

MATHEMATICS & ECONOMICS

CONNECTIONS FOR LIFE



National Council on Economic Education

▶ GRADES 3-5

GRADES 6-8

GRADES 9-12

WORKSHOP LEADER'S GUIDE

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National Council on Economic Education

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Part I: Preparing to Host the Workshop

How the Workshop Leader's Guide Can Help

The purpose of this guide is to help economic educators prepare to host a workshop introducing *Mathematics and Economics: Connections for Life, Grades 3-5* (MECL) to teachers. MECL is an excellent way to connect instruction in basic economics concepts for the upper elementary grades (3-5) with mathematics, a core content area in all elementary classrooms. Elementary teachers spend a great deal of time teaching mathematics concepts. Hosting this workshop will allow you to introduce several new economics and personal finance lessons that reinforce students' use of basic mathematics skills. In other words, it's the perfect way to accomplish two teaching goals at once.

This guide will help you plan a workshop and give you tips on specific lessons to highlight during the workshop. This guide contains checklists for planning, sample agendas and a sample evaluation form. By reviewing this information, you can plan a successful workshop that will appeal to school districts and make new teacher connections for your Council or Center.

In planning your workshop, also use the MECL Web site (<http://mathandecon.ncee.net>), which supports each lesson in the publication. Each lesson's Web page contains an overview of the lesson, Visuals and Activities in PDF format, literature connections, related Web sites and other suggested lessons to support the lesson. Five of the lessons have interactive computer activities that teachers can project for the whole class or use for individual practice of math and economics skills.

Questions to Consider When Planning the Workshop

When preparing for the workshop, take time to consider the following questions, and organize goals for the program. The answers to this series of questions should give you direction as you start the planning process.

1. Will this be a one-time workshop at a university location or a series of short programs you will offer more than one time in a school district?
2. Will the Center/Council host the workshop alone or will you seek a partner or cosponsor?
3. Do you have a local representative of 3M who you would like to involve?
4. What incentives (e.g., continuing education credit, a light meal, or free or reduced-price MECL books) can you give that will encourage teachers to come to the workshop?
5. What format will you use for the workshop?
 - a half-day workshop
 - a 30-minute presentation as part of a district curriculum-day presentation
 - a “Train-the-Trainers” session for curriculum or math supervisors
 - a one-hour after-school workshop held in central locations over the semester with groups of teachers from neighboring schools
6. Will you give MECL books or sample lessons only to workshop participants?

Questions You Might Be Asked about Teaching Economics in Grades 3-5

As you contact financial partners, school districts or principals about hosting a MECL workshop, they might ask you the following questions. You will want to have reviewed the answers to these questions or prepare a simple proposal outlining the answers to these questions using your state and school district mathematics and economics standards as examples.

1. Why encourage economics instruction in the elementary grades?

As Center/Council Directors, we are often asked why we “waste” time teaching economics to elementary students. The answer is generally because we can and the students are eager to learn these concepts. Children, especially ages 8-12, are very excited about learning about the economic activities surrounding them. They are consumers themselves as well as observers of others participating in both producing and consuming goods and services. Elementary students are prime targets for introducing economics concepts and, more importantly, laying a good foundation for the future economic literacy of students.

Because school districts face an already crowded curriculum of subjects that they must teach, finding a place for economics is often difficult. MECL and this workshop leader’s guide should help you make the case that as teachers devote time and energy to teaching mathematics, they can also teach basic economics concepts to students. Mathematics is the language of economics. The MECL publications show students how to use the mathematical skills they have been learning to solve problems and seek solutions to economic problems in their daily lives.

2. Why teach economics and mathematics together?

To answer this question, read the short essay “Why Teach Mathematics and Economics Together?” (<http://mathandecon.ncee.net/35/intro.php>) by Neal Grandgenett and Kim Sosin. You may want to make copies of the essay to give to school administrators and funders. Recent research on mathematics education continues to confirm that teaching mathematics through applications is effective, significant and worthwhile. There are economics standards in 48 states. Economics interests students because it is about decisions they make every day. Mathematics is used in economics at the highest levels and improves economic analysis at every grade level. Personal finance and economic decision making is improved when mathematics is used. The importance of understanding mathematics is clearer when it is grounded in familiar activities relevant to the everyday lives of students.

3. How can we find the time to fit economics into the curriculum with NCLB?

A common response from teachers new to economic education is there is not enough time to add a new subject to the crowded school day. In the climate of *No Child Left Behind* legislation, there is intense pressure on teachers to improve and maintain math scores every year. You can anticipate these concerns by reassuring teachers that the

lessons in MECL allow students to practice their math skills while learning economics. Applying the math skills to economics and personal finance examples in these lessons will give students practice in higher-level application of the basic math skills they learn during math instruction.

Using these lessons can also allow teachers to add hands-on activities to the common drill and delivery lessons often found in math texts. Students use the language of economics, mathematics, to make economic decisions. All the necessary economics background can be found in the MECL lessons and on the Web site (<http://mathandecon.ncee.net>). Matching math objectives with the appropriate economics lessons is easy thanks to the grids in the book that correlate the NCTM standards to the lessons and the national economics standards to the lessons. All lessons are stand-alone, so teachers can freely match school and district math outcomes. Making the connections for teachers should be a major part of any MECL workshop.

4. Can I tie the MECL lessons to my state and district standards?

Two grids that correlate economics standards and math standards to the MECL lessons are included in MECL. You should also obtain the particular math objectives for your state and the school districts represented in the expected workshop audience. These objectives should be reproduced and copies used in the introductory activities for teachers as part of the workshop agenda. Strengthening these connections for teachers will help them feel more comfortable using the lessons in their classrooms. These correlations will be especially important to assist supervisors to encourage the use of MECL in district classrooms.

If you can borrow ahead of time the school's math textbook, take time to review the text and mark sections of the book with sticky notes where the concepts taught parallel the concepts found in the MECL lessons. Plan to have the marked texts for grades 3-5 on display during breaks at your workshop. This small step may help teachers see the connections to their math curriculum more clearly.

Most states have elementary social studies standards that include economics objectives. Teaching the MECL lessons allows teachers to teach both math and economics together and review important concepts in the social studies curriculum. Emphasizing the productivity of using these lessons should help teachers find time in the day for them. If your state or district includes economics in the social studies standards for elementary grades, make copies of the economics standards to include in the workshop handouts. Highlight strong connections to these standards whenever possible.

5. Can the MECL lessons be used with a variety of students?

The 12 lessons in MECL are arranged in order of their mathematical difficulty. The first lessons are aimed at typical third graders and high-ability second graders. The mathematical skills in the lessons get more difficult; toward the end they use fractions and decimals. The last three lessons would be very appropriate to use with higher-

ability students. Because teachers can easily select the lessons they can use, the MECL authors did not designate grade levels.

The economics concepts used in these lessons are also introduced in order of difficulty. Since each lesson contains background information on the economics concepts introduced, teachers should have all the information they need to prepare for the lesson. **The lessons do not contain math instructions.** It is assumed that the students have been taught the necessary math skills before they participate in the economics activities contained in MECL. Completing these lessons should teach students economics and give them practice in applying their mathematical skills.

Most of the lessons in MECL begin with whole-group instruction and discussion. Small-group hands-on activities follow to reinforce the concepts introduced. Each lesson contains review questions and answers as a closure activity. An assessment for each lesson can be used as homework or as part of a larger assessment.

A quick review of the lesson summaries at the beginning of each lesson should help teachers use the lessons to review the easier math skills or challenge students who may be above grade level. Many of the lessons are also appropriate for use in challenge or gifted instruction.

6. Is there additional support for teachers using MECL?

The MECL Web site (<http://mathandecon.ncee.net>) has excellent support for each of the 12 lessons. Lesson summaries, PDF files of the Visuals and Activities, and instruction tips are included for the lessons. In addition, five of the lessons have an activity planned for computer demonstration that reinforces the economics concepts in the lesson. Teachers can project the activity and work with small groups or whole classes. Literature books that have connections to each lesson are presented on the Web site. Follow-up review in language arts or library activities can be coordinated with the math lessons. Finally, a list of related lessons in other NCEE publications and online is given for each lesson. Teachers can easily find additional activities for reviewing the economics concepts introduced in the lesson. More activities and resources will be placed on the Web site in the coming years, making the Web support current for teachers.

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Part 2: Organizing the Workshop

Recruiting Strategies

Your target audience is grades 3-5 elementary teachers, elementary school principals and elementary curriculum supervisors. Visit with the math supervisor(s) for the school district(s) where the workshop will be held. Most school districts host mandatory professional workshops during the school year that are organized by these district math supervisors. Make an appointment with the district math supervisors to present them with a copy of MECL and ask to be a part of the existing curriculum-day program. This will make your recruiting easier since the school district will direct teachers to you. You might offer to do a series of workshops in a school district in a one-hour after-school format if the curriculum day is filled. Suggest that neighboring schools come together for training at a central location. Math supervisors are the best avenue for finding a good fit for the teacher audience since they know the curriculum well and are very aware of the assessment strengths of the district. Helping them see that MECL will help students practice math skills and improve economics instruction should be an easy sell.

Another idea is to ask a school principal to host a workshop for all the grades 3-5 teachers in one building. This would be especially effective in large school buildings where you might find 3-4 teachers per grade level as well as gifted or remedial staff. Offer to serve refreshments and give an overview of MECL and demonstrate one or two lessons.

Council and Center Web sites and school district professional development offices can also post information about your workshop.

Make sure you have done your homework. Taking the time to find out about the district or school math curriculum before planning each workshop will make your efforts more targeted and helpful to teachers. Showing teachers the good “match” with the school or district math outcomes will help you connect better with the audience. Making a principal or math supervisor your partner in hosting the workshop might better insure that the teachers attend and use the materials.

Also consider meeting with administrators of after-school programs that target academics such as Girls Inc. and Boys and Girls Clubs, as well as tutoring programs in school districts.

Finally, talk to the math education department at your host university’s college of education to plan to introduce the materials to pre-service teachers who are in math education classes. Exposing teachers early on the connections between math and economics will pay off, and these teachers will take the knowledge with them into their new school assignments.

Selecting a Location and Date for the Workshop

After you have selected the audience, you should select the date and secure a location at least three months in advance. The farther in advance you make arrangements, the smoother the workshop will go.

If you are working with a single school, you can select a date that most teachers will be available. If you are recruiting from several schools or districts, selecting the date can be more difficult.

Attendance will be better when teachers do not have to switch locations after the school day. An after-school session with light refreshments can be successful with elementary teachers because they can often arrange to stay a bit longer at school rather than drive to another location in the evening.

It is important that you choose a location for your workshop that has the following features:

- ✓ Room for teachers to work in groups at desks or tables
- ✓ Good IT support, ideally with Internet access to the MECL Web site
- ✓ Locations for display of Center/Council materials
- ✓ Area for refreshments
- ✓ Adequate parking for teachers attending

If possible, visit the workshop site ahead of time to try out the Internet connections. School-district filters can sometimes surprise presenters by blocking access. Work with the building IT personnel to make sure you can eliminate problems.

Creating a Promotional Flier

After you have selected the target audience, date and location for the workshop, you must prepare a promotional flier to send to teachers. Include a mail-back return registration form, or have teachers register by email. Fliers sent directly to teachers with their names on them to be placed in mailboxes or passed out by grade-level leaders are the most effective. Districts will often agree to deliver fliers for workshops by the internal school mail process, but don't assume this will be true. If you do use this process, make sure that you visit the school mail room in person and talk to the person who handles the school's bulk mail. It pays to make sure you are bundling the fliers in the proper way and have the approval of the correct departments.

Review the flier to make sure you have included the following basic information:

- ✓ Title of workshop
- ✓ Targeted groups
- ✓ Date, location and times
- ✓ Registration procedures, mail-in form, contact information, deadline
- ✓ Names of cosponsors (for NCEE-funded workshops, include NCEE and 3M Foundation as cosponsors)
- ✓ Fee, if any, or rewards for attending (e.g., copy of MECL, sample lessons, continuing education credits)

Have someone who is not connected to the workshop review the flier before you distribute them to make sure you have included all the pertinent information and that the registration procedure is easy to follow.

"[Click here and enter Name of sponsoring organization]"
 the National Council on Economic Education and
 the 3M Foundation

Present

**Mathematics and Economics:
 Connections for Life, Grades 3-5**

A Half-Day Workshop for Elementary Teachers

DATE:	"[Click here and enter day and date]"
TIME:	"[Click here and enter starting and ending times]"
LOCATION:	"[Click here and enter Building name and room number]" "[Click here and enter address]"

WORKSHOP HIGHLIGHTS	
"[Charge or No Charge]"	FOR MORE INFORMATION, CONTACT: "[Contact person's name]" "[phone number, fax number]" "[email address]"
Curriculum Provided	
Breakfast/Lunch/Snacks Provided	
Hands-on Lesson Demonstrations	
In-service Points/Credit Available	

To register for the **Mathematics and Economics, Grades 3-5** workshop, fill out the form below and send to "[Click here and enter contact person's name]"
 At "[Click here and enter sponsoring organization's name]" ,
 "[Click here and enter address]" , "[Click here and enter phone number]" ,
 "[Click here and enter fax number]" ,
 "[Click here and enter email address]"

Space Is Limited--Enroll Today! Registration Due by

"[Click here enter registration deadline]"

Name:					
School:					
Address:					
School Phone:		Home Phone:		Email:	

Checklist for Workshop Planning

Before the workshop

If you have not conducted a workshop for elementary teachers before, there are some expectations that you should consider that may be different from workshops for high school teachers.

Elementary teachers will expect to have the lessons previewed fully or demonstrated at the workshop. Review MECL and find two lessons you like. Review them thoroughly before you demonstrate “live” for teachers. It is very important that you feel comfortable with the lessons and know what you are doing. A “dry run” with a colleague or elementary teachers you know can be helpful. If you are uncomfortable doing these hand-on activities, it might be wise to hire an elementary teacher to help you with the demonstration part of the workshop. Teachers are more likely to use materials in the classroom if they have tried them at a workshop.

To demonstrate lessons and prepare teachers to use them, a workshop of 30 teachers is a very appropriate size. When there are more than 30 teachers trying to participate, it slows down the activity. If you are hosting over 30 teachers, break the workshop into two sessions.

For each lesson you demonstrate, have all the equipment and materials needed to do the lessons with you. If you do not have scissors, rulers, markers, glue sticks, etc., you should collect or borrow them ahead of time to take with you. If you are hosting the workshop at a school building, you could arrange to borrow the needed equipment from a teacher ahead of time. Offer this teacher a small gift, MECL or payment in compensation.

If you are not giving the participants a copy of MECL at the workshop, give them a table of the lesson summaries and a copy of one sample lesson. If you don't have a grant to buy a copy of MECL for all the participants, consider asking the school principal, the district curriculum supervisor or a local donor to fund at least one MECL per building. Approach a local bank or financial firm to sponsor teachers by buying copies of MECL for them.

Literature and trade books that can be used with the lessons are listed on the MECL Web site. Because reading and math are so closely tied in grades 3-5, the literature connections will be very helpful to teachers. Make sure to gather several of the books that go with the lesson(s) you are demonstrating at the workshop. You might develop a bibliography of all the books in MECL or give a companion book away as a door prize.

The week of the workshop

Be sure to consider these details the week of the workshop:

- Have you sent confirmation letters or emails to everyone who has registered for the workshop?
- Have you thought through all the logistics of check-in, refreshments and room arrangements?

- Have you prepared the handouts and collected the supplies and materials you will need to demonstrate the lessons?
- Have you made nametags and prepared an evaluation form?
- Have you arranged for IT support and also prepared for the worst by making transparencies of key visuals and other items in case of bad Internet connections?
- Do you have a way to collect information such as email addresses so that you can contact the participants later?
- Are you planning to include the cosponsors in the workshop and, if so, how?

After the workshop

Send thank-you letters to co-hosts, district or school personnel who helped you and donors. Include sample comments or copies of the evaluations. Complete all the reports for Center, Council or NCEE follow-up.

Send an email thank you to the teachers who attended and remind them to call or email if they have questions or problems with the MECL lessons.

If you find additional literature books to use with the lessons, send information on them to John LeFeber at jlefeber@ncee.net to add to the Web site. Encourage teachers to write additional lessons for *EconEdLink* (<http://www.econedlink.org>) by referring them to the NCEE Web site (<http://www.ncee.net>) or John LeFeber.

Describe the workshop you have just conducted, and/or send copies of the evaluations to the math supervisors of neighboring districts. Ask if they would like to host a workshop soon in their district. Knowing another school has had a successful program will encourage others to use the MECL guide.

After several weeks contact the workshop participants by email again and ask if they have used MECL lessons in class. Their testimonials might be used in future brochures or advertising. You might also find another willing “star” teacher to help you put on a workshop in the future.

How to Use MECL to Differentiate Instruction

If you have the opportunity to work with a university math educator or district math supervisor on this workshop, the ideal role for this person would be to have him or her demonstrate how to use MECL to strengthen all levels of math instruction. MECL offers challenging activities for students who are above grade level and offers easier lessons for review and practice of math skills. In both cases, the lessons offer new instruction in economics concepts.

The lessons that fit with a district or grade-level outcome will be time-consuming for Center and Council staff to select and learn because they will be different with each district or school building. To save time and help the teachers in your workshop, enlist the help of someone who knows the school math curriculum very well to make these important connections. Meet with this person several weeks before the workshop and discuss his or her possible role in presenting the math connections. Make sure to take an extra copy of the guide along to give them so they can be well prepared. Offer to duplicate any handouts on differentiated instruction or ability grouping they might want to offer to the teachers.

Alternatively, enlist the workshop participants to assist with selecting lessons that might work best with their grade. Have them discuss in small groups by grade level as part of the workshop. Give them time to review lessons and select one or two for each grade. By using workshop time to form a plan for using the MECL lessons across grade levels, teachers can see the strength of the curriculum in their school.

Demonstrating the Cross-Curricular Connections

Especially during the half-day workshops, you will want devote some time for teachers to talk about where they might use these lessons other than during math instructional time. All of the MECL lessons ask students to apply their math skills in learning economics concepts.

Language-arts activities are also very much a part of most of the lessons. Students will use speaking, listening, reading and writing skills in the activities. Call this to the attention of the workshop participants to encourage them to use the lessons in the language-arts curriculum since they accomplish multiple purposes. Each lesson has three or four literature books that can be read to students or that students themselves can read so that the connections between economics and children's literature can be strengthened. Plan to take some of the literature books listed on the Web site to the workshop and explain how they can be used.

Ask for discussion about other ways teachers can use these lessons in other subjects such as social studies, art, music and science. Teachers can talk in small groups or offer suggestions at the end of your demonstration. Give small prizes/candy to small groups who report to the entire workshop group. Appoint a recorder and offer to compile the suggestions and email them to all the workshop participants.

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Part 3: Conducting the Workshop

Sample Agendas

This section contains agendas for an after-school (one-hour) teacher workshop, a half-day teacher workshop and a 30-minute presentation to supervisors and curriculum directors. You can combine elements from all three formats and create a great experience for teachers that fits their needs and location.

Elementary teachers generally teach all subjects for one grade level or specialize in two or three subjects for a specific grade level. In the upper elementary curriculum, where MECL is targeted, students learn best by engaging in hands-on activity rather than lecture. The workshops should involve teachers in activities rather than content lectures. Review the entire book and select lessons to demonstrate that match the grade level(s) of the teachers attending the workshop. If the local math curriculum fits better with lessons other than those highlighted in these sample agendas, substitute the more appropriate lessons in the demonstrations. If you are not familiar with the local elementary math curriculum, review the local district or state math standards before you select the lessons that match the math grade levels to teachers attending the workshop. Invite a local teacher to conduct the workshop with you and ask him or her to review the book and match lessons to the local math curriculum.

Remember that no teachers will use the entire book. Three or four lessons at most will fit the curriculum at each grade. Teachers of different grades often work together and plan curriculum for the year. Helping the teachers to see how MECL can be used with several grades at the school should be an important goal of the workshop.

Besides the sample agendas, this section contains links to the Visuals and Activities for each of the 12 lessons. Suggestions for ice breakers, literature connections and a sample evaluation form are included.

Sample Agenda for an After-School (One-Hour) Workshop

This agenda works best for workshops in a single school setting where teachers from grades three through five are introduced to MECL as a faculty group. Since no teachers can use all the lessons in the guide because of the math skills needed, the workshop should be organized to have teachers grouped by grade level. Locating the appropriate lessons for their own grade should be a part of the workshop.

Goals for the after-school workshop:

At the conclusion of this workshop, the participants will be able to:

- Describe MECL's purpose for teaching economics and mathematics.
- Use the standards correlation grids in the book to select appropriate lessons for their own classroom.
- Access the NCEE Web-site support for MECL.
- Participate in one demonstration lesson from MECL and take home a sample lesson.
- Describe some of the extension activities connected with the demonstrated lesson and know where to find more lessons.
- Describe where to get more information from the local Center/Council for Economic Education.

Materials list for demonstration of Lesson 6:

- One copy of Visuals 6.1, 6.2
- One copy of Activities 6.1, 6.5 and 6.6 for each participant
- One copy of Activity 6.2 for each group (before making the copies, be sure the bookmark resource price list includes all the materials in the resource bags and an estimated price for each resource)
- One envelope of craft materials for making bookmarks for each group
- One copy of Activity 6.3 for each group
- Enough copies of Activity 6.4 to provide three \$1.00 bills for each participant
- OPTIONAL: One copy of entire Lesson 6 if you do not plan to distribute MECL as part of the workshop
- Copy of the trade book *Chicken Sundays* by Patricia Polacco, Paperstar Book, Reprint edition, Jan. 1998 (ISBN: 0-69811-615-1) and *The Real McCoy* (a Blue Ribbon Book) by Wendy Towle, Scholastic Paperbacks, Jan. 1, 1995 (ISBN: 0-59048-102-9) to show during discussion

I. Welcome and Refreshments (10 minutes)

- Have nametags made ahead of time, and place them on a table for teachers to pick up as they enter the room. Introductions should not be necessary since they all teach in the same school. Provide nametags so that you are able to call on teachers by name. Code the nametags by color or math symbol so teachers are grouped by grade level and sit together.
- Have light refreshments ready as the teachers gather and a display of a variety of NCEE materials for elementary grades. If possible, have several copies of materials to use as door prizes at the end of the workshop.

II. Overview of MECL and Its Features (10 minutes)

- Use the PowerPoint overview presentation or your own presentation.
- Explain the importance of math instruction. Point out that having students use math skills outside the math content in other subjects represents the highest levels of learning advocated by NCTM in its standards.
- Show and pass out the math and economics standards correlation grids from MECL. Ask a teacher to indicate if the grids show math skills they are currently teaching.
- Ask the teachers if they currently teach economics concepts in math or social studies. You should have obtained the school/district math curriculum and social studies standards, if possible. Refer to the economics standards grid in MECL. If teachers need further information, link them to <http://ecedweb.unomaha.edu/K-12/K-5concepts.cfm> or their own state or local Web site for information.
- Hand out the [glossary](#) from MECL.

III. Review and Demonstration of Lesson 6, “Bookmark Profits,” and Supporting Web Site (30 minutes)

- Explain that figuring profit is something that entrepreneurs need to do to decide if the risk is worth the reward of introducing new products to the marketplace. This lesson requires students to create a new product and try to sell it to consumers. They then figure out if they made a profit or incurred a loss. Basic math operations are reviewed in this lesson as students create equations.
- Arrange the teachers by grade level into groups of 4-5. Have each group select a leader who will play the role of an entrepreneur. Distribute a large envelope of craft supplies to each group and have them read the instructions in Lesson 6. (Note: Make sure to record the prices of the supplies you have in the envelope on the price list before you make copies of Activity 6.2.) Each group should get the same supplies.
- Review the instructions for the task. Each group will create a sample bookmark, using the supplies in the envelope, and will figure how much the sample will cost to make, using Activities 6.2 and 6.3 to add the inputs. Give the groups 10 minutes to complete the task and have the entrepreneurs of each group display their bookmarks in front of the room where all can see them. All bookmarks will sell for \$3.00.
- Distribute \$3.00 to each participant (use Activity 6.4). Have each entrepreneur come to the front and offer the bookmark for \$3.00. Count the number of buyers, and take money from each buyer so that each participant can buy only one. Act as the recorder, using Visual 6.2 to figure the income each group gets from the sale of its bookmark.
- The teachers should work out the calculations on their own Activity 6.4, and you should work on the overhead. Ask each group to report if it made a profit or loss.
- Part 2 of the lesson asks the groups to write mathematical equations showing the profit or loss as mathematical equations, using Activity 6.5. Have the groups work through the worksheets together. Have a sample group report if there is time.
- Call the group to attention, and ask the groups to analyze the difficulty of the math in the lesson and describe the students or grades that might be able to use this lesson.

Point out that the lessons in MECL can be used for practice following direct instruction or review of a previous day's instructions. The lesson could also be used as a general review of math skills taught in the preceding year or as instruction for students above grade level.

- Project the MECL Web site (<http://mathandecon.ncee.net>) for Lesson 6. Draw attention to the following features: the summary of the lesson, the list of materials and the PDF downloads for Activities and Visuals, the list of Weblinks, the literature connections and *EconEdLink* lessons. Go directly to the links, and show the teachers how to use the Web site to find other activities.
- Show the trade books *Chicken Sundays* and *The Real McCoy*. *The Real McCoy* lesson is listed as an online lesson on <http://ecedweb.unomaha.edu> under entrepreneurs concept. Distribute this lesson or another sample lesson on entrepreneurs.

IV. Wrap-Up (10 minutes)

- Give the teachers a few minutes to review the table of contents and the grids to locate another lesson they feel would be appropriate for their students' math level. Ask a teacher from each group to share one lesson they would use with each grade level.
- Review the key features of the book and Web site. Distribute the books if you are giving them to teachers with a sticker on the front with your Center/Council information, phone number and Web site.
- Distribute the Workshop Evaluation Form and allow time for the participants to complete it.
- Give away a few small prizes or curriculum guides as door prizes.
- Discuss other programs your Council/Center is planning in the future.
- Thank the teachers for coming, and distribute your card to the teachers for future contact.

ACTIVITY 6.1

MONEY MATTERS REVIEW

Directions: Calculate the answers to these questions. Show your work.

A. Suppose you have been saving your money to buy a new bicycle. The price of the bicycle is \$175.50. You have saved \$75.25. How much more money must you save?

B. You can walk the neighbor's dog for three days. She will pay you \$3.00 a day. If you take the job, how much money will you earn? If you put all of your earnings in your savings account, how much will you still need to buy the bike?

C. Your sister is selling lemonade. The price is \$0.15 a cup. If she sells four cups, how much money will she have?

D. You bought candy at a store. You paid \$0.15 for gooey worms, \$0.20 for jelly beans and \$0.07 for sour stars. What is the total you spent? If you paid with a \$1.00 bill, how much change will you receive?

ACTIVITY 6.2
BOOKMARK RESOURCE PRICE LIST

Resource	Price
Space (rent)	\$0.25
Worker (wage)	\$0.10

ACTIVITY 6.3 COMPUTING UNIT COSTS OF PRODUCTION

Company Name: _____

In Column 1, list each resource you used to produce your sample bookmark.

In Column 2, write the price for each resource, using the Bookmark Resource Price List on Activity 6.2.

In Column 3, write the number of units of each resource that your company used. (For labor, write the number of students in your group, minus the entrepreneur.)

In Column 4, compute the cost of each resource by multiplying the number in Column 2 by the number in Column 3.

Add the amounts in Column 4 to find the unit costs of producing a bookmark. **Write your unit costs** (total costs of production for one bookmark) in the bottom row of Column 4.

1	2	3	4
Resource	Resource Price per Unit	Number of Units Used	Total Resource Cost (Column 2 x Column 3)
Total Costs of Production for One Bookmark			

ACTIVITY 6.4
DOLLARS FOR BOOKMARKS

\$1 ONE DOLLAR E \$1	\$1 ONE DOLLAR E \$1
\$1 ENTREPRENEUR \$1	\$1 ENTREPRENEUR \$1
\$1 ONE DOLLAR E \$1	\$1 ONE DOLLAR E \$1
\$1 ENTREPRENEUR \$1	\$1 ENTREPRENEUR \$1
\$1 ONE DOLLAR E \$1	\$1 ONE DOLLAR E \$1
\$1 ENTREPRENEUR \$1	\$1 ENTREPRENEUR \$1
\$1 ONE DOLLAR E \$1	\$1 ONE DOLLAR E \$1
\$1 ENTREPRENEUR \$1	\$1 ENTREPRENEUR \$1

ACTIVITY 6.5 COMPUTING BOOKMARK PROFITS

Company Name:	Entrepreneur:
---------------	---------------

1. The selling price of your company's bookmark is	\$3.00
--	---------------

2. How many bookmarks did you sell?	
-------------------------------------	--

3. Use this equation to determine your company's total revenue:			
Selling Price	x	Quantity Sold	= Total Revenue
	x		=

4. Use this equation to determine your company's total cost:			
Unit Cost	x	Quantity Produced	= Total Cost
	x		=

5. Is your company's total revenue > (greater than) its total cost or is your company's total revenue < (less than) its total cost?

6. If your company's total revenue was greater than its total cost, use this equation to determine your company's profit:			
Profit	=	Total Revenue	- Total Cost
	=		-

7. If your total cost was greater than your total revenue, use this equation to determine your company's loss.			
Loss	=	Total Revenue	- Total Cost
	=		-

8. Did your company's entrepreneur earn income (profit)?
--

ACTIVITY 6.6

ASSESSMENT: LUSCIOUS LEMONADE

Directions: Read the paragraph below. Help Jamal and Sally use this information to figure out whether their lemonade business earned a profit or had a loss. Show your work. (Use the back if you need more room.)

Mrs. Counts talked with Jamal and Sally about their lemonade stand. She learned that they sold 60 cups of lemonade at \$0.25 each. She also learned that Jamal's mother charged them for the resources they used to make the lemonade:

- \$3.50 for lemonade mix
- \$1.00 to rent the table for the lemonade stand
- \$0.75 for cups
- \$0.75 to rent the pitcher, spoon and measuring cup

1. What were Jamal and Sally's total costs? Show your work.
2. Write the equation for Jamal and Sally's total revenue. What was their total revenue?
3. Was Jamal and Sally's total revenue $<$ or $>$ their total costs?
4. Who are the entrepreneurs in this activity? Why?
5. Did Jamal and Sally earn a profit or have a loss? How much was their profit or loss?
6. If Jamal and Sally's total costs were \$16.50, would they earn a profit or have a loss? How much would their profit or loss be?

VISUAL 6.1 COMPUTING UNIT COSTS OF PRODUCTION

Company Name: _____

In Column 1, list each resource you used to produce your sample bookmark.


In Column 2, write the price for each resource, using the Bookmark Resource Price List on Activity 6.2.


In Column 3, write the number of units of each resource that your company used. (For labor, write the number of students in your group, minus the entrepreneur.)

In Column 4, compute the cost of each resource by multiplying the number in Column 2 by the number in Column 3.


Add the amounts in Column 4 to find the unit costs of producing a bookmark. **Write your unit costs** (total costs of production for one bookmark) in the bottom row of Column 4.

1	2	3	4
Resource	Resource Price per Unit	Number of Units Used	Total Resource Cost (Column 2 x Column 3)
Total Costs of Production for One Bookmark			



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MATHEMATICS & ECONOMICS GRADES 3-5

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MATHEMATICS & ECONOMICS GRADES 3-5
 developed by NCEE and sponsored by 3M, helps to bring economics and personal finance into the mathematics classroom.


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MATHEMATICS & ECONOMICS  National Council on Economic Education

Why teach Econ and Math together?

- 48 states have elementary standards in economics
- Economics is usually found in social studies
- NCTM has made math instruction a high priority
- Great opportunity for math teachers since economics uses the language of math.


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MATHEMATICS & ECONOMICS  National Council on Economic Education

“Recent research on mathematics education continues to confirm that teaching mathematics in the context of an application is highly effective and that significant, worthwhile and grade level appropriate content can have considerable influence on student learning”

Weiss, Iris R. and Joan D. Pasley
 “What is High-Quality Instruction”, Educational Leadership, February, 2004


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MECL: MATHEMATICS & ECONOMICS
CONNECTIONS FOR LIFE

- Produced by the National Council on Economic Education
- Funded by the 3 M Foundation
- Completes the series of **MATHEMATICS & ECONOMICS CONNECTIONS FOR LIFE**
 - 9-12 available
 - 6-8 available
 - 3-5 available


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MATHEMATICS & ECONOMICS  National Council on Economic Education

About: MATHEMATICS & ECONOMICS
GRADES 3-5

- Written by teams of classroom teachers and content specialists.
- Lessons field tested in both Omaha and Little Rock in different grades.
- Revised with pilot teacher suggestions.
- Edited by mathematics educator and economist.


January 23, 2006 MATHEMATICS & ECONOMICS GRADES 3-5 6

MATHEMATICS & ECONOMICS  National Council on Economic Education

About: MATHEMATICS & ECONOMICS GRADES 3-5


- 12 lessons teaching economics by using mathematical skills
- Each lesson has teacher's instruction, hands-on activities, closing review and assessment
- Economics instruction is included in each lesson.
- Math instruction is not included and needs to be taught first.

January 23, 2006 MATHEMATICS & ECONOMICS GRADES 3-5 7

MATHEMATICS & ECONOMICS  National Council on Economic Education

Web site: mathandecon.ncee.net/35/

- Designed to help teachers prepare to teach lesson
- Downloadable PDF of Visuals and Activities
- Manipulative for student practice in 5 of the lessons
- Literature and language arts connections
- Links to other lessons and resources



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Glossary of Terms

Alternatives: options among which people can make a choice

Barter: direct exchange of goods or services among people without the use of money

Benefits of trade: increase in well-being after the voluntary exchange of goods and services

Budgeting: making a plan for managing income, spending and saving

Capital goods (resources): goods people produce and use to make other goods and services

Choice: a decision made among alternatives

Complementary goods and services: goods or services people typically consume together

Consumers: people whose wants are satisfied by using goods and services

Costs of production: the costs of all the resources a business uses in producing goods or services

Criteria: standards or measures of value that people use to evaluate something

Decision making: a process of choosing among alternatives

Demand: the schedule of the quantity of a good or service that people are willing and able to buy at different prices during a given time period, when income and prices of other items remain the same

Division of labor: jobs are divided among the workers so that each worker specializes in one part of the production process

Economic benefits: improvements in well-being associated with any economic action, good or service; for example, the increase in

satisfaction from consuming something

Economic wants: desires that people can satisfy by consuming a good or service

Entrepreneurs: people who take risks to develop new products and services and start new businesses. Profit is income for entrepreneurs and is an incentive that encourages them to risk their money and resources.

Exchange rate: the price of one country's currency in terms of another country's currency

Goods: objects that can satisfy people's economic wants

Human capital: the skills, education and talent a person possesses

Human resources: the quantity and quality of human effort directed toward producing goods or services

Interest: the amount that a borrower of money must pay to the lender for the use of the lender's money

Interest rate: the percentage that a borrower must pay of the money loaned in return for the use of the money, usually expressed over a period of one year

Intermediate goods: materials that are used up in production and become part of the final good

Investment in capital: purchasing capital goods (equipment and buildings) that can assist people in producing goods and services

Law of demand: people are willing and able to buy a lower quantity of a good or service at a higher price and a higher quantity of a good or service at a lower price, when income and prices of other items remain the same.

GLOSSARY OF TERMS

Medium of exchange: a good that people generally accept in exchange for other goods or services

Money: anything widely accepted as final payment for goods and services (a medium of exchange)

Natural resources: “gifts of nature” that are present without human intervention

Opportunity cost: the next best alternative people give up when they make a decision

Productive resources: natural resources, human resources and capital goods available to make goods and services

Productivity: a measure of output compared to inputs during some time period

Profit and loss: difference between the total revenue a business receives and the total costs it pays for resources. If this number is positive, it is called profit; and if it is negative, it is called loss.

Revenue: total amount a business receives for selling a product or service

Savings: income people have not spent on consumption or taxes

Services: actions that can satisfy people’s economic wants

Specialization: each worker focuses on one part of the production process

Trade/Exchange: voluntarily trading goods and services with people for other goods and services or for money

Mathematics and Economics: Connections for Life, Grades 3-5 Workshop Evaluation Form

<Insert Center/Council Name>

In our effort to continuously improve our programming, we would appreciate your comments on our workshop. Looking back over your experience, please comment on the following questions.

Date _____ Location _____

1. Did this MECL workshop meet your expectations? ____yes ____no
2. Did you feel that you were presented with enough information about MECL to be able to go back into your classroom and use the curriculum? ____yes ____no
3. Were the materials and teaching strategies presented appropriate for your students?
____yes ____no
4. Did you have ample opportunity to ask questions and express your opinions?
____yes ____no
5. Please write your suggestions for improving future MECL workshops.

6. Please write any additional comments or recommendations.

Sample Agenda for a Half-Day Workshop

This format is designed for workshops for teachers from several grades and/or schools.

Goals for the half-day workshop:

At the conclusion of this workshop, the participants will be able to:

- Describe MECL's purpose for teaching economics and mathematics.
- Use the standards correlation grids in the book to select appropriate lessons for their own classroom.
- Access the NCEE Web-site support for MECL.
- Participate in at least two demonstration lessons from MECL and take home sample lessons.
- Describe some of the extension activities connected with the demonstrated lesson and know where to find more lessons.
- Describe how MECL lessons can help engage students above and below grade level in mathematics.
- Describe where to get more information from the local Center/Council for Economic Education.

Materials list for demonstration of Lessons 6 and 3:

- One copy of Visuals 6.1, 6.2
- One copy of Activities 6.1, 6.5 and 6.6 for each participant
- One copy of Activity 6.2 for each group (before making the copies, be sure the bookmark resource price list includes all the materials in the resource bags and an estimated price for each resource)
- One envelope of craft materials for making bookmarks for each group
- One copy of Activity 6.3 for each group
- Enough copies of Activity 6.4 to provide three \$1.00 bills for each participant
- OPTIONAL: One copy of entire Lesson 6 if you do not plan to distribute MECL as part of the workshop
- Copy of the trade book *Chicken Sundays* by Patricia Polacco, Paperstar Book, Reprint edition, Jan. 1998 (ISBN: 0-69811-615-1) and *The Real McCoy* (a Blue Ribbon Book) by Wendy Towle, Scholastic Paperbacks, Jan. 1, 1995 (ISBN: 0-59048-102-9) to show during discussion
- One copy of Visuals 3.1, 3.2 and 3.3
- Two copies of Activity 3.1. Make one copy of the activity cards on red paper and one copy of the activity cards on blue paper. Cut the cards apart. Make sure you have enough to distribute one card, red or blue (not both), to all participants.
- One copy of Activity 3.2 for each participant
- OPTIONAL: Thermometers if you plan to do the estimation activity

I. Welcome and Ice-Breaker (20 minutes)

- Have nametags made ahead of time, and place them on a table for teachers to pick up as they enter the room.

- As teachers check in, have them select an index card from a basket. On one side of the card, have these instructions: Find four people who can help you make a correct number sentence and form a group; find a table together and put your correct sentence in the middle of the table. On the other side of the card, have one number or math symbol. In order to form groups, five teachers must make a number sentence and put the cards in the correct order in the center of their table. An example would be five cards containing $(2 + 3 = 5)$. Make enough cards to make the math work but only enough $=$ signs for the number of groups you plan to have. Thirty teachers will require six $=$ signs. You can select easy or more difficult numbers. You may want to give candy or small prizes to the groups after they are organized.
- Give the teachers time to introduce themselves, and ask them to make stand-up cards with first names for each group member with larger folded index cards and markers you have placed on each table. This will help you with names and give teachers time to interact. Give a prize for the name card with the best math symbols.

II. Overview of MECL and Its Features (10 minutes)

- Use the PowerPoint overview presentation or your own presentation.
- Explain the importance of math instruction. Point out that having students use math skills outside the math content in other subjects represents the highest levels of learning advocated by NCTM in its standards.
- Show and pass out the math and economics standards correlation grids from MECL. Ask a teacher to indicate if the grids show math skills they are currently teaching.
- Ask the teachers if they currently teach economics concepts in math or social studies. You should have obtained the school/district math curriculum and social studies standards, if possible. Refer to the economics standards grid in MECL. If teachers need further information, link them to <http://ecedweb.unomaha.edu/K-12/K-5concepts.cfm> or their own state or local Web site for information.
- Hand out the glossary from MECL.

III. Review and Demonstration of Lesson 6, “Bookmark Profits,” and Supporting Web Site (30 minutes)

- Explain that figuring profit is something that entrepreneurs need to do to decide if the risk is worth the reward of introducing new products to the marketplace. This lesson requires students to create a new product and try to sell it to consumers. They then figure out if they made a profit or incurred a loss. Basic math operations are reviewed in this lesson as students create equations.
- Arrange the teachers by grade level into groups of 4-5. Have each group select a leader who will play the role of an entrepreneur. Distribute a large envelope of craft supplies to each group and have them read the instructions in Lesson 6. (Note: Make sure to record the prices of the supplies you have in the envelope on the price list before you make copies of Activity 6.2.) Each group should get the same supplies.
- Review the instructions for the task. Each group will create a sample bookmark, using the supplies in the envelope, and will figure how much the sample will cost

- to make, using Activities 6.2 and 6.3 to add the inputs. Give the groups 10 minutes to complete the task and have the entrepreneurs of each group display their bookmarks in front of the room where all can see them. All bookmarks will sell for \$3.00.
- Distribute \$3.00 to each participant (use Activity 6.4). Have each entrepreneur come to the front and offer the bookmark for \$3.00. Count the number of buyers, and take money from each buyer so that each participant can buy only one. Act as the recorder, using Visual 6.2 to figure the income each group gets from the sale of its bookmark.
 - The teachers should work out the calculations on their own Activity 6.4, and you should work on the overhead. Ask each group to report if it made a profit or loss.
 - Part 2 of the lesson asks the groups to write mathematical equations showing the profit or loss as mathematical equations, using Activity 6.5. Have the groups work through the worksheets together. Have a sample group report if there is time.
 - Call the group to attention, and ask the groups to analyze the difficulty of the math in the lesson and describe the students or grades that might be able to use this lesson. Point out that the lessons in MECL can be used for practice following direct instruction or review of a previous day's instructions. The lesson could also be used as a general review of math skills taught in the preceding year or as instruction for students above grade level.
 - Project the MECL Web site (<http://mathandecon.ncee.net>) from the Internet for Lesson 6. Draw attention to the following features: the summary of the lesson, the list of materials and the PDF downloads for Activities and Visuals, the list of Weblinks, the literature connections and *EconEdLink* lessons. Go directly to the links, and show the teachers how to use the Web site to find other activities.
 - Show the trade books *Chicken Sundays* and *The Real McCoy*. *The Real McCoy* lesson is listed as an online lesson on <http://ecedweb.unomaha.edu> under entrepreneurs concept. Distribute this lesson or another sample lesson on entrepreneurs.

IV. Break (20 minutes)

- Have a refreshments table or buffet for teachers. As they take the break, have a display of a variety of NCEE materials for elementary grades. If possible, have several copies of materials to be given away as door prizes at the end of the workshop. If you have local district math textbooks that you have marked to correlate with the lessons in MECL, display them also.

V. Review and Demonstration of Lesson 3, "What's Hot and What's Not," and Supporting Web Site (45 minutes)

- Go to the MECL Web site (<http://mathandecon.ncee.net>) to review the lesson summary.
- After reviewing the summary with the participants, draw attention to the Notes to Teachers about satisfaction comparison. Point out that information about preparing to teach lessons is one of the features of the MECL Web support.
- If time permits, do the opening of Lesson 3, reviewing the steps in Procedures 1-12 and ending with the estimation of the temperature in the room and outside. If you do not have the time, go directly to step 19.

- Divide the class into two groups. Distribute the red and blue cards, and describe the red and blue zones of the room. Remember to mix up the colors as you distribute one card to each participant. After the two groups have rated their satisfaction with their goods, give them time to trade.
- Allow the groups to trade and record the satisfaction rating on the overhead. Go back to the teacher note on the Web site, and make sure that the teachers understand that the satisfaction rates are ordinal and cannot be compared from one student to another. Emphasize the voluntary nature of trading, and make sure they understand the economic benefits of trade.
- Go to the [interactive Web activity for Lesson 3](#), and demonstrate the estimation activity a few times so that the teachers are familiar with it. Tell them that Lessons 1, 2, 3, 7 and 12 have this interactive feature for student practice.
- Scroll down to the section with the links to other Related Online Lessons. Go to the fourth link, "[A Rooster and a Bean Seed](#)," and show the teachers how to download this lesson. Also show them the fifth link, "[Economic Spotter: Trade in Colonial Days](#)," to emphasize the connection to the elementary social studies curriculum.
- Pass out copies of Activity 3.2, and explain to the teachers that each MECL lesson has an assessment that checks for understanding of both the mathematics and economics concepts in the lesson.

IV. Wrap-Up (10 minutes)

- Give the teachers a few minutes to review the table of contents and the grids to locate another lesson they feel would be appropriate for their students' math level. Ask a teacher from each group to share one lesson they would use with each grade level.
- Review the key features of the book and Web site. Distribute the books if you are giving them to teachers with a sticker on the front with your Center/Council information, phone number and Web site.
- Distribute the Workshop Evaluation Form and allow time for the participants to complete it.
- Give away a few small prizes or curriculum guides as door prizes.
- Discuss other programs your Council/Center is planning in the future.
- Thank the teachers for coming, and distribute your card to the teachers for future contact.

ACTIVITY 6.1

MONEY MATTERS REVIEW

Directions: Calculate the answers to these questions. Show your work.

A. Suppose you have been saving your money to buy a new bicycle. The price of the bicycle is \$175.50. You have saved \$75.25. How much more money must you save?

B. You can walk the neighbor's dog for three days. She will pay you \$3.00 a day. If you take the job, how much money will you earn? If you put all of your earnings in your savings account, how much will you still need to buy the bike?

C. Your sister is selling lemonade. The price is \$0.15 a cup. If she sells four cups, how much money will she have?

D. You bought candy at a store. You paid \$0.15 for gooey worms, \$0.20 for jelly beans and \$0.07 for sour stars. What is the total you spent? If you paid with a \$1.00 bill, how much change will you receive?

ACTIVITY 6.2
BOOKMARK RESOURCE PRICE LIST

Resource	Price
Space (rent)	\$0.25
Worker (wage)	\$0.10

ACTIVITY 6.3 COMPUTING UNIT COSTS OF PRODUCTION

Company Name: _____

In Column 1, list each resource you used to produce your sample bookmark.

In Column 2, write the price for each resource, using the Bookmark Resource Price List on Activity 6.2.

In Column 3, write the number of units of each resource that your company used. (For labor, write the number of students in your group, minus the entrepreneur.)

In Column 4, compute the cost of each resource by multiplying the number in Column 2 by the number in Column 3.

Add the amounts in Column 4 to find the unit costs of producing a bookmark. **Write your unit costs** (total costs of production for one bookmark) in the bottom row of Column 4.

1	2	3	4
Resource	Resource Price per Unit	Number of Units Used	Total Resource Cost (Column 2 x Column 3)
Total Costs of Production for One Bookmark			

ACTIVITY 6.4
DOLLARS FOR BOOKMARKS

\$1 ONE DOLLAR E \$1	\$1 ONE DOLLAR E \$1
\$1 ENTREPRENEUR \$1	\$1 ENTREPRENEUR \$1
\$1 ONE DOLLAR E \$1	\$1 ONE DOLLAR E \$1
\$1 ENTREPRENEUR \$1	\$1 ENTREPRENEUR \$1
\$1 ONE DOLLAR E \$1	\$1 ONE DOLLAR E \$1
\$1 ENTREPRENEUR \$1	\$1 ENTREPRENEUR \$1
\$1 ONE DOLLAR E \$1	\$1 ONE DOLLAR E \$1
\$1 ENTREPRENEUR \$1	\$1 ENTREPRENEUR \$1

ACTIVITY 6.5 COMPUTING BOOKMARK PROFITS

Company Name:	Entrepreneur:
---------------	---------------

1. The selling price of your company's bookmark is	\$3.00
--	---------------

2. How many bookmarks did you sell?	
-------------------------------------	--

3. Use this equation to determine your company's total revenue:			
Selling Price	x	Quantity Sold	= Total Revenue
	x		=

4. Use this equation to determine your company's total cost:			
Unit Cost	x	Quantity Produced	= Total Cost
	x		=

5. Is your company's total revenue > (greater than) its total cost or is your company's total revenue < (less than) its total cost?

6. If your company's total revenue was greater than its total cost, use this equation to determine your company's profit:			
Profit	=	Total Revenue	- Total Cost
	=		-

7. If your total cost was greater than your total revenue, use this equation to determine your company's loss.			
Loss	=	Total Revenue	- Total Cost
	=		-

8. Did your company's entrepreneur earn income (profit)?
--

ACTIVITY 6.6

ASSESSMENT: LUSCIOUS LEMONADE

Directions: Read the paragraph below. Help Jamal and Sally use this information to figure out whether their lemonade business earned a profit or had a loss. Show your work. (Use the back if you need more room.)

Mrs. Counts talked with Jamal and Sally about their lemonade stand. She learned that they sold 60 cups of lemonade at \$0.25 each. She also learned that Jamal's mother charged them for the resources they used to make the lemonade:

- \$3.50 for lemonade mix
- \$1.00 to rent the table for the lemonade stand
- \$0.75 for cups
- \$0.75 to rent the pitcher, spoon and measuring cup

1. What were Jamal and Sally's total costs? Show your work.
2. Write the equation for Jamal and Sally's total revenue. What was their total revenue?
3. Was Jamal and Sally's total revenue $<$ or $>$ their total costs?
4. Who are the entrepreneurs in this activity? Why?
5. Did Jamal and Sally earn a profit or have a loss? How much was their profit or loss?
6. If Jamal and Sally's total costs were \$16.50, would they earn a profit or have a loss? How much would their profit or loss be?

VISUAL 6.1 COMPUTING UNIT COSTS OF PRODUCTION

Company Name: _____

In Column 1, list each resource you used to produce your sample bookmark.

In Column 2, write the price for each resource, using the Bookmark Resource Price List on Activity 6.2.

In Column 3, write the number of units of each resource that your company used. (For labor, write the number of students in your group, minus the entrepreneur.)

In Column 4, compute the cost of each resource by multiplying the number in Column 2 by the number in Column 3.

Add the amounts in Column 4 to find the unit costs of producing a bookmark. **Write your unit costs** (total costs of production for one bookmark) in the bottom row of Column 4.

1	2	3	4
Resource	Resource Price per Unit	Number of Units Used	Total Resource Cost (Column 2 x Column 3)
Total Costs of Production for One Bookmark			

ACTIVITY 3.1 WEATHER-TIME GOODS

ACTIVITY 3.1 (continued)
WEATHER-TIME GOODS



ACTIVITY 3.2

ASSESSMENT: DO I WANT TO TRADE?

1. Write the temperature shown on each thermometer.

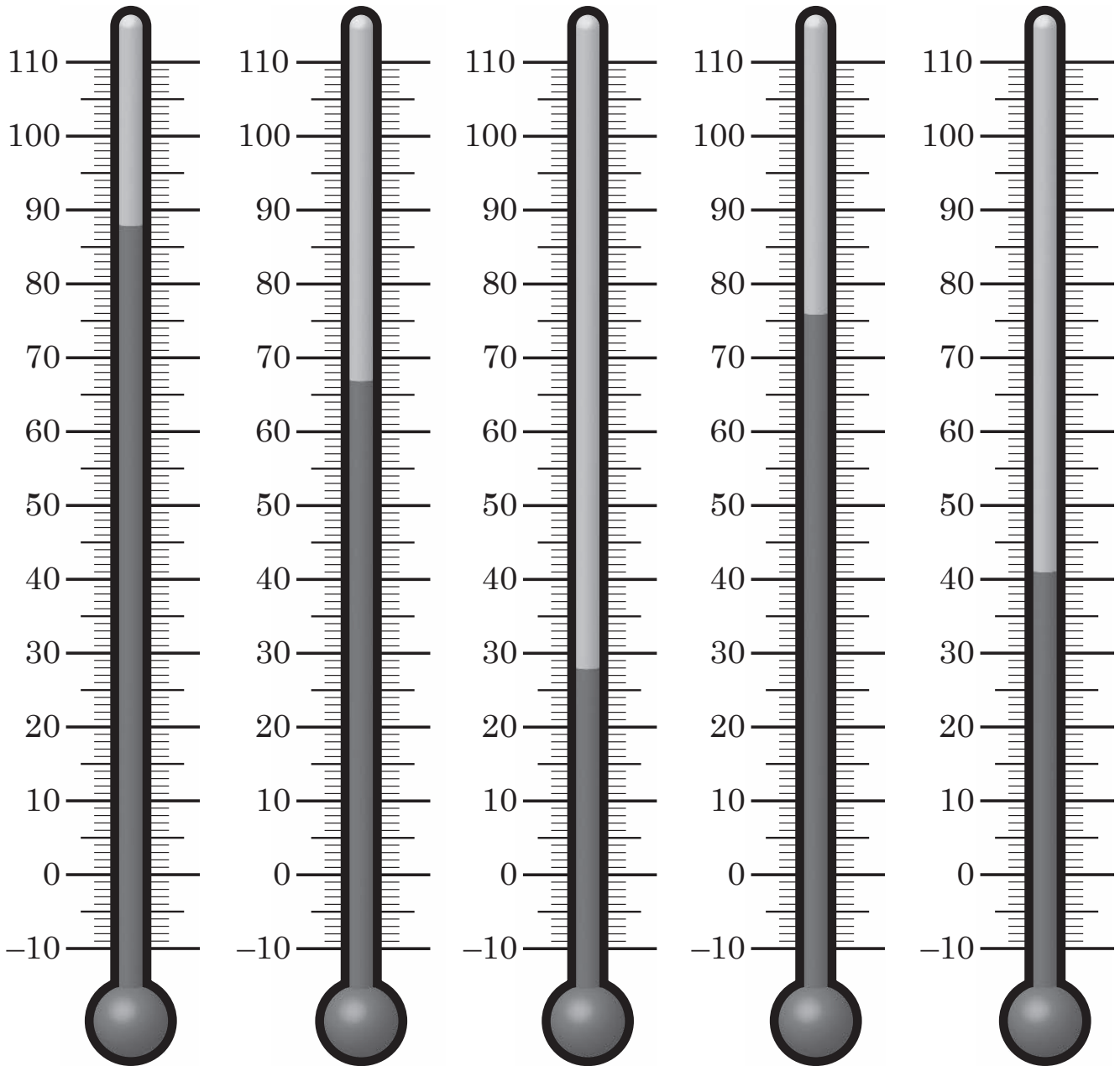
A. _____°F

B. _____°F

C. _____°F

D. _____°F

E. _____°F



ACTIVITY 3.2 (continued)

ASSESSMENT: DO I WANT TO TRADE?

2. List the temperatures on the thermometers in Question 1 from coolest to warmest.

3. What is the median of these temperatures?

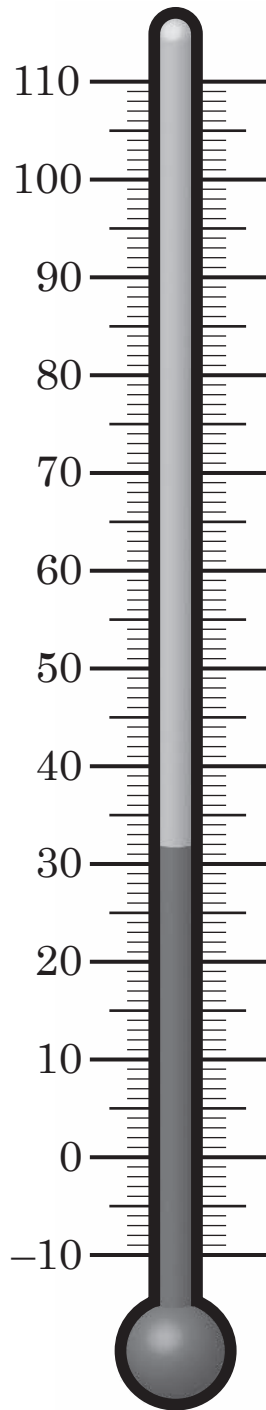
4. Pretend that these five temperatures are from different times of the year in the region where you live. What is the mean temperature for your region?

5. Which one of the following goods would you choose to use when the temperature is 70° ? Circle this good.
A. Swing Set B. Roller Blades C. Snow Skis D. Bicycle

6. Why did you make this choice?

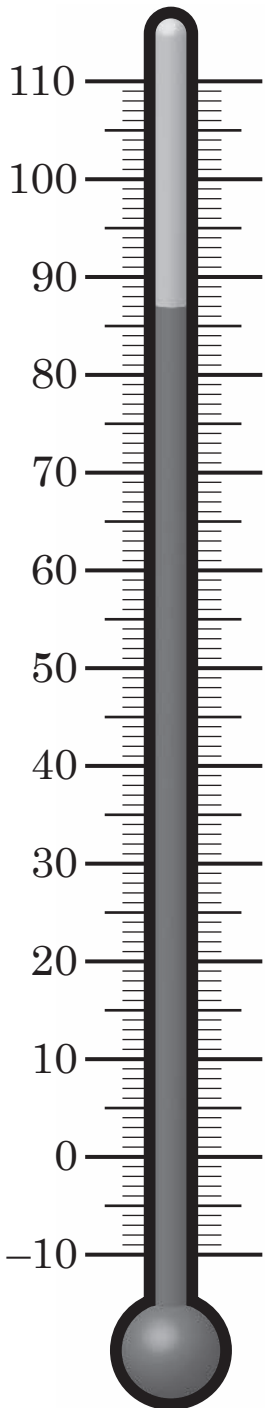
7. How would you rate your satisfaction with the good you chose using a scale of 1 to 10, with 1 meaning not very happy and 10 meaning very happy?

VISUAL 3.1 READING A THERMOMETER

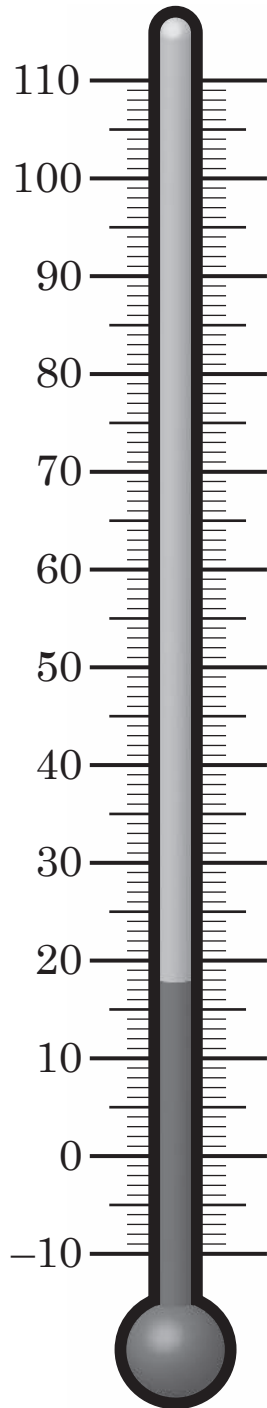


VISUAL 3.2 THREE TEMPERATURE READINGS

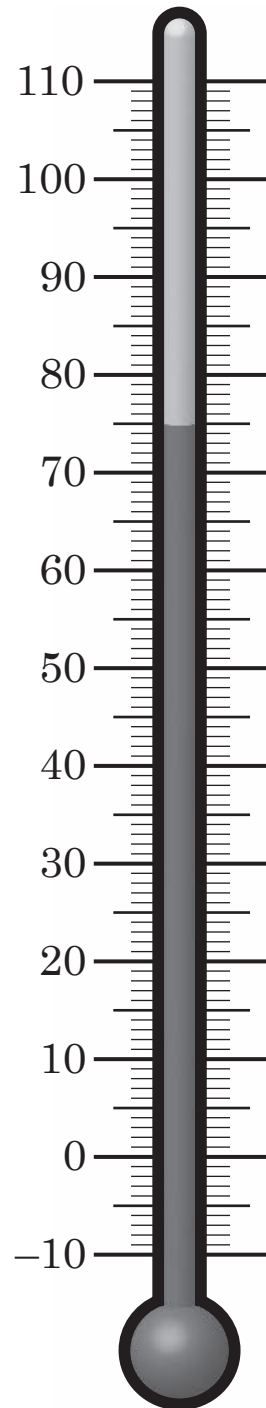
A. _____°F



B. _____°F



C. _____°F





VISUAL 3.3

SATISFACTION TABLE


Blue Zone		
Student Name	Rating	
	Round 1	Round 2
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		

Red Zone		
Student Name	Rating	
	Round 1	Round 2
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		



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MATHEMATICS & ECONOMICS GRADES 3-5
 developed by NCEE and sponsored by 3M, helps to bring economics and personal finance into the mathematics classroom.


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MATHEMATICS & ECONOMICS  National Council on Economic Education

Why teach Econ and Math together?

- 48 states have elementary standards in economics
- Economics is usually found in social studies
- NCTM has made math instruction a high priority
- Great opportunity for math teachers since economics uses the language of math.


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“Recent research on mathematics education continues to confirm that teaching mathematics in the context of an application is highly effective and that significant, worthwhile and grade level appropriate content can have considerable influence on student learning”

Weiss, Iris R. and Joan D. Pasley
 “What is High-Quality Instruction”, Educational Leadership, February, 2004


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MECL: MATHEMATICS & ECONOMICS CONNECTIONS FOR LIFE

- Produced by the National Council on Economic Education
- Funded by the 3 M Foundation
- Completes the series of **MATHEMATICS & ECONOMICS CONNECTIONS FOR LIFE**
 - 9-12 available
 - 6-8 available
 - 3-5 available


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About: MATHEMATICS & ECONOMICS GRADES 3-5

- Written by teams of classroom teachers and content specialists.
- Lessons field tested in both Omaha and Little Rock in different grades.
- Revised with pilot teacher suggestions.
- Edited by mathematics educator and economist.


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About: MATHEMATICS & ECONOMICS GRADES 3-5


- 12 lessons teaching economics by using mathematical skills
- Each lesson has teacher's instruction, hands-on activities, closing review and assessment
- Economics instruction is included in each lesson.
- Math instruction is not included and needs to be taught first.

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Web site: mathandecon.ncee.net/35/

- Designed to help teachers prepare to teach lesson
- Downloadable PDF of Visuals and Activities
- Manipulative for student practice in 5 of the lessons
- Literature and language arts connections
- Links to other lessons and resources



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Glossary of Terms

Alternatives: options among which people can make a choice

Barter: direct exchange of goods or services among people without the use of money

Benefits of trade: increase in well-being after the voluntary exchange of goods and services

Budgeting: making a plan for managing income, spending and saving

Capital goods (resources): goods people produce and use to make other goods and services

Choice: a decision made among alternatives

Complementary goods and services: goods or services people typically consume together

Consumers: people whose wants are satisfied by using goods and services

Costs of production: the costs of all the resources a business uses in producing goods or services

Criteria: standards or measures of value that people use to evaluate something

Decision making: a process of choosing among alternatives

Demand: the schedule of the quantity of a good or service that people are willing and able to buy at different prices during a given time period, when income and prices of other items remain the same

Division of labor: jobs are divided among the workers so that each worker specializes in one part of the production process

Economic benefits: improvements in well-being associated with any economic action, good or service; for example, the increase in

satisfaction from consuming something

Economic wants: desires that people can satisfy by consuming a good or service

Entrepreneurs: people who take risks to develop new products and services and start new businesses. Profit is income for entrepreneurs and is an incentive that encourages them to risk their money and resources.

Exchange rate: the price of one country's currency in terms of another country's currency

Goods: objects that can satisfy people's economic wants

Human capital: the skills, education and talent a person possesses

Human resources: the quantity and quality of human effort directed toward producing goods or services

Interest: the amount that a borrower of money must pay to the lender for the use of the lender's money

Interest rate: the percentage that a borrower must pay of the money loaned in return for the use of the money, usually expressed over a period of one year

Intermediate goods: materials that are used up in production and become part of the final good

Investment in capital: purchasing capital goods (equipment and buildings) that can assist people in producing goods and services

Law of demand: people are willing and able to buy a lower quantity of a good or service at a higher price and a higher quantity of a good or service at a lower price, when income and prices of other items remain the same.

GLOSSARY OF TERMS

Medium of exchange: a good that people generally accept in exchange for other goods or services

Money: anything widely accepted as final payment for goods and services (a medium of exchange)

Natural resources: “gifts of nature” that are present without human intervention

Opportunity cost: the next best alternative people give up when they make a decision

Productive resources: natural resources, human resources and capital goods available to make goods and services

Productivity: a measure of output compared to inputs during some time period

Profit and loss: difference between the total revenue a business receives and the total costs it pays for resources. If this number is positive, it is called profit; and if it is negative, it is called loss.

Revenue: total amount a business receives for selling a product or service

Savings: income people have not spent on consumption or taxes

Services: actions that can satisfy people’s economic wants

Specialization: each worker focuses on one part of the production process

Trade/Exchange: voluntarily trading goods and services with people for other goods and services or for money

Mathematics and Economics: Connections for Life, Grades 3-5 Workshop Evaluation Form

<Insert Center/Council Name>

In our effort to continuously improve our programming, we would appreciate your comments on our workshop. Looking back over your experience, please comment on the following questions.

Date _____ Location _____

1. Did this MECL workshop meet your expectations? ____yes ____no
2. Did you feel that you were presented with enough information about MECL to be able to go back into your classroom and use the curriculum? ____yes ____no
3. Were the materials and teaching strategies presented appropriate for your students?
____yes ____no
4. Did you have ample opportunity to ask questions and express your opinions?
____yes ____no
5. Please write your suggestions for improving future MECL workshops.

6. Please write any additional comments or recommendations.

Sample Agenda for Introducing MECL to Math Supervisors and Curriculum Specialists in a District or State Department of Education (30 minutes)

In large school districts, math supervisors may be the best “gatekeepers” to reaching the teachers and getting them interested in MECL. You may want to set up a meeting to demonstrate some of the features of MECL to a group of math supervisors and/or curriculum specialists.

Folders for the participants of the meeting should contain these items:

- ✓ Information about you and your Center/Council
- ✓ NCEE catalogs
- ✓ Copy of MECL or sample copy of one lesson
- ✓ Essay from MECL about teaching math and economics together
- ✓ Grids showing correlation of the curriculum to NCTM and NCEE standards
- ✓ Workshop evaluation forms from past MECL workshop your Center/Council has hosted
- ✓ Copy of the local district math and social studies outcomes for grades 3-5 that you have referenced to the MECL lessons

Points to make during this meeting:

- Describe MECL’s purpose in teaching economics and mathematics by highlighting the grids correlating the NCTM standards and the NCEE standards to lessons. Make reference to the handouts in the folders.
- Direct the participants to the grids in the book to select appropriate lessons matching district outcomes and standards. If you have not been able to do this in advance of the meeting, ask the participants to see if they find any of their district’s standards in the NCTM grid.
- Describe how the lessons in MECL can engage students above and below grade level in mathematics.
- If computers and the Internet are available, demonstrate the features of the MECL Web site (<http://mathandecon.ncee.net>), using Lesson 3. This lesson has one of the interactives for students. Make sure to show the downloadable Visuals and Activities. Show the assessment, Activity 3.2, to highlight the fact that each lesson has an assessment component. Show the link to the NCEE lessons on *EconEdLink* (<http://www.econedlink.org>) to show the additional support for teachers.

End the meeting by asking how you can arrange to host a workshop for teachers during the next district curriculum day. Offer to train lead teachers who can take the information back to their colleagues.

Listing of lessons with a brief description.

- **Lesson 1: A Season of Goods**

This lesson focuses on goods and services (economics) and basic operations (mathematics). The students review the four seasons of the year and brainstorm goods and services that people often purchase during each season. The students then participate in a matching game, pairing goods and services according to the seasons. Finally, the students work on an activity that requires them to act as consumers on a budget and make decisions to purchase goods and services.

- **Lesson 2: Choices, Choices**

This lesson focuses on decision making (economics) and introduces surveying as a method of data collection (mathematics). After analyzing data on a sample topic, the students use a decision-making grid to help them rank career choices and create fractions using the survey data. You can use this lesson as part of a career unit. It focuses on math-related careers, but you can modify it to cover all types of careers if this fits better into the grade-level curriculum.

- **Lesson 3: What's Hot! What's Not!**

This lesson focuses on exchange and trade (economics) and mean, median and temperatures (mathematics). The students review how to read temperatures on a thermometer and discuss activities associated with various temperatures. They estimate temperatures and find the median and mean of a group of temperatures. They participate in a trading simulation and experience the economic principle that voluntary exchange increases satisfaction.

- **Lesson 4: Pizza on a Budget**

This lesson focuses on budgeting (economics) and basic operations (mathematics). The students participate in a mouth-watering budget activity while they use estimating skills and practice identifying costs and benefits. Using a budget work sheet, they work in small groups to plan a class pizza party. They review basic operations skills using money as they make decisions about refreshments for the party.

- **Lesson 5: The Math Factory**

This lesson focuses on productivity (economics) and multiplication (mathematics). The students learn about physical capital and human capital as they create multiplication-fact review cards. In the first production round, groups of students produce as craftspeople and as specialists. In the second round, they continue to produce as craftspeople and specialists, but they also receive information that helps them to increase their human capital - their skills and knowledge - and their productivity. In the third round, the students get scissors; and this tool, along with their prior experience, once again increases their human capital and productivity.

- **Lesson 6: Bookmark Profit**

This lesson focuses on profit (economics) and basic operations (mathematics). Working in small groups, the students act as companies and produce bookmarks. They decide which resources to purchase to produce their bookmarks. They calculate their costs of production and display their bookmarks for the class. The students then act as consumers and "buy" bookmarks. Based on their "sales," the student companies compute their profit or loss.

- Lesson 7: Go Fly a Kite**
 This lesson focuses on resources and barter (economics) and geometry (mathematics). After reviewing the concept of bartering, the students roll a four-sided dice to gather some of the resources they will need to build a tetrahedron kite, which is based on the shape of a platonic solid. Then they barter to get the rest of the materials they will need. During this process, the students identify the characteristics of intermediate goods and use these goods to build their kite.
- Lesson 8: Doughnut Dreaming**
 This lesson focuses on demand (economics) and line graphs (mathematics). The students use a class survey to collect data about the quantity demanded of doughnuts at different prices. They use this data to construct a line graph. They discuss the law of demand and apply it to the graph to understand that at lower prices, the students will purchase more doughnuts.
- Lesson 9: How Much Time?**
 This lesson focuses on opportunity cost (economics) and graphs (mathematics). The students review terms related to measuring time and convert a time schedule into a pie chart, or circle graph. The students use the circle graph to assist them in making decisions about using time wisely to satisfy the requirements of a school-day schedule, and they consider the opportunity cost of their decisions.
- Lesson 10: Bunches of Brownies**
 This lesson focuses on resources (economics) and fractions (mathematics). The students use measuring cups to determine equivalent fractions for a recipe. Thinking economically, the students identify the productive resources they would use to make brownies and categorize them as natural resources, human resources or capital goods (resources). The students work in groups to decide how they would divide a pan of brownies equally. Finally, the students determine how much of each ingredient they would need if they wanted to produce additional batches of brownies.
- Lesson 11: Plenty of Pennies**
 This lesson focuses on interest (economics) and percents (mathematics). The students use pennies to help them compute percents. They convert percent to decimals and figure interest amounts on savings or borrowed money. They role-play to understand that interest is payment for the use of money, and they discover that all financial choices have a cost.
- Lesson 12: Birdly Exchange**
 This lesson focuses on barter, money and characteristics of money (economics) and fractions and ratios (mathematics). The students will role-play a bartering activity and participate in trading simulations using feathers and birdles (a form of paper money) as mediums of exchange. They will compare their trading experiences to decide why medium of exchange is an important function of money. The students should have some grasp of fractions and ratios, because the lesson introduces exchange rate as a ratio and includes an activity in which the students calculate the exchange rate between U.S. dollars and birdles.

Why Teach Mathematics and Economics Together?

Teaching mathematics in today's elementary classroom can be both exciting and challenging for an elementary teacher. It can be exciting because we are experiencing a wonderful evolution in mathematics education that recognizes the importance of teaching mathematics in a hands-on, dynamic and applied way. This approach makes learning mathematics fun for teacher and student alike.

Teaching mathematics for an elementary teacher can also be a challenge because the mathematics that should be taught today includes much more than the simple arithmetic that we adults may have experienced in our elementary classrooms.

In the elementary classroom of today, mathematics is a dynamic discipline basic to our information society and includes essential processes such as problem solving, reasoning, communication, connections and representation. (*Principles and Standards for School Mathematics*, Reston, Va.: National Council of Teachers of Mathematics, 2000). *Mathematics and Economics: Connections for Life Grades 3- 5* book helps an elementary teacher strive for thoughtful and creative mathematics instruction by providing 12 model lessons for grades 3 through 5 that give students a great context — economics — for learning mathematics.

Recent research on mathematics education continues to confirm that teaching mathematics in the context of an application is highly effective and that significant, worthwhile and grade-level appropriate content can have considerable influence on student learning. (Iris R. Weiss and Joan D. Pasley, "What is High- Quality Instruction?" *Educational Leadership*, February 2004, pp. 24-28). Primary factors associated with effective lessons were student engagement and interaction with the content.

As it does in many sciences, the discipline of mathematics quite naturally represents a "language" for economics. Economics depends on mathematics to represent relationships, solve problems, and communicate ideas effectively. This real-world context provides a great opportunity for elementary teachers to teach their students current mathematics, while simultaneously offering their students a chance to learn some of the fundamental concepts of economics. Thus, the lessons in this book will help teachers illustrate to their students the real power of mathematics in our world.

Economics teaches students how to be wise producers and consumers, lessons they will use throughout their lives. Although the focus of these lessons is teaching mathematics within the context of economics, the teaching of economics is itself essential. Forty-eight states now have curriculum standards at the elementary level requiring that students be taught economics. Teachers often weave economics concepts into the material of other subjects as they seek to fulfill the responsibility to address their district's elementary curriculum. Not only do the lessons in this book teach mathematics in a compelling way, they are also exciting and relevant approaches to teaching economics concepts that students will use for a lifetime.

The lessons have been designed by master teachers, reviewed by content experts, piloted in elementary classrooms and published with a careful attention to the potential excitement and utility of blending instruction for these two disciplines. All lessons include hands-on activities, encourage class discussions and provide many effective questions teachers can use to review and deepen student understanding. All lessons, even the fanciful, are grounded in familiar activities relevant to the everyday lives of students.

Each lesson includes a Web address for all of the activities and visuals ready to print, further connections to other disciplines, additional suggestions for mathematics and economics activities for students, and links to interesting information and resources. Most of all, students will be excited by these creative activities and that will excite teachers as well.

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This document contains pages from the publication *Mathematics & Economics: Connections for Life, Grades 3-5* from the National Council on Economic Education (NCEE).

If you are interested in purchasing *Mathematics & Economics, Grades 3-5*, visit: <http://store.ncee.net>

If you are interested in learning more about NCEE, visit: <http://www.ncee.net>

Content Standards: Mathematics

Number and Operations

- Understand numbers, ways of representing numbers, relationships among numbers and number systems.
- Develop understanding of fractions as parts of unit wholes, as parts of a collection, as locations on number lines and as divisions of whole numbers.
- Recognize and generate equivalent forms of commonly used fractions, decimals and percents.
- Develop fluency in adding, subtracting, multiplying and dividing whole numbers.
- Develop and use strategies to estimate computations involving fractions and decimals in situations relevant to students' experience.
- Develop and use strategies to estimate the results of whole-number computations and to judge the reasonableness of such results.

Algebra

- Use mathematical models to represent and understand quantitative relationships.

Geometry

- Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships.
- Use visualization, spatial reasoning and geometric modeling to solve problems.

Measurement

- Understand measurable attributes of objects and the units, systems and processes of measurement.

Data Analysis and Probability

- Formulate questions that can be addressed with data and collect, organize and display relevant data to answer them.
- Collect data using observations, surveys and experiments.
- Represent data using tables and graphs such as line plots, bar graphs and line graphs.
- Select and use appropriate statistical methods to analyze data.
- Propose and justify conclusions and predictions that are based on data, and design studies to further investigate the conclusions or predictions.

Problem Solving

- Build new mathematical knowledge through problem solving.
- Solve problems that arise in mathematics and in other contexts.
- Apply and adapt a variety of appropriate strategies to solve problems.

Connections

- Recognize and apply mathematics in contexts outside of mathematics.

Representation

- Create and use representations to organize, record and communicate mathematical ideas.

A Correlation of the Lessons with the Mathematics Standards

Standards	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5	Lesson 6	Lesson 7	Lesson 8	Lesson 9	Lesson 10	Lesson 11	Lesson 12
Number and Operations												
• Understand numbers, ways of representing numbers, relationships ...	●											
• Develop understanding of fractions as parts of unit wholes, as parts ...		●								●		
• Recognize and generate equivalent forms of commonly used fractions, ...											●	●
• Compute fluently and make reasonable estimates.	●		●		●							
• Develop fluency in adding, subtracting, multiplying and dividing ...				●								
• Develop and use strategies to estimate computations involving fractions ...				●		●				●		
• Develop and use strategies to estimate the results of whole-number ...				●								
Algebra												
• Use mathematical models to represent and understand quantitative ...		●										
Geometry												
• Analyze characteristics and properties of two- and three-dimensional ...							●					
• Use visualization, spatial reasoning and geometric modeling to solve ...							●					
Measurement												
• Understand measurable attributes of objects and the units, systems ...			●						●			
Data Analysis and Probability												
• Formulate questions that can be addressed with data and collect, ...		●										
• Collect data using observations, surveys and experiments.								●				
• Represent data using tables and graphs such as line plots, bar graphs ...								●				
• Select and use appropriate statistical methods to analyze data.		●	●									
• Propose and justify conclusions and predictions that are based on data, ...								●				
Problem Solving												
• Build new mathematical knowledge through problem solving.											●	
• Solve problems that arise in mathematics and in other contexts.	●				●	●				●	●	●
• Apply and adapt a variety of appropriate strategies to solve problems.	●	●			●	●				●		
Connections												
• Recognize and apply mathematics in contexts outside of mathematics.	●	●	●	●	●	●	●	●	●	●	●	●
Representation												
• Create and use representations to organize, record and communicate ...									●			

Selected standards from *Principals & Standards for School Mathematics*

Content Standards: Economics

In the Voluntary National Content Standards in Economics, benchmarks for demand, entrepreneurs, profit and losses are at the eighth grade level. Many district elementary economics curricula introduce these concepts in lower grades, so we included them in these lessons.

Standard 1

- **Benchmark 1 for 4th grade:**

People make choices because they cannot have everything they want.

- **Benchmark 3 for 4th grade:**

Goods are objects that can satisfy people's wants.

- **Benchmark 4 for 4th grade:**

Services are actions that can satisfy people's wants.

- **Benchmark 5 for 4th grade:**

People's choices about what goods and services to buy and consume determine how resources will be used.

- **Benchmark 6 for 4th grade:**

Whenever a choice is made, something is given up.

- **Benchmark 7 for 4th grade:**

The opportunity cost of a choice is the value of the best alternative given up.

- **Benchmark 8 for 4th grade:**

People whose wants are satisfied by using goods and services are called consumers.

- **Benchmark 9 for 4th grade:**

Productive resources are the natural resources, human resources and capital goods available to make goods and services.

- **Benchmark 10 for 4th grade:**

Natural resources, such as land, are "gifts of nature"; they are present without human intervention.

- **Benchmark 11 for 4th grade:**

Human resources are the quantity and quality of human effort directed toward producing goods and services.

- **Benchmark 12 for 4th grade:**

Capital goods are goods produced and used to make other goods and services.

Standard 2

- **Benchmark 1 for 4th grade:**

Few choices are all-or-nothing decisions; they usually involve getting a little more of one thing by giving up a little of something else.

- **Benchmark 2 for 4th grade:**

A cost is what you give up when you decide to do something.

- **Benchmark 3 for 4th grade:**

A benefit is something that satisfies your wants.

Standard 5

- **Benchmark 1 for 4th grade:**

Exchange is trading goods and services with people for other goods and services or for money.

- **Benchmark 2 for 4th grade:**

The oldest form of exchange is barter — the direct trading of goods and services between people.

- **Benchmark 3 for 4th grade:**

People voluntarily exchange goods and services because they expect to be better off after the exchange.

Standard 6

- **Benchmark 3 for 4th grade:**

Specialization and division of labor usually increase the productivity of workers.

Standard 8

- **Benchmark 1 for 4th grade:**

Higher prices for a good or service provide incentives for buyers to purchase less of that good or service and for producers to make or sell more of it. Lower prices for a good or service provide incentives for buyers to purchase more of that good or service and for producers to make or sell less of it.

- **Benchmark 1 for 8th grade:**

An increase in the price of a good or service encourages people to look for substitutes, causing the quantity demanded to

decrease and vice versa. This relationship between price and quantity demanded, known as the law of demand, exists as long as other factors influencing demand do not change.

Standard 10

- **Benchmark 1 for 4th grade:**

Banks are institutions where people save money and earn interest, and where other people borrow money and pay interest.

- **Benchmark 2 for 4th grade:**

Saving is the part of income not spent on taxes or consumption.

Standard 11

- **Benchmark 1 for 4th grade:**

Money is anything widely accepted as final payment for goods and services.

- **Benchmark 2 for 4th grade:**

Money makes trading easier by replacing barter with transactions involving currency, coins or checks.

- **Benchmark 5 for 4th grade:**

Most countries create their own currency for use as money.

Standard 15

- **Benchmark 1 for 4th grade:**

When workers learn and practice new skills they are improving their human capital.

- **Benchmark 2 for 4th grade:**

Workers can improve their productivity by improving their human capital.

- **Benchmark 3 for 4th grade:**

Workers can improve their productivity by using physical capital such as tools and machinery.

Standard 14

- **Benchmark 3 for 8th grade:**

Entrepreneurs and other sellers earn profits when buyers purchase the products they sell at prices high enough to cover the costs of production.

- **Benchmark 4 for 8th grade:**

Entrepreneurs and other sellers incur losses when buyers do not purchase products they sell at prices high enough to cover the costs of production.

CONTENT STANDARDS

A Correlation of the Lessons with the Voluntary National Content Standards in Economics

Standards	Benchmarks	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5	Lesson 6	Lesson 7	Lesson 8	Lesson 9	Lesson 10	Lesson 11	Lesson 12
Standard 1	1 for 4th grade	Choices	●	●						●			
	3 for 4th grade	Goods	●										
	4 for 4th grade	Services	●										
	5 for 4th grade	Choices determine resource use								●			
	6 for 4th grade	Choices require giving up something		●						●			
	7 for 4th grade	Opportunity cost		●						●			
	8 for 4th grade	Consumers	●										
	9 for 4th grade	Productive resources							●			●	
	10 for 4th grade	Natural resources							●			●	
	11 for 4th grade	Human resources							●			●	
	12 for 4th grade	Capital goods (resources)							●			●	
	Standard 2	1 for 4th grade	Few choices are all-or-nothing decisions		●		●						
2 for 4th grade		Costs				●							
3 for 4th grade		Benefits				●							
Standard 5	1 for 4th grade	Exchange			●								●
	2 for 4th grade	Barter							●				
	3 for 4th grade	Why people trade			●				●				
Standard 6	3 for 4th grade	Specialization and division of labor				●							
Standard 8	1 for 4th grade	Prices provide incentives to buyers							●				
	1 for 8th grade	Law of demand							●				
Standard 10	1 for 4th grade	Banks										●	
	2 for 4th grade	Saving										●	
Standard 11	1 for 4th grade	What is money											●
	2 for 4th grade	Money makes trading easier											●
	5 for 4th grade	Most countries create currency											●
Standard 14	3 for 8th grade	Entrepreneurs, profits					●						
	4 for 8th grade	Entrepreneurs, losses					●						
Standard 15	1 for 4th grade	New skills increase human capital				●							
	2 for 4th grade	Human capital and productivity				●							
	3 for 4th grade	Physical capital and productivity				●							

Selected standards from *Voluntary National Content Standards in Economics*
National Council on Economic Education, 1997