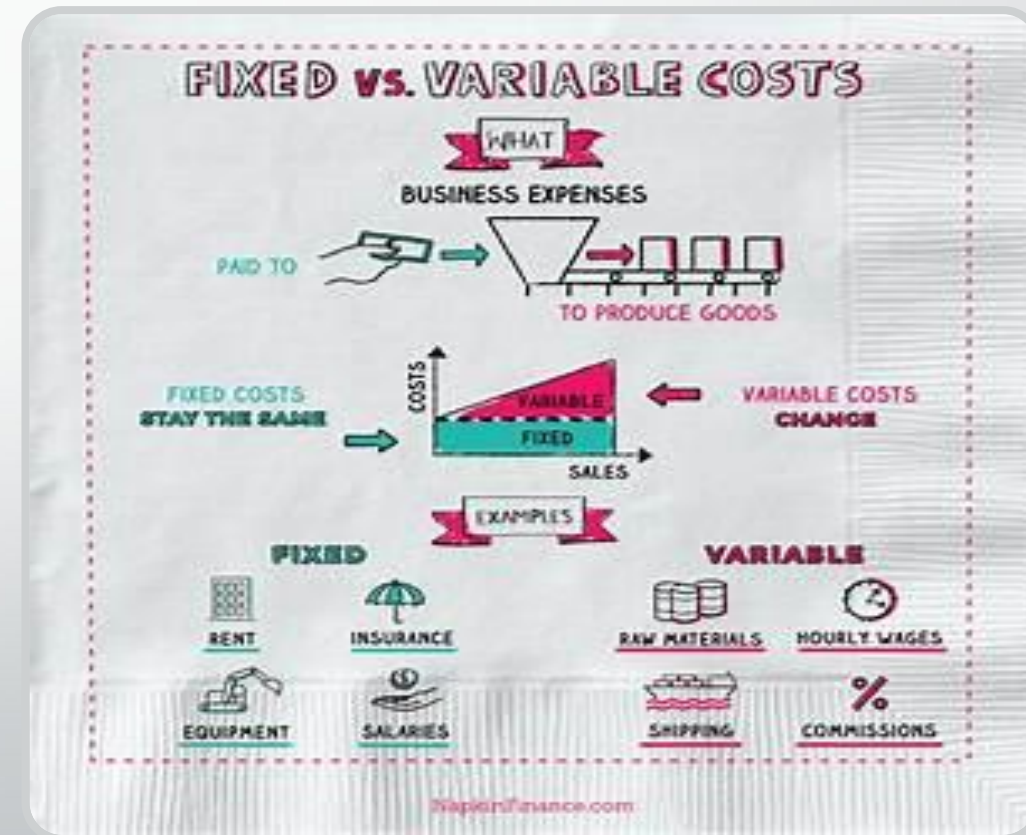
Implementation

Instructional Activities, Procedures, Reflections

- The plan can be completed in four learning hours, the two first hours with 5 activities related to the understanding and analyzing the billing of a product and the two second hours with one activity, which is the creation of their own e-business.

Activity 1: Brainstorming (20 minutes)

First of all, students are divided into groups of 4-5 persons. The teacher gives them a worksheet without explain anything or analyze the economic terms. With the help of the following infographic, children will try to answer the questions.



Activity 2: Game for finding the well-known logos (5 minutes)

Students play with "The Logo Game" application that shows various images of business logos (or parts of logos) and ask users to identify each business.



Activity 3: Playing with quizzes about the six terms (15 minutes)

Students working either individually or in small groups, play a Kahoot quiz-game prepared by the teacher. They try to answer multiple choice questions on the 6 economic terms without being taught it, with what they have understood from the first activity.



Activity 4: Definition of the economic terms (30 minutes)

Teacher's presentation and plenary discussion, based on students' findings of the previous activities, defines the terms: costs, average costs, revenues and profit. The correlation with examples from real life is important and helpful. Through calculations and small case studies, students answer 5 multiple choice questions in the end of the presentation.

$$\text{Profit} = \text{Revenue} - \text{Costs}$$

↑ ↑ ↑
To increase this: increase this or decrease this

Activity 5: Case study (20 minutes)

- In the end of the first lesson, students will summarize their knowledge via the worksheet, as a case study. This case study will help them to organize the data (table) and apply all the terms that they have already learned. The questions, based on the STEAME investigative approach, develop their critical minds.

Activity 6: Creation of the e-shop (90 minutes)

- Every group of students creates a customized e-shop, where the consumers can choose their outfit (quality, design, color combinations etc.). As far as the application of this concept is concerned, students will separate in groups and every group will choose the style of the outfit (casual/formal) which it wants to produce and promote. We are going to investigate the market, to locate suppliers and learn about similar businesses (competitors)

Assessment - Evaluation

- A *self-assessment* with immediate results, is the Kahoot game (activity 3).
- A *group-assessment* is the multiple-choice questions and the small case studies in the end of the Teachers' Presentation (activity 4).
- An *evaluation using a rubric with four criteria*, is the worksheet submission (activity 5).
- Apart from their ability to perceive and apply the economic terms, we can monitor their collaboration skills, during the above two activities.

Presentation - Reporting - Sharing

- A presentation by each group takes place as an extra activity (an additional 20-minute lesson), analyzing the steps from the billing until the pricing of the product. Students should present all the variables that take into consideration in order to complete the e-shop.

Extensions - Other Information

- Event - real meeting with executives of a big firm with well-known products and on a call (via teleconference or face to face) and with a businessman whose main activity is organizing and running an e-shop.

LEARNING & CREATIVITY PLAN (L&C PLAN): MY OWN ADVERTISEMENT

- Driving Question: WHAT I NEED TO KNOW ABOUT THE FACTORS THAT MAY SHIFT THE DEMAND CURVE?
- AGES:15-16
- Duration: 4 LEARNING HOURS
- 6 ACTIVITIES



Five activities for two learning period of 90 min (first lesson) include the analysis and the understanding of several factors that may actually affect the demand for a product or a service, negatively or positively.

So, for these reasons, in the second period of 90 min (second lesson), every group of students designs and creates an advertisement in order to promote a product of their choice. This is a well-known method to increase the demand for it. In this way, they understand the mechanism of the market in action.



Project Framework

- Teachers' Cooperation:
- 1st Teacher: Economist
- 2nd Teacher: Teacher of Art

Objectives and Methodologies

By the end of the L&C Plan, students should define and analyze the factors that cause a shift in the demand curve:

- income
- fashion and tastes
- price of substitutes
- price of complements
- demographic changes
- advertising

Learning Outcomes and expected Results

- After the project, learners will be able to investigate the market and become more competitive using marketing techniques and strategies. This procedure develops their critical mind and fosters their curiosity about new methods of expansion.
- Furthermore, students will comprehend the correlation with substitute and complementary goods.
- Their communicative skills and their ability to collaborate will be enhanced, as they will be encouraged to make decisions as partners.
- The result will be the creation of an advertisement as an effective and well-known method, which affects the demand for a product positively.

Prior Knowledge and Prerequisites

- Basic knowledge of mathematics and the ability to decode the diagrams retrieving all the relevant information.
- Global market perception (impact of advertising on consumer's behavior, how the income affects the decision of a consumer).

Motivation, Methodology, Strategies, Scaffolds

- The main methodologies and techniques of the course are based on inquiry-based learning. As a matter of fact, students are encouraged to explore the material, prioritize data, ask questions and share ideas.
- Inquiry-based learning uses different approaches to learning, including small-group discussion and guided learning.
- Students are involved in designing and conducting their own scientific research after having some queries and case studies. Specifically, students learn by making their own advertisement, instead of memorizing facts and material. This allows them to build knowledge through exploration, experience and discussion.

Motivation, Methodology, Strategies, Scaffolds

- In addition, students get the chance to explore economic terms more deeply and learn from their own first-hand experience. Students have the opportunity to investigate a problem and find possible solutions, make comments and questions to test ideas, think creatively and use their intuition.
- As they explore this Learning Plan, students build critical thinking and communication skills.
- Last but not least, team working and brainstorming can get the student on the path to success.

Preparation, Space Setting, *Troubleshooting* *Tips*

- Tablets and laptops in the classroom, will be necessary for students, in order to investigate the market and of course to develop their advertisements.
- According to lesson activities, students could work or individually or in groups of 4-5 students or in plenary session.
- The need of A3 sheets will be an important tool in order to categorize the factors that affect the demand for their product. During this procedure, if one group want to ask a question, then a representative of the other group could help.

Resources, Tools, Material, Attachments, Equipment

- Padlet created by the students: <https://padlet.com/>
- "The logo Game" application:
<https://apps.apple.com/us/app/logo-game-quiz/id953721694>
- Infographic for the six factors that affect the demand curve:
<https://www.sciencebyalok.com/2019/08/law-of-demand-factors-affecting-demand.html>
- Kahoot created by the teacher: <https://kahoot.it/>
- Video for the factors that affecting demand:
<https://www.youtube.com/watch?v=Enz6z9jGmsk>



Implementation

Instructional Activities, Procedures, Reflections

- The plan can be completed in four learning hours, the two first hours with 5 activities related to the understanding and analyzing the factors that affect the demand curve and the two second hours with one activity, which is the creation of their own advertisement.

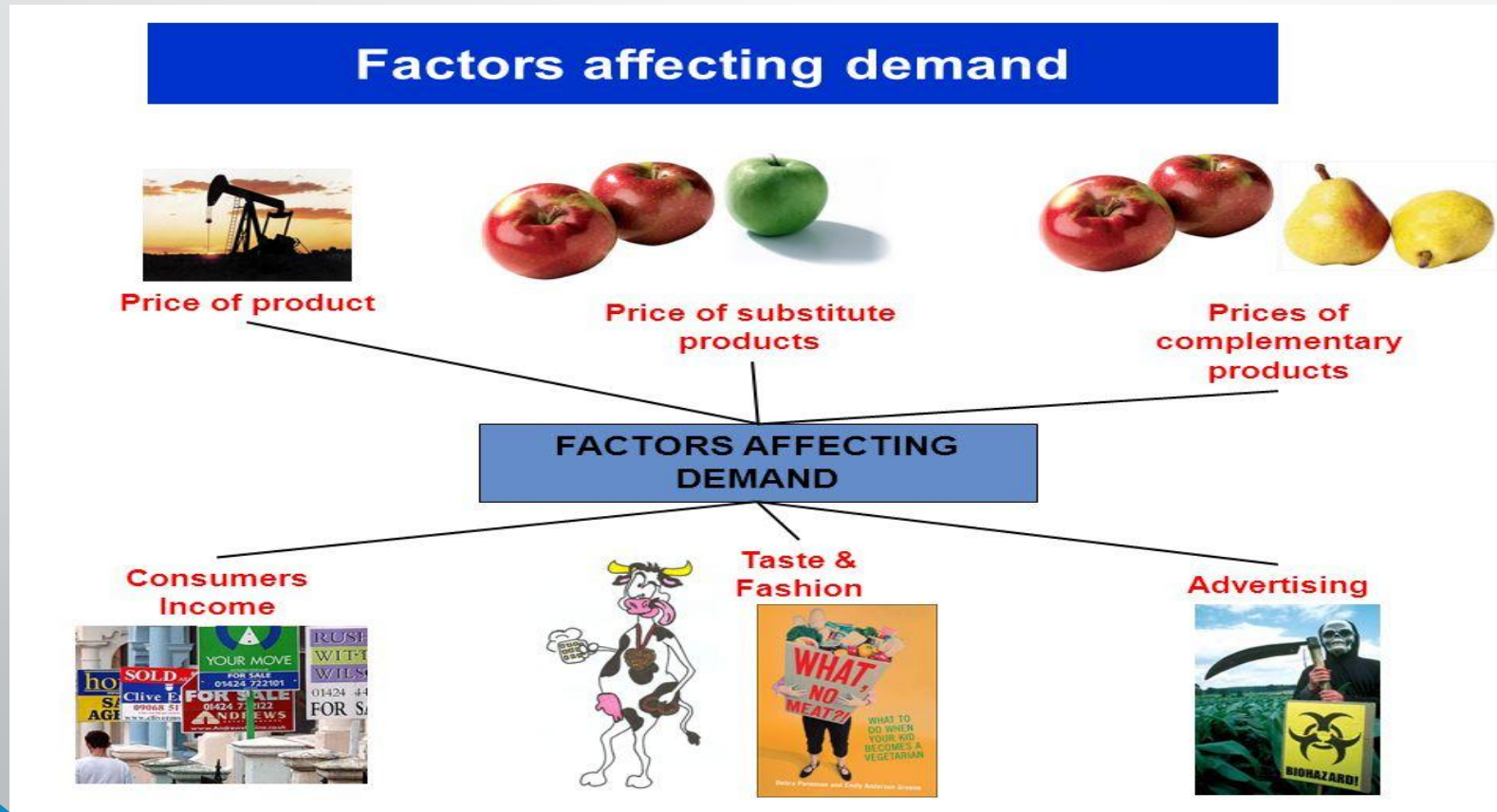
Activity 1: Brainstorming (15 minutes)

- This activity help students to understand how much existing knowledge they have – perhaps without even realizing they have it. In 4 or 5 different workstations around the room; each station should have an A3 piece of paper with a factor that may cause a shift in the demand curve written on it.



- Specifically, each station writes down everything they know about that factor. For example, they could:
 - define it in their own words
 - explain its impact on demand
 - give examples of this type of factor
 - write down where they have seen it before
 - write down the price of it.

The following infographic will be given for their convenience.



Activity 2: Game for finding the well-known logos (5 minutes)

Students play with "The Logo Game" application that shows various images of business logos (or parts of logos) and ask users to identify each business.



Activity 3: Playing with quizzes about the six factors (15 minutes)

Students working either individually or in small groups, play a Kahoot quiz-game prepared by the teacher. They try to answer multiple choice questions on the 6 factors that affect the demand for a product without being taught it, with what they have understood from the first activity.



Activity 4: Factors that affect the demand for a product (30 minutes)

- Teacher uses PowerPoint presentation in order to introduce the students to the six factors affecting demand for a product.
- Teacher explains how each factor will cause a shift in the demand curve and ensures students understand how this is different to the effect of changing prices (which cause a movement along the demand curve).
- Furthermore, she provides real world examples to illustrate each factor.
- At the end of PowerPoint, a video will be shown and a case study will be discussed and answered by the students.

Activity 5: Demographic changes as a factor of demand (25 minutes)

- Students choose an area (e.g. closest city/country) and create a presentation describing/explaining how the demography has changed the demand for certain products in that area.
- This homework is much more challenging and more appropriate for students who need a challenge.
- Students who need more support could be given sentence starters/page titles hinting at what to include (e.g. a specific area, a specific product, etc.)

Activity 6: The creation of advertisement per group (90 minutes)

- Students will separate in groups and every group will choose the product that they want to promote. Advertising requires making your product appear appealing to a potential consumer. So, the process of creating an effective advertisement in six simple steps is the following:



1. Students are going to investigate the market and compare other advertisements from similar companies (competitors)
2. Focus on a specific target group
3. Learners start to think about the headline and work on the body or the main text.

4. The creation of a slogan plays a vital role in the effectiveness of their advertisement.
5. Each group draw the graphics in collaboration with the teacher of Art. This collaboration will be beneficial in order to develop an up-to-date project with modern practices.
6. Finally, they have to choose where to advertise their product.



After this procedure, every group will make a presentation of their advertisement. With the help of padlet, every group can make comments for the other groups, as a game. At the end, a voting takes place for the best and smartest advertisement.

Assessment - Evaluation

- A *self-assessment* with immediate results, is the Kahoot game (activity 3).
- A *group-assessment via the case study* in the end of the Teachers' Presentation (activity 4).
- Peer assessment via advertising (activity 6), where every member of the group tries to influence other members through innovative ideas and effective promotional practices. Padlet is a way to enhance this procedure, as every group can make specific comments for the rest advertisements.

Presentation - Reporting - Sharing

A presentation by each group takes place in the final activity, analyzing the steps from the choice until the development of their own advertisement. Students should present all the variables that take into consideration in order to complete the advertisement.



Extensions - Other Information

Every student could observe household products and perceive the way that every company promote and advertise them.

Virtual Business Entrepreneurship

- Your school students are surrounded by the idea of entrepreneurship.
- They watch entrepreneurs on popular TV shows.
- They are fascinated by start up success stories.
- They aspire entrepreneurial riches.





Virtual Business Entrepreneurship

- Virtual Enterprise is a unique, experiential-learning methodology wherein school students create and operate their own virtual businesses.
- Virtual entrepreneurship (VE) is a brand new digital teaching tool for teaching your school students all the core principles of entrepreneurship.



Virtual Business Entrepreneurship

- Virtual business entrepreneurships will engage your school students and reinforce learning.
- Virtual business entrepreneurship is designed to gradually build the skills of your school students who never used a virtual business simulation before.
- Virtual business entrepreneurship is designed to challenge your more advanced school students who are virtual business veterans.

How Virtual Business Entrepreneurship works

- School students create a business concept.
- They decide on the type of business they wish to operate.
- Then, school students create a business plan.
- They estimate start-up costs, and they make an oral presentation to investors from the local business community for virtual start-up capital.

How Virtual Business Entrepreneurship works

- After the venture capital presentation is made, Virtual Enterprise school department provides virtual seed money to the VE firm along with a corporate bank account.
- VE school students then use that seed money to pay bills, make inventory purchases and start to operate their virtual businesses.
- They learn the financial aspects of running a business by doing it, as opposed to just learning the theories behind financial management and regurgitating them on a written exam.

Students Learn Real Skills in 'Virtual' Businesses

- School students learn valuable cash flow management skills, lines of credit, as well as payroll and other banking aspects of running a business.
- School students also learn the sales, budgeting, negotiation, human resources, and technology skills of running a business.
- VE school students learn a variety of communication skills by negotiating with suppliers or becoming human resources employees and working as the intermediaries between employees and management within the VE firm.



Feedback

- Teacher Darrell Iki says the experience is just like a real business. Students start with a business plan. They are named to leadership positions and learn to “work together, having a common goal in a **potentially** successful business.”
- Nick Chapman (president and national program director for Virtual Enterprises International) says “students quickly realize that operating a business is a lot of work. They’re running meetings, they’re networking, they’re meeting with professionals, they’re working with **mentors**, all of the things that are really going to set them apart when they get into college and then move on into their careers.”

Feedback from students

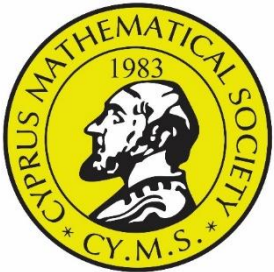
- Miguel Santin says “ I now understand the pressure of running a company. I work in a virtual company called Taste of the World. I have overseen employment and digital media for the virtual company. You really need to be hands on with your employees and make sure you guys have strong communication. Otherwise the company just won't **prosper** as much as you would expect.”
- Catalina Garcia says “It's helped me a lot because when I was trying to get the scholarship, I went to the interviews, and being in this company has helped me really prepare my presentation skills and be able to talk to other people.”



Thank you!



INNOMATH Consortium



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