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LESSON THREE

WHY NATIONS TRADE

INTRODUCTION

Why do countries trade? Shouldn't a strong country such as the United States produce all of the computers, television sets, automobiles, cameras, and VCRs it wants rather than import such products from Japan? Why do the Japanese and other countries buy wheat, corn, chemical products, aircraft, manufactured goods, and informational services from the United States?

Because countries have different natural, human, and capital resources and different ways of combining these resources, they are not equally efficient at producing the goods and services that their residents demand. The decision to produce any good or service has an **opportunity cost**, which is the amount of another good or service that might otherwise have been produced. Given a choice of producing one good or another, it is more efficient to produce the good with the lower opportunity cost, using the increased production of that good to trade for the good with the higher opportunity cost.

When a country can produce more of a good with the same resources that another country can, it is said to have an **absolute advantage** in the production of that good. If the second country has an absolute advantage in producing a good that the first country wants, both will be better off if they specialize and trade.

But trade is usually beneficial to both countries even if one has an absolute advantage in the production of *both* goods that are to be traded. Given any two products, a nation has a **comparative advantage** in the product with the lower opportunity cost. The **terms of trade** must be such that both countries lower the opportunity costs of the goods they are getting from the trade.

Why do countries have different opportunity costs? They have different endowments of productive resources—warmer climates and longer growing seasons; more plentiful natural resources such as oil, iron ore, and water; more highly educated

and skilled workers; and larger quantities of more sophisticated machinery.

World trade is not static. It has been increasing both in amount and in significance. New supplies of natural resources can be discovered and developed while existing supplies are better managed. Human resources can be improved through better educational programs. Capital resources can be acquired to make the better trained workers even more productive. The increase in world trade should result in more efficient use of the world's scarce resources, and in higher standards of living.

CONCEPTS

Opportunity Cost
Absolute Advantage
Comparative Advantage
Specialization
Terms of Trade

OBJECTIVES

- ◆ Recognize that comparative advantage is the basis for trade.
- ◆ Engage in a comparative advantage simulation.
- ◆ Analyze the simulation results and use the comparative advantage model to make a decision about specialization.
- ◆ Predict the consequences of one's decisions.

LESSON DESCRIPTION

Students read and discuss a narrative about international trade that focuses on opportunity cost and the principle of comparative advantage. Then the class is divided into four groups, each representing a different country. They engage in a simulation that assesses the skills available within their countries, and each country decides on an area of specialization. The lesson ends with a class discussion about the decisions made by the four countries and the economic benefits and/or costs of those decisions.

TIME REQUIRED

Three class periods. (Two if the reading of Activity 1, *Comparative Advantage*, is assigned as homework.)

LESSON THREE

MATERIALS

- One copy for each student of Activity 1, *Comparative Advantage*
- ★ One copy for each student of Activity 2, *Human Resources and Comparative Advantage*. Several copies of Activity 3, *Bureaucratic Skills Test* (one with the answers for the tester.) Several copies of Activity 4, *Computer Skills Test* (one with the answers for the tester.)

PROCEDURE

PERIOD 1

1. Distribute Activity 1, *Comparative Advantage*. Allow students sufficient time to read the explanation of comparative advantage or assign the reading for homework. (This is a difficult concept for students at all levels to understand. You may choose to treat the activity as a text and read through it step by step with your students. Once you think the students understand the concept, use steps 2 through 9 as a review.)

2. Copy TABLE A on the board. Ask the following questions:

- What would be the total production of shoes and shirts without specialization and trade? (180 units of shoes and 175 units of shirts.)
- How many units of each good would the United States have? (100 units of shoes and 75 units of shirts.)
- How many units of each good would Canada have? (80 units of shoes and 100 units of shirts.)

3. Copy TABLE B on the board. Ask the following questions:

- How did specialization affect world production? (Added 20 units of shoes and 25 units of shirts.)
- How did specialization and trade affect the standard of living in the United States? In Canada? (The United States added 25 units of shirts. Canada added 20 units of shoes.)

4. Copy TABLE C on the board. Ask the fol-

lowing questions:

- What would be the total production of shoes and shirts without specialization and trade? (180 units of shoes and 155 units of shirts.)
- How many units of each good would the United States have? (100 units of shoes and 80 units of shirts.)
- How many units of each good would Canada have? (80 units of shoes and 75 units of shirts.)

5. Copy TABLE D on the board. Ask the following questions:

- How did specialization affect world production? (Added 20 units of shoes and lost 5 units of shirts.)

6. Copy TABLE E on the board. Ask the following questions:

- How did this case of partial specialization increase total production from TABLE C? (Added 10 units of shoes and 3 units of shirts.)
- Assume that the United States trades 85 units of shoes to Canada for 75 units of shirts as shown below:

	Shoes	Shirts
United States	105	83
Canada	85	75
Total	190	158

How many units of each good would the United States have? (105 units of shoes and 83 units of shirts.)

- How many units of each good would Canada have? (85 units of shoes and 75 units of shirts.)
- Would this be an improvement over TABLE C? (The United States would add 5 units of shoes and 3 units of shirts; Canada would add 5 units of shoes.)

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7. Suppose that the United States trades 90 units of shoes to Canada for 75 units of shirts as shown below. Would both countries be better off than in TABLE C? (The United States would add 3 units of shirts and Canada would add 10 units of shoes.)

	Shoes	Shirts
United States	100	83
Canada	90	75
Total	190	158

8. Why wouldn't the United States trade 95 units of shoes for 75 units of shirts?

	Shoes	Shirts
United States	95	83
Canada	95	75
Total	190	158

(Without specialization the United States had 100 units of shoes and 80 units of shirts. The opportunity cost of one unit of shirts was 1.25 units of shoes. Three shirts would cost 3.75 units shoes. This trade would give up 5 units of shoes for 3 shirts.)

9. Who benefits when countries trade? (Both countries benefit or no trade will take place.)

PERIOD 2

10. Set up the classroom as described in Activity 2, *Human Resources and Comparative Advantage*. (Corner #1, SERVICE SKILLS; Corner #2, SALES SKILLS; Corner #3, BUREAUCRATIC SKILLS; Corner #4, COMPUTER SKILLS; Center of the Classroom, OTHER.)

11. Provide someone to administer the tests in Corner #3 (Activity 3, *Bureaucratic Skills Test*) and Corner #4 (Activity 4, *Computer Skills Test*).

12. Divide the remaining students into 4 approximately equal groups. Explain to the students that they should not be discouraged if they find one or more of the tests from Activity 2 to be difficult. If everyone got all the questions right, there would be no reason to specialize, and this

activity is about specialization based on comparative advantage.

13. Distribute Activity 2, *Human Resources and Comparative Advantage*. Have the groups meet, read over the activity, and decide what they have to do. Once they have indicated they are ready to begin their testing, signal them to begin. After 10, 20, and 30 minutes, remind them to move to another testing area; after 40 minutes, have them regroup in their countries to complete steps 4 through 7 of Activity 2.

Answers for Activity 3:

1. ½ point for each word in correct position.
 - synecdoche
 - synecious
 - synecology
 - synectics
 - synergist
 - synergy
 - synesis
 - synesthesia
2. 2 points for each correct answer.
 - a. Yes b. Yes c. No

Answers for Activity 4:

- One point for each correct answer.
1. (28 days)
 2. (11010)
 3. (1000)
 4. (7)
 5. (Jane, 3, Jonas, 9, Juan)
 6. (.202)
 7. (7)
 8. (3)
 9. (10)
 10. (100, 4, 4, 40)

14. Put the chart under step 8 of Activity 2 on the board. Have each country fill in its information. Ask each country what it decided to produce and the reasoning behind the decision.

CLOSURE

- Have each student make a copy of the completed chart under step 8 of Activity 2.

LESSON THREE

- Ask each student to write a one-page paper explaining why their country should or should not specialize and trade. They must discuss the opportunity costs involved and how comparative advantage has influenced their decision. They should mention likely trading partners in their explanation.

EVALUATION

- Ask the students to write an original paragraph about two fictional countries and the products that they might exchange. Tell them to be sure to explain why these countries chose to produce these products, and what kind of trade will take place between these countries.
- Ask your most able students to define *Absolute Advantage* and *Comparative Advantage* and to explain how the two are different.

EXTENSION

1. Ask each student to look for newspaper and periodical articles that discuss international trade. Have a committee of students develop a clipping file on such topics as NAFTA, Mexico's peso crisis, the impact of rising interest rates in the United States on investment in developing countries such as Mexico, the impact of middle-class Mexicans buying U.S.-made consumer goods, major trading partners of the United States, U.S. trade relations with Japan and other Pacific Rim countries, the return of Hong Kong to China, U.S. trade relations with Canada, GATT, widening NAFTA to include Latin American countries, U.S. trade relations with Russia and the other former Soviet states, and U.S. trade relations with the European Economic Community. (Give students credit for contributing to or organizing the file.)

2. Allow students to write short (one page) summaries of articles from the clipping file with at least one additional paragraph explaining how opportunity cost and comparative advantage help them to understand what is going on in the situation described in the article. (Students who submit thoughtful and perceptive analyses should be encouraged to report their papers to the class.)

ACTIVITY 1

COMPARATIVE ADVANTAGE

Name _____

The reading for this lesson explains why countries trade with each other. Even when countries can produce what they want on their own, they often choose to specialize. They import some things and export others. People specialize for the same reasons that countries specialize. As you read this explanation, think about the following questions:

1. Why do countries choose to specialize and trade?
2. When might they choose not to?
3. How does comparative advantage apply to you?
4. How can you choose a lifestyle that encourages you to do what you do best?

ABSOLUTE ADVANTAGE

Pretend for a moment that there are just two countries in the world, the United States and Canada. Pretend also that they produce only two goods, shoes and shirts. The resources of both countries can be used to produce either shoes or shirts. Both countries make both products, spending half of their working hours on each. But the United States makes more shoes than shirts, and Canada makes more shirts than shoes. This situation is shown in Table A.

TABLE A

	Shoes	Shirts
United States	100	75
Canada	80	100
Total	180	175

Now, the sensible thing to do would be for each country to specialize. The United States should make only shoes and Canada should make only shirts. What will happen when each country spends all its working hours making one product? It will make twice as much of that product and none of the other, as shown in Table B.

TABLE B

	Shoes	Shirts
United States	200	0
Canada	0	200
Total	200	200

The world now has both more shoes and more shirts. The United States can trade 100 units of shoes for 100 units of shirts, and both countries will benefit.

In this example, the United States could make more shoes than Canada with the same resources. Economists say that it had an *absolute advantage* at shoemaking. Canada, on the other hand, had an *absolute advantage* at shirtmaking.

COMPARATIVE ADVANTAGE

Now suppose one country has an absolute advantage in both products. Is trade a good idea under these circumstances? Table C shows what production might be like if the United States had an absolute advantage at making both shoes and shirts.

TABLE C

	Shoes	Shirts
United States	100	80
Canada	80	75
Total	180	155

In this case, the United States can produce more of each good with the same set of resources than Canada can. The **opportunity cost** of choosing to produce more of one of the goods with the available resources will be the loss of some of the other good. The United States could produce either 200 units of shoes or 160 units of shirts. Canada could produce either 160 units of shoes or 150 units of shirts. If the United States produces only shoes, it gives up 80 units of shirts to gain 100 units of shoes. If Canada produces only

ACTIVITY 1 (continued)

shoes, it gives up 75 units of shirts to gain 80 units of shoes. The opportunity cost of producing shirts is higher for the United States, and the opportunity cost of producing shoes is lower. The opportunity cost of producing shoes is higher for Canada, and the opportunity cost of producing shirts is lower. Economists would say that the United States has a *comparative advantage* in shoemaking and Canada has a *comparative advantage* in shirtmaking. Table D shows what happens when each country specializes in the product in which it has a comparative advantage.

TABLE D

	Shoes	Shirts
United States	200	0
Canada	0	150
Total	200	150

By specializing in this way, the United States and Canada have increased the production of shoes by twenty units over what they produced before, from 180 to 200. But the world has lost five units of shirts, going from 155 to 150. (See Table C.) Production in the United States could be adjusted to make up the difference. For example, if the United States gave up 10 units of shoes, it could produce 8 units of shirts. Table E shows the results of such a tradeoff.

TABLE E

	Shoes	Shirts
United States	190	8
Canada	0	150
Total	190	158

In this way, the total production of both goods could be increased.

TERMS OF TRADE

What will be the **terms of trade** in this situation? Before specialization the United States produced 100 fewer units of shoes. The opportunity cost of choosing to produce 80 units of shirts was

the 100 units of shoes that could have been produced with the same resources. In like manner, Canada's opportunity cost of producing 80 units of shoes was 75 units of shirts. If the terms of trade reduce each country's opportunity cost of acquiring the good traded for, trade will take place. In this example, Canada will not accept fewer than 80 units of shoes for 75 units of shirts and the United States will not pay more than 100 units of shoes for 80 units of shirts. Both countries must benefit for trade to occur.

The real world is much more complex than this two-country, two-product model. Trade involves many different countries and products. And it is not always clear where a country's comparative advantage lies.

ACTIVITY 2

HUMAN RESOURCES AND COMPARATIVE ADVANTAGE

Name _____

Comparative advantage can be applied to people as well as to countries. It says, in effect, that it is best for everyone when people concentrate on doing the one thing they do best. If fixing things is your specialty, for instance, that is what you should do. It doesn't matter that other people may be better at fixing things than you are. But if you are also an artist, you may have to decide which of your two skills is your comparative advantage. This will depend in part on other people's strengths and the value that society places on your skills. You must ask yourself which of the things you can produce is worth more in trade. This activity shows how the skills of a country's residents help to define its comparative advantage.

Comparative advantage is a difficult concept to understand. Pretend for this activity that it is possible to predict the future accurately, that the tests really measure your skills, and that wages in the four skill areas are about the same. (Don't be discouraged if some of the tests seem hard compared to the others. The activity won't work if everyone has a perfect score on each test.)

1. You have been divided into four groups. Each group represents a country whose goal is to decide which of its resources should be developed for trade. Your own abilities, which will be tested in this activity, are the resources your country can choose to develop.

2. Economists predict four skill areas that will be in great demand for the next twenty years. The skills are service skills, sales skills, computer skills, and bureaucratic skills. Your country will determine which it should focus on by having all of its citizens tested for their ability in each of the four skill areas.

Each corner of the classroom should be designated as the testing center for determining ability

in one of the four skill areas. There will be four ten-minute testing sessions timed by the teacher. This will insure that you have enough time to go to all four corners to be tested in all four skill areas. If you finish any test early, you may move on to the next corner. Instructions explaining how the tests are to be administered follow.

Corner #1 SERVICE SKILLS

- Your service ability will be measured by what kind of person you seem to be.
- Introduce yourself to someone else in the corner and convince that person that you can be trusted.
- This person must decide how much confidence she or he has in you and, consequently, how much you might be able to help her or him. She or he will rate you on a scale of 1 to 10, 10 being the highest grade possible.

Corner #2 SALES SKILLS

- Your sales ability is measured by how effective a one-minute sales pitch you can come up with is.
- Go up to one person in this corner and give her or him a one-minute sales talk on a product she or he has randomly chosen.
- This person will rate your sales ability on a scale of 1 to 10 by deciding your effectiveness in convincing her or him to buy your product.

Corner #3 BUREAUCRATIC SKILLS

- Your ability to work in a bureaucracy is measured by how well you can alphabetize eight words and apply a rule to three cases.
- The teacher or a student volunteer acts as tester in this corner. The tester gives a copy of the test to you and corrects it when you have finished.
- You will receive a half point for each word alphabetized correctly and two points for each question correctly answered.

ACTIVITY 1 (continued)

Corner #4 COMPUTER SKILLS

- Your computer ability is measured by how well you perform on a mathematics test.
- A teacher or student volunteer will have to administer this test.
- You will receive one point for every correct answer.

Center of the Classroom

You must take at least two of the skills tests. If you decide not to take the others, you can spend the testing session in the center of the classroom. While there, you must create your own job category, test, and rating scale.

4. After you have taken four ability tests, meet with the other members of your country. Everyone should fill in the following ability score chart on a separate piece of paper and drop it into a hat or box. Charts can remain nameless. If you did not take a certain test, then you should write in a 0 as your score.

	YOUR ABILITY SCORE
Service	
Sales	
Computer	
Bureaucratic	
Other	

5. Your country must now compute a productivity score for each of its potential resources by adding up the individual scores for each resource.

	PRODUCTIVITY SCORES			
	COUNTRY A	COUNTRY B	COUNTRY C	COUNTRY D
Service				
Sales				
Computer				
Bureaucratic				
Other				

It is not necessary to include alternative service scores unless the scores are particularly significant. Complete the following chart or copy the chart on a separate sheet of paper.

	YOUR COUNTRY'S PRODUCTIVITY SCORE
Service	
Sales	
Computer	
Bureaucratic	
Other	

6. Based on its productivity scores, decide what would be best for your country to concentrate on developing.

7. Discussion questions for each country to ask itself:

- Should you do only what you do better than anybody else, following your absolute advantage?
- Should you do only what you can do best, following your comparative advantage?
- Should you try to be self-sufficient, producing everything?

8. All four countries should next decide what it would be best for each country to produce. Copy the following comparative advantage chart on the board and fill in the necessary information.

ACTIVITY 3

BUREAUCRATIC SKILLS TEST

Name _____

1. Put the following eight words in alphabetical order:

- synesthesia _____
- synecdoche _____
- synergist _____
- synetics _____
- synergy _____
- synesis _____
- synecious _____
- synecology _____

2. The following is a National Park Service rule:

“No person shall prune, cut, carry away, pull up, dig, fell, bore, chop, saw, chip, pick, move, sever, climb, molest, take, break, deface, destroy, set fire to, burn, scorch, carve, paint, mark, or in any manner interfere with, tamper, mutilate, misuse, disturb, or damage any tree, shrub, plant, grass, flower, or any part thereof, nor shall any person permit any chemical, whether solid, fluid, or gaseous, to seep, drip, drain, or be emptied, sprayed, dusted on, injected upon, about or into any tree, shrub, plant, grass, flower.”

According to the rule, are these actions permissible?

- a. mutilate a tree in your back yard
- b. collect firewood in a national park
- c. carve your initials on the bark of a small shrub in a national forest

ACTIVITY 4
COMPUTER SKILLS TEST

Name _____

1. If a kangaroo at the bottom of a 30-foot well jumps up three feet every day and slides back two feet, how long will it take her to reach the top? (days)
2. Convert 26 (base 10) to base 2. ()
3. 100101 (base 2) minus 11101 (base 2) = ?
4. $(2.5 \times 10^4) \times (4.0 \times 10^2) = I \times 10^{(?)}$ ()
5. If Jonas is six inches taller than Juan and Jonas is three inches shorter than Jane, then the tallest person is ? , who is ? inches taller than ? and ? inches taller than ? .
6. 4.6864 divided by 23.2 = ?
7. 28 is ? % of 400.
8. If $4(x-2) + 7y + 3 = 21$ and $y = 2$, then $x = ?$
9. Find the average of the following numbers: 1,3,7,10,13,17,and 19. ()
10. Sue works 40 hours a week and earns \$4 an hour. For every dollar she earns, she pays five cents in taxes. She can calculate her take-home pay in dollars by: Dividing 5 by ? , multiplying the answer by ? , subtracting that answer from ? , and then multiplying by ? .



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