## No. A-255 <br> 亳 $11=9$

## Picture Chompers

Instructional Computing Courseware for Apple ${ }^{\circledR}$ II Series Computers

## Picture

 Chompers
# Instructional Computing Courseware for Apple ${ }^{\otimes}$ II Series Computers 

# This manual is compatible <br> with <br> the Picture Chompers disk 

Version 1.x

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## Library of Congress Cataloging-in-Publication Data

Picture chompers [computer file]. - Version 1.0.
2 computer disks : sd., col. ; $51 / 4$ in. +1 manual. (Early learning series).

System requirements: Apple II series; 128 K ; ProDOS; BASIC; 1 disk drive; monochrome or color monitor, joystick (optional).

Title from title screen.
Edition statement from disk label.
Copy-protected.
Second disk is backup.
Audience: Children (K-1).
Summary: A graphics-based educational game that challenges students to classify objects according to color, size, shape, design, class, and use.
"A-255"- Disk label.

1. Educational games-Juvenile software. I. Minnesota Educational Computing Corporation. II. Series: MECC early learning series. $\begin{array}{llll}\text { LB1029.G3P53 } & 1990 \quad 372.8 \quad 90-69802\end{array}$ ISBN 0-7929-0132-0

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## INTRODUCTION

Young children need experiences with practicing classification skills to help them develop the concept of "this is/this is not" a member of a set. With this understanding firmly in hand, children can apply classification skills in reading, mathematics, and science. Children's early formal experiences with classifying objects begins with their extensive use of manipulatives, which gradually helps them to use written materials such as workbook pages.

The computer offers a unique opportunity for encouraging students' development of classification skills. The computer provides a rich environment where a large pool of graphics is available to children for comparison and classification. They can classify a wide variety of objects shown graphically, which would be time-consuming and sometimes impossible to assemble in a classroom. In addition, the computer can provide numerous combinations of objects, presenting familiar objects in new contexts. This helps students refine their classification skills and recognize that an object can belong to different groups.

Picture Chompers is a set of six programs designed to provide kindergarten and first-grade students with opportunities to strengthen their classification skills according to color, size, shape, design, class, and use. In addition, the programs help students sharpen their ability to visually discriminate objects.

Students can exit a program by pressing the Escape (Esc) Key whenever the program is waiting for a response. Sound may be turned on or off at any time by typing Control-S (press the S Key while holding down the Control Key).

Picture Chompers is a product from MECC's Early Learning Series. This series includes software packages designed for preschool to second-grade children. Each package covers a specialized topic in mathematics, language arts, or music. The following matrix outlines the products in this series.

EARLY LEARNING SERIES

| Product | No. | Preschool | K | 1 | 2 |
| :--- | :---: | :---: | :---: | :---: | :---: |
| First-Letter Fun | A-154 | $\checkmark$ | $\checkmark$ |  |  |
| Fun From A to Z | A-164 | $\checkmark$ | $\checkmark$ |  |  |
| Counting Critters | A-165 |  | $\checkmark$ | $\checkmark$ |  |
| Arithmetic Critters | A-166 |  | $\checkmark$ | $\checkmark$ | $\checkmark$ |
| Paint with Words | A-158 | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |
| Patterns | A-227 |  | $\checkmark$ | $\checkmark$ |  |
| Picture Chompers | A-255 |  | $\checkmark$ | $\checkmark$ |  |

Title: Picture Chompers

Grade: $\quad \mathrm{K}$ - 1

Subject areas: Mathematics, pre-reading

Program type: Educational game


Hardware: Apple II series computer with 128 K of memory and one disk drive; color monitor highly recommended. If your students use a monochrome monitor, they should not use the Color program or the Design program.

## Classroom

use: Individual student

Learning objectives:

- to identify objects that are the same color as a target object
- to identify objects that are the same size as a target object
- to identify objects that are the same shape as a target object
- to identify objects that have the same design as a target object
- to identify objects that are in the same class as a target object
- to identify objects that can be used in a target activity
- to visually recognize differences and similarities in objects


## TEXTBOOK CORRELATIONS

Each of the six programs in Picture Chompers supports K-1 mathematics and reading objectives related to the development of classification skills. The following charts correlate the instructional objectives of seven elementary math textbook series (Addison-Wesley; Harcourt Brace Jovanovich; Holt, Rinehart and Winston; Houghton Mifflin; Mathematics Their Way;
Scott, Foresman; Silver Burdett \& Ginn) and two reading series (Harcourt Brace Jovanovich and Silver Burdett \& Ginn) with the Picture Chompers programs. You can use these correlations to reinforce the specific classification skills your students are exploring.

## MATHEMATICS CORRELATIONS

Addison-Wesley 1989
Mathematics (K)
Picture Chompers
Page Objective Program(s)

9-10 To sort objects by color and shape and describe the set Color; Shape
9-10 To classify pictures by name Class
11-12 To classify pictures by design Design
133-134 To classify objects as triangles, squares, or circles Shape
135-136 To classify shapes as triangles, squares, or rectangles Shape

Addison-Wesley 1989
Mathematics (1)
227-228
To identify spheres and cubes in the real world
Shape (hard)
231-232
To identify triangles and rectangles
Shape

## TEXTBOOK CORRELATIONS (continued)

| Harcourt Brace Jovanovich <br> Mathematics Today (K) | Picture Chompers <br> Program(s) |  |
| :---: | :--- | :--- |
| Page | Objective | Color |
| $13-14$ | To identify objects that are the same color | Size |
| $15-16$ | To identify objects that are the same size | Shape |
| $17-18$ | To identify objects that are the same shape | Shape (hard) |
| $58-58 \mathrm{~A}$ | To identify spherical objects | Shape (hard) |
| $59-60$ | To identify objects shaped like boxes | Shape |

Harcourt Brace Jovanovich
Mathematics Today (1)
277-278 To identify circles, squares, triangles, and rectangles Shape

Holt, Rinehart and Winston 1987
Mathematics Unlimited (K)

| Page | Objective | Picture Chompers <br> Program(s) |
| :--- | :--- | :--- |
| 4A-4B | To sort three-dimensional objects by shape (ball, box) | Shape (hard) |
| 9-10 | To identify same shape and same size | Shape; Size |
| 23-24 | To identify same color and same size | Color; Size |
| 26A-26B | To determine which objects belong together | Class; Use |
| 35 | To identify the object that does not belong <br> in a group of four objects | Class; Use |

## TEXTBOOK CORRELATION (continued)

Holt, Rinehart and Winston 1987
Mathematics Unlimited (K)

Page Objective
267-268 To recognize and identify spheres and cubes
269-270 To recognize and identify triangle, square, circle, and rectangle

## Picture Chompers Program(s)

Shape (hard)
Shape

Houghton Mifflin 1987
Mathematics (K)
23-24 Identify objects that are the same color Color
25-26 Identify objects that are the same shape Shape
27-28 Identify objects that are the same size Size
29-30 Identify objects that have the same use Use
145-148 Identify objects with the shape of a sphere or cube Shape (hard)
151-156 Identify circles, squares, and triangles Shape

## Houghton Mifflin 1987

Mathematics (1)
309-312 Identify triangles, rectangles, circles, and squares Shape
313-316 Identify cubes and spheres Shape (hard)

## Mathematics Their Way 1976

Picture Chompers reinforces the instructional objectives in Chapter 3: Sorting and Classifying, pages 56-87.

## TEXTBOOK CORRELATIONS (continued)

Scott, Foresman 1988
Invitation to Mathematics (K)
Page Objective3-4 Identify objects that have the same shapePicture ChompersProgram(s)
Shape
5-6 Match objects that have the same shape and sizeShape; Size
85-86 Identify objects that have the same shape ..... 85-86
Shape
Scott, Foresman 1988
Invitation to Mathematics (1)229-232 Identify objects that have the same shapeShape (hard)
233-234 Identify circles, rectangles, squares, and triangles Shape
Silver Burdett \& Ginn 1988Mathematics (K)

| Page | Objective | Picture Chompers <br> Program(s) |
| :--- | :--- | :--- |
| $7-8$ | To identify and differentiate colors | Color |
| $9-10$ | To compare shapes of objects and tell <br> which objects have the same shape | Shape |
| $11-12$ | To compare sizes and tell which object <br> has the same size as a given object | Size |
| $77-78$ | To recognize a sphere and a rectangular prism | Shape |
| $87-88$ | To practice recognizing rectangles and squares | Shape |

Silver Burdett \& Ginn 1988
Mathematics (1)
281-282
To identify space shapesShapeTo identify a circle, square, triangle, and rectangle Shape

## TEXTBOOK CORRELATIONS (continued)

## READING CORRELATIONS

Harcourt Brace Jovanovich 1989 Kites (K)

| Page | Objective |
| :--- | :--- |
| $221-222$ | Classify objects |
| $317-318$ | Classify objects |
| 405 | Classify objects |

Picture Chompers Program(s)

Class
Color; Size Shape; Use

Shape; Class; Use

Harcourt Brace Jovanovich 1989
Rainbows (R)

44
83
209

274-275
306
340

Classify objects
Classify objects
Classify objects

Classify objects
Classify objects
Classify objects

Class
Class
Color; Shape; Class; Use

Class; Use
Class
Use
Silver Burdett \& Ginn 1989
Hickory Dickory Dock (K)
Page
592
ilver Burdett \& Ginn 1989
Il Around Town (PP1)

111 Classify objects Color; Class

## Silver Burdett \& Ginn 1989

Morning Bells (PP3)
388-389

422

451
Classifying objects according to
common characteristics $\quad$ Class; Use

TEACHER OPTIONS


## Accessing Teacher Options

Picture Chompers contains three Teacher Options that can be accessed from the main menu by typing Control-A (hold down the Control Key and press the letter A).


## Option 1: Set Number of Screens

This option affects only games played without a timer. Using this option, you can determine the number of screens your students will play in each program.

## TEACHER OPTIONS (continued)



## Option 2: See/Clear Chompers Club

Students who choose to use a timer when playing Picture Chompers, and score high enough, can enter their initials in the Chompers Club. This option allows you to erase the current names in the Chompers Club.

## Picture Chompers

Teacher Options

Select an option:

1. Set Number of Screens
2. See/Clear Chompers Club List
3. Turn joystick OFF
 Escape: Main Menu

## Option 3: Turn Joystick On

If students choose to play Picture Chompers with a joystick, you must turn this option on. NOTE: If you turn this option ON, be sure that you do not have a game paddle, graphics tablet, or koala pad plugged into the computer's joystick port. Also be sure that you turn the joystick OFF if you are not using a joystick. Otherwise, the timer might start as soon as the game screen appears.

## DESCRIPTION

Picture Chompers is a graphics-based educational game for students in kindergarten and first grade that reinforces classification concepts. The challenge of Picture Chompers is to move a set of teeth to chomp objects that have the same color, size, shape, design, class, or use as the target described at the top of the game screen. Students may choose to play the game with or without a timer, and at three levels of difficulty. Visual feedback in the form of crunching teeth and an " X " over any incorrect chomp and aural feedback in the form of a crunching sound is provided for students who choose an incorrect answer.

Subject areas: Mathematics, pre-reading<br>Topic: Classification<br>Type: Educational game<br>Grade range: $\mathrm{K}-1$<br>Classroom use: Individual students

## LEARNING OBJECTIVES

After using this courseware, students will have received practice in:

- identifying objects that are the same color as a target object
- identifying objects that are the same size as a target object
- identifying objects that are the same shape as a target object
- identifying objects that have the same design as a target object
- identifying objects that are in the same class as a target object
- identifying objects that can be used in a target activity
- visually recognizing differences and similarities in objects


Students select a program from the main menu by moving the cursor with the Arrow Keys or by pressing the appropriate Number Key, and then pressing the Return Key.

Students select a difficulty level for the game by moving the cursor with the Arrow Keys or by pressing the appropriate Number Key, and then pressing the Return Key. The relative difficulty of the molar in lifting the toothbrush is a visual indicator of the difficulty level of the game.

And, finally, students decide if they want to use a timer when playing the game if so, they must use the Arrow Keys to move the cursor and press the Return Key to select.

## PROGRAM PREVIEW (continued)

Using the Programs without a Timer


Students use the Arrow Keys, the J, K, I, M Keys, or the joystick to move the teeth around the screen. They press the Space Bar to chomp an object. At the bottom of the screen are between one and fifteen blank molars. The number of molars corresponds to the number of screens you have set for your students to play in Teacher Options (see p. 9).


As students complete a game screen, a molar fills in as a visual reference for the number of screens they have finished and the number they have left to play. In the example at the left, the student has completed three of five assigned screens.


In addition to the filling molars, students receive another type of visual feedback. When students clear a game screen of all the objects that match the target, an animated molar appears in the cell where the last correct match to the target was chomped.

## PROGRAM PREVIEW (continued)

## Using the Programs without a Timer (continued)



If students chomp an object that does not match the target, they are given visual and aural feedback. The first time students chomp an incorrect answer, the Chomper teeth break and a crunching sound is made. When the teeth open, the incorrectly chomped object remains on the screen.

If students chomp the same incorrect answer a second time, the Chomper teeth break and the crunching sound is made as in the first incorrect answer. In addition, when the teeth open, an " $X$ " appears and remains on the object as another clue to students that their choice is incorrect. After two incorrect tries on the same object, the teeth will not chomp the object again.

When students complete the appropriate number of screens that you have set in Teacher Option 1: Set Number of Screens (see p. 9), a visual summary screen appears. An animated molar appears and gives students a feedback message such as "Great!" or "Super!". Students are then returned to the main menu, where they can choose another program or quit the program.

## PROGRAM PREVIEW (continued)

Using the Programs with a Timer






Time left unumunu!

Students can use the Arrow Keys, the J, K, I, M Keys, or the joystick to move the teeth around the screen. They press the Space Bar to chomp an object.

After students chomp an object that matches the target, the teeth open, and five, ten, or fifteen points (depending on the level of difficulty students have chosen) are added to their scores. Students' cumulative scores are displayed in the score box. When students clear a game screen of all the objects that match the target, an animated molar will appear in the cell where the last correct match to the target was chomped.

If students chomp an object that does not match the target, they are given visual and aural feedback. The first time students chomp an incorrect answer, the Chomper teeth break, and a crunching sound is made. No points are added to students' scores. When the teeth open, the incorrectly chomped object remains on the screen.

## PROGRAM PREVIEW (continued)

Using the Programs with a Timer (continued)


Time left แแแแแแแ!


## CONTENT OF GAMES

Six different games are available in Picture Chompers：Color，Size，Shape，Design，Class，and Use．


Color
In this game，students move a set of teeth to chomp objects that are the same color（violet， blue，orange，or green）as the target object．




ロロロロロ

## Size

In this game，students move a set of teeth to chomp objects that are the same size （small or large）as the target object．

## Shape

The object of this game is to move a set of teeth to chomp objects that are the same shape （circle，square，rectangle，triangle，sphere，or cube）as the target object．

## CONTENT OF GAMES（continued）



ดQロロロ


Time left

Design
In this game，students move a set of teeth to chomp objects that have the same design（dot， stripe，or plaid）as the target object．

## Class

The object of this game is to move a set of teeth to chomp objects from the same class （toys，animals，vehicles，musical instruments， clothes，food，or furniture）as the target object．

Use
In this game，students move a set of teeth to chomp objects that can be used in each target activity（cook，write，build，paint，or play music）．

## USE IN AN INSTRUCTIONAL SETTING

## Prerequisite Skills

Picture Chompers is a graphics-based product developed for a K-1 audience. We have, however, observed that children as young as preschoolers and as old as fourth-graders enjoy the challenge of this product. If non-readers use this product, we recommend that they work with someone who can read the phrases that describe the objects to be chomped. You might also introduce or review the key words used in Picture Chompers by making flashcards for your students with the words listed on page 21.

To use Picture Chompers effectively, students need:

- to recognize the colors violet, blue, orange, and green;
- to understand the concept of small, medium, and large;
- to recognize the shapes of circles, squares, rectangles, triangles, cubes, and spheres;
- to recognize the patterns of dots, stripes, and plaid.

Prior to using this product, students should have experience with classifying by using manipulatives. They need to recognize that an object can belong to more than one set. For example, a red button can belong to a set of red objects, circle shapes, or to a set of buttons.

## Preparation

There are three variables in Picture Chompers that can be combined to tailor the product for your students' needs and provide a rich environment for exploring classification skills.

## Timer

Students can choose to use this product with or without a timer. When students begin formalizing their classification skills, they can use this product without a timer as an exploratory activity. In this mode, students' progress is reflected in the row of molars at the bottom of the screen. (The number of molars is equal to the number of problems you set in Teacher Options; see p. 9). As students complete a screen, a molar fills and a molar character performs in the cell of the last correct answer chomped on each screen. As an exploratory activity, Picture Chompers can be played in a self-paced, non-pressured atmosphere.

For students who are more confident of their ability to classify objects and/or enjoy the challenge of playing against the clock, Picture Chompers can be used as a game. In this mode, students can interact with the pressure of a timer, receive a score and, after achieving a relatively high score, gain membership in the Chompers Club. Students can play the game until the timer runs out, accumulating 5, 10, or 15 points for each correct chomp, depending on their choice of an Easy, Medium, or Hard difficulty level. There is no point penalty for incorrect choices, but as a subtle penalty the speed of the timer increases on incorrect chomps. A maximum of ten students' initials can be listed in the Chompers Club, and you can clear the Chompers Club list by using Teacher Option 2 (see p.10).

## USE IN AN INSTRUCTIONAL SETTING (continued)

## Programs

The programs in Picture Chompers are listed in order of generally increasing difficulty for students. A suggested sequence for using the product is to have students begin with the program Color and then progress to the programs Shape, Size, Design, Class, and Use.

## Difficulty Levels

Students can use Picture Chompers with three levels of difficulty represented by the relative difficulty of the molar lifting the toothbrush. As the levels of difficulty increase, the differences between the target and the distractors also increase. An example of each level of difficulty in the Color program is shown below:

## Color:

## Easy level: Chomp all blue things

Target: blue objects
Distractors: violet, green, orange objects

## Medium level: Chomp all blue balls

Target: blue balls, different sizes
Distractors: violet, green, orange balls, different sizes
Hard level: Chomp all blue balls
Target: blue balls, different sizes
Distractors: violet, green, orange balls, different sizes, plus other spheres

## Demonstrating the Product

Before allowing students to work independently at the computer, you can demonstrate the product to the class. Direct students' attention to the phrase at the top left side of the screen. Explain to students that their task is to chomp all the objects that match the underlined phrase. Tell students that to move the teeth, they should use the Arrow Keys in the direction they want to move. To chomp an object, students need to press the Space Bar. Do several problems, demonstrating to students the result of chomping a correct target object and an incorrect distractor object.

## Follow-up

As an extension of the classification skills practiced in Picture Chompers, students can create a classification book. They can cut pictures from magazines or collect actual objects, such as buttons, and paste them either in a book devoted to a single category or in one containing several categories. Students could also trace and color some objects, such as keys, blocks, and leaves, to include in their books. Students can individually create a classification book or work cooperatively on a collaborative project.

The certificate on page 23 can be duplicated and awarded to students as a reward for successfully using Picture Chompers.

## PROGRAM VOCABULARY

|  | Color |  | Size |  | Shape |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1. | orange | 1. | small | 1. | triangles |
| 2. | green | 2. | large | 2. | circles |
| 3. | blue | 3. | pencils | 3. | squares |
| 4. | violet | 4. | shoes | 4. | rectangles |
| 5. | balloons | 5. | cars | 5. | balls |
| 6. | balls | 6. | caterpillars | 6. | boxes |
| 7. | ties | 7. | beds | 7. | triangle shapes |
| 8. | mittens | 8. | crayons | 8. | circle shapes |
| 9. | shirts | 9. | brushes | 9. | square shapes |
| 10. | hats | 10. | hammers | 10. | rectangle shapes |
| 11. | socks | 11. | fish | 11. | ball shapes |
| 12. | things | 12. | pens | 12. | box shapes |

## Design

1. dots
2. plaid
3. stripes
4. balloons
5. balls
6. ties
7. mittens
8. shirts
9. hats
10. socks

## Class

1. toys
2. animals
3. cars
4. trucks
5. musical instruments
6. plants
7. clothes
8. food
9. furniture
10. farm animals
11. fruit
12. vegetables
13. flowers
14. vehicles that fly
15. vehicles
16. animals that fly
17. animals that like to swim
18. pets

## Use

1. things used when writing
2. things used when cooking
3. things used when building
4. things used when painting
5. things used when playing music

## Student Progress Report for Picture Chompers

| Student Name | Program | Level | Timer |
| :---: | :---: | :---: | :---: |
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|  |  |  |  |
|  | 22 |  |  |

## This is to certify that

## has done a superior job in classifying objects.



## Teacher

## CREDITS

The MECC team responsible for the development of Picture Chompers includes Sheila Dols, Scott Jensen, Charolyn Kapplinger, Sherry Luedloff, Jane Peterson, Elizabeth Wendland, John P. Wlazlo, and Stephen Zehm.

The development team greatly benefited from the efforts of the MECC team that designed the original Chompers programs found in the Conquering Math Series products. These programs include Fraction Chompers from Conquering Fractions (+,-) and Conquering Fractions ( $x,+$ ); Decimal Chompers from Conquering Decimals ( $x,+$ ); and Percent Chompers from Conquering Percents.

The team also thanks Miryam Acevedo-Bouchard for the content expertise she contributed to the product.

MECC extends a special thanks to the following teachers and their students for their assistance in the development of this product:

Nel Rindels
Darlene Hultquist
Jefferson Elementary School
Minneapolis, Minnesota
Steve Scarbrough
Red School House
St. Paul, Minnesota
Nancy Friendt
Diane Lemkuhl
Chippewa Kindergarten Center
North Oaks, Minnesota

## TO THE READER:

MECC has made every effort to ensure the instructional and technical quality of this courseware package. Your comments-as user or reviewer-are valued and will be included in any future revision of the product. Please address comments to:

MECC Software Division
3490 Lexington Avenue North
St. Paul, MN 55126

## MECC SERVICES

Since its inception in 1973, MECC has remained committed to serving education by listening and responding to the diverse and changing needs of students and educators. MECC promotes effective learning by developing high-quality, curriculum-based software in all major subject areas and by making them affordable through a variety of purchase plans. Approximately onethird of the nation's school districts have joined MECC through Direct License memberships, permitting them to duplicate MECC software products on site. MECC products are also available through authorized dealers nationwide or can be ordered directly from the MECC catalog. In addition to software products, MECC offers instructional management, emerging technology products, teacher training and development, and conferences. An academic research partnership, the MECC/University of Minnesota Center for the Study of Educational Technology, conducts a variety of studies on the impact of technology on education. MECC respects the challenges faced by modern educators and pledges to remain on the cutting edge of technology.

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- MECC Network Newsletter

MECC publishes a newsletter during the school year that focuses on MECC
activities, services, and products. To be added to the mailing list, simply write or call to indicate your interest.

- Help Line

If you have any problems using MECC software:

1) make note of the name and version number of the product;
2) note the brand and model of the equipment involved, as well as the type of printer card used if the problem concerns a printer; and
3) write or call the Help Line to describe the problem.

For information on all the above items, use the MECC General Information telephone number: 612/481-3500.

MECC
3490 Lexington Avenue North
St. Paul, MN 55126

