

High School Food Court

Analyzing Revenue and Demand to Recommend New
Campus Eateries



About the Buck Institute for Education

The Buck Institute for Education (BIE) is dedicated to improving 21st-century teaching and learning by creating and disseminating products, practices, and knowledge for effective Project Based Learning. Founded in 1987, BIE is a not-for-profit 501(c)3 organization that receives operational funding from the Leonard and Beryl Buck Trust, and funding from other education organizations, foundations, schools and school districts, state educational agencies, and national governments for product development, professional development, and research.

Project Based Economics

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Foreword

Students learn more when they care about what they are learning. Students understand concepts better if they see how these concepts apply to the world outside of school. Students retain information longer if they are actively engaged in discussion and demonstration of what they are learning.

These are hardly new ideas, but too much of what happens in American classrooms does not meet this ideal. *Project Based Economics (PBE)* is built upon these principles. It addresses the concepts and content defined by the *Voluntary National Content Standards in Economics*, but does it in such a way that this material becomes meaningful and involving to students. *PBE* reverses the traditional method of “teach the concepts first, then give students the opportunity to apply them.” Instead, *PBE* places students in an interesting scenario with an open-ended problem to solve and asks them to arrive at a justifiable solution using economic concepts. The project thus “pulls” students through the content. The teacher’s role is to clarify, facilitate, and guide, rather than “push” unmotivated students toward the learning objectives.

Additionally, the *PBE* methodology helps teachers build valuable interdisciplinary “21st-century skills” including collaboration, critical thinking/problem solving, and making a presentation. We have found that *PBE* works well for diverse students in a variety of school settings. Research comparing students’ economic knowledge gained from *PBE* versus that gained by students who received traditional instruction has demonstrated that the *PBE* students learn more, and that this difference is statistically significant.

These units were developed collaboratively by the Buck Institute for Education, and the HIRE Center, California State University–East Bay. They have been pilot-tested and critiqued by a group of energetic and insightful teachers throughout California. Although too many teachers have been involved in the development of these units to thank each teacher by name, we are extremely grateful for their time, insight, and contributions to making these units successful. In addition, there have been a number of university professors, staff developers, and school district staff who have contributed to unit development. We have benefited from their observations and suggestions, and offer a collective “Thank you!”

Please visit the Interact website (www.teachinteract.com) to find out about professional development offerings and conference presentations.

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Introduction

Chapter One

What is Project Based Learning?

Project Based Learning (PBL) is an instructional method in which students:

- Engage in a rigorous, extended process of inquiry focused on complex, authentic questions and problems
- Work as independently from the teacher as possible, and have some degree of “voice and choice”
- Demonstrate in-depth understanding of academic knowledge and skills
- Build 21st-century skills such as collaboration, presentation, and critical thinking/problem solving
- Create high-quality products and performances which are presented to a public audience

PBL is often cited as a valuable method by educators promoting differentiated instruction, multiple intelligences theory, learning-styles theory, 21st-century skills, and the “new 3 Rs” of rigor, relevance, and relationships.

In PBL, the project *drives* the curriculum—it provides the structure for teaching and learning. A project is not just an “applied learning activity” that follows a traditionally taught unit of instruction. Nor is it like discovery learning in its most basic form, in which students are provided with tools and activities that allow them to “discover” knowledge and skills with minimal guidance from a teacher. Instead, PBL challenges students to solve a problem through the application of content knowledge and collaborative resource-gathering, investigation, discussion, and decision-making.

Each project in *Project Based Economics* is a complete unit of instruction centered on a scenario that presents students with an engaging, realistic problem with more than one possible reasonable solution. To resolve the problem successfully, students realize they need to understand economics. This increases their motivation to learn the curriculum. Coaching students to resolve the problem posed in each unit requires a teacher to weave together a number of instructional components while remaining focused on the economic concepts around which the project is organized.

Phases of a Project Based Economics unit: how learning unfolds

Although structured flexibly enough to allow for student discovery and

independent learning, all *PBE* projects follow a series of steps or phases. These phases may sometimes overlap, but can generally be defined as follows:

Project launch—the Entry Event

At the start of each *PBE* project, students either receive some type of authentic correspondence or have an authentic experience intended to engage them in the project scenario. The “Entry Event” provokes interest and generates curiosity, leading naturally to the next phase.

Framing the inquiry—Driving Question and Knowledge Inventory

To begin the inquiry and problem-solving process, students as a class analyze their task and write a “Driving Question” that guides the project. The teacher coaches students in the construction of a Driving Question that summarizes the problem to be resolved, which in *PBE* is written according to the model:

“How can we, as _____?, (do) _____?, so that _____?”

The teacher also leads the class through a discussion and recording of knowledge that the students already have (know) and information that they still require (need to know) in order to arrive at a solution to the problem. This process is repeated periodically throughout the lesson.

Problem-solving and learning activities

The project scenario unfolds as students receive additional information about the problem to be solved. Students work in teams to conduct independent investigation and complete project tasks, while the teacher provides resources and lessons, guided by the students’ “Need-to-Know List.” A Project Log is used to check for student understanding of key economic terms and concepts. The class revises the knowledge inventory periodically and revisits the Driving Question to help stay on track toward a reasonable resolution to the scenario. The teacher monitors students’ progress and watches for “teachable moments” when students recognize their need to know more about economics.

Presentation, assessment, and debrief

The project culminates as students finalize their solution to the problem posed in the scenario. Students prepare authentic products and present them to an audience and/or publicly discuss each group’s work. The teacher uses a rubric to evaluate the students’ work, and may also choose to administer a test to assess learning. The last step is to debrief the project with students, discussing both economics content and the process by which it was learned.

Teaching in the PBL environment

Although Project Based Learning is designed to foster active, engaged learning, students do not work completely on their own or exclusively with their peers when addressing the problem presented in a scenario. PBL is most effective when accompanied by *project based teaching*.

In PBL, the teacher guides students through the process of collaborative problem-solving and the creation of high-quality products and performances. Teachers are an important provider of subject-area knowledge and remain responsible for monitoring and assessing student learning, clarifying content-related concepts and misconceptions, assigning students to work groups, and managing what goes on in the classroom. Although traditional tools such as lectures, homework, and quizzes still have a place in this setting, they are used in the meaningful context of solving a problem. The role of the teacher using PBL is one of making learning “inevitable” by carefully managing the learning process and promoting a spirit of inquiry.

Make it a collaborative effort

Timing and extent of a teacher’s instructional interventions differ from those used in traditional approaches. Effective teachers in PBL wait for teachable moments when students are interested and ready to learn before intervening or providing the necessary content explanations; they present or clarify concepts once students realize they need to understand subject-area content in order to solve the problem. Project Based Learning is most effective when it is a collaborative effort between the teacher and students, with you as the senior partner.

This collaboration begins by engaging students in the problem to be solved. As you launch the unit, it is important not to reveal too much about the problem that students are about to encounter, and not to pre-teach the content and take away the motivation to learn that comes after students are “hooked” by the Entry Event. Take the problem seriously. While acknowledging that it is a scenario, point out that the problem is closely modeled on what happens in the real world. Heighten student interest and motivation by emphasizing the important effects their decisions will have (summarized in the “so that” part of the Driving Question written by the class). Model genuine interest and enthusiasm for the challenge of exploring several possible solutions.

The “teacher-as-coach” metaphor applies as students go about the tasks of conducting research, understanding the problem’s complexities, and preparing to present their solutions. Like a good coach watching athletes practice, the teacher needs to observe, diagnose, and guide without doing students’ work for them. Anticipate some needs before

they arise, be prepared to meet them, and watch for new needs as they emerge—but wait until they emerge.

One of the biggest challenges for many teachers is to step back and wait for the “need to know” to arise in students. Instead of answering all questions right away, ask, “How could you find that out?” and offer suggestions and resources for further inquiry. If students get stuck at a certain point, act as a “cognitive coach” by modeling thinking strategies. Offer process-oriented comments such as, “How would I approach that issue/task? Well, I might break it down into steps, or I might want to talk with my group about ____, or make sure I understood _____. Or maybe I’d go back to my Need-to-Know List...”

Build classroom culture

Establishing the classroom culture is also important for successful PBL. Students must know that it is all right to take intellectual risks and offer creative solutions for critique by their classmates and teacher without fear of ridicule. A healthy spirit of give-and-take needs to be in evidence in a PBL classroom, as does the habit of reflection. Students and the teacher need to constantly ask, “What are we learning?,” “How are we learning?,” and, “What does it mean?”

Another vital part of classroom culture is collaboration. Students work in small groups in PBL, and key to their success is the ability to work together comfortably and productively. If students are not used to group work, these skills must be taught. If students are not working well together, the teacher needs to know how to intervene and smooth things out. And when students share ideas, ask questions, and present their work, whether it is to their own classmates or a public audience, a serious and respectful tone should be the norm.

Invest in planning

A teacher using PBL should be skilled in planning and organization. Before beginning a unit, make sure to read all instructions and prepare materials carefully. But, do not overplan and feel bound by a predetermined timetable. It is hard to predict exactly how each class will approach a project and what needs will arise. A certain amount of flexibility is required, as is the willingness to let go of some expectations and control. Students may propose solutions that you had not considered, or they may want to explore issues in greater depth and breadth.

A teacher also needs skill in the use of performance-based assessment. This means knowing how to assess skills such as collaboration, communication, and time and task management. You can enhance student development of these skills by providing exemplars, well-written rubrics, and chances to practice with helpful feedback.

Teaching in a PBL environment differs from many traditional classrooms in two other ways. First, it can be noisy. That means a teacher (and his or her school neighbors and administrators) must be willing to accept occasional apparent disorder as being the inquiry process at work. Second, a teacher must be willing to personally engage with students in ways other than standing in front of the room, delivering content knowledge as the “sage on the stage.” A degree of intellectual and sometimes emotional connection with individual students is often needed to meet the challenges of PBL.

Teaching Economics With Project Based Learning

Chapter Two

Economics is the study of the allocation of scarce resources. Because resources are scarce, individuals, firms, and society must make choices about how to allocate resources and where to make tradeoffs. If a company decides to hire more workers, for example, it must reduce capital costs. If government spends more on defense, it must reduce spending on education or other areas (or else increase debt).

When students learn about economics through projects, they apply economic theories and principles to solve authentic problems. The PBL process also challenges them to think critically, to understand complex systems, and to explain and defend their decisions.

To help students gain a better understanding of how our economy allocates scarce resources, units included in *Project Based Economics* focus on teaching different aspects of scarcity and the related concepts of opportunity costs and tradeoffs. By integrating each of these PBL units into a high school economics course, students will have a better understanding of how the allocation of scarce resources forces individuals, firms, and society to make choices among competing goods and why those choices determine how resources are used. Taken together, the units demonstrate how our economy responds to each of the four basic economic questions:

- What is produced and in what quantities?
- How are goods produced?
- For whom are goods produced?
- Who makes economic decisions and by what process?

Preparing students for PBL

Before launching the the *PBE* unit, we recommend introducing students to the concept of Project Based Learning. This can be accomplished with a 45-minute activity, **Make More Money?** (see Chapter Three). In this activity, students encounter an economics-related situation. As they set about solving the problem, they learn the process for how PBL works. In one class period, they gain experience analyzing an Entry Document, writing a Driving Question, conducting a Knowledge Inventory—and learning how to think and act in different ways than they might be used to in more traditional forms of learning.

What is provided in this unit

- A **Unit Overview**, including the time required, a summary of the problem to be resolved in a scenario, the economic concepts to be learned, the placement in the curriculum of a typical high school economics course, and the NCEE Content Standards addressed
- A section on how to teach each unit, which contains:
 - **Sequence of the Unit**, a quickly referenced list of each step
 - **Step-by-Step Teaching Guide**, with detailed instructions about how to manage each step, plus sample **Driving Questions** and **Know/Need-to-Know Lists**, **Economics Content Notes**, prompts for **Project Log** entries, and **Potential Hurdles**
- A section of **Student Materials** with all student handout masters
- A section of **Teacher Materials** with a detailed review of the economic concepts and terminology within the unit, which may be used to guide the preparation of lessons for students, plus a glossary of concept definitions, answer keys for unit assignments, and rubrics for major unit products
- A multiple-choice test with an answer key

At various points within each unit, you will see two types of special **Notes to the Teacher** on effective implementation:

- **Economics Content Notes** point out key concepts students should be learning, and provide guidance on how to ensure that they do.
- **Potential Hurdles** indicate certain points during the unit when students might become confused or sidetracked, and explain how to help them.

Teaching Strategies for *Project Based Economics*

Scaffold learning activities

Students are supported in a variety of ways in the *PBE* units. In addition to “soft scaffolds” such as conversations with a teacher, “hard scaffolds” are provided in each unit such as charts, tables, or worksheets, to help students learn concepts and organize their ideas. Students may practice using economic concepts through oral or written exercises that build knowledge and skills necessary for the culminating task in the unit.

Efficient project-based teaching generally involves selecting content resources for students to use before they embark on solving the problems presented and creating products. These can include economic textbooks, specially prepared handouts, newspaper articles, videos, and online resources. Students should be encouraged to grapple on their own or in small groups with economic concepts, and find their own answers to content-related questions as much as possible. Consequently, it is generally best not to assign specific resources but rather to tell students what they can easily access to find the information they need to complete project tasks. It is then up to students and their groups to decide what content resources they are going to pursue.

Provide clarifying lessons at “teachable moments”

PBL is most effective with continual dialogue between the teacher (as a coach) and students. Effective project-based teachers must actively direct students toward the curriculum goals by asking probing questions in class discussions, circulating and listening to discussions in group work, and taking advantage of teachable moments when students are ready to learn. When these moments arise, the teacher has a key role to play in explaining content-related concepts and clarifying misconceptions. The teacher may offer a quick explanation to individuals or small groups, or recognize when all or most of the class needs to be taught something as a whole via direct instruction.

When lectures are given, they should be short (hence the term used in these materials, “*mini-lecture*”) and organized. Limit lectures to the information students need at that point in the problem-solving process. A mini-lecture should be introduced by talking about it as part of the teacher’s role as “coach” for the students’ problem-solving process. It is a good idea to refer to the “Need-to-Know” list and say something like, “Many of you said yesterday that you had questions about _____, so I have some information that will answer those questions.” And, as in all cases when lectures are used, you should use the techniques of good lecturing; engage students by speaking in an interesting style, asking questions, giving examples, using visual aids, and pausing to have students think, talk, or do some activity.

Use formative assessments

A key part of your job in project based teaching is to monitor whether students are learning the concepts the project is designed to teach. A variety of formative assessments will help with monitoring, including individual questioning, pop quizzes, checks for understanding with peers, and project logs. Here are strategies for using formative assessment tools:

- Listen to student discussions in small groups or as a whole class, and ask questions to provide a window into students' thinking and reveal confusion or misunderstandings.
- Administer a short pop quiz requiring students to demonstrate their understanding of an economic concept.
- Arrange for peers to check each other's understanding by pairing up to explain an economic concept to another student. Follow this by asking students for a show of hands to report how well they thought they explained, and how well they (honestly) thought their partner explained the concept. If this check reveals a knowledge gap or misunderstanding, conduct a short whole-class discussion or mini-lecture to consolidate understanding of the idea or concept.

Project Logs provide a structured way of assessing student understanding and are included in *PBE* units at significant points during the project. You may have students record many things in a Project Log or journal, including notes on the process of learning, comments on how well they or their groups are working, or reflections on content-related topics. Project Logs provide for individual accountability for learning the material, and allow you to assess the understanding of each student when students work in groups.

Project Log entries *must be checked soon after they are written* if they are to be used effectively as a diagnostic tool. You need to find out what students do and do not know in order to plan the next day's instruction. Apart from skimming them all, one way to do this quickly is to select a small number of representative samples from a range of students in the class. Or, students could be asked to raise their hands according to how well their entries—or their peer's, if they have swapped and read each other's logs—matched the criteria provided.

Once Project Log entries have been reviewed to assess the degree to which individual students understand the conceptual material being addressed, you can plan further instructional actions such as:

- talking with the class about the concepts in question by giving another mini-lecture
- talking with certain students or groups to address their misconceptions and misunderstandings

- giving additional textbook reading assignments, and/or directing students to online resources and explanations
- arranging peer teaching between students who are confused about the concept and those who have a solid understanding of it

Manage small-group work

Although the problems posed in project scenarios can be resolved entirely by individuals or entirely through whole-class effort, Project Based Learning is most effective when students are required to work in small groups. Consequently, all *PBE* unit scenarios place students in the role of a team with three to six members. This gives students the opportunity to discuss their ideas and questions with peers and develops the skills of stating a position, listening to others' positions, respectfully disagreeing with others, and collaborating and compromising. There is no always-applicable guidance for forming groups, and you will have to think about your students and decide who works well together. Generally, we encourage teachers to include students with different interests and abilities in the group so that a range of talents and skills can be applied to the project. And, it is generally *not* a good idea for students to choose their own groups based on friendship alone.

Coaching and monitoring groups is important. Most groups will need some assistance maintaining a task focus. Groups may also need help maintaining a positive attitude or dealing with group members who are not carrying their weight. Although PBL is predicated on students taking charge of their own learning, teachers need to monitor this process continually, and pull groups into impromptu conferences when their process bogs down.

Communicate standards of excellence

Rubrics that specify the characteristics of quality work and exemplars of finished products are included in each *PBE* unit. Students should be given the rubric midway through the project, to guide them as they prepare the required major products and performances. Students should not be given the rubric at the same time they receive the Entry Document at the beginning of the project as part of a "complete packet of materials" for the whole unit. They need some time to define for themselves what they have to learn to resolve the problems posed by the scenario, and receiving the rubric or other materials too soon short-circuits that process.

Manage presentation and critique of answers to the Driving Question

All *PBE* units include the preparation of some sort of tangible product and/or performance to communicate an answer to the Driving Question—essentially, the solution a group has developed to the problem posed in the project scenario. Students will need guidance in the preparation of these

products, as well as the opportunity to practice and receive feedback on their work as much as possible from their peers and teacher. After students' solutions have been presented, the class should compare and discuss them, as explained in the debrief phase of each unit.

Oral presentations to the class or a panel are a valuable component of many *PBE* units. As teachers know well, you're often not really sure if you understand something until you explain it to others. However, managing oral presentations well presents several challenges. Student groups need time to prepare and practice. The expectations for a good oral presentation should be made very clear, including presentation techniques and proper attire, posture, attitude, and group member participation. The rubrics accompanying each unit provide guidance to students on the use of content knowledge as well as oral presentation skills.

To help ensure proper participation by all group members, experienced teachers use several strategies. One is to explain that everyone will be held responsible for understanding all parts of an oral presentation and the visual aids that accompany it—and the rubric and grading criteria will reflect this goal. In addition, groups could be informed that even if they have decided in advance who will say what during the formal part of a presentation, *anyone* may be asked a question about *any part* of the presentation. Or, a teacher could tell students they will be picked at random just before the presentation to deliver various parts of it, thereby putting all group members on notice that they all need to be prepared to fully participate.

On the day of presentations, if the number of groups is not too large, there may be time for each group to make a presentation. However, a potential problem with this approach is that groups tend to repeat themselves, and by the time the fourth or fifth group has made its presentation, there is very little new left to say or very few new questions to ask the group. Also, students in groups presenting nearer the end may have an advantage by hearing previous presentations. This can be avoided if it is possible to send the rest of the class to the library or another room, so each group can present only to the teacher or panel—or have presenting groups go to another location. If all students need to remain together, give student audience members a task. Have them listen to other presentations and make notes of good points made and good answers to questions, as well as how they might have done it differently. Some classes may be ready to assess their peers' performance, using a rubric or other set of criteria while they observe and listen.

Practice 21st-century skills

To meet the challenges of the changing economy in the United States and across the world, and become participating citizens in a democracy, students need to learn more than basic skills and acquire subject-area knowledge. Accordingly, all *PBE* units provide opportunities for students to learn and practice 21st-century skills such as collaboration (e.g., working well with others, sharing resources, arriving at consensus), critical thinking (e.g., gathering relevant information, generating and evaluating solutions to problems), and communication (e.g., discussing ideas, writing, making an oral presentation, using technology). You can discuss, teach, and even assess these skills before, during, and at the end of every project.

Establish group and individually based grading procedures

As students usually work together to create the products and/or performance that culminate a project, you may need to assign a single grade for that product, given to all students working in the group. Of course, however, some students—like some adults—will become freeloaders and allow others to do their work for them. Self-reports, combined with group self-evaluation and group leader reports, can provide some information on how much each student may have worked, but not how much each has learned. Students will take more responsibility for their learning, and learn more, if they know their economics content understanding will be assessed individually, so let them know the group product is not the only component of their grade. Instead of relying on one speaker to make a presentation, they should be asked to divide up the task—and be ready for questions about *any* part of it, not just the part they did. But since time is usually short, questioning students during oral presentations can only be a partial assessment strategy. Consequently, multiple-choice tests that can be used to assess individual student understanding appear at the conclusion each *PBE* unit. Additionally or alternatively, you could require students to turn in individual written assignments or take a short-answer/short-essay test. You will have to work out what is most appropriate for your own grading system, but the fundamental idea holds: Make sure to assess students individually on their content knowledge, in addition to any group assessment you conduct.

Allow for several possible “right answers”

Part of what engages students in Project Based Learning is knowing that they can make choices and are not simply “doing what the teacher wants.” All *PBE* unit scenarios are built around problems for which there can be multiple reasonable solutions. There are also solutions which are clearly wrong; not every solution will work. Guidance on evaluating reasonable and unreasonable solutions for each unit is offered in the **Step-by-Step Teaching Guide**.

Stay within the project scenario

Since the scenarios are hypothetical, students often want to add details, modify what is known, or otherwise *change* the scenario so that it is easier to resolve the problem presented. Such creativity will sabotage the core purpose of the project—it has been carefully developed as a vehicle to teach specific economics content. All *PBE* units have been developed in close consultation with U.S. high school teachers, tested in their classrooms, and revised based on their feedback to ensure that the project, although enjoyed by most students, does not become merely a “fun activity.” The project has been created to achieve a serious instructional purpose, and deviating from the project scenario’s storyline tends to focus students’ attention on irrelevant or less important learning objectives.

Consider needs of English language learners

Students who are learning to speak, read, and write English can benefit greatly from Project Based Learning, but special scaffolding may be necessary. They may need more time to complete tasks, more vocabulary-building, and more peer-to-peer support. Some of the authentic-sounding documents presented in *PBE* scenarios may contain jargon, slang, or cultural references that will need to be explained. When forming small groups, care should be taken to assign students learning English to teams with supportive and skilled members. Finally, oral presentations may present special challenges—ELL students may be allowed to participate to a lesser extent than other group members, and/or be given questions to be answered later in writing, rather than “on the spot.”

Make More Money?

Chapter Three

*An Activity to Introduce Students to the
Project Based Learning Methodology*

Overview

In this activity, students are presented with a problem-solving task focused on a fictitious high school senior who wants to drop some classes in order to work more hours. In the role of a counseling team at the school, students investigate the facts of the situation, consider the personal and economic choices involved, and recommend a reasonable solution.

Although this activity touches on some basic economic concepts, it is primarily designed for another purpose—to demonstrate the instructional methodology of Project Based Learning (PBL). It may be used with two groups of participants: high school students in the classroom, or their teachers in professional development workshops. The Buck Institute for Education (BIE) has field-tested this activity successfully with both groups. With students, we recommend using it prior to teaching the units from the *Project Based Economics* series. The instructions below are written with this use in mind. (If the activity is being used with an audience of teachers, they should experience it much as students will, which is the best way to learn how to implement it.)

Project Based Learning may be an unfamiliar process for many students and teachers. In this activity, which requires less than a typical class period to complete, students will become familiar with many of the key elements of the methodology as designed by BIE for its economics units. Like the *PBE* units, the **Make More Money?** activity begins with a problem-solving scenario (not all projects in PBL begin this way, but it is an effective option). PBL is an inquiry-based process that springs from what students identify they need to know in order to solve the problem presented in the scenario. Accordingly, it is important not to “frontload” any information before starting the activity. Do not conduct a discussion, assign reading, or give a lecture in advance about the value of going to college vs. going to work, nor tell students all about PBL. It is sufficient to simply say, “Now we’re going to do an activity that will introduce you to one of the ways we’re going to learn about economics in this course.” The first thing students should see is the Entry Document, the note that launches the scenario. After the scenario has run its course, the debriefing time is when the principles and features of PBL should be discussed, along with any content-related issues or further work on the topic that the teacher would like to do.

Project Based Learning has proven effective in teaching content knowledge as well or better than a traditional lecture/textbook approach, improves

retention of knowledge, and contributes to the acquisition of 21st-century skills such as collaboration, presentation, and critical thinking. Moreover, it increases student engagement and interest in the subject of economics, which is important in their lives as workers and citizens.

Content standards addressed

Voluntary National Standards in Economics:

Standard 1: Productive resources are limited. Therefore, people cannot have all the goods and services they want; as a result, they must choose some things and give up others.

Content keywords: scarcity, tradeoffs, opportunity cost

Materials needed

- One copy for each student or pair of students of the Entry Document, the note from a student, “AJ,” with the additional context for it
- To have on hand in case students request it: copies or a displayed version of the handout, “Earnings by Education Level”
- Chart paper, whiteboard/chalkboard, or computer projection

Procedure (40–50 minutes)

1. Read the **Entry Document** aloud as a whole class (page 22, note from “AJ” with added context)
2. Write an **initial “Driving Question”** as a whole class (recorded on a projector, chart paper or board)

Sample:

How can we, as the counseling team, find out what's going on with AJ, so we can help him/her make a good decision?

3. Write a list of **“What Do We Know?”** as a whole class (recorded on a projector, chart paper or board)

Sample:

- We're a high school teacher who got a note from a student
- It is September
- AJ is an 18-year-old high school senior
- AJ wants to drop classes

- AJ isn't sure about going to college right away
- AJ has seemed withdrawn and distracted lately
- AJ's grades have slipped
- We are on AJ's counseling team
- AJ won't graduate on time if s/he drops classes
- AJ wants to work more and make more money
- AJ doesn't want his/her parents involved

4. Write a list of “What Do We Need to Know?” as a whole class (recorded on a projector, chart paper or board)

Sample:

- Is AJ male or female?
- What classes does AJ want to drop?
- Why has AJ been distracted and withdrawn?
- What college was AJ planning to go to?
- Why doesn't AJ want his/her parents involved?
- Do AJ's parents agree with this decision?
- What job does AJ have?
- How much money does AJ make?
- What does AJ need more money for? Is it urgent right now?
- Has AJ thought through the consequences of not going to college?
- How much more money could AJ make in the long run by going to college?

5. Discuss what **resources could provide answers to our “need to know” questions.**

For example, some answers could be found through research—such as a comparison of earnings in jobs requiring college degrees vs. jobs that only require a high school diploma—and some might need to come from actually talking to people. Students should recognize, or be coached to see, that the best way to get more information at this point is to talk to AJ—so tell them AJ will be here in a minute for a meeting.

6. Students take 2–3 minutes, working in pairs or small groups, to plan **questions to ask AJ.**

7. *If they ask for it*, students receive the handout **found on page 24, which shows earnings by educational attainment**. This information may give students ideas for what to discuss with AJ, and should be very briefly discussed as a class. If students do not request this information, the handout may be held for the debrief as an optional discussion piece if you want to use it.
8. Students ask questions during a **“live” meeting** with someone playing the role of AJ.
 - AJ is reluctant to talk, but eventually reveals details about the decision to drop classes.
 - For suggested responses to questions, see “Guidelines for Conducting the Interview and Playing the Role of AJ” below.
 - After AJ reveals the “secret”—that he/she needs more money to help support the family since the father was laid off—the interview ends.
9. Revisit the **Know/Need-to-Know Lists** and revise the **Driving Question** as a whole class.

Point out that students now have answers to some of their “need to know” questions—and that the list of “what we know” has lengthened. To save time, you do not actually have to write new items on the lists. However, do ask students if they think the Driving Question still fits or if they want to change it, and do so. A new Driving Question might be:

How can we, as the counseling team, talk more with AJ and his/her parents, so we can help him/her graduate on time and go to college?

10. **Wrap-up:** Explain that although they may not have all the answers to their “need to know” questions, it is now time to propose solutions, or at least say what they would do next. Allow 2–3 minutes for students working in pairs or small groups to brainstorm possible solutions, and then share them aloud and evaluate them.

Sample of possible solutions:

- Try to rearrange AJ’s class schedule so he/she can complete courses required for graduation and still work the required hours.
- Talk with AJ’s parents to try to find a way to keep AJ on track for graduation and attending college.
- Go ahead and do what AJ wants.
- Recommend independent study or the Graduate Equivalency Diploma (GED).

Economics Content Note

Discuss the economic concepts of *scarcity*, *tradeoffs*, and *opportunity cost*.



Potential Hurdle

Discuss what this activity demonstrates about Project Based Learning.



11. Debrief with the whole class by leading a brief discussion about both the economics content and the process of learning in PBL.

Economics Content Notes: Discuss the economic concepts of *scarcity*, *tradeoffs*, and *opportunity cost*:

- Since the time available for work is a limited, or scarce resource, AJ must consider the trade-offs between work and further education.
- Point out that the cost of AJ's decision can be thought of in terms of what he/she gives up—the opportunity cost—by working more hours to make more money now, versus going to college and earning more later. If you wish, introduce the data comparing earnings of college graduates vs. high school-only graduates.




Potential Hurdle: Discuss what this activity demonstrates about Project Based Learning:

- There is no *single right* answer to the problem in the scenario—it is “open-ended”—but there are **wrong** answers. For example, denying AJ's request without further discussion or contact with his/her family would probably be a mistake.
- **It is important to be persistent.** During the “live” interview, encourage students to find different ways to ask AJ the same question. During the debriefing, point out that persistence is an important “habit of mind” for PBL.
- **Frustration is OK—it is an important part of PBL.** Ask students if they were frustrated at any time during the process. This often leads to a discussion of how students become frustrated during research or other inquiry-based assignments when they cannot find the answers easily. You should allow for some frustration but also offer coaching if students are getting too far off track. Focus students back on the “need to know” list when they are having difficulty thinking of questions to ask AJ.
- **The Driving Question and the Know/Need-to-Know Lists are important tools** for keeping on task and focused on the problem to be solved as it evolves.
- **Good PBL gets students to ask questions about content.** Asking questions demonstrates that students are open to learning, which can lead to “teachable moments.” Rather than give students the answers too quickly, record questions as they come up and have students investigate. In this activity, the information on average earnings by level of education was handed out, but it could have been easily researched by students if there was more time.

- ***New information leads to shifts in perspective—and new questions.*** For example, learning that AJ needs more money to support his/her family, not for frivolous expenses, creates a major shift in the way students think about the problem, and new “need to knows” could be identified.
- ***Decisions are often made under conditions of uncertainty.*** Just like people in the real world, students do not always have complete information on which to base decisions. Some of the items on the “need to know” list in the **Make More Money?** activity may not be answered, but that doesn’t mean reasonable solutions to the problem can’t be proposed.

Letter From AJ

You are a high school teacher who is also on a counseling team, and one day in September you received this note from a student your team counsels:

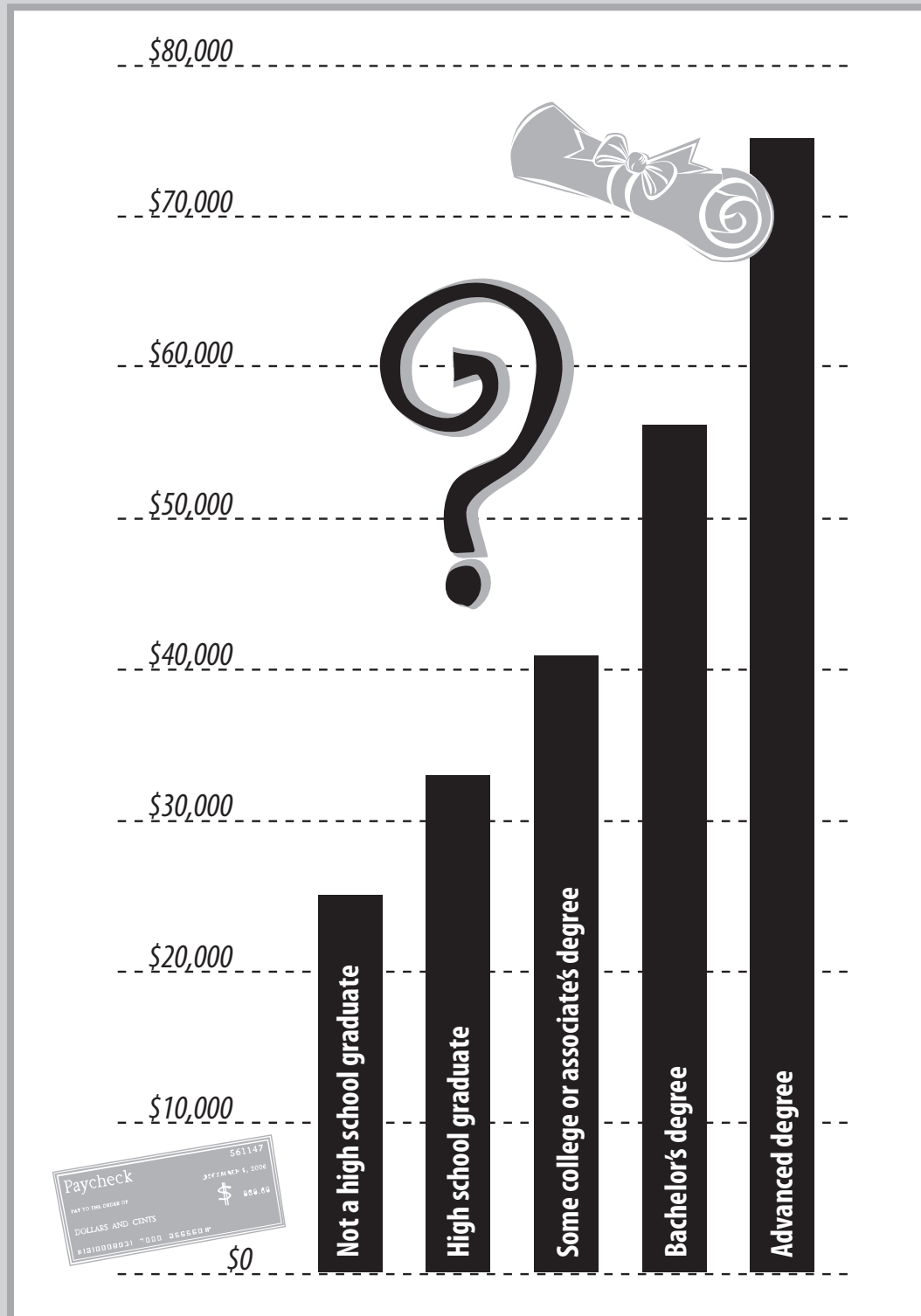
	
	Dear Counselors:
	I want to drop some of my classes
	this semester. I know this means
	I won't graduate on time but I'm a
	senior and can make my own decisions
	since I just turned 18. I probably won't
	go to college right away either. I want
	to work more hours at my job so I
	can make more money. Please don't
	involve my parents in this.
	AJ Jones
	

You have always thought AJ was doing just fine in school—but then you remember hearing that AJ's grades have been slipping lately and that AJ has seemed somewhat distracted and withdrawn. You've decided to take this to the counseling team for action.

Guidelines for Conducting the Interview and Playing the Role of “AJ”

- The role of AJ may be played by a male or female—either you, another adult, or a competent student who has been rehearsed.
- AJ should be very reluctant to talk at first. Avoid answering direct questions by saying things like, “It’s a personal decision,”—“I just want to work more hours,”—“I’m 18 and can handle myself,”—“It’s nothing to do with not liking school or having trouble or anything.”
- Slowly reveal the following information, when asked about it:
 - Job is at a local supermarket; bagger and stocker now, but could become a checker soon
 - Hourly wage is \$8
 - Now work 15 hours a week, want to increase it to 40
 - May have appeared withdrawn and distracted because of this decision, but nothing else is going on (relationships are good, no drug/alcohol abuse, no physical or mental problems, no difficulties with school, etc.)
 - Want to drop government, economics, and English classes and keep art, yearbook; not taking math or science this year but have taken three years of each
- Be evasive about what the money is needed for—“Oh, I just want to buy stuff,” ... “My cell phone bill is pretty big,” ... “I might get a car, better clothes, just spending money for going out with my friends, you know...,” ... “And I’ll save some money too.”
- Show discomfort when talking about your parents. Say you do not want to involve them because, “I’m 18 and can make my own decisions,” ... “I don’t want them to stress about me,” ... “They’ve got my two brothers and sister to worry about.”
- If asked, “Why not wait to work more until after you graduate?” AJ should respond, “I really need the money now.” (This should be said in a way that begins to raise suspicions, and/or show discomfort with body language and facial expressions.)
- If the group is getting too frustrated and/or you wish to end the activity, give a clue about what question to ask to get AJ to reveal the “secret” by saying, “My family...I mean, I really need the money now.”
- Upon further questioning, it should be revealed that AJ’s father has suddenly been laid off from his job (you could choose something in a downsized sector of the economy—computer programming, auto-parts factory, etc.). AJ feels like s/he should work to help support the family, but they would be ashamed to admit it, and would not want AJ to do this.
- *After this last piece of information is revealed, the meeting ends and “AJ” leaves.*

Median Earnings for Full-time, Year-Round Workers Age 25 and Over by Educational Attainment (2007)



Source: www.census.gov/prod/2009pubs/p20-560.pdf

High School Food Court

Chapter Four

Purpose and Overview

Time required

5–6 class periods

5–6 class periods

Project scenario

In a market economy, consumers and producers allocate resources according to the laws of demand and supply. Consumers make decisions about what goods and services they are willing and able to purchase based on price and taste. Producers set prices based on their costs, expected revenue, and profit. However, sometimes other, noneconomic factors influence what is produced and for whom goods are produced. To explore how economic and non-economic factors might interact, students are presented with the following problem-solving scenario in this project:

Oak Grove High School is constructing a new food court on its campus. The school board has asked the student council to recommend which restaurants should be awarded contracts to serve food to students. The student council will be given 20% of the profits from the restaurants to fund its activities. The student council first must decide which restaurants will earn the most profit, balancing their potential funding against student demand for the various entrees to be offered. Complications arise when the school principal forwards voicemail messages from interest groups in the school community who advocate for certain restaurants. Since the school board members also hold varying views about which restaurants are appropriate, students must present convincing arguments based on both economics and political considerations.

Concepts to be learned

To successfully resolve the problem and complete the products required in this project, students need to understand and be able to apply the following economic concepts.

- Costs (of production)
- Demand
- Demand schedule
- Fixed costs
- Opportunity costs
- Profit
- Scarcity
- Total cost
- Total revenue
- Tradeoff
- Variable costs

Although an understanding of the following economic concepts is not essential to complete project tasks, teachers can use the unit to explain additional economic concepts including:

- Demand curve
- Elasticity
- Law of demand

NCEE content standards addressed

High School Food Court addresses the following *Voluntary National Content Standards in Economics* codified by The National Council on Economic Education, in partnership with the National Association of Economic Educators and the Foundation for Teaching Economics. For more information see www.ncee.net/ea/standard.

Standard #	Economic Concept
1	Scarcity
2	Opportunity cost
3	Market systems (allocation of goods and services)
4	Economic incentives

Teaching High School Food Court

Sequence of the unit

Like the other BIE *Project Based Economics* units, *The High School Food Court* is designed so that students follow a standard set of activities in a proscribed order. But within these activities, there will be variation in the timing and in the way students complete them.

The sequence of instructional activities is described below. This sequence is logical, and is based upon extensive pilot testing in high school economics classrooms. It is also informed by research into effective instruction. Although changes may be necessary to meet time constraints, address the needs of specific student populations, or include additional instructional materials and learning opportunities, we strongly encourage teachers to adhere to the sequence of activities as closely as possible—at least during the first several times *The High School Food Court* is taught. Each instructional activity is discussed in more detail in the following section, the *Step-by-Step Teaching Guide*.

Pre-project planning

0. **Prepare** for successful project implementation.

Launching the project

1. Students receive Entry Document, the **memo from the principal**, and discuss it as a whole class.

Framing the inquiry

2. Students develop **initial “Know” List** with you (whole-class discussion).
3. Students develop **initial Driving Question** with you (whole-class discussion).
4. Students develop **initial “Need-to-Know” List** with you (whole-class discussion).

Problem-solving and learning activities

5. Students form small groups, receive **list of restaurant applicants** and discuss the pros and cons of each restaurant (in small groups).
6. Students receive **Table 1**, “Demand for Entrees,” and review it with you (whole-class discussion).
7. Provide **Clarifying Lesson #1** on *demand and total revenue*.

8. Students individually write **first Project Log entry**.
9. **Review individual Project Log entries** to assess understanding of economic concepts.
10. Students receive **Table 2**, “Total Revenue,” and review it with you (whole-class discussion). *Optional:* Students complete Table 2 by performing calculations.
11. Students receive **Table 3**, “Cost Data,” and review them with you (whole-class discussion).
12. Students receive **Table 4**, “Daily Costs,” and review them with you (whole-class discussion). *Optional:* Students complete blank Table 4 by performing calculations.
13. Provide **Clarifying Lesson #2** on *costs*.
14. Students individually write **second Project Log entry**.
15. **Review individual Project Log entries** to assess understanding of economic concepts.
16. Students receive **Table 5**, “Daily Profits,” and review it with you (whole-class discussion). *Optional:* Students complete blank Table 5 by performing calculations.
17. Provide **Clarifying Lesson #3** on *profit*.
18. Students individually write **third Project Log entry**.
19. **Review individual Project Log entries** to assess understanding of economic concepts.
20. Students **revise Know/Need-to-Know List** with you (whole-class discussion).
21. Students **begin making restaurant choices** (in small groups).
22. Students receive **voicemail messages** from the principal, and discuss them as a whole class.
23. Students receive **second memo from the principal**, and discuss it as a whole class.
24. Students **finalize the Driving Question** (whole-class discussion).
25. Students **finalize Know/Need-to-Know List** (whole-class discussion).
26. **Share supplied rubric with students** to guide their work.

Presentation, assessment, and debrief

27. Students **decide upon recommendation and plan presentation** (in small groups).
28. Students **present recommendations** to school board (in small groups).
29. Use supplied rubric to **assess presentations**.
30. Conduct **debrief to clarify and consolidate** students' understanding of key economic concepts (as necessary).
31. Manage **student reflection** on the 21st-century skills practiced, and the process of learning in PBL.
32. Make **notes on adjustments to the unit** to improve student learning for the next time the unit is taught.

Step-by-Step Teaching Guide

Each of the above instructional activities is discussed in more depth below, with tips for successful classroom implementation.

Pre-project planning

0. Prepare for successful project implementation.

There are a number of issues that must be considered before embarking on a project with students. These include:

- How much time will be devoted to the project?
- What economics content resources need to be prepared in advance?
- Do all students have the basic skills (i.e., noneconomics content, such as reading, working in groups, etc.) they need to tackle the project? If not, is it necessary to pre-teach some of these skills, establish student mentor relationships, or deal with these challenges in other ways?
- How will student groups be formed?
- How will groups report on their progress and be held accountable? Do report forms or other tools need to be developed?
- Is it necessary to arrange access to the media center or computer lab?
- Do parents or administrators need to be informed about the process of Project Based Learning and be assured that time spent on the project is focused on standards-specific learning goals?

In addition to considering the above issues, be sure student handouts and clarifying lesson/mini-lecture materials are ready—or at least underway.

Important Note About Recordings: This unit features voicemail messages as part of the scenario. The recordings may be found on the accompanying CD-ROM. As an acceptable alternative, you and/or students may simply do a “dramatic reading” of the voicemail messages using the transcript provided in *the Student Materials*.

Important Note About Guest Panel Members: If you wish to include other adults as members of the “school board” panel hearing student presentations near the end of the unit, be sure to **contact these guests well in advance**. Let them know the location, day, and time presentations will be held. Prepare them for playing their role by providing the appropriate set of “School Board Member Questions” found in the *Teacher Materials*. You may also want to give them key handouts from the unit, such as the Entry Document (memo from the principal), Table 1 (“Demand for Entrees”), and Table 5 (“Daily Profit”).

Launching the project

1. Students receive Entry Document, the memo from the principal, and discuss it as a whole class.

*The memo from the principal may be found in **Student Materials**.*

Have one or more students read aloud the Entry Document while the whole class focuses on it. The memo can be projected so it can be read by the whole class. Alternatively, copies of the letter can be duplicated and handed out to students.

Potential Hurdle: As this memo sets up the scenario and the problem to be solved, it is essential that the entire class be able to read and comprehend the text. If necessary, employ the same literacy-building strategies you would normally use for this kind of reading material.

Synopsis of memo:

The memo from the high school principal tells the student-council members they have been asked by the school board to choose the five restaurants for the food court in the new student center. The student council's entire operating budget will come from 20% of the profits generated by the restaurants. The principal notes the parameters for the selection of restaurants and explains details regarding the students' oral presentation, with visual aids, to the school board. He reminds the council that they should use economic arguments and also must represent the interests of all students in the school.

Framing the inquiry

2. Students develop the initial "Know" list with you (whole-class discussion).

Students must now assess what they already know about the problem posed in the Entry Document. This should be done as a whole class by creating a "What Do We Know?" list on chart paper or a computer projector. Ask students to carefully review the Entry Document and offer items for the list, making sure to *only record what is in the text, not what might be inferred*. Students should be coached to identify all of the information that the Entry Document provides. They should conclude that this information is insufficient to solve the problem, and they need to know (learn) additional things.

Example of initial Know List

What do we know?



Potential Hurdle

It is essential that the entire class be able to read and comprehend the text. If necessary, employ regular literacy-building strategies.

- The school board has asked the student council to pick restaurants for a new food court
- Twelve restaurants applied for five spaces
- Dr. Campbell is principal of Oak Grove High School
- The student council gets 20% of the profits from the restaurants
- If the restaurants we choose don't make enough profits, the student council will have to cancel activities or charge fees
- We need to make a five-minute presentation with posters and graphs, and answer questions from the board
- We must take into account the interests of all of the student body
- The three voting members of the school board must all agree on the proposal
- The president of the board has an economics degree
- Our decision must be "grounded in sound economic thinking"
- There are no set-up fees for restaurants
- Restaurants have the same space allocation
- Each restaurant says it can serve food quickly enough
- The campus is closed, students must eat on campus
- Selection of restaurants is for four years
- The school district has some information we'll get soon

3. Students develop the initial Driving Question with you (whole-class discussion).

After students have discussed the memo from the principal, and you are satisfied that students understand it, lead students in drafting an initial Driving Question. This is generally done as a whole-class discussion.

A Driving Question is a succinct declaration of the general problem students are to solve. In *PBE*, it takes the following form:

How can we, as... **[the role(s) being assumed by the students]**, do... **[the specific task(s) students must complete]**, so that... **[the specific result or goal(s) to be accomplished]**.

The initial Driving Question may be quite different from the Driving Question that will emerge as students think about and work on the problem. This is to be expected. The Driving Question generally evolves as students gain more insight and knowledge into the problem and its underlying issues. The initial question may look something like:

How can we, as the student council, choose which five restaurants should be in the food court, so that we can meet the needs of the student body and make enough money from the profits to pay for student activities?

At this point, it is fine to keep the Driving Question ill-defined. It is not necessary for the Driving Question to contain economic terms or, if it does, use the economic terms correctly. The Driving Question will become more refined as students learn more, and as new developments in the scenario unfold.

4. Students develop the initial Need-to-Know List with you (whole-class discussion).

The next step in the problem-solving process is to coach students to identify information they need to know in order to answer the Driving Question. Again, guiding students to pay close attention to all parts of the memo, create a “What Do We Need to Know?” list. If students are missing a key piece of information about the scenario, the content, or their task, ask questions to elicit items for the list. This is critical because everything students are taught in the unit must spring from this list.

At this point in the problem-solving process, students will probably list things that they actually do *not* need to know. Allow students to do so. The class will return to the Know/Need-to-Know List again later, having learned more about what they need to know to solve the problem, and should recognize irrelevant concerns at that time. A core part of the process of Project Based Learning is to distinguish what information is and is not necessary to successfully answer the Driving Question. As much as possible, encourage students to identify irrelevant information on their own.

Although each class generally produces a unique Know/Need-to-Know List, an example of the type of items that might appear on the list follows.

Example of initial Need-to-Know List

What do we need to know?

- What food do students want?
- Which restaurants make a profit and how much?

Potential Hurdle

If students ask about how food was or is to be provided before the food court is built, tell them to assume it is either a cafeteria or lunch truck.



- What foods do the restaurants have and how much will it cost?
- What kind of posters and graphs do we need to make?
- What is “sound economic thinking”?
- How much money does the student council need?
- How big is the school?
- What are student demographics?
- Where are students getting food now?

Potential Hurdle: If students ask about how food was or is to be provided before the food court is built, you can tell them to assume it is either a cafeteria or temporary “lunch truck” vendors.

Problem-solving and learning activities

5. Students form small groups, receive list of restaurant applicants, and discuss the pros and cons of each restaurant (in small groups).

*The restaurant applicants list may be found in **Student Materials**.*

Form students into small groups of four to five, each of which is a student-council “task force.”

Distribute copies of the restaurant applicants list, either one to each student or one or two to each group. Have students read over and discuss the list in their groups, noting which restaurants look appealing and what further questions they have. After students have had some time to discuss the list, review the restaurants as a whole class and have student groups share their questions. Some may be answered right away (e.g., “What is a crepe?”) and others may be added to the “Need to Know” list (e.g., “How many students are in the Consumer Sciences classes?”).

6. Students receive Table 1, “Demand for Entrees,” and review it with you (whole-class discussion).

*Table 1, “Demand for Entrees” may be found in **Student Materials**.*

Distribute copies of Table 1 to students and explain what it shows. You may wish to use this handout in conjunction with the clarifying lesson that follows this step.

Table 1 is the *demand schedule* for the entree each restaurant has decided to offer. The price is located in the first column of the table and the amount

that students will purchase at each restaurant at each price is located in the remaining columns. Students should note that demand varies by how much the Oak Grove students like a particular item, which is what economists would call consumer “taste” for various foods. You can illustrate this point by selecting a price and comparing levels of demand. For example, at a price of 50 cents (\$0.50), only 10 students will buy borscht but 500 kids will eat chicken. You should also note that the law of demand holds. For each restaurant, as price falls, more will be purchased. Numbers in Table 1 will be used to compute total revenue in Table 2 and to determine the quantity sold (at each price) in Table 4.

Potential Hurdle: Students sometimes do not see that “will be purchased” and “quantity demanded” are equivalent phrases—that is, the demand curve, which tells how much of a good will be purchased at each price, reflects the *quantity demanded* at each price. Potential confusion may arise unless students fully understand that quantity demanded means ability and willingness to purchase a good at a given price. Of course, this phrasing is economic jargon. Students might simply define quantity demanded as how much people will buy at some price. Of course, once they understand the concept in lay terms, it is best to help them see that the economics jargon is saying the same thing.

7. Provide Clarifying Lesson #1 on demand and total revenue.

Note that this lesson will further help answer students’ questions on the Need-to-Know List about what the students want and will buy at the food court.

This lesson can be provided to students using a combination of mini-lectures and selections from a textbook and other print and online resources, some of which may be assigned as homework. See “Economics Review” in for background information for this lesson.

Economics Content Note: This lesson is designed to provide students with the economics behind the numbers they are about to compute in Table 2. It should help them understand the concepts of quantity demanded and demand. These concepts are a cornerstone of economics (the demand curve) and are essential for understanding firms’ decision making. Firms will set price where they can maximize profit (total revenue minus total cost).

8. Students individually write first Project Log entry, answering the following questions:

Why does Bennie’s sell more hamburgers when they are priced at \$1 than when they are priced at \$5? Why can Bennie’s sell more hamburgers for \$1



Potential Hurdle

Students should see that “will be purchased” and “quantity demanded” are equivalent phrases—that is, the demand curve reflects the quantity demanded at each price. They might simply define “quantity demanded” as how much people will buy at some price.



Economics Content Note

This lesson is designed to provide students with the economics behind the numbers they will compute for Table 2, which should help them understand quantity demanded and demand.

than Sally's can sell salads for the same price, and how does this affect the total revenue brought in by each restaurant? What are some of the things that determine how many entrees students will buy from each restaurant?

Project Log entries do not have to be long, but they do need to be completed for Project Based Learning to be most effective. They may be assigned either as in-class tasks or as homework.

9. **Review individual Project Log entries to assess understanding of economic concepts.**

*See Chapter Two section, **Teaching Strategies for Project Based Economics**, for tips on reviewing Project Logs.*

Economics

Content Note



Review the Project Log entries to determine if students understand that demand is the ability and willingness to pay for a good. Also, they do not need to know how many students are in the school or how wealthy it is to select restaurants; the demand schedule provides the relevant information.

Economics Content Note: The Project Log entries should be reviewed to determine if students understand that demand is the ability and willingness to pay for a good. They should see that individuals respond to price. As price decreases, the quantity bought increases (law of demand). They should also be able to see that demand differs between the restaurants because of things like tastes and preferences. Students should understand that things like the income of the students and the number of students will determine demand (how much is sold at any price). As a result, they do not need to know how many students are in the high school or how wealthy it is to select restaurants. All they need to know along these lines is the demand schedule. Students should be at the point where they will quickly be able to see that the level of demand (i.e., quantity sold) determines the firm's total revenue at each price. This will be shown in the next resource they receive.

10. **Students receive Table 2, "Total Revenue," and review it with you (whole-class discussion). Optional: Students complete Table 2 by performing calculations.**

*Blank and completed versions of Table 2, "Total Revenue," may be found in **Student Materials**.*

Distribute copies of the blank Table 2 if you want students to practice their arithmetic (or Excel) skills, and have them complete the entire table on their own. Students should be walked through the computations to reinforce the idea that total revenue is obtained from the demand schedule (Table 1, "Demand for Entrees") and is computed by multiplying the price times the number sold at that price. Once students understand this concept, you may provide students with the *completed* Table 2 to save time.

To compute daily Total Revenue using the information in Table 1, students multiply price times the number sold at each price for each restaurant, using this formula:

$$\text{Total Revenue} = \text{Price} \times \text{Quantity (sold)}.$$

For example, the total revenue at Taco Villa for 35 tacos at a price of \$3.00 is \$105.

$$\$105 = \$3 \times 35$$

Potential Hurdle: Some students may find the task of completing the entire “Total Revenue Table” to be challenging, or too time-consuming. (The later step of completing Tables 4 and 5 also will require a lot of calculations.) Students may need to be given an example of how to do the calculations—the note at the bottom of each table explains how to do it. To make the task more efficient, you may divide up the work among the whole class or have students divide the task in their small groups. Alternatively, you may have students do the calculations for one or two restaurants, then provide them with the completed table.

Remind students that the student council will be getting 20% of the *profits* of each restaurant selected, not the total revenue. Total revenue is only one part of profit. The Oak Grove School District provided students with the data so they could compute total revenue and to help them understand the economics behind their decision about which restaurants to recommend to the school board. Ideally, students should now be asking for information about costs, so they can determine how much profit each restaurant will make.

11. Students receive Table 3, “Cost Data,” and review it with you (whole-class discussion).

*Table 3 may be found in **the Student Materials**.*

Explain to students that the data in Table 3 has been collected by the Oak Grove School District to help the student-council members understand the economics behind their decision about which restaurants to recommend to the school board. Walk students through the table, pointing out what it shows and how it is organized. Table 3 shows the costs associated with making each entree for each restaurant. It illustrates the concepts of *fixed costs* and *variable costs*. Numbers in this table will be used to compute total costs (Table 4).

- **Fixed costs** are shown for each restaurant in the section labeled “stall and equipment rental.” These costs do not vary with output (how much of an entree is made). They are the same for all restaurants except the Consumer Sciences Kitchen, which receives funding from the U.S. Department of Agriculture to cover stall and equipment rental. Table 3 should be used to show how costs might differ among firms.
- **Variable costs** are shown for each restaurant in the section labeled “labor and ingredient costs.” These costs vary with output (how much of an entree is made). The more entrees made the greater are production



Potential Hurdle

If students find the task of completing the “Total Revenue Table” too challenging or time-consuming, you may want to divide the task among the whole class or small groups, or have them do the calculations for one or two restaurants and give them the completed table.

costs. They also differ for each firm. Labor costs depend upon the quality of the labor (e.g., the “nationally known chefs” at Fleur-de-Lys cost more than students in the Wildcat’s Den) and the amount of time spent in preparation (e.g., preparing the salad bar at Sally’s is more time intensive than opening canned vegetables and potatoes at the Consumer Sciences Kitchen). Ingredient costs vary with quality.

- Table 3 should be used to illustrate the relatively wide variation in costs. For example, the Consumer Sciences Kitchen can operate at very low costs (and hence offer lower prices) while Fleur-de-Lys has extremely high costs and, as a result, only will operate if sufficient demand exists at relatively high prices (i.e., enough students will buy the crepes to cover their costs).

12. Students receive **Table 4, “Daily Costs,”** and review it with you (whole-class discussion). **Optional: Students complete Table 4 by performing calculations.**

*Blank and Completed versions of Table 4 may be found in **Student Materials**.*

Distribute copies of the *blank* Table 4 if you want students to practice their arithmetic (or Excel) skills, and have them complete the entire table on their own. Students should be walked through the computations to reinforce the idea that total cost is obtained from the cost schedule (Table 3, “Cost Data”) and is computed by multiplying the variable cost times the number sold at that price (from Table 1) and adding that to fixed costs. Help students see that knowing about how much it costs a restaurant to produce an entree is essential if they are to know how much profit it makes. That is, make sure they understand the economics behind the arithmetic. Once students understand these concepts, you may provide students with the *completed* Table 4 to save time).

Note: Clarifying lesson #2 on *costs and total costs* that follows in Step 13 may be given at the same time as this step.

Explain to students that the data in Table 4 also has been collected by the Oak Grove School District to help the student-council members understand the economics behind their decision about which restaurants to recommend to the school board. Walk students through the table, so students see that how it shows what it costs each restaurant each day to produce its entree.

Show students how to compute the total costs borne by the restaurants at each price using the formula below:

$$\text{Total Cost} = \text{Stall Rental} + \text{Equipment Rental} + (\text{labor cost} \times \text{amount sold}) + (\text{ingredient cost} \times \text{amount sold})$$

The stall rental, equipment rental, labor cost, and ingredient costs are

obtained from Table 3, "Cost Data." The amount sold at each price is obtained from Table 1, "Demand for Entrees."

For example, the total cost for tacos at a price of \$3 is \$44.

$$\$44 = \$25 + \$5 + (\$.2 \times 35) + (\$.2 \times 35)$$

Once costs are computed at each price for each restaurant, students should recognize that fixed costs (\$30) occur for each restaurant (except the Consumer Sciences Kitchen) even when the restaurant is not selling any food. This is easily illustrated by the fact that restaurants (and people!) must pay rent, even if nothing is sold, because they have a lease.

13. Provide Clarifying Lesson #2 on costs and total costs.

Note that this lesson will further help answer students' questions on the Need-to-Know List about the operation of the restaurants applying to the food court. This lesson may be given at the same time as Step 11 above, when students receive and/or complete Tables 3 and 4.

This lesson can be provided to students using a combination of mini-lectures and selections from a textbook and other print and online resources, some of which may be assigned as homework. See "Economics Review" for background information for this lesson.

Economics Content Note: This lesson is designed to provide students with the economics behind the numbers they see in Table 3 and Table 4. It helps them firmly understand the concepts of fixed, variable, and total costs.



Economics Content Note

This lesson is designed to help students firmly understand the concepts of fixed, variable, and total costs.

14. Students individually write second Project Log entry, answering the following questions:

Why might the cost of labor and ingredients be higher for Fleur-de-Lys than for Taco Villa? Why are stall and equipment rental called "fixed costs" while labor and ingredients are called "variable costs"? How do these costs affect how much it costs to produce an entree?

Project Log entries do not have to be long, but they do need to be completed for Project Based Learning to be most effective. They may be assigned either as in-class tasks or as homework.

15. Review individual Project Log entries to assess understanding of economic concepts.

*See Chapter Two discussion, **Teaching Strategies for Project Based Economics**, for tips on reviewing Project Logs.*

**Economics
Content Note**

Review the



Project Log entries to determine if students can distinguish between fixed and variable costs, as well as understand that these determine total costs.

Economics Content Note: The Project Log entries should be reviewed to determine if students can distinguish between fixed and variable costs and that they understand how together fixed and variable costs determine total cost. Students should also be able to understand that the costs presented in Table 3 are per-unit costs, which is only one component of the total cost to a restaurant of producing the food sold.

16. Students receive Table 5, “Daily Profits,” and review it with you (whole-class discussion). Optional: Students complete Table 5 by performing calculations.

*A blank and completed version of Table 5 may be found in **Student Materials**.*

Distribute copies of the *blank* Table 5 if you want students to practice their arithmetic (or Excel) skills, and have them complete the entire table on their own. Students should be walked through the computations to reinforce the idea that profit is obtained from a firm’s total revenue (Table 2, “Computed Total Revenue”) and total cost (Table 4, “Computed Total Cost”). It is computed by subtracting total cost from total revenue. Negative numbers indicate that a firm is operating at a loss (i.e., it is losing money selling the entree at that price). Once students understand this concept, you may provide students with the *completed* Table 5 to save time.

Note: Clarifying lesson #3 on *profit* that follows in Step 17 may be given at the same time as this Step, when students receive Table 5.

Explain to students that the data in Table 5, which also has been compiled by the Oak Grove School District, is key to deciding which restaurants to recommend to the school board, for it tells them how much profit restaurants can make. Because the student council receives 20% of the profit as their revenue source for the year, knowing profit is essential information for them in determining which restaurants to choose.

Table 5 shows how much daily profit each restaurant will make at each price. The number in **boldface** on the completed table is especially important, since that is the price at which the restaurant will sell its entree, because it wants to maximize its profits or minimize losses.

Students compute the daily profit obtained at each price for the restaurants using the formula below:

$$\text{Profit} = \text{Total Revenue} - \text{Total Cost}$$

Total Revenue is obtained from Table 2 and Total Cost is obtained from Table 4. For example, the daily profit for tacos at a price of \$3 is \$61.

$$\$61 = \$105 - \$44$$

Losses (negative profits) result when costs exceed revenue at a given price.

Once profits are computed at each price for each restaurant, students should recognize that the profit function increases and then decreases. Price is set at the point at which profits are maximized.

Potential Hurdle: Students are likely to ask why a restaurant would apply to operate in the food court if it was going to make nothing—or lose money—on each entree sold. (This is the case with Bubba’s Steak House, Fleur-de-Lys, the Borscht Palace, and the Roastery). You could ask students to think of possible reasons. Apart from the unlikely need for a tax write-off, restaurants might operate in the high school food court to advertise or gain name recognition. If students like the food, or have heard about the restaurant, their parents might patronize the restaurant or students might patronize it, perhaps on prom night or after they graduate.

17. Provide Clarifying Lesson #3 on profit.

Note that this lesson will further help answer students’ questions on the “Need to Know” list about which restaurants will generate the most money for the student council. This lesson may be given at the same time as Step 15 above, when students receive or complete Table 5.

This lesson can be provided to students using a combination of mini-lectures and selections from a textbook and other print and online resources, some of which may be assigned as homework. See “Economics Review” for background information for this lesson.

Economics Content Note: This lesson should emphasize that profit arises when total revenue exceeds total cost at the quantity sold. Because firms want to maximize their profit, they will produce the quantity at which total revenue exceeds total costs by the greatest amount.

18. Students individually write third Project Log entry, an answer to the following question:

How does a firm decide how much it will produce?

Project Log entries do not have to be long, but they do need to be completed for Project Based Learning to be most effective. They may be assigned either as in-class tasks or as homework.

19. Review individual Project Log entries to assess understanding



Potential Hurdle

Students may ask why a restaurant would apply to operate in the food court if it was going to make nothing (or lose money) on each entree sold. Have them think of possible reasons, which may include a tax write-off, or to advertise or build name recognition.



Economics Content Note

This lesson should emphasize that profits arises when total revenue exceeds total cost at the quantity sold. To maximize profit, firms produce the quantity at which total revenue exceeds total costs by the greatest amount.

Economics

Content Note

Review the Project Log entries to determine if students understand that a firm's desire for profit will determine the quantity produced (i.e., where it can make the most profit).



Potential Hurdle

If groups don't know how to get started or plunge into making decisions too quickly, you may want to develop a set of criteria to guide their decision. Also, they might make their school board presentations more effective by explaining these criteria.



of economic concepts.

See Chapter Two discussion, **Teaching Strategies for Project Based Economics**, for tips on reviewing Project Logs.

Economics Content Note: The Project Log entries should be reviewed to determine if students understand that the firm's desire for profit will determine how much it will produce—that is, a firm will produce where it can make the most profit.

20. Students revise Know/Need-to-Know List with you (whole-class discussion).

Return to the Know/Need-to-Know List and review it with students, checking off items that are now “known” and adding any new questions.

Check the Driving Question to see if it still captures accurately the students' task.

21. Students begin making restaurant choices (in small groups).

Have students again meet in their student-council “task force” groups, now that they have gained information on demand, revenue, and profit. They should review all the materials they have been given, and think about what they have learned about economics. Allow the groups some time to discuss the restaurants, perhaps 15–20 minutes, and if you wish, to share their thinking with the whole class.

Potential Hurdle: Some students, or some groups, may not know how to get started or may plunge into making decisions too quickly—or just generally show signs of not using an organized thinking process. If you think it would be helpful and not overly directive, coach students to develop a set of criteria to guide their decision. Their presentation to the school board could be made more effective by explaining these criteria, too. For example, students could consider criteria such as profit, price, and appeal to various students.

Students should be coached to see that by selecting restaurants for the food court solely on the basis of profitability (i.e., the five restaurants with the most profit are chosen), they could bring \$22,645.80 for the student council. Be sure they see that reductions from that figure, without regard for last year's budget, represent tradeoffs that must be made.

22. Students receive voicemail messages from the principal, and discuss them as a whole class.

*The transcript of voicemail messages may be found in **Student Materials**.*

Once students have begun the discussion of potential restaurants operating in the food court, additional economic and political factors are introduced into the scenario and need to be considered in their decision. The principal forwards some voicemail messages from individuals who are lobbying for specific types of restaurants.

Have students listen to the recording of voicemail messages and/or read the transcript provided in this unit. If you do not play the audio recording, have different students read aloud from the transcript, acting as the various characters. Stop the tape after each speaker to discuss what is learned from each “lobbyist.” Students could be prompted to listen for information that answers the questions, “What type of restaurant does each person want? How important is this information in deciding who should be allowed to operate in the food court?” Students should hear that:

- **Rita Price** is promoting the Wildcat’s Den so that students will be provided with career opportunities (25% of the students will benefit).
- **Edith Cash** is promoting healthy foods and does not like fast food franchises.
- The **Galloping Gourmets** are interested in taste and quality. Money is not an issue for these students, and their parents actively contribute to the Booster’s Club, which is an important group.
- The **Vital Vegetarians** are interested in the environment, animal rights, and natural foods. They are boycotting Taco Villa and the Hunan Wok because of their environmentally harmful practices.
- **Ms. Loer** is concerned about the price of food in the Food Court. Since the campus is closed, about 25% of the students may have difficulty affording lunches.
- **Mrs. Tanya Stravinsky**, who has donated a lot of money to the school, owns the Borscht Palace and wants to promote the “finer things in life.” She suggests that she will consider helping fund the construction of the swimming pool and tennis court.

Economics Content Note: The issues raised in the voice messages are designed to show students the tradeoffs that sometimes exist between economic and noneconomic factors. Making decisions grounded in economics will yield the student council the largest revenue, but it carries the opportunity cost of noneconomic concerns raised in the voicemails. Students can use whatever criteria they wish in selecting restaurants as long as they realize the tradeoffs they are making in their selection and the opportunity costs of their decision.



Economics Content Note

The voicemail messages are designed to show students the tradeoffs that sometimes exist between economic and noneconomic factors. Students can use whatever criteria they wish in selecting restaurants as long as they realize the tradeoffs and opportunity costs.

23. Students receive second memo from the principal, and discuss it as a whole class.

*The second memo from the principal may be found in **Student Materials**.*

Distribute the memo as a handout or display a copy so the whole class can read it. Read the memo aloud and discuss it to be sure everyone understands how it affects the problem to be solved. The principal. This memo describes the members of the school board, plus a nonvoting member who is nonetheless an important constituent to the school:

- **Dr. Chris Calderon**, President of the Board of Trustees, is a businessperson with an economics degree and wants high-profit restaurants
- **John Cash**, husband of PTA President Edith Cash, is concerned about students' health, opportunities to learn job skills, and the needs of low-income students
- **Alex Muir**, an environmentalist and political liberal, supports the right of vegetarian students to have a nonmeat source of food on campus. He is also boycotting Hunan Wok and Taco Villa because of their poor environmental records and concerns about fair labor practices.
- **Mrs. Tanya Stravinsky**, a nonvoting, honorary member of the school board and one of the school's major financial benefactors, has a special interest in cooking from her homeland and in gourmet food from around the world

24. Students finalize the Driving Question (whole-class discussion).

Students should write the final version of their Driving Question at this point. The final Driving Question should resemble:

How can we, as **the student council**, make an effective oral presentation **about the restaurants we have selected for the food court**, so that **the school board is convinced we have balanced the needs of all students with the need to maximize our revenue?**

25. Students finalize Know/Need-to-Know List (whole-class discussion).

Return to the Know/Need-to-Know List at this point and check to see if all important questions have been or can be answered. Coach students to see which items on the list may in fact not be relevant to solving the problem. If any key questions remain on the Need-to-Know List, answer them or remind students how they can find answers.

26. Share supplied rubric with students to guide their work.

*A rubric for the oral presentation may be found in the **Teacher Materials**, in "Assessment Tools."*

Give a copy of the rubric to each student, or display it so every student can read it. Discuss the rubric with students to be sure they understand that they will be assessed primarily on their knowledge of economics. Their oral presentation skills, while important, are given less weight on the rubric. If you are altering the rubric's point scheme to conform to your own grading system, be sure to maintain the emphasis on knowledge of economics.

Presentation, assessment, and debrief**27. Students decide upon recommendation and plan presentation (in small groups).**

Have students meet again in their small groups, and allow enough time for them to discuss and agree upon their final decision, prepare visual aids, and practice the oral presentation. This task may take one or two full class periods, or if possible some of it may be assigned as homework. Provide feedback as needed, by talking with groups during class and reviewing drafts and practice sessions. Remind students that they will need to keep to the five-minute time limit, and be sure each member of their group is responsible for part of the presentation and is prepared to answer questions about *any* part of the presentation.

Remind students that they need to be persuasive about the tradeoffs they had to make to fund activities *and* to provide *all* students in the school with food they are willing and able to buy. Coach them to consider the opportunity costs of various solutions that would address the concerns of different interest groups.

28. Students present recommendations to school board (in small groups).

*For more guidance on managing the presentations, see Chapter Two discussion, **Teaching Strategies for Project Based Economics**.*

Have each group make its presentation with visual aids to the school board, with five-minute maximum allowed. After the presentation, board members should question students about their decisions and knowledge of economics. Be sure you or someone else with knowledge of economics plays the role of the school board president. To keep the presentations and questions focused, the board members may be limited to two or three questions each. To keep the panel members from straying from economic concepts, scripts for their character are provided in the *Teacher Materials*.

Depending on the size of the class and number of groups, a second day for presentations may be necessary.

29. Use supplied rubric to assess presentations.

*The rubric for the presentations may be found in the **Teacher Materials**, in "Assessment Tools."*

As you hear and see the students' presentations, use the rubric to help you note any areas of weakness that reveal incomplete or incorrect understanding of key economic concepts. Clarify these during the debrief to follow.

30. Conduct debrief to clarify and consolidate students' understanding of key economic concepts (as necessary).

It is critical that the debrief phase of the project not be ignored. This is the time when students, as a whole class, reflect on and receive feedback on both the economic content of the project and the process of solving the problem presented in the scenario. The debrief is in two stages; the first focuses on economics content, and the second focuses on the process of learning in PBL.

The economics content-focused debrief is a vital opportunity for clarifying any remaining conceptual misunderstandings evident in student work, or correcting inaccurate statements made during presentations. Although other *Project Based Economics* units concern some of the same economic ideas and concepts, spend some time after students' presentations clarifying any concepts that are still unclear.

Begin the content-focused part of the debrief by discussing how the project helped students better understand economics. The discussion could be guided by questions such as:

- After listening to other students' solutions to the problem presented in the scenario, is there anything that you think you left out or would have done differently?
- What new ideas or economic concepts did you learn in this project?
- What economic concepts do you still not understand?

Economics

Content Note

Students should see that the economic solution is the one in which the restaurants with the highest profit are selected. While this criterion may leave some students with limited alternatives, the opportunity cost of choosing the other restaurants is fewer student-council events.



Economics Content Note: It is important that students see that the economic solution is the one in which the restaurants with the highest profit are selected. Students also need to see that this criterion may leave some students with limited alternatives (e.g., vegetarians can only get salads, and students cannot get work experience without the Wildcat's Den or Consumer Sciences Kitchen). To choose restaurants that accommodate these other concerns comes at a cost, however. The student council gets less money. In economic terminology,

there is an opportunity cost of not choosing the restaurants making the most profit: student-council activities must be given up. As a result, tradeoffs exist between student-council events and meeting student needs.

Care should also be taken to ensure that students are comfortable with the economic determinants of profit. For example, demand is based on ability and willingness to pay, costs vary across firms, and profit levels could vary with changing student populations.

31. Manage student reflection on the 21st-century skills practiced, and the process of learning in PBL.

Students should have a chance to discuss the process of learning in PBL, and to reflect on the critical thinking, collaboration, and presentation skills they used in the project. This part of the debrief could be done with a series of questions, for example:

- Did you find it to be difficult when there are several possible “right answers” to the Driving Question? Why?
- How does it feel to go through some parts of the project without specific directions, to make some of your own decisions?
- How much do you think you learned in terms of skills like working as a team and making a presentation?

Finally, ask students for feedback on how the project was structured, with questions such as:

- Did you need more resources to help you solve the problem—more lecture time, more readings, more time on the computer?
- Did you need more help in learning how to work together in your group?
- Did you have enough time for each step of the unit?
- Are there any suggestions you would make for improving how the unit is taught?

32. Make notes on adjustments to the unit to improve student learning for the next time the unit is taught.

Teachers inevitably recognize how to make *The High School Food Court* more effective after they have taught it. We encourage you to note these thoughts quickly, so you can review your ideas for improvement the next time you teach the unit.

Teaching Tips

Before a *Project Based Economics* unit is published, it is taught numerous times by experienced high school Economics teachers. We include their advice below.

- The data provided in the tables cannot be changed without a tremendous amount of work. While it is tempting to have students collect their own data on student preferences at their high school, this would produce numbers that might not illustrate the economic concepts that are the focus of this unit.

Extensions to the Unit

Consider the following economics content-related extension:

- Table 1 can be used to graph a demand curve. Teachers can both teach graphing and the law of demand by having students plot the points of price and quantity sold for any of the restaurants.

Economics Review

Demand

Table 1, which shows the comparison of the demand curves for different restaurants, can be used to illustrate movement along the demand curve, shifts in curves, and computations of elasticity. For example, you could:

- Draw a demand schedule for all (or selected) restaurants from Table 1. (See discussion below.) Discuss the relationship between price and *quantity demanded* that occurs as one moves up and down an individual curve.
- Discuss changes in demand that might occur with differing student demographics. (See description below.) For example, if the student body is “rich,” the demand for Fleur-de-Lys or the Roastery might be greater. The demand for Taco Villa might be reduced should students discover that the cornmeal in taco shells is carcinogenic.
- Compute elasticities. This will show students how consumers respond to price changes at each initial price. This should be done only for advanced students or classes. Simply pick two prices and associated quantities for a particular restaurant and plug into the following formula for an arc elasticity:

$$\frac{Q_1 - Q_2}{(Q_1 + Q_2)/2} \div \frac{P_1 - P_2}{(P_1 + P_2)/2}$$

where:

P_1 = the first price selected

P_2 = the second price selected

Q_2 = the quantity associated with the second price

Q_1 = the quantity associated with the first price

Changes in Quantity Demanded

A fundamental characteristic of demand is the law of demand: *all else being equal, as price falls, the **quantity demanded** increases*. There is an inverse relationship between price and quantity demanded, and this is shown for each restaurant in Table 1. Because the total amount of money brought into the firm (i.e., total revenue) is the number sold (quantity) times the price, the law of demand means that total revenue will change as price changes. This is shown for any particular restaurant in the Total Revenue computations on Table 3.

Changes in Demand

The basic determinants of demand are:

- tastes or preferences of consumers
- consumers' income
- prices of related goods and services (complements and substitutes)
- expectations about future prices and income
- (for market demand) number of consumers

Each of these determinants can be illustrated using Table 1 and the recordings. The demand for food in each restaurant (at any given price) varies. At a price of \$0.50, few students demand borscht but 500 kids want chicken. This is because of taste and preferences. Income as a determinant of demand can also be illustrated. For example, few students will purchase food at any restaurant when meals are priced at \$10. This is due to the lack of "ability" to pay. The price and availability of other meals (substitutes) can also be shown in this table. For example, the demand for Hunan Wok might be greater if Taco Villa were not operating or if Taco Villa charged \$5 for a taco. Expectations also impact demand. For example, demand for Hunan Wok might be greater today if students knew that the prices were going to double tomorrow. Finally, demand will always increase as the number of students in the market increase. For example, Bennie's could sell many more hamburgers at a high school with 3000 students than at one with 760 students.

On the recordings, the school counselor tells of kids' ability to afford food (income), while other callers show the varying tastes for food among students.

Costs and Supply

Costs

The data on quantity sold at each price (Table 1) are combined with the per-unit costs of each firm's production to derive a firm's total cost curve. Just as a firm's total revenue is associated with the demand curve, the firm's total cost is associated with the supply curve.

In the short run, costs are either fixed or variable. Because **fixed costs** do not vary with output, they are associated with the very existence of the firm and must be paid even when the firm is not producing. In our example, the firm must pay the rental to the Food Court and for the equipment (because of lease agreements) and these costs will not vary with production. Other examples include interest on a firm's bonded indebtedness, insurance

premiums, and the salaries of top management and key personnel. Fixed costs cannot be avoided (in the short run) or controlled by the firm.

Variable costs, which change with production, increase with each one-unit increase in production. Thus, such costs continue to rise as output increases. In our example, variable costs include labor and ingredient costs. It is fairly clear that as one sells more food one must buy more ingredients and hire more labor (to cook it and serve it). Other examples of variable costs may include fuel, power, transportation, and other services. Variable costs are those that can be controlled by the firm by controlling the amount produced.

A firm's **total cost** of producing is the summation of its fixed and variable costs.

Supply

Because the market, and not the firm, determines revenue in the competitive market, the amount produced at each price (its supply) is determined by each firm's cost of production. This is an important relationship for students to recognize. Thus, the firm's "supply" curve is simply its (marginal) cost curve. Assuming factor costs do not vary with the number of firms in an industry (constant cost industry), the market supply curve is simply the summation of each firm's supply curve. The cost factors that determine a firm's "supply" curve, also determine the industry supply curve.

Profit

Given how much will be sold at each price (i.e., demand for a firm's product), the firm is faced with three related questions: 1. Should it produce? 2. If so, how much of a product should be produced (and at what price, unless the firm is in a *perfectly* competitive market)? and, 3. What profit or loss will be realized?

1. A firm should produce if it makes a profit. This is obvious. However, if it is not making a profit, it should still operate in the short run as long as its loss is less than its fixed costs. In this case, it loses less money by operating because firms must pay fixed costs even if they shut down. In our example, firms also might operate at a loss because of noneconomic motives (e.g., Tanya Stravinsky). Alternatively, firms might operate at a loss today because they expect to gain customers in the future (i.e., long-run profit maximization). For example, Fleur-de-Lys might be willing to operate at a loss in the Food Court because it expects to capture young customers, who will develop a taste for Fleur-de-Lys' food.

2. A firm will set price at the amount where profit is greatest. For example, Veggie Vittles will price at \$3, the Home Economics Kitchen will price at \$1, and Taco Villa will price at \$1.50. [Note: the maximum profits (or minimum losses) that each restaurant can make are in boldface on Table 5.] The quantity sold at the profit-maximizing price is determined from Table 1 ("Demand for Entrees"), which shows how much students will purchase at the profit-maximizing price. At \$3, Veggie Vittles will sell 15 veggie sandwiches, the Home Economics Kitchen will sell 25 meat and potato meals, and Taco Villa will sell 150 tacos.
3. Profit or loss realized at each price is shown on Table 5, which can be used to illustrate how profits or losses will vary with changes in price, total revenue (Table 3), and total costs (Table 4).

● *Graphs and Their Meanings* ●

A graph is a visual representation of the relationship between two variables. The graph below illustrates the relationship between price and quantity demanded for tacos at Taco Villa. Although this information is obtained from Table 1 (and hence is merely a different representation of the same information), the graphic representation of price and quantity demanded illustrates the concept of a demand curve. That is, it shows visually or graphically how consumption varies with price of the good. In the graph below, we illustrate a linear (straight line) and nonlinear (changing slope) approximation of the demand curve for tacos that is depicted in tabular form in Table 1.

In the graph below, price is presented on the vertical axis and is the determining factor or independent variable. Consumption (quantity demanded) depends on price and is represented on the horizontal axis. (Actually, the demand curve differs from the traditional graphic portrayal of relationships, which typically show the independent variable on the horizontal axis and the dependent variable on the vertical axis.)

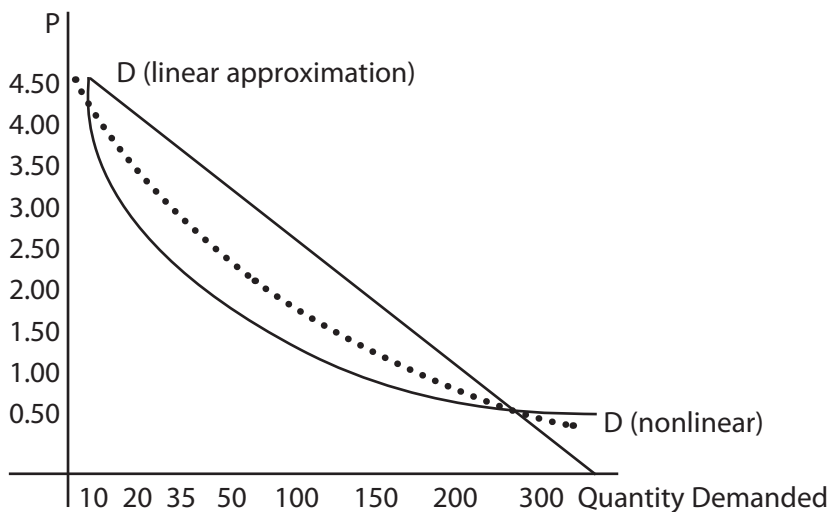
We first arrange the vertical and horizontal scales of the graph to reflect the range of values on price and consumption, as well as mark the steps in convenient increments. We then locate the various points that reflect the information on quantity demanded at a particular price that is provided in Table 1. Each of the points illustrated in Table 1 can be used to plot a demand curve for a particular restaurant. For example, at a price of \$4.50, no tacos will be purchased; at \$4, 10 tacos will be purchased; at \$3.50, 20 tacos will be purchased.

The downsloping demand curve illustrates the negative or inverse relationship between the two variables (price and quantity demanded).

These two variables move in opposite directions. As price goes up, demand goes down. The supply or (marginal) cost curve illustrates a positive or direct relationship between cost and quantity produced. Should cost information be plotted on a graph, an upsloping curve would result because cost and production move in the same direction.

The simple two-variable graph ignores many other factors that might affect the amount of tacos purchased. These other factors (e.g., income, tastes and preferences, price of other goods and services, number of people in the market) are illustrated by shifting the curve. For example, should Oak Grove High School double in size, the demand curve would shift to the right, demand would increase, indicating that at every price more tacos would be purchased.

Demand Curve for Tacos From Taco Villa



Concept Definitions

The curriculum is designed to teach the following concepts:

Competing needs: Because resources are scarce, the redistribution of goods often means that one group (or individual) often gains only at another's expense (that is, to make someone better off, someone else must be made worse off because individuals are competing for the same resources)

Costs (of production): The measure of what has to be given up in order to achieve or produce something. Total costs include both opportunity costs, or the cost of alternative uses of resources, and direct costs, or total money outlays.

Demand: Purchases of a good or service that people are actually able and willing to make, given price and choices available to them. The **law of demand** states that there is a negative (or inverse) relationship between price and quantity demanded. That is, as price increases (decreases) the amount of a good purchased decreases (increases). Consumers' demand is determined by their tastes, income, and price of other goods. The **demand schedule** is a table showing the quantities of a good that will be purchased at various prices. The **demand curve** is a curve that relates the price of a product and the quantity of the product that individuals are able and willing to purchase. **Aggregate demand** is the total demand for goods and services in the economy by households (for consumer goods), by firms and government (for investment goods), and by other countries (exports).

Economic profit: A firm's total revenue (price times number of items sold) minus the total cost of production, which includes both direct and opportunity costs. Negative economic profits are called losses. Economic profits indicate that a firm is generating revenue above and beyond the next best use of its productive resources.

Equilibrium price: The price at which the quantity of the product that buyers are able and willing to purchase exactly equals the quantity of the product that sellers will sell

Equilibrium quantity: The quantity at which the amount that buyers are able and willing to purchase exactly equals the amount of the product that sellers will sell. This occurs at the equilibrium price.

Opportunity costs: The real sacrifice involved in achieving something. The value of the next best opportunity that would have to be foregone in order to achieve a particular thing.

Profit: Total revenues minus total direct costs. This is distinguished from economic profit which is the residual of total revenue minus total costs when a normal rate of return on investment is included as a part of cost.

Scarcity: A condition where less of something exists than people would like if the good had no cost. Scarcity arises because resources are limited and cannot accommodate all of our unlimited wants.

Total cost: The sum of fixed cost and variable cost

Total revenue: The total amount of money brought in by a firm. This is computed by multiplying the unit price of the product times the number of units purchased.

Tradeoff: An exchange relationship denoting how much of one good (or resource) is needed to get another good (or resource)

Teachers can also demonstrate the following concepts using this lesson:

Direct costs: The accountant's definition of cost. The total money expenditure or outlays necessary to achieve a resource or good/service.

Elasticity: The measure of responsiveness of one variable to changes in another. For example, the **price elasticity of demand** is the change in the quantity demanded of a good as a result of a change in its price.

Fixed costs: Costs to the firm that do not vary with output. These costs are borne even though no output is produced and are often referred to as "overhead."

Indirect costs: See *opportunity cost*

Supply: The amount of a good or service that firms are prepared to sell at a given price. The firm determines how much to supply using its marginal cost curve. **Industry supply** is the summation of an individual firm's marginal cost curves (in a constant cost industry). The **supply schedule** is a table showing the amount of a product that will be produced at a given price. The **supply curve** relates the quantity of a good supplied by a firm (or market) at each price. The **law of supply** dictates that the curve is upsloping, indicating that more will be produced as the price of the good increases. **Aggregate supply** is the total amount of goods and services available for consumption and consists of both domestically produced goods and services and imports.

Variable costs: Costs that vary with the amount of production

Assessment Tools

Questions From School Board Members

Dr. Chris Calderon, School Board President

(played by the teacher)

Background: *The school board president, a businessperson with an advanced degree in economics, wants a market-based distribution of restaurants in the food court. Dr. Calderon argues that it would be an inefficient use of resources to select restaurants other than those with the highest profit.*

Points to be made:

1. To bring restaurants into the food court on any basis other than “highest profit” is inefficient. Why should the student council have less money to spend because they don’t make economically efficient decisions?
2. To select restaurants on any basis other than highest profits means that the student council must give up revenue. Less revenue will impact the school’s social events. How can this be explained to the student body? What will be given up?

Most in favor of: Taco Villa, Hunan Wok, Bennie’s, The Pasta Place, Sally’s Soups and Salads

Most opposed to: Fleur-de-Lys, The Roastery, Veggie Vittles, Bubba’s Steak House, Borscht Palace

Marcus Cash, School Board Member

Background: *Marcus Cash’s main concern is for the needs of students, especially those in the School-to-Work program, Consumer Sciences classes, and low-income students. In response to the argument for selecting the restaurants that bring in the most profit, Mr. Cash, like the counselor, argues for equity and “investing in our students.” Mr. Cash believes this can be done by keeping open the Wildcat’s Den, which provides students with work skills, and the Consumer Sciences Kitchen, which provides relatively nutritious, low-cost meals for students. In addition, because he is married to Edith Cash, he strongly supports the PTA’s concerns about healthy food choices.*

Points to be made:

1. Why isn’t serving healthy food the primary goal of the food court? The student council should focus on the needs of students and not on which restaurants make the most money (i.e., the market-based solution). Money/profit is not everything and should not be the

student council's major goal.

2. Why aren't we supporting education for our students? Selecting restaurants that make the most profit might bring in the most money for the student council, but in the long run it is not a prudent strategy. We need successful grads that return support to the school (like Tanya). This will not happen unless we invest in our students today so that they support our school in the future. This can be done by opening the Wildcat's Den, which invests in student skills, and the Consumer Sciences Kitchen.
3. Why aren't we concerned about the needs of our low-income students (25% of our students)? The gourmet/health food people think only of themselves. Their alternatives are not fair to our low-income students who cannot afford meals at the restaurants that they support. If we are concerned for all of our students, we must have low-cost, but healthy, alternatives.

Most in favor of: Wildcat's Den, Consumer Sciences Kitchen, Sally's Soups and Salads, Veggie Vittles

Most opposed to: Fleur-de-Lys, The Roastery, Bubba's Steak House, Borscht Palace

Alex Muir, School Board Member

Background: Alex Muir is concerned about the health of students, the environment, and the treatment of workers, and favors organic and low-fat foods, environmentally friendly production methods, and fair labor practices. Muir responds most favorably to the lobbies of the PTA and Vital Vegetarians. Muir is less concerned about profit than about promoting social and environmental goals, and is no friend of large corporations and the rich.

Points to be made:

1. Why should profit be the only motive for operating a restaurant in the food court? The restaurants with the highest profits serve food that is not healthy and ruin the environment—and often underpay their workers. I mean, do you remember that book and movie, *Fast Food Nation*? Society should have loftier goals than profit—like the well-being of our children, working people, and the earth.
2. Why shouldn't we support eating organic, environmentally responsible food? Equity concerns voiced by the counselor for certain students are as valid as equity concerns for vegetarians. People concerned about their health and the welfare of our planet have the right to eat at a restaurant that prepares healthy meals without meat or meat products. To fail to provide this alternative is discrimination.

3. I'm not in favor of promoting the interests of rich people when we choose restaurants for the school. Mrs. Stravinsky is very generous, but having her restaurant or other ones that wealthier students want is elitist. And large corporations also have more than enough power in our society today—let's not support the franchised chain restaurants they own and make such obscene profits from.

Most in favor of: Veggie Vittles, Sally's Soups and Salads

Most opposed to: Taco Villa, Hunan Wok, Bennie's, Borscht Palace

Mrs. Tanya Stravinsky, Honorary Board Member

Background: *Tanya Stravinsky has two concerns: opening her Borscht Palace restaurant, and maintaining the quality of food in the food court. She is concerned that students will not be exposed to foods from around the world (including the Eastern European/Russian mainstay, borscht) and fine cuisine without strong input from the Gourmets Club. She represents the interests of the elite and those individuals who think that their wants should be fulfilled because they have the money (and taste) to afford it. Mrs. Stravinsky's main economic argument is that the long run well-being of the school rests with maintaining good relationships with the "elite" because their donations help fund various programs and the construction of new facilities.*

Points to be made:

1. There is a group of students who can afford the high price of better restaurants. Why shouldn't we provide these students with this option and expose other students to the finer things in life?
2. Quality, not profit, is the appropriate standard by which restaurants should be allowed to operate in the food court. Why should we only offer food at cheap prices so that everyone can afford to eat? Why don't we offer a variety of quality food, including borscht, so that students are exposed to quality food from around the world?
3. The long-term interests of the school are maintained through a steady stream of interested, wealthy benefactors. Our Boosters Club wants quality food in the food court and I want the Borscht Palace. Don't you think we must include these restaurants in the food court for the long-term benefit of our school?

Most in favor of: Borscht Palace, Fleur-de-Lys, The Roastery

Most opposed to: Taco Villa, Hunan Wok, Bennie's, The Pasta Place

Assessment Tools

Rubrics

We have provided a rubric for each major product or performance required in this unit. All rubrics may be used as written, or adapted by the teacher to fit particular needs. Rubrics serve two major purposes. First, they provide guidance to students, describing the characteristics of good quality work—and because of this, rubrics should be shared with students while they are preparing how to demonstrate what they have learned. Second, rubrics provide teachers and others with a framework for assessment and feedback.

We have divided our rubrics into three levels of quality. If teachers wish to express these levels on a numeric point scale, we suggest that “Exceeds Standards” equals a 4 or 5, “Meets Standards” equals a 3, and “Does Not Meet Standards” equals a 1 or 2. We intentionally did not include a scoring system based on percentages or letter grades, since evaluation and reporting methods vary greatly among teachers. However, we have suggested what we believe to be the proper weight given to each category, with the emphasis on the application of content knowledge.

The rubrics for each unit do not include extensive detail about the qualities of a good oral presentation, or of good writing and other products such as electronic media. Rubrics for writing and other media products may be found in various print resources and websites, or developed by teachers, schools, and districts.

High School Food Court: Rubric for Group Oral Presentation on Economic Policy

Component and the Recommended Value	Exceeds Standards (score 4–5)	Meets Standards (score 3)	Does Not Meet Standards (score 1–2)
Overall Understanding of the Problem (10%) Key Aspects: <ul style="list-style-type: none"> Meeting the needs of the student body Profit maximization The need for the school board to reach consensus 	<p>Describes the problem clearly, accurately and completely in terms of all key points</p> <p>Solution to the problem is completely consistent with the scenario as presented; has not altered the parameters of the problem and/or “made up” facts to avoid grappling with key aspects of economics</p>	<p>Describes the problem clearly and accurately in terms of key points</p> <p>Solution to the problem is generally consistent with the scenario as presented; has not significantly altered the parameters of the problem and/or “made up” facts to avoid grappling with key aspects of economics</p>	<p>Does not describe the problem clearly and/or accurately in terms of some or all key points</p> <p>Solution to the problem is not consistent with the scenario as presented; may have altered the parameters of the problem and/or “made up” facts to avoid grappling with key aspects of economics</p>
Understanding of Economics (60%) Key Points: <ul style="list-style-type: none"> Economics criteria used in making selections Means by which profit maximization is met (total revenue minus total costs) Demand for entrepreneurs Opportunity costs if profit is sacrificed 	<p>All of the key points are clearly, accurately and completely discussed using sound economic thinking and vocabulary</p>	<p>All of the key points are clearly and accurately discussed while attempting to use economic thinking and vocabulary</p>	<p>Any or all of the key points may be missing and/or inaccurately discussed; does not use economic thinking and vocabulary</p>
Defense of Presentation (Q & A) (10%)	<p>All members of the group are able to directly answer questions and persuasively justify their decisions in terms of economics</p> <p>Answers to questions use correct, detailed economic thinking and make powerful, articulate points in defense of the group’s proposal</p>	<p>Most members of the group are able to answer questions and justify their decisions in terms of economics</p> <p>Answers to questions use correct economic thinking and make articulate points in defense of the group’s proposal</p>	<p>Only one or no member of the group is able to correctly answer questions or justify decisions in terms of economics</p> <p>Answers to questions may use incorrect economic thinking and include incorrect or confusing points</p>

Component and the Recommended Value	Exceeds Standards (score 4–5)	Meets Standards (score 3)	Does Not Meet Standards (score 1–2)
Defense of Presentation (Q & A) <i>(continued)</i> (10%)	<p>Answers to questions may bring new, relevant information to light; answers do not simply repeat the same information over again</p> <p>No information used in an answer is assumed or fictionalized; if necessary an answer may be, “I don’t know” and the need for further study is acknowledged</p>	<p>Answers to questions may bring new, relevant information to light; some answers may simply repeat the same information over again</p> <p>No significant information used in an answer is assumed or fictionalized</p>	<p>Answers to questions do not bring new information to light and answers simply repeat the same information over again</p> <p>Some significant information used in an answer may be assumed or fictionalized</p>
Visuals Aids for Presentation (10%)	<p>Visual aids use accurate information and enhance the presentation by addressing key economic concepts</p> <p>Layout, color, design elements, headings, and text are carefully done and professional-looking; all information is clearly readable and understandable</p> <p>Stays within the five-minute time limit and is not redundant, wordy, nor too brief in any aspect</p> <p>All group members participate substantively and roughly equally</p> <p>Presentation is clearly organized and flows well with effective transitions; it is not rushed or drawn-out</p> <p>Presentation is professional in style; it features appropriate dress, posture and gestures; a clear, strong, expressive voice; frequent eye contact; awareness of the audience</p>	<p>Visual aids use accurate information and support the presentation by addressing key economic concepts</p> <p>Layout, color, graphic elements, headings, and text show some care was taken; significant information is for the most part clearly readable and understandable</p> <p>Stays within the five-minute time limit; may be a bit too brief or too lengthy in some aspects; may be somewhat wordy or repetitive</p> <p>All group members participate substantively</p> <p>Presentation is organized; some parts may be somewhat unclear, too brief or too lengthy</p> <p>Presentation features appropriate dress, posture and gestures; a clear voice; some eye contact; some awareness of the audience</p>	<p>Visual aids have incorrect information and/or distract from the presentation, and/or do not address key economic concepts</p> <p>Layout, color, graphic elements, headings, and text show little evidence that care was taken; significant information is unclear or not understandable</p> <p>Does not fit within the five-minute time limit</p> <p>Only one group member participates substantively</p> <p>Presentation lacks organization</p> <p>Presentation style is unprofessional and/or immature; does not feature appropriate dress, posture and gestures; a clear, strong, expressive voice; frequent eye contact; awareness of the audience</p>
Oral Presentation Skills (10%)	<p>Stays within the five-minute time limit and is not redundant, wordy, nor too brief in any aspect</p> <p>All group members participate substantively and roughly equally</p> <p>Presentation is clearly organized and flows well with effective transitions; it is not rushed or drawn-out</p> <p>Presentation is professional in style; it features appropriate dress, posture and gestures; a clear, strong, expressive voice; frequent eye contact; awareness of the audience</p>	<p>Stays within the five-minute time limit; may be a bit too brief or too lengthy in some aspects; may be somewhat wordy or repetitive</p> <p>All group members participate substantively</p> <p>Presentation is organized; some parts may be somewhat unclear, too brief or too lengthy</p> <p>Presentation features appropriate dress, posture and gestures; a clear voice; some eye contact; some awareness of the audience</p>	<p>Does not fit within the five-minute time limit</p> <p>Only one group member participates substantively</p> <p>Presentation lacks organization</p> <p>Presentation style is unprofessional and/or immature; does not feature appropriate dress, posture and gestures; a clear, strong, expressive voice; frequent eye contact; awareness of the audience</p>

Test for High School Food Court

Answer Key

1. If the costs of a hamburger stand in the food court increase:
 - A more hamburgers will be sold
 - ☒ B profit will go down
 - C prices will go down
 - D more employees will be hired
2. In a company making a profit, profits are maximized when:
 - A total revenue equals total cost
 - B total revenue is the greatest
 - C total costs are at a minimum
 - ☒ D the difference between total revenue and total costs is greatest
3. The Borscht Palace sells five servings of borscht when it sets the price at \$1.00 per serving because:
 - A students do not like any of the choices in the food court
 - ☒ B that is how many servings students are able and willing to buy at that price
 - C that is what it costs to make five servings of borscht
 - D the Borscht Palace needs to sell that many servings to make a profit
4. If you were picking restaurants in the food court, which of the following criteria would you use if you were only taking economic considerations into account?
 - A Whether poor students can afford the food
 - B How much Ms. Cash likes the food
 - ☒ C How much profit each restaurant makes
 - D Which restaurants engage in environmentally sound practices
5. A thief broke into the food court and stole the money from the cash register at Taco Villa. The restaurant lost its daily:
 - A inventory
 - B payroll
 - ☒ C revenue
 - D profit
6. What is the opportunity cost of eating at Taco Villa?
 - A The difference between the cost of a taco and a hamburger at Bennie's
 - ☒ B The hamburger you could have eaten at Bennie's
 - C The dollar value of the taco
 - D The value of the resources used to produce the taco
7. The Student Council was limited by scarcity because:
 - A there were not enough vegetarians at the school
 - ☒ B there were not enough restaurant spaces
 - C Ms. Stravinsky didn't care if she made money at the Borscht Palace
 - D the school did not have enough students

8. If the principal of Oak Grove High School allowed students to leave the campus for lunch, the profits of food court restaurants would likely:
A go up
B stay the same or go up
C stay the same
☒ D go down
9. Demand refers to how much of a product:
A is available for purchase from business
☒ B people are willing and able to buy
C people want regardless of their ability to buy
D people are willing and able to sell
10. Which of the following is an economic tradeoff?
A Spending tax dollars to rebuild an inner city instead of expanding the military
B Producing scooters instead of bicycles
C Spending your time working instead of going to school
☒ D all of the above
11. "If we continue to spend a large portion of our budget on defense, we cannot solve the homeless problem." Which economic concept is most clearly illustrated by this statement?
A Variable cost
B Profit
C Demand
☒ D Tradeoff
12. At the end of the year, Connor's car dealership has to report to corporate headquarters how much money it took in from selling and servicing cars. Connor has to report yearly:
☒ A revenue
B sales
C profit
D cost of cars
13. Nicole is shopping for a sweater. She likes both the red sweater and the blue sweater. She only has money to buy one sweater, so she buys the red one. The blue sweater becomes the:
A limited resource
☒ B opportunity cost
C variable cost
D scarce resource
14. You have become Chairman of the Board of the world's leading software company. Will you still face scarcity?
A No, because you will be worth billions.
B No, because people will give you everything you need.
C Yes, because you still have to pay income tax.
☒ B Yes, because you still have limited resources.

15. Using information in the table below, what is total revenue at a price of \$6.00?

- A \$66
- ☒ B \$120
- C \$180
- D \$80

Price	Quantity	Total revenue	Cost	Profit
\$6.00	20		\$60	\$60.00
\$5.00	28	\$140.00	\$75	
\$4.00		\$128.00	\$100	\$28.00
\$3.00	33	\$99.00		(\$21.00)
\$2.00	38	\$76.00	\$150	
\$1.00	53		\$170	

16. In calculating costs, business owners:

- A add up the money spent on production and subtract the amount earned through sales
- B subtract fixed costs (rent) from variable costs (e.g., labor, materials)
- ☒ C add fixed costs (rent) and variable costs (e.g., labor, materials)
- D subtract fixed cost from fixed revenue

17. Two companies generate the same revenue, but one is more profitable. How is this possible?

- A One company has higher prices.
- ☒ B The companies' costs differ.
- C One company sells more than the other.
- D Demand for one company's product is greater.

18. The law of demand predicts that when the price of movie tickets goes up:

- ☒ A people will buy fewer movie tickets
- B people will buy more movie tickets
- C people will buy the same number of movie tickets
- D more theaters will sell movie tickets

19. What is the opportunity cost of going to college?

- ☒ A The experience gained from working after high school
- B The income earned after college graduation
- C The tuition, room and board
- D The knowledge and skills you obtain in college

20. In a market economy, what society produces, given its resources, is determined by whatever:

- A we have always produced
- ☒ B the people are willing and able to buy
- C the leaders decide we should produce
- D special interest groups want

21. Using information in the table below, how many units would be demanded at a price of \$4.00?

- A 25
- B 7
- C 55
- Ⓓ 32

Price	Quantity	Total revenue	Cost	Profit
\$6.00	20		\$60	\$60.00
\$5.00	28	\$140.00	\$75	
\$4.00		\$128.00	\$100	\$28.00
\$3.00	33	\$99.00		(\$21.00)
\$2.00	38	\$76.00	\$150	
\$1.00	53		\$170	

22. Using information in the table above, what is total cost at a price of \$3.00?

- A \$11
- B \$3.64
- Ⓒ \$120
- D \$150

23. What does the law of demand state?

- A When people have more money, they buy more goods and services.
- B The demand for a good increases with the number of people buying the good.
- Ⓒ As the price of a good goes down, people buy more of that good.
- D The supply of a good goes up in proportion to the demand for it.

24. Demand schedules show the relationship between what two variables?

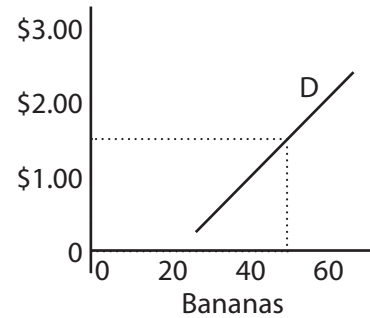
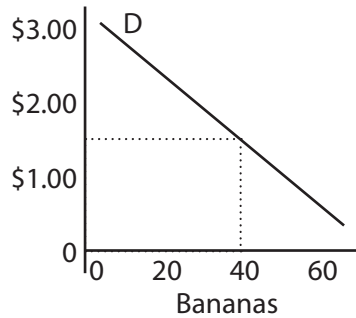
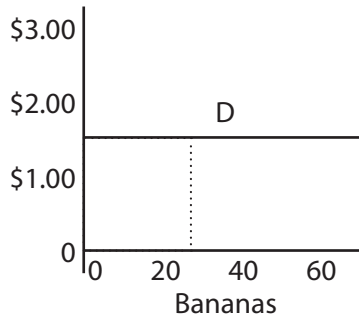
- A Cost and price
- Ⓑ Quantity and price
- C Quantity and sales
- D Supply and demand

Teacher Materials

Test for High School Food Court Answer Key

25. One of the graphs below is a typical demand curve. Use that graph to answer the following question. At a price of \$1.50, how many will be sold?

- A 22
- ☒ B 38
- C 42
- D cannot tell



26. A small company making computers has \$1000 in fixed costs and \$500 per unit in variable costs each month. What is the total cost if they produce 10 computers?

- A \$1500
- B \$500
- ☒ C \$6000
- D \$5000

First Memo From the Principal

OAK GROVE CITY HIGH SCHOOL

TO: Student Council
FROM: Dr. Stanley Campbell, Principal
RE: Food court in new student center

As you know, our school board would like the student council to select the restaurants for the food court in our new student center. Twelve local restaurants have applied for the five spaces available. The board has set the following parameters to help you make your decision:

1. Each restaurant will be required to give 20% of its profits to the student council. These funds will be the entire annual budget for the council—to pay for student activities, clubs, social events, and whatever else the council may wish to do that costs money. If the restaurants do not generate enough profits, you will have to cancel events or charge fees.
2. Your selections will be in effect for four years, according to the contract to be signed by each restaurant.
3. All restaurants will have the same space allocation. They will not be charged any set-up fees.
4. Each restaurant guarantees it will be able to serve food quickly enough to accommodate our student population and lunch schedule.

Also keep in mind the following:

- While you are free to use any criteria you wish in making this decision, remember that you represent ALL the students at this school. You need to take into account the needs of our diverse student body—and because we have a closed campus, students must either use the food court or bring a lunch from home.
- The president of the board has an economics degree, so be sure your decision is grounded in sound economic thinking.
- To approve your recommendation, the board will need to reach a consensus decision—all members must agree. Give them convincing reasons as to why the restaurants you have chosen are both profitable and meet the needs of students.

The board will hear your recommendation at their meeting next week, so plan a five-minute oral presentation with posters and graphs. Please note that you will not be allowed to exceed your time limit, and be prepared to answer questions from board members.

The school district has prepared some information about the restaurants to help guide your decision, which you will receive soon.

BOARD OF TRUSTEES
OAK GROVE SCHOOL DISTRICT
Restaurant Applicants for Food Court

The restaurants submitted the following descriptions of themselves in their applications to the school board. They will serve *only* the items they have decided to offer:

1. **Taco Villa:** *Beef tacos.* Taco Villa is a national fast-food franchise well known to students as a place to enjoy a quick, cheap, tasty meal.
2. **The Wildcat's Den:** *Meat and cheese submarine sandwiches.* This is our school's student-run enterprise, so by purchasing our food at reasonable prices, students will be helping their fellow students learn about running a restaurant. Profits from the Wildcat's Den will NOT go to the Student Council—they will go back to the School-to-Work program and help support additional course offerings.
3. **Veggie Vittles:** *Vegetarian sandwich.* We base our cooking on the philosophy of eating low on the food chain. Our all-organic menu is limited to whole grains, fruits and vegetables, and no animal products—your good eating habits and environmental sustainability are our major concerns.
4. **Consumer Sciences Kitchen:** *Meat, potato, and vegetable plate.* To keep our prices low, we work closely with the U.S. Department of Agriculture's County Extension Office and purchase our cans of meat and vegetables and bags of potatoes in bulk. Although our food may not be as "taste engineered" as our fast-food competitors, our nutritionally balanced meals are cheap and meet current FDA guidelines. Our profits from the food court will NOT go to the student council—the money we earn will help fund supplies and activities for students in the Consumer Sciences program, which is needed due to recent state budget cuts.
5. **Fleur-de-Lys:** *Crab crepe.* Our nationally acclaimed chef, Philippe "Pepe" LePue, serves traditional Northern French cuisine. Enjoy Philippe's culinary skill at the food court, and add a touch of elegance to your high school experience.
6. **Bubba's Steak House:** *Beef steak.* Our popular local steak house serves generous portions of prime rib, T-bone, and Porter House steaks. Our range-fed beef packs more protein per pound than any other lunch around. When you've been to Bubba's, you've been well-fed.
7. **Sally's Soups and Salads:** *Salad bar.* Healthy, low-calorie soups and salads are Sally's specialties. Low fat does not have to be low taste.
8. **Bennie's:** *Hamburgers.* Bennie's franchises attract customers all across the United States by offering great food at great prices. Bennie's is known as a popular high school hangout, with a friendly, informal setting.
9. **Hunan Wok:** *Lemon chicken and pork chow mein.* We have been serving fast food for over thirty years, and are now seen in food court franchises in shopping malls across the region. Oak Grove students will love the low prices and flavorful choices at the Hunan Wok.
10. **The Borscht Palace:** *Soup.* Beets, cabbage, and vinegar in a beef broth never tasted so good. Our borscht won the Cleveland Founders Day Cook Off three years in a row. Eat like a czar at the Borscht Palace.
11. **The Pasta Place:** *Spaghetti with meat (ground beef) sauce.* The Pasta Place is a long-time local restaurant offering family-style Italian fare, lots of food, and cheap prices—teens and their families love it.
12. **The Roastery:** *Roasted chicken and marinated vegetables with rice.* Gourmet magazines rave about our special spit-roasting cooking techniques using a hickory and apple wood fire. We offer students a tasty meal for the discerning palate.

Table 1: Demand for Entrees

Table 1: Demand for Entrees at Oak Grove High School

Data compiled by OGUSD from a survey of students

Restaurant	Taco Villa	Wildcat's Den	Veggie Vittles	Consumer Science Kitchen	Fleur-de-Lys	Bubba's Steak House	Sally's	Bennie's	Hunan Wok	Borscht Palace	Pasta Place	Roastery
Entree	beef tacos	sub sandwich	veggie sandwich	meat & potatoes	crab crepe	steak	soup and salad	hamburger	chicken & chow mein	soup	spaghetti	chicken & veggies
Price	Quantity Demanded Daily											
\$10.00	0	0	0	0	1	1	0	0	0	0	0	3
\$9.50	0	0	0	0	2	1	0	0	0	0	0	3
\$9.00	0	0	0	0	3	1	0	0	0	0	0	3
\$8.50	0	0	0	0	4	1	0	0	0	0	0	3
\$8.00	0	0	0	0	5	1	0	0	0	0	0	4
\$7.50	0	0	0	0	6	1	0	0	0	0	0	5
\$7.00	0	0	0	0	7	1	0	0	0	0	0	6
\$6.50	0	0	0	0	8	3	0	0	0	0	0	7
\$6.00	0	0	0	0	9	4	0	0	0	0	0	8
\$5.50	0	0	0	0	10	5	0	3	0	0	0	10
\$5.00	0	0	0	0	11	10	0	10	5	0	3	12
\$4.50	0	0	4	0	13	15	5	25	15	0	7	15
\$4.00	10	0	7	0	15	20	10	40	25	0	25	20
\$3.50	20	5	10	0	18	30	14	55	45	0	35	30
\$3.00	35	10	15	0	25	45	18	70	55	0	50	60
\$2.50	50	20	17	0	30	60	25	100	75	0	80	100
\$2.00	100	37	20	10	55	100	35	150	150	0	100	150
\$1.50	150	63	25	15	70	200	84	188	250	0	140	275
\$1.00	200	75	30	25	80	250	150	225	300	5	200	425
\$0.50	300	100	30	25	120	350	200	350	350	10	250	500

Table 2: Total Revenue

Table 2: Computed Total Revenue

Restaurant	Taco Villa	Wildcat's Den	Veggie Vittles	Consumer Science Kitchen	Fleur-de-Lys	Bubba's Steak House	Sally's	Bennie's	Hunan Wok	Borscht Palace	Pasta Place	Roastery
Entree	beef tacos	sub sandwich	veggie sandwich	meat & potatoes	crab crepe	steak	soup and salad	hamburger	chicken & chow mein	soup	spaghetti	chicken & veggies
Price	Total Revenue at Each Price											
\$10.00	0	0	0	0	\$10.00	\$10.00	0	0	0	0	0	\$30.00
\$9.50	0	0	0	0	\$19.00	\$9.50	0	0	0	0	0	\$28.50
\$9.00	0	0	0	0	\$27.00	\$9.00	0	0	0	0	0	\$27.00
\$8.50	0	0	0	0	\$34.00	\$8.50	0	0	0	0	0	\$25.50
\$8.00	0	0	0	0	\$40.00	\$8.00	0	0	0	0	0	\$32.00
\$7.50	0	0	0	0	\$45.00	\$7.50	0	0	0	0	0	\$37.50
\$7.00	0	0	0	0	\$49.00	\$7.00	0	0	0	0	0	\$42.00
\$6.50	0	0	0	0	\$52.00	\$19.50	0	0	0	0	0	\$45.50
\$6.00	0	0	0	0	\$54.00	\$24.00	0	0	0	0	0	\$48.00
\$5.50	0	0	0	0	\$55.00	\$27.50	0	\$16.50	0	0	0	\$55.00
\$5.00	0	0	0	0	\$55.00	\$50.00	0	\$50.00	\$25.00	0	\$15.00	\$60.00
\$4.50	0	0	\$18.00	0	\$58.50	\$67.50	\$22.50	\$112.50	\$67.50	0	\$31.50	\$67.50
\$4.00	\$40.00	0	\$28.00	0	\$60.00	\$80.00	\$40.00	\$160.00	\$100.00	0	\$100.00	\$80.00
\$3.50	\$70.00	\$17.50	\$35.00	0	\$63.00	\$105.00	\$49.00	\$192.50	\$157.50	0	\$122.50	\$105.00
\$3.00	\$105.00	\$30.00	\$45.00	0	\$75.00	\$135.00	\$54.00	\$210.00	\$165.00	0	\$150.00	\$180.00
\$2.50	\$125.00	\$50.00	\$42.50	0	\$75.00	\$150.00	\$62.50	\$250.00	\$187.50	0	\$200.00	\$250.00
\$2.00	\$200.00	\$74.00	\$40.00	\$20.00	\$110.00	\$200.00	\$70.00	\$300.00	\$300.00	0	\$200.00	\$300.00
\$1.50	\$225.00	\$94.50	\$37.50	\$22.50	\$105.00	\$300.00	\$126.00	\$282.00	\$375.00	0	\$210.00	\$412.50
\$1.00	\$200.00	\$75.00	\$30.00	\$25.00	\$80.00	\$250.00	\$150.00	\$225.00	\$300.00	\$5.00	\$200.00	\$425.00
\$0.50	\$150.00	\$50.00	\$15.00	\$12.50	\$60.00	\$175.00	\$100.00	\$175.00	\$175.00	\$5.00	\$125.00	\$250.00

Total Revenue = Price × Quantity Sold at that price (all information is contained in Table 1).

Table 3: Cost Data

Table 3: Cost Data

Restaurant	Taco Villa	Wildcat's Den	Veggie Vittles	Consumer Science Kitchen	Fleur-de-Lys	Bubba's Steak House	Sally's	Bennie's	Hunan Wok	Borscht Palace	Pasta Place	Roastery
Entree	beef tacos	sub sandwich	veggie sandwich	meat & potatoes	crab crepe	steak	soup & salad	hamburger	chicken & chow mein	soup	spaghetti	chicken & veggies
Cost Item	Unit											
Variable Costs												
labor (per serving)	\$0.20	\$0.05	\$0.20	\$0.10	\$0.60	\$0.30	\$0.40	\$0.20	\$0.20	\$0.20	\$0.20	\$0.40
ingredients (per serving)	\$0.20	\$0.75	\$0.50	\$0.025	\$2.80	\$2.20	\$0.75	\$1.00	\$0.20	\$0.10	\$0.75	\$2.15
Fixed Costs												
stall rental (daily)	\$25.00	\$25.00	\$25.00	0	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00
equipment rental (daily)	\$5.00	\$5.00	\$5.00	0	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00

Table 4: Daily Costs

Table 4: Computed Daily Costs

Restaurant	Taco Villa	Wildcat's Den	Veggie Vittles	Consumer Science Kitchen	Fleur-de-Lys	Bubba's Steak House	Sally's	Bennie's	Hunan Wok	Borscht Palace	Pasta Place	Roastery
Entree	beef tacos	sub sandwich	veggie sandwich	meat & potatoes	crab crepe	steak	soup and salad	hamburger	chicken & chow mein	soup	spaghetti	chicken & veggies
Price	Total Daily Costs at Each Price											
\$10.00	\$30.00	\$30.00	\$30.00	0	\$33.40	\$32.50	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$37.65
\$9.50	\$30.00	\$30.00	\$30.00	0	\$36.80	\$32.50	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$37.65
\$9.00	\$30.00	\$30.00	\$30.00	0	\$40.20	\$32.50	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$37.65
\$8.50	\$30.00	\$30.00	\$30.00	0	\$43.60	\$32.50	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$37.65
\$8.00	\$30.00	\$30.00	\$30.00	0	\$47.00	\$32.50	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$40.20
\$7.50	\$30.00	\$30.00	\$30.00	0	\$50.40	\$32.50	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$42.75
\$7.00	\$30.00	\$30.00	\$30.00	0	\$53.80	\$32.50	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$45.30
\$6.50	\$30.00	\$30.00	\$30.00	0	\$57.20	\$37.50	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$47.85
\$6.00	\$30.00	\$30.00	\$30.00	0	\$60.60	\$40.00	\$30.00	\$30.00	\$30.00	\$30.00	\$30.00	\$50.40
\$5.50	\$30.00	\$30.00	\$30.00	0	\$64.00	\$42.50	\$30.00	\$33.60	\$30.00	\$30.00	\$30.00	\$55.50
\$5.00	\$30.00	\$30.00	\$30.00	0	\$67.40	\$55.00	\$30.00	\$42.00	\$32.00	\$30.00	\$32.85	\$60.60
\$4.50	\$30.00	\$30.00	\$32.80	0	\$74.20	\$67.50	\$35.75	\$60.00	\$36.00	\$30.00	\$36.65	\$68.25
\$4.00	\$34.00	\$30.00	\$34.90	0	\$81.00	\$80.00	\$41.50	\$78.00	\$40.00	\$30.00	\$53.75	\$81.00
\$3.50	\$38.00	\$34.00	\$37.00	0	\$91.20	\$105.00	\$46.10	\$96.00	\$48.00	\$30.00	\$63.25	\$106.50
\$3.00	\$44.00	\$38.00	\$40.50	0	\$115.00	\$142.50	\$50.70	\$114.00	\$52.00	\$30.00	\$77.50	\$183.00
\$2.50	\$50.00	\$46.00	\$41.90	0	\$132.00	\$180.00	\$58.75	\$150.00	\$60.00	\$30.00	\$106.00	\$285.00
\$2.00	\$70.00	\$59.60	\$44.00	\$1.25	\$217.00	\$280.00	\$70.25	\$210.00	\$90.00	\$30.00	\$125.00	\$412.50
\$1.50	\$90.00	\$80.40	\$47.50	\$1.875	\$268.00	\$530.00	\$126.60	\$255.60	\$130.00	\$30.00	\$163.00	\$731.25
\$1.00	\$110.00	\$90.00	\$51.00	\$3.125	\$302.00	\$655.00	\$202.50	\$300.00	\$150.00	\$31.50	\$220.00	\$1113.75
\$0.50	\$150.00	\$110.00	\$51.00	\$3.125	\$438.00	\$905.00	\$260.00	\$450.00	\$170.00	\$33.00	\$267.50	\$1305.00

Daily costs are computed by multiplying the amount sold at each price (for a given restaurant)—information located in Table 1—by the variable costs (labor and ingredients costs) and adding it to the fixed cost (stall and equipment rental). The cost information for each restaurant is located in Table 2.

Table 5: Daily Profit

Table 5: Computed Daily Profit

Restaurant	Taco Villa	Wildcat's Den	Veggie Vittles	Consumer Science Kitchen	Fleur-de-Lys	Bubba's Steak House	Sally's	Bennie's	Hunan Wok	Borscht Palace	Pasta Place	Roastery
Entree	beef tacos	sub sandwich	vegie sandwich	meat & potatoes	crab crepe	steak	soup and salad	hamburger	chicken & chow mein	soup	spaghetti	chicken & veggies
Price	Total Daily Profit at Each Price											
\$10.00	-\$30.00	-\$30.00	-\$30.00	0	-\$23.40	-\$22.50	-\$30.00	-\$30.00	-\$30.00	-\$30.00	-\$30.00	-\$7.65
\$9.50	-\$30.00	-\$30.00	-\$30.00	0	-\$17.80	-\$23.00	-\$30.00	-\$30.00	-\$30.00	-\$30.00	-\$30.00	-\$9.15
\$9.00	-\$30.00	-\$30.00	-\$30.00	0	-\$13.20	-\$23.50	-\$30.00	-\$30.00	-\$30.00	-\$30.00	-\$30.00	-\$10.65
\$8.50	-\$30.00	-\$30.00	-\$30.00	0	-\$9.60	-\$24.00	-\$30.00	-\$30.00	-\$30.00	-\$30.00	-\$30.00	-\$12.15
\$8.00	-\$30.00	-\$30.00	-\$30.00	0	-\$7.00	-\$24.50	-\$30.00	-\$30.00	-\$30.00	-\$30.00	-\$30.00	-8.20
\$7.50	-\$30.00	-\$30.00	-\$30.00	0	-\$5.40	-\$25.00	-\$30.00	-\$30.00	-\$30.00	-\$30.00	-\$30.00	-\$5.25
\$7.00	-\$30.00	-\$30.00	-\$30.00	0	-\$4.80	-\$25.50	-\$30.00	-\$30.00	-\$30.00	-\$30.00	-\$30.00	-\$3.30
\$6.50	-\$30.00	-\$30.00	-\$30.00	0	-\$5.20	-\$18.00	-\$30.00	-\$30.00	-\$30.00	-\$30.00	-\$30.00	-\$2.35
\$6.00	-\$30.00	-\$30.00	-\$30.00	0	-\$6.60	-\$16.00	-\$30.00	-\$30.00	-\$30.00	-\$30.00	-\$30.00	-\$2.40
\$5.50	-\$30.00	-\$30.00	-\$30.00	0	-\$9.00	-\$15.00	-\$30.00	-\$17.10	-\$30.00	-\$30.00	-\$30.00	-0.50
\$5.00	-\$30.00	-\$30.00	-\$30.00	0	-\$12.40	-\$5.00	-\$30.00	\$8.00	-\$7.00	-\$30.00	-\$17.85	-0.60
\$4.50	-\$30.00	-\$30.00	-\$14.80	0	-\$15.70	0	-\$13.25	\$52.50	\$31.50	-\$30.00	-\$5.15	-0.75
\$4.00	\$6.00	-\$30.00	-\$6.90	0	-\$21.00	0	-\$1.50	\$82.00	\$60.00	-\$30.00	\$46.25	-\$1.00
\$3.50	\$32.00	-\$16.50	-\$2.00	0	-\$28.20	0	\$2.90	\$96.50	\$109.50	-\$30.00	\$59.25	-\$1.50
\$3.00	\$61.00	-\$8.00	\$4.50	0	-\$40.00	-\$7.50	\$3.30	\$96.00	\$113.00	-\$30.00	\$72.50	-\$3.00
\$2.50	\$75.00	\$4.00	\$0.60	0	-\$57.00	-\$30.00	\$3.75	\$100.00	\$127.50	-\$30.00	\$94.00	-\$35.00
\$2.00	\$130.00	\$14.40	-\$4.00	\$18.75	-\$107.00	-80.00	\$-0.25	\$90.00	\$210.00	-\$30.00	\$75.00	-\$112.50
\$1.50	\$135.00	\$14.10	-\$10.00	\$20.625	-\$163.00	-\$230.00	\$-0.60	\$26.40	\$245.00	-\$30.00	\$47.00	-\$318.75
\$1.00	\$90.00	-\$15.00	-\$21.00	\$21.875	-\$222.00	-\$405.00	-\$52.50	-\$75.00	\$150.00	-\$26.50	-\$20.00	-\$688.75
\$0.50	\$0	-\$60.00	-\$36.00	\$9.375	-\$378.00	-\$730.00	-\$160.00	-\$275.00	\$5.00	-\$28.00	-\$142.50	-\$,1055.00

Numbers in bold indicate maximum profit or minimum loss. It is at this price that the restaurant will sell its entree. Profit is computed by subtracting total cost (Table 4) from total revenue (Table 3) at each price for each restaurant.

Blank Tables for Computations

The following three pages contain worksheets that can be used by students to compute the following:

Table 2: the total revenue that each restaurant will receive (per day, at each price)

Table 4: the total cost that each restaurant will bear (per day, per item, at each price)

Table 5: the total profit that each restaurant will make (per day, at each price).

Students should be given the other tables that are referenced at the bottom of the worksheets (e.g., Table 2, “Computed Total Revenue,” references Table 1) at the same time that they are given the worksheet since they must rely on the referenced table to complete the worksheet.

Tables showing the completed computations (i.e., the “answer keys”) are also included in this section.

These worksheets can be used as homework for individual students, as an activity for a group, or as part of a teacher-led discussion in a clarifying lesson.

Total Revenue

Restaurant	Taco Villa	Wildcat's Den	Veggie Vittles	Consumer Science Kitchen	Fleur-de-Lys	Bubba's Steak House	Sally's	Bennie's	Hunan Wok	Borscht Palace	Pasta Place	Roastery
Entree	beef tacos	sub sandwich	veggie sandwich	meat & potatoes	crab crepe	steak	soup and salad	hamburger	chicken & chow mein	soup	spaghetti	chicken & veggies
Price	Total Revenue at Each Price											
\$10.00												
\$9.50												
\$9.00												
\$8.50												
\$8.00												
\$7.50												
\$7.00												
\$6.50												
\$6.00												
\$5.50												
\$5.00												
\$4.50												
\$4.00												
\$3.50												
\$3.00												
\$2.50												
\$2.00												
\$1.50												
\$1.00												
\$0.50												

Total Revenue = Price × Quantity Sold at that price (all information is contained in Table 1).

Daily Costs

Daily Costs

Restaurant	Taco Villa	Wildcat's Den	Veggie Vittles	Consumer Science Kitchen	Fleur-de-Lys	Bubba's Steak House	Sally's	Bennie's	Hunan Wok	Borscht Palace	Pasta Place	Roastery
Entree	beef tacos	sub sandwich	veggie sandwich	meat & potatoes	crab crepe	steak	soup and salad	hamburger	chicken & chow mein	soup	spaghetti	chicken & veggies
Price	Total Daily Costs at Each Price											
\$10.00												
\$9.50												
\$9.00												
\$8.50												
\$8.00												
\$7.50												
\$7.00												
\$6.50												
\$6.00												
\$5.50												
\$5.00												
\$4.50												
\$4.00												
\$3.50												
\$3.00												
\$2.50												
\$2.00												
\$1.50												
\$1.00												
\$0.50												

Daily Costs are computed by multiplying the amount sold at each price (for a given restaurant)—information located in Table 1—by the variable costs (labor and ingredients costs) and adding it to the fixed cost (stall and equipment rental). The cost information for each restaurant is located in Table 2.

Daily Profit

Restaurant	Taco Villa	Wildcat's Den	Veggie Vittles	Consumer Science Kitchen	Fleur-de-Lys	Bubba's Steak House	Sally's	Bennie's	Hunan Wok	Borscht Palace	Pasta Place	Roastery
Entree	beef tacos	sub sandwich	veggie sandwich	meat & potatoes	crab crepe	steak	soup and salad	hamburger	chicken & chow mein	soup	spaghetti	chicken & veggies
Price	Daily Profit at Each Price											
\$10.00												
\$9.50												
\$9.00												
\$8.50												
\$8.00												
\$7.50												
\$7.00												
\$6.50												
\$6.00												
\$5.50												
\$5.00												
\$4.50												
\$4.00												
\$3.50												
\$3.00												
\$2.50												
\$2.00												
\$1.50												
\$1.00												
\$0.50												

Profit is computed by subtracting total cost from total revenue at each price for each restaurant.

Transcript of Voicemail Messages

1. From the Principal to the Student Council

This is from Principal Campbell to the student council—I'm forwarding some voicemail messages I've received about the new food court. These are important people in our community, so please pay close attention to their concerns about the restaurants you're considering.

2. From Rita Price, Executive Director of the Grove Area School-to-Work Program

Dr. Campbell, this is Rita Price from the Grove Area School-to-Work Program. I hope your student council understands why our own Wildcat's Den should be one of the restaurants chosen for the new food court. Wildcat's Den, if it gets into the food court, will be owned and operated by our students here at Oak Grove High School through our school-to-work restaurant class. Kids who take the restaurant class will get hands-on experience, learning how to prepare food, order inventory, set prices and serve the public. Currently, 25% of all Oak Grove students are involved in our career classes, so this opportunity would help many of them. Many of these kids can move into jobs in hotels and restaurants once they have experience, and the Wildcat's Den will give them an excellent opportunity. Please remind the student council how important this is.

3. From Edith Cash, PTA President

Hi, this is Edith Cash, PTA President. At our last PTA meeting you mentioned that the student council was picking the restaurants for the new food court. Wow! I just looked at the list of choices. The quality of food served by some of these bidders is just awful. Meat-filled tacos? Fast food hamburgers? Spaghetti with meat sauce? These are all such high-fat items! And where are the fresh ingredients? I really don't think these are healthy foods for growing young people. We're parents and we're worried about the health of our children. And quite frankly, many of the PTA members question the ability of teenagers to make wise decisions about what to eat for lunch. We talked about this at length at the recent PTA meeting and we think that limiting the students' options to only healthy food would encourage our kids to eat well. Please let the student council know that the PTA parents don't want to see fast food restaurants in our student food court.

4. From the Galloping Gourmets Club

Mr. Campbell, the Galloping Gourmets Club just wanted you to know that we were extremely happy to see that two outstanding restaurants, Fleur-de-Lys and the Roastery, were on the list of bidders for food court. We take eating seriously at the Gourmets Club and we are tired of cardboard hamburgers and fat-filled tacos. Just because we're teenagers doesn't mean we want to eat tasteless garbage. If money is an issue for bringing in decent restaurants, no problem. Our parents will gladly give us more allowance so we can eat appetizing food. And please remind the student council that our parents are very active members of the Booster Club. They do a lot for this school. Students who play in the band, take drama, and receive college financial aid should know that funds are provided by the Boosters. As a matter of fact, because of the good will and hard work of our parents, the student-council members will be attending the national leadership conference—a trip sponsored by the Booster Club. Please remind the student council to keep the Galloping Gourmets Club's gastronomical interests in mind when making their selections.

5. From Vital Vegetarians

Hi, Dr. Campbell. I'm calling about the new restaurants that will be going into the school's food court. Vital Vegetarians are members of this student body and we are committed to preserving the planet and avoiding needless animal sacrifice. We want to see a food court that respects animals, with meals that emphasize nutritious grains and legumes instead of meat. The food court needs a vegetarian alternative, so we want to encourage the student council to include Veggie Vittles as one of the restaurants. Vegetarian students are entitled, just like any other student, to a place on campus where they can eat lunch. Also, as you may know, both Taco Villa and Hunan Wok are being boycotted by people concerned about the environment. These restaurants are partly responsible for the destruction of the rain forest. They are cutting down the rain forest at an alarming rate in order to graze cattle and they are using the trees they cut to produce their throw-away food containers. As Oak Grove High School students and members of the Vital Vegetarians, we are concerned about having such environmentally irresponsible restaurants in our food court. Please pass our concerns on to the student council.

6. From Ms. Loer, School Counselor

Dr. Campbell, this is Ms. Loer from the counseling office. It has been brought to my attention by a number of parents and community folks, who want to remain nameless at this time, that the prices charged for the food sold in our new food court may be out of reach for many of our students. You know, 25% of our students are considered low-income. These students aren't likely to bring up the fact that they can't afford the food, but it is true. It's going to cause some of these kids to go hungry since they are not allowed to go off campus during school hours. Students should not be forced to go hungry and certainly students should not be singled out and stigmatized because they can't afford our food. I think that would be an unacceptable situation. I hope that our student council understands that the Consumer Sciences Kitchen is the only place these kids can afford to eat. Student-council representatives took an oath to serve all students and they have a responsibility to consider the needs of lower income kids.

7. From the Principal, Regarding Mrs. Stravinsky

One more message here for the student council from Dr. Campbell. As you know, the Borscht Palace, one of the restaurants bidding for space in our new food court, is owned by Tanya Stravinsky. Mrs. Stravinsky donated the money used by the school district to build our new student center. Those wonderful facilities—the game room, study hall, food court, the computer lab, and the theater—would not be yours to enjoy had it not been for Mrs. Stravinsky. Now, in the last conversation I had with her, she said that she would love to stay in contact with this school by cooking food from her native land. Money is not the issue. She doesn't care if the restaurant makes money. She would just like to be a part of the project she helped build. We are hoping Mrs. Stravinsky will contribute heavily to the construction of the swimming pool and tennis courts that we have planned for the student center. So, I'm asking you to keep that in mind when making your decisions.

Second Memo From the Principal

OAK GROVE CITY HIGH SCHOOL

TO: Student Council
FROM: Dr. Stanley Campbell, Principal
RE: School Board Members

I thought it would help prepare you for your upcoming presentation to the board if I gave you a heads-up about the viewpoints of the board members:

Dr. Chris Calderon is President of the Board of Trustees. As a businessperson with an advanced degree in economics, Dr. Calderon is concerned about maintaining profitable restaurants in the food court so that students are able to afford clubs, student activities, and social events.

Marcus Cash is the husband of our PTA president, Mrs. Edith Cash. Like his wife, Mr. Cash is concerned about the health and well-being of Oak Grove High School students. He wants to see healthy food served in the food court and he wants students to have the opportunity to learn valuable job skills through running and operating a restaurant in the food court. Mr. Cash is also concerned about low-income students who cannot afford high-priced lunches.

Alex Muir is a staunch environmentalist, politically liberal, and concerned about the right of vegetarian students to have a non-meat source of food on campus. Muir is also boycotting Hunan Wok and Taco Villa because of their dismal environmental records and concerns about their labor practices. Muir is no friend of the rich and does not consider building the tennis courts or the pool a high priority.

Mrs. Tanya Stravinsky is a nonvoting, honorary member of the school board. As one of the school's major benefactors, she is interested in the long term well-being of the school, including the building of the tennis courts and pool. She has a special interest in cooking from her homeland and in gourmet food from around the world. She supports the Galloping Gourmet Club's desire to have quality food on campus.

Name: _____

Date: _____

Test for *High School Food Court*

Please circle the letter of your answer.

1. If the costs of a hamburger stand in the food court increase:
 - A more hamburgers will be sold
 - B profit will go down
 - C prices will go down
 - D more employees will be hired
2. In a company making a profit, profits are maximized when:
 - A total revenue equals total cost
 - B total revenue is the greatest
 - C total costs are at a minimum
 - D the difference between total revenue and total costs is greatest
3. The Borscht Palace sells five servings of borscht when it sets the price at \$1.00 per serving because:
 - A students do not like any of the choices in the food court
 - B that is how many servings students are able and willing to buy at that price
 - C that is what it costs to make five servings of borscht
 - D the Borscht Palace needs to sell that many servings to make a profit
4. If you were picking restaurants in the food court, which of the following criteria would you use if you were only taking economic considerations into account?
 - A Whether poor students can afford the food
 - B How much Ms. Cash likes the food
 - C How much profit each restaurant makes
 - D Which restaurants engage in environmentally sound practices
5. A thief broke into the food court and stole the money from the cash register at Taco Villa. The restaurant lost its daily:
 - A inventory
 - B payroll
 - C revenue
 - D profit
6. What is the opportunity cost of eating at Taco Villa?
 - A The difference between the cost of a taco and a hamburger at Bennie's
 - B The hamburger you could have eaten at Bennie's
 - C The dollar value of the taco
 - D The value of the resources used to produce the taco

7. The Student Council was limited by scarcity because:
 - A there were not enough vegetarians at the school
 - B there were not enough restaurant spaces
 - C Ms. Stravinsky didn't care if she made money at the Borscht Palace
 - D the school did not have enough students
8. If the principal of Oak Grove High School allowed students to leave the campus for lunch, the profits of food court restaurants would likely:
 - A go up
 - B stay the same or go up
 - C stay the same
 - D go down
9. Demand refers to how much of a product:
 - A is available for purchase from business
 - B people are willing and able to buy
 - C people want regardless of their ability to buy
 - D people are willing and able to sell
10. Which of the following is an economic tradeoff?
 - A Spending tax dollars to rebuild an inner city instead of expanding the military
 - B Producing scooters instead of bicycles
 - C Spending your time working instead of going to school
 - D all of the above
11. "If we continue to spend a large portion of our budget on defense, we cannot solve the homeless problem." Which economic concept is most clearly illustrated by this statement?
 - A Variable cost
 - B Profit
 - C Demand
 - D Tradeoff
12. At the end of the year, Connor's car dealership has to report to corporate headquarters how much money it took in from selling and servicing cars. Connor has to report yearly:
 - A revenue
 - B sales
 - C profit
 - D cost of cars
13. Nicole is shopping for a sweater. She likes both the red sweater and the blue sweater. She only has money to buy one sweater, so she buys the red one. The blue sweater becomes the:
 - A limited resource
 - B opportunity cost

- C variable cost
- D scarce resource

14. You have become Chairman of the Board of the world's leading software company. Will you still face scarcity?

- A No, because you will be worth billions.
- B No, because people will give you everything you need.
- C Yes, because you still have to pay income tax.
- D Yes, because you still have limited resources.

15. Using information in the table below, what is total revenue at a price of \$6.00?

- A \$66
- B \$120
- C \$180
- D \$80

Price	Quantity	Total revenue	Cost	Profit
\$6.00	20		\$60	\$60.00
\$5.00	28	\$140.00	\$75	
\$4.00		\$128.00	\$100	\$28.00
\$3.00	33	\$99.00		(\$21.00)
\$2.00	38	\$76.00	\$150	
\$1.00	53		\$170	

16. In calculating costs, business owners:

- A add up the money spent on production and subtract the amount earned through sales
- B subtract fixed costs (rent) from variable costs (e.g., labor, materials)
- C add fixed costs (rent) and variable costs (e.g., labor, materials)
- D subtract fixed cost from fixed revenue

17. Two companies generate the same revenue, but one is more profitable. How is this possible?

- A One company has higher prices.
- B The companies' costs differ.
- C One company sells more than the other.
- D Demand for one company's product is greater.

18. The law of demand predicts that when the price of movie tickets goes up:

- A people will buy fewer movie tickets
- B people will buy more movie tickets
- C people will buy the same number of movie tickets
- D more theaters will sell movie tickets

19. What is the opportunity cost of going to college?
- A The experience gained from working after high school
 - B The income earned after college graduation
 - C The tuition, room, and board
 - D The knowledge and skills you obtain in college
20. In a market economy, what society produces, given its resources, is determined by whatever:
- A we have always produced
 - B the people are willing and able to buy
 - C the leaders decide we should produce
 - D special interest groups want
21. Using information in the table below, how many units would be demanded at a price of \$4.00?
- A 25
 - B 7
 - C 55
 - D 32

Price	Quantity	Total Revenue	Cost	Profit
\$6.00	20		\$60	\$60.00
\$5.00	28	\$140.00	\$75	
\$4.00		\$128.00	\$100	\$28.00
\$3.00	33	\$99.00		(\$21.00)
\$2.00	38	\$76.00	\$150	
\$1.00	53		\$170	

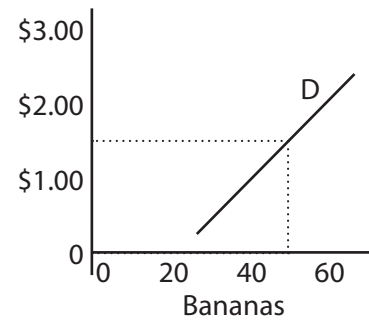
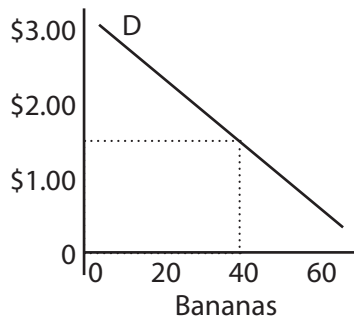
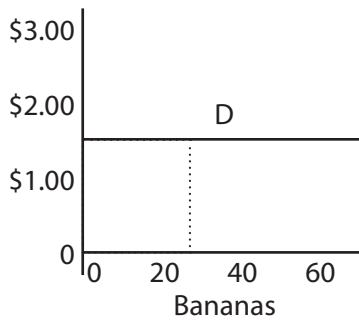
22. Using information in the table above, what is total cost at a price of \$3.00?
- A \$11
 - B \$3.64
 - C \$120
 - D \$150
23. What does the law of demand state?
- A When people have more money, they buy more goods and services.
 - B The demand for a good increases with the number of people buying the good.
 - C As the price of a good goes down, people buy more of that good.
 - D The supply of a good goes up in proportion to the demand for it.

24. Demand schedules show the relationship between what two variables?

- A Cost and price
- B Quantity and price
- C Quantity and sales
- D Supply and demand

25. One of the graphs below is a typical demand curve. Use that graph to answer the following question. At a price of \$1.50, how many will be sold?

- A 22
- B 38
- C 42
- D cannot tell



26. A small company making computers has \$1000 in fixed costs and \$500 per unit in variable costs each month. What is the total cost if they produce 10 computers?

- A \$1500
- B \$500
- C \$6000
- D \$5000

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