

LESSON PLAN

Financial Literacy in Grade 12 Canadian and World Studies - Economics

Analysing Current Economic Issues (CIA4U)

Connections to Financial Literacy

Student groups represent companies investigating the factors involved in the cost of production through a class simulation of a “perfect competition” scenario. Students determine the factors influencing the cost of production in making paper airplanes. Fixed and variable costs, economies of scale, and law of diminishing returns are highlighted through the effects of various factors within the simulation. Students make connections between their experiences in the simulation and their understanding of the concept of marginal analysis within an economic model.

Curriculum Expectations

Economic Stakeholders

- Describe economic stakeholder groups and the criteria each uses to make economic decisions

Stakeholders and Their Needs

- identify the criteria used by different groups of economic stakeholders to make economic decisions (e.g., consumers might use utility, while owners might use profit)

Self-Interest and Interdependence

- Explain how stakeholders use self-interest to make choices that maximize economic well-being

Stakeholder Self-Interest

- explain, using concepts of marginal analysis (e.g. marginal cost, marginal revenue, economies of scale, law of diminishing returns), how different stakeholders determine which economic choice is in their own best interest

Learning Goals

By the end of this lesson, students will be able to:

- explain terms and concepts related to marginal analysis and explain their connection to understanding the costs of production.
- explain the behaviour of a simulated company using terms and concepts related to the production.
- evaluate the effects of various factors influencing costs of production.

Sample Success Criterion

- I can determine the effects of factors that influence the costs of production.

Instructional Components and Context

Readiness

- Students have some familiarity with the terms and concepts outlined below which have been introduced in previous classes.

Terminology

- Average product
- Explicit and implicit costs
- Fixed and variable costs
- Law of diminishing returns
- Marginal
- Marginal product
- Monopolies
- Monopolistic competition
- Normal profit
- Oligopolies
- Opportunity costs
- Perfect competition
- Revenue, profit, cost
- Total product

Materials

- Up to 100 sheets of used paper for making paper airplanes
- Handout: **Paper Airplane Manufacturing Experiment**

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Minds On

Whole Class → Review of Terms and Concepts

The class reviews a number of terms/concepts related to the costs of production. These terms and concepts would have been discussed in previous lessons and this Minds On serves as a review. (See **Terminology**)

In the video for this lesson, the teacher uses lecture style and question and answer to review the concepts. The concepts can also be reviewed using different interactive strategies. One suggested strategy is to divide the class into groups of 3-4. Each group receives a 6-sided cube with the following phrases on the 6 sides of the cube. Students take turns rolling the cube and using the strategy that is face up on the cube to review one of the terms/concepts. Students choose terms/concepts until all are complete and check their definitions against other resources (e.g., textbook, website, etc.).

1. **Say It:** provide a verbal definition of the concept/term
2. **Act It:** create a short dramatization or tableau to represent the concept/term
3. **Draw It:** create a quick sketch or diagram to represent the concept/term
4. **Advocate For It:** develop an argument about why this concept/term is the most important one for people to know in order to understand the costs of production
5. **Framer Model It:** create a Frayer model for the concept/term – i.e., definition, characteristics, examples, and non-examples
6. **Advertise It:** create an advertisement for the concept/term

Connections

Guiding Questions

- What are the most important terms/concepts for understanding behaviour of the market place?
- How do business owners determine their opportunity costs?
- Can a monetary value always be applied to opportunity costs?
- What criteria need to be considered to determine whether a company is successful (e.g., the quality of the product, the working conditions, profit)?

AOL Assessment for Learning

Assess students' understanding of the terms and concepts through the question and answer session or the related activity.

Action!

Whole Class/Small Groups → Simulation

Students simulate perfect competition where they work together to create a homogenous product, which is paper airplanes.

Distribute the handout: **Paper Airplane Manufacturing Experiment**. The class divides into groups of 5-7 people to make paper airplanes. Students make predictions about the ideal number of people in the group who should be working at one time to maximize productivity. Groups take time to plan a strategy to maximize production.

Groups nominate one person to start making paper airplanes. Count for 30 seconds and then the groups must stop. All students record on the handout the number of airplanes made in their group. Groups add one more person so that now two people are creating the product (paper airplanes). Count for 30 seconds and then the groups must stop. Each person records the number of paper airplanes made in their group. Continue until the groups have all people making airplanes.

Individuals/Whole Class → Data Analysis

Students record their results on a graph and plot the number of planes produced versus the number of people making paper airplanes.

Students reflect on how productivity was affected by the number of workers. Groups will likely comment on the fact that more workers increased productivity at first and then productivity leveled off.

Discuss how companies determine optimal working conditions and number of employees for different tasks. Make connections between their experience and the law of diminishing returns. Students calculate when the increase in production began to diminish in their experiments by calculating the average and marginal product with each addition of a unit of labour.

Provide students with the following formulas:

Marginal Product = Change in Total Product ÷ Change in Labour

Average Product = Total Product ÷ Units of Labour

Connections

Guiding Questions

- Who are the different economic stakeholders in this simulation (e.g., workers in the companies, company owners, and consumers of the companies' products)?
- Think about the law of diminishing returns and how it will apply to this simulation.

Tip

Teachers may want to provide a model or template of a paper airplane to be used by all groups. A *sample* set of instructions can be found at http://www.amazingpaperairplanes.com/Basic_Dart.html.

AOL Assessment as Learning

Students work together and provide feedback to each other about the connections between the simulation and production.

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Consolidation

Small Groups → Reflection

In their airplane groups, students reflect on what would need to change in order for the companies to increase their productivity as they increased their size (e.g., more space to work, managers, specialization of roles to increase efficiency). Students consider the following questions:

- As you increase the size of your company, which would be the fixed costs and which would be variable costs?
- What other factors need to be considered when increasing productivity (e.g., size of market, quality of the product, working conditions)?

Groups present their reflections to the class.

Connections

Guiding Questions

- If you were starting up a company, how would you balance the considerations of diverse stakeholders to strike a balance between productivity, working conditions, and quality of product?
- What factors would you consider when striking this balance (e.g., economic conditions, local needs)?

AOL Assessment of Learning

Assess students' understanding of the implications of production and related terms and concepts.

Paper Airplane Manufacturing Experiment

Step 1 Record your data in the table below.

As your group produces paper airplanes, you will be given an opportunity to record your total product. This will occur each time you add another unit of labour.

Step 2 Determine the marginal and average product.

Formulas required:

Marginal Product = Change in Total Product ÷ Change in Labour

Average Product = Total Product ÷ Labour

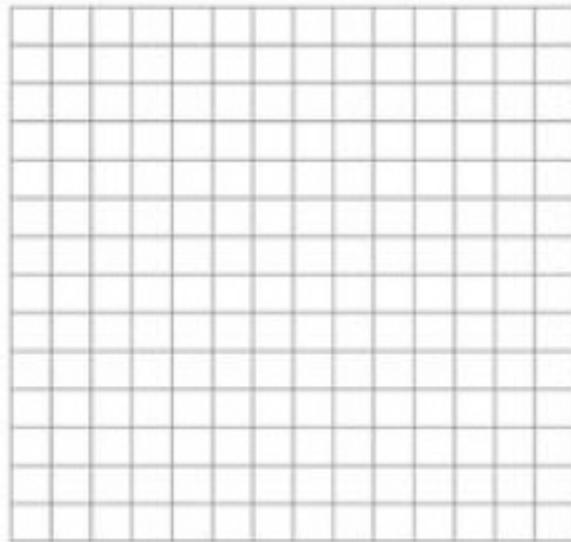
Inputs of variable resource (labour)	Total Product	Marginal Product	Average Product
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

Step 3 Label the horizontal axis as quantity of labour for both graphs. Graph the quantity of labour, marginal product and average product.

Marginal Product



Average Product



Step 4 Class Discussion