

production

**of 2×2 inch
slides**

Bridges for Ideas



**A SERIES OF HANDBOOKS FOR
DESIGNING, CREATING AND USING
RESOURCES FOR TEACHING AND
LEARNING.**

PRODUCTION OF 2x2 INCH SLIDES FOR SCHOOL USE

published by

Visual Instruction Bureau
Division of Extension
The University of Texas

ERNEST F. TIEMANN, DIRECTOR

prepared by

JOE COLTHARP

Audio-Visual Production Coordinator
Visual Instruction Bureau
The University of Texas

designed and illustrated by

GERDA McMURRY

Audio-Visual Specialist
Visual Instruction Bureau
The University of Texas

PREFACE

Although the 2 x 2-inch slide has become a very popular way of documenting home activities, its use by classroom teachers has been quite limited. With the recent availability of semiautomatic cameras and automatic projection equipment, the average teacher can literally bring the world into the classroom by means of the 2 x 2-inch slide.

This booklet, in the Bridges for Ideas Series, describes techniques that teachers—whether they are beginners or amateur photographers—may employ in producing 2 x 2-inch slides for use in classroom teaching. Some of the inexpensive and simplified methods of producing slides are suggested as worth-while classroom activities. Attention is given to the importance of local production; to equipment and supplies needed; and to techniques used in copying, processing, and mounting slides. Sources of materials and equipment are listed.

Grateful acknowledgement is expressed to Thomas Barnes, Bill Harris, Cadwalader Osborne, Carolyn Roberts, Bob Sloan and Max Winkler for their assistance in the research and production of this booklet.

Ernest F. Tiemann



CONTENTS

PHYSICAL PROPERTIES OF 2x2-INCH SLIDES.	7
WHY USE 2x2-INCH SLIDES?.	13
NEED FOR LOCAL SLIDE PRODUCTION	19
MINIMUM EQUIPMENT AND SUPPLIES	27
DESIRABLE EQUIPMENT AND SUPPLIES	35
TECHNIQUES USED IN THE PRODUCTION OF COLOR AND BLACK-AND-WHITE SLIDES	43
COPYING TECHNIQUES	47
PRINTING BLACK-AND-WHITE POSITIVE SLIDES	55
PROCESSING TECHNIQUES	61
MOUNTING AND BINDING POSITIVE SLIDES	67
SOURCES OF MATERIAL AND EQUIPMENT	73
BIBLIOGRAPHY	79

PRODUCTION OF 2x2 INCH SLIDES FOR SCHOOL USE

published by

Visual Instruction Bureau
Division of Extension
The University of Texas

ERNEST F. TIEMANN, DIRECTOR

prepared by

JOE COLTHARP

Audio-Visual Production Coordinator
Visual Instruction Bureau
The University of Texas

designed and illustrated by

GERDA McMURRY

Audio-Visual Specialist
Visual Instruction Bureau
The University of Texas

PREFACE

Although the 2 x 2-inch slide has become a very popular way of documenting home activities, its use by classroom teachers has been quite limited. With the recent availability of semiautomatic cameras and automatic projection equipment, the average teacher can literally bring the world into the classroom by means of the 2 x 2-inch slide.

This booklet, in the Bridges for Ideas Series, describes techniques that teachers—whether they are beginners or amateur photographers—may employ in producing 2 x 2-inch slides for use in classroom teaching. Some of the inexpensive and simplified methods of producing slides are suggested as worth-while classroom activities. Attention is given to the importance of local production; to equipment and supplies needed; and to techniques used in copying, processing, and mounting slides. Sources of materials and equipment are listed.

Grateful acknowledgement is expressed to Thomas Barnes, Bill Harris, Cadwalader Osborne, Carolyn Roberts, Bob Sloan and Max Winkler for their assistance in the research and production of this booklet.

Ernest F. Tiemann



CONTENTS

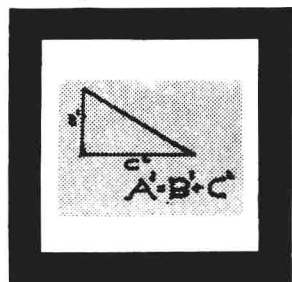
PHYSICAL PROPERTIES OF 2x2-INCH SLIDES.	7
WHY USE 2x2-INCH SLIDES?.	13
NEED FOR LOCAL SLIDE PRODUCTION	19
MINIMUM EQUIPMENT AND SUPPLIES	27
DESIRABLE EQUIPMENT AND SUPPLIES	35
TECHNIQUES USED IN THE PRODUCTION OF COLOR AND BLACK-AND-WHITE SLIDES	43
COPYING TECHNIQUES	47
PRINTING BLACK-AND-WHITE POSITIVE SLIDES.	55
PROCESSING TECHNIQUES.	61
MOUNTING AND BINDING POSITIVE SLIDES.	67
SOURCES OF MATERIAL AND EQUIPMENT	73
BIBLIOGRAPHY	79



PHYSICAL PROPERTIES OF 2 x 2-INCH SLIDES

These slides are known as miniature slides or simply as 2x2 slides. The 2x2-inch slide is a single transparency mounted between pieces of cardboard or between glass plates. Transparencies may be either color or black-and-white. Transparencies on glass are black-and-white.

color or black-and-white slides



Color slides are usually those in which the color is a part of the film, and the color becomes evident after the film has been processed. Color films are sometimes called natural color films.

Black-and-white slides are those in which the images appear in shades of gray, ranging from white to black.

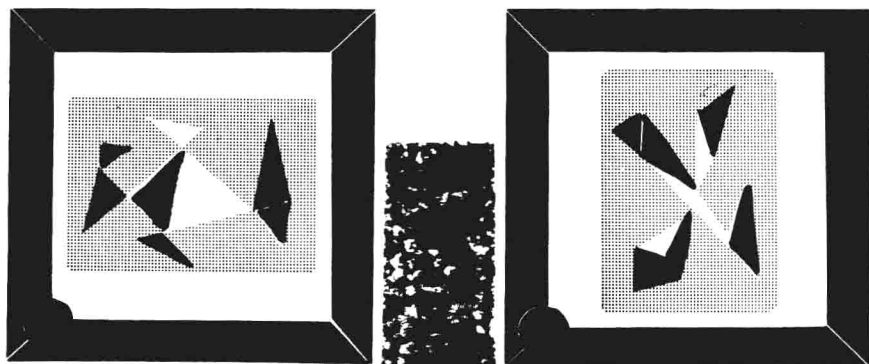
There is no hard and fast rule as to which subject should appear in color and which should appear in black-and-white. However, those subjects in which color is an integral part, such as flowers, landscapes, paintings, etc., should be photographed in color since color makes a definite contribution to the effectiveness and meaning of the slides.

Black-and-white slides are more commonly used when color is not the deciding factor in the learning process.

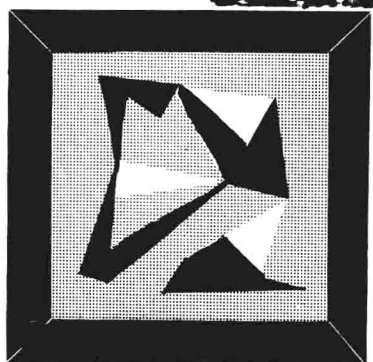
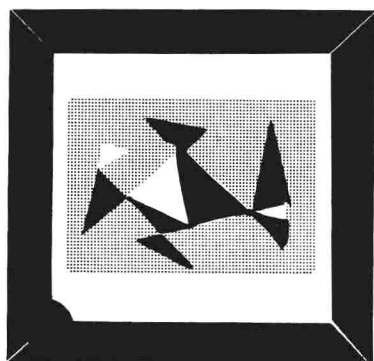
size -- picture area

The most popular picture area is 24x36mm which is made on 35mm film. Other sizes range from 18x24, 36x36mm to 26x26mm.

These dimensions refer to the projected area of the film and not to the outer edges of the film.

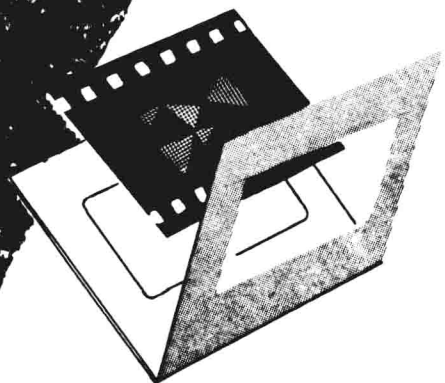


Slides made on sensitized glass plates measure 2 inches on each side. The projected picture area of these slides may be $1\frac{1}{2} \times 1\frac{1}{2}$ inches if desired, or



they may be masked to 24×36 mm to give the same area as slides made on 35mm film.

CARDBOARD MOUNTS

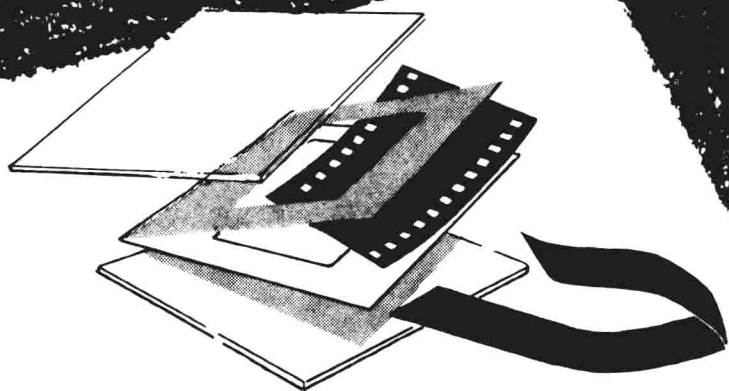


Slides made on 35mm film may be mounted between pieces of cardboard. The cardboards are placed on each side of the film and glued together to hold the film securely in an opening in each cardboard the size of the picture area. This is the common mounting for slides when they are returned from a processing plant. Since the film is

not protected, it may be damaged by finger prints, scratches, and dirt.

GLASS PLATES

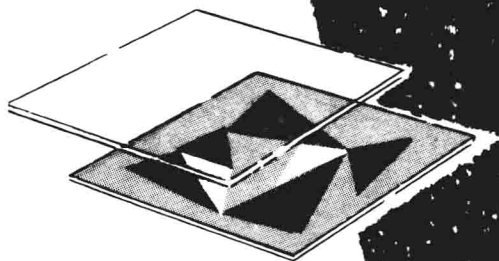
Glass plates may be used to protect the film. This is accomplished by removing the 35mm film from the cardboard mount and placing it in a paper mask having the same opening and outer dimensions as the cardboard mask. A piece of clear, free 2x2-inch glass is then placed on each side of



the film in the paper mask. An 8-inch piece of gummed tape, called binding tape, is placed around the edge of the cover glasses. Metal binders, instead of binding tape, may be used to hold the glass plates, mask, and film.

COVER GLASS AND BINDING TAPE

A slide made on a 2x2-inch sensitized plate should have a cover glass placed on the emulsion side of the plate. The two plates are then bound together with binding tape making a 2x2-inch slide which is protected from dirt, etc.





WHY USE 2x2-INCH SLIDES?

From the standpoint of their teaching value, availability, simplicity, and flexibility of projection, slides are one of the more versatile types of all the projected materials. The economy and portability of slide projectors also enhance the use of slides in the classroom.