

RIJKSMUSEUM MANUAL FOR THE PHOTOGRAPHY OF 3D OBJECTS

AMSTERDAM, MAY 2017

Index

Preface 4

Introduction 5

Metadata 6

Legenda 8

COLLECTION PHOTOGRAPHY 9

Basic Light setting 10

Sculpture 11

Costumes 12

Kimonos 14

Accessories 15

- Hats 15
- Shoes 15
- Umbrellas/parasols 15
- Spectacles 16

Textile & Accessories (flat) 17

- Gloves 17
- Fans 18
- Fan cases 18
- Handbags 18

Jewelry 19

- Rings 20
- Chains, pendants, broaches
- Earrings 21
- Bracelets 21
- Set 21
- Watches 22
- Buckles 23
- Combs, stickpins and hairpins 23

Glass 24

Ceramics 25

- Cups, bowls, pots, goblets, pitchers, glasses, etc. 25
- Teapots 25
- Groups 25

Plates 26

- Coins and medallions 26

Silver 27

Textile / lace 28

- Flounces/ribbons/scarves 28

Carpets, wall hangings, sheets, flags and other large textiles 29

Furniture 30

- Seating 30
- Tables / desks 31
- Cabinets / storage furniture 32

Musical instruments 33

- Keyboard instruments 33
- Stringinstruments (Violins, cellos, etc) 35
- Wind instruments 37

Objects of military history 38

- Cannons without undercarriage 38
- Cannons with a carriage 39
- Firearms 40
- Swords, lances and daggers 41
- Helmets 42

Ship models 43

Reliefs, tiles 44

- Reliefs, facing stone 45
- Group of tiles 45
- Tile scenes 46

Preface

In 2006 the Rijksmuseum management decided to expand the extent to which the museum's collection would be photographically digitized. Striving for the highest photographic quality possible would be essential to achieving this goal. The Rijksmuseum was at that time undergoing an extensive renovation. Before the doors to the now renovated main building of the Rijksmuseum reopened in 2013 a small part of the collection, which included the major works, was still accessible to the public. Posting the digitized collection on the website made it possible to see more of the pieces despite the renovation. Since the images of the collection received a CCo license in 2012, the material has been released to the public through the Rijksmuseum website called Rijksstudio. Our ultimate challenge now is to have the entire collection available online in 2020. Effective agreements on quality, standardization of photography and workflows are what will propel us to successfully reach that finishing line.

A number of conditions had to be met if we are to attain that goal. The Image Department was reorganized and the basis for the current team was laid. Photography in the studios and the workflows were standardized, which entailed complying with the set of Rijksmuseum minimum quality criteria that were drawn up. The underlying principle of these criteria was that the objects ought to be photographed in a scientifically reliable manner and that the photography of each object type would have to be standardized.

Part of that standardization includes having a neutral background and lighting that placed the object, rather than the photography, central. Standardization of object photography would also guarantee that the different studios execute an efficient workflow regardless of which photographer carries out the activities.

The photography of 2D objects follows the Metamorfoze Preservation Imaging Guidelines, which guarantees an identical result of photography reproduced on paper, and has been adapted for the photography of paintings. In consultation with curators and conservators it was decided that all paintings should be photographed in a standard fashion from the front and the back, while removed from their frames as well as when placed within their frames; the signature, if present, should also be photographed, and images of any details should be included whenever that is advisable.

For each object type, curators and conservators subsequently determined which quality criteria the images had to meet, what the preferred image would have to be, and which additional shots were required for each object.

Establishing these agreements became necessary because the Rijksmuseum has three different locations, seven studios, and what has grown to a total of seven photographers. These agreements evolved into the guidelines the studios in the Rijksmuseum use. We all know that actual practice can be unruly at times as each object presents its own challenges and problems. This is why it is helpful to be able to fall back on any tips and tricks our colleagues have to offer, and to see which solutions other museums have come up with to

resolve problems. It is in that spirit that we have compiled these guidelines in the *Manual for the Photography of 3D objects* in preparation for the Rijksmuseum conference *2and3D Photography 2017 – Practice, Prophecies and Beyond*.

This manual, which is a dynamic document, will constantly be subjected to adaptation to new photographic insights and improved techniques, but its essential assumption is that the object takes center stage relative to any issues regarding background and lighting.

The Rijksmuseum studio doors are always open to exchange advice with anyone searching for it or willing to share theirs. We are proud to share the solutions we have devised to tackle the sometimes complicated aspects of our field. We hope the *Manual for the Photography of 3D objects* will contribute to an international dialogue about the standardization of cultural heritage object photography.

Cécile van der Harten
Head of the Image Department

Introduction

The *Rijksmuseum Manual for the photography of 3D objects* gives an overview of the way in which the Rijksmuseum studios photograph object groups. The manual provides instructions about the different lighting setups for photographing objects which fall into one of two categories: standing objects or lying objects. We use examples of photographs to illustrate which perspectives and object-specific images are chosen.

The Rijksmuseum came to the consensus that object photography of the collection must comply with the following quality standards:

- The object always has a neutral background.
- The object is of paramount significance and readable, in other words, all of the objects' specific characteristics are clearly visible.
- All objects are always photographed from the same perspective, in consultation with the conservator or curator.

This standardization creates a consistent and recognizable image of the entire Rijksmuseum collection.

To obtain these quality standards, we have adopted the following criteria:

- Use of the ColorChecker Digital SG to obtain a neutral image. The whitest place in the image has an E5 97 lab value. The background is lighted with a lab value of 80.*
- In the spatial setup, the camera position is always somewhat elevated relative to the object. Large objects can be photographed perpendicular (90 degrees) to the front of the object.
- Each object is photographed from several perspectives, whenever possible and all stamps and signatures are also photographed if possible.

With this manual we attempt to establish standards for different object groups. We know, however, that actual practice can be unruly. The rule of thumb above all is: we are not creating art, we are photographing art.

* We are currently investigating if the target for 3D objects, introduced at the 2and3D conference, can be included in the studio workflow.

METADATA

Overview of the file data the photographers enter for new images:

IPTC field	How to use
Creator	Name photographer
Creator's Job title	Photographer
Description	The data on the images is entered here: Date taken, Restoration phase (A to E), type of photo: raking light, UV, etc. Tile set number separate values separated by a semicolon (;).
Keywords	The association category, the colour correction curve code, separate values have to be separated using a semicolon (;).
Copyright Notice and address	Rijksmuseum Amsterdam PO BOX 74888 1070 DN Amsterdam The Netherlands

Association categories

All images are divided into categories. This accommodates easy sorting and searching and enables us to limit public access to certain types of images.

Typically we have one so-called 'preferred image' for every object. The preferred image is the most recent shot of the object in its current condition and taken according to our guidelines. For most types of 3D objects we have defined a specific angle/position for the preferred image.

All other images of the object are categorized into one of the following categories:

Back	For 2D objects only, for example, the complete back of a painting both in its frame and removed from its frame, or the reverse side of a coin. The back side of prints and drawings are also placed in this category except when these sides have their own object number in our CMS.
Alternative	Images that do meet our technical quality standards for reproduction, but are not published because they are not taken in our standardized way, for example, with a different colored background. Images that no longer meet our technical quality standards are defined as 'documentary'.

Detail	Details of objects on both the front and the back, for example, a figure or a scene somewhere in a painting, an exhibition sticker on the back of a frame. Also used for separate/loose parts of an object that are not individually numbered, for example, loose documents inside a folder where only the folder has been numbered. Note: details and markings that relate to the making of the object, such as signatures and maker marks, have their own category: 'marks and signatures'.
Groups	Images of multiple individually numbered objects photographed together. Note: if there is an overall number with sub-numbers, for example, BK-NM-123 and BK-NM-123-A & BK-NM-123-B, the group shot will be the preferred image for the overall number and will also be added as a category 'groups' image with the individual objects.
Framed	Front side of a framed painting. Note: the back of a framed painting is categorized as 'back'.
Perspective	Angles/perspectives of the complete 3D object(s) as described under that object number in Adlib (can also be a dinnerware service set in a main number).
Inscriptions/Marks	Images of details on the object related to the making of the object, such as signatures, marks, stamps etc. All other details go into the 'details' folder.
Spread	Only used when integrally photographing a full album or book and only kept with the main number—not the sub-numbers. Images are taken for each spread or per album page if the condition of the album does not allow a full spread. Use sequential numbering (-02, -03 ect.) to make sure the sequence of the spreads correspond with the actual sequence of the spreads in the album.
Documentary	All images (from all categories) that no longer meet our technical quality standards and/or that no longer show the object in its current condition. Scans of analogue images of the object are also categorized as documentary.
Restoration	Any images that document a restoration, before during and after, also UV shots, raking light etc.
Object documentation	Images that are not of the object itself but are related to the object and cannot be kept anywhere else (for example, with the Research Services department). An image of a third party historical photograph showing a costume worn by someone or a pdf file documenting tiles would be examples of these objects.
Tiles	A series of partial images of an object that were systematically taken and can be pieced together to show the full object. All images in a set must have a set number documented in the IPTC field caption the following way: set _001, set_002, etc. A pdf file is made that shows all the tiles and the way they fit together.

LEGEND



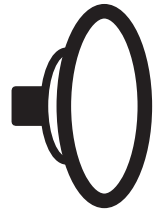
camera



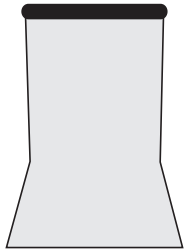
softbox backlight



reflector



beauty dish



background



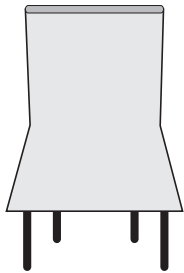
softbox sidelight



snoot



beauty dish with grid



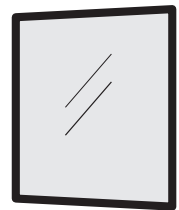
background table



softbox



reflector with
barndoors



perspex/tracing



tripod



striplight



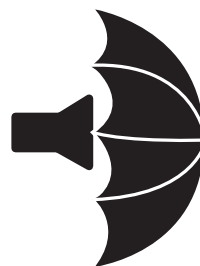
reflector with
barndoors and grid



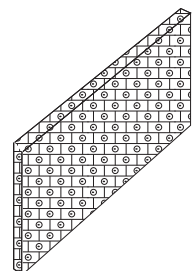
light absorbing
board



Basic light



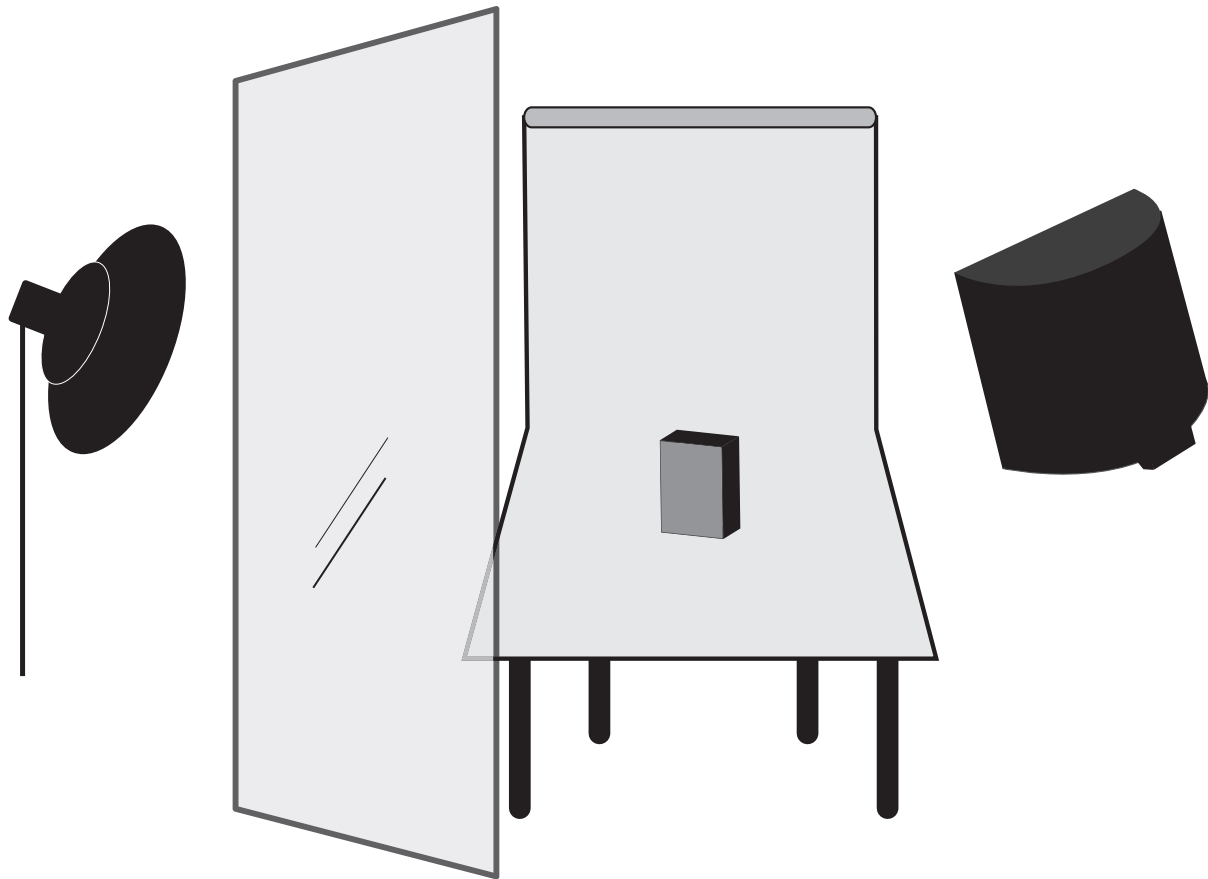
reflector with
umbrella



light reflection
board

COLLECTION PHOTOGRAPHY

BASIC LIGHT SETTING



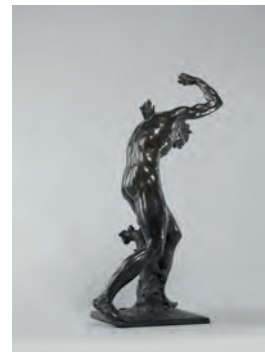
- Main light on the left; somewhat in front of and above the object.
- The shade on the right side is lighted by a softbox or reflector depending on the material being photographed.
- Place tracing paper between the main light and the object in most of the lighting setups.
- This basic setup is the foundation which can be suitably tailored for the specific object.
- Examples of this setup are shown in illustration and, if needed, they include additional text.

Sculptures

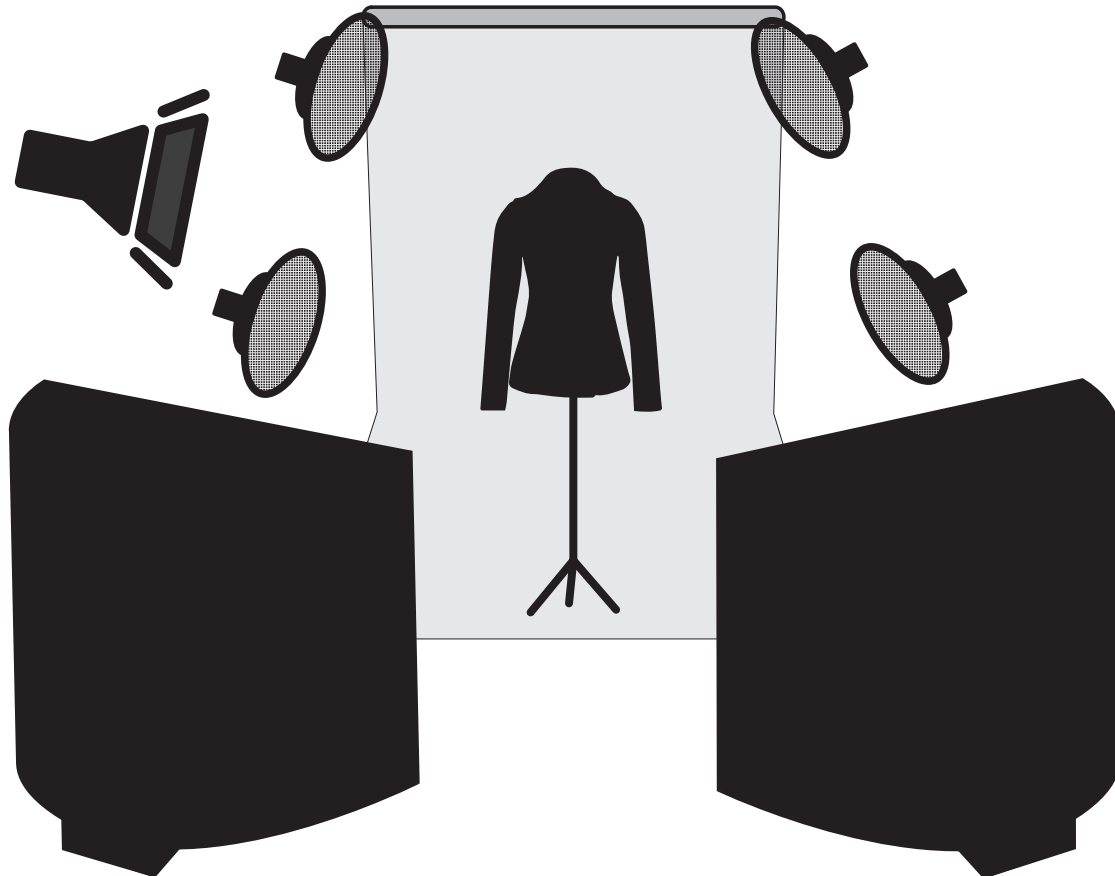
- Preferred image: perpendicular from the front, slightly turned to left.
- Perspective: all sides and from another angle if desired.
- Details: signatures and stamps if present and if desired. With wooden sculptures look for residual paint and grounding material.



BK-2015-2



COSTUMES



- A large silver reflector can only be used to photograph the front side of long dresses made of light-colored textile.
- A standard reflector with BarnDoors and grid is almost always used for the details and the perspective photographs (from behind and from the side).

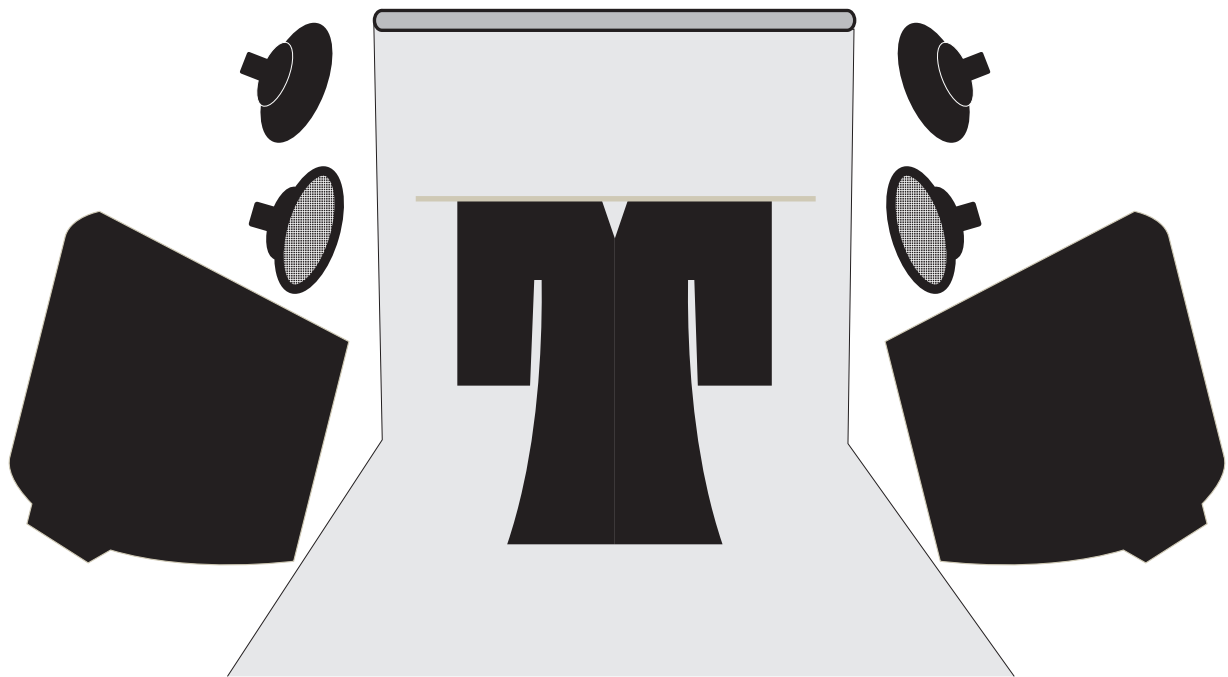
Costumes

- Preferred image: perpendicular from the front.
- Perspective: perpendicular from the rear and side.
- Details: one or more images clearly showing the fabric, stitching and any pattern.



BK-14581

KIMONOS



- Hang the kimono as far away from the background as possible.
- Two beauty dishes aimed at the background for even lighting.
- Soft boxes instead of reflector because soft box light is easier to control.



- Preferred image: perpendicular from the front.
- Perspective: rear side side.
- Details: one or more images clearly showing the fabric, stitching and any pattern.

ACCESSORIES

Hats

- Preferred image: positioned diagonally.
- Perspective: other view if desired.
- Details: if desired.



BK-1993-54

Shoes

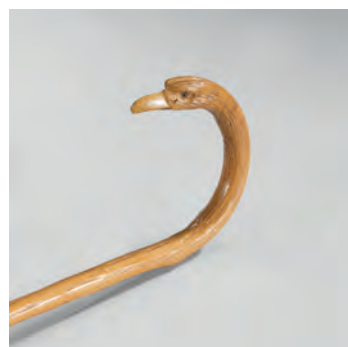
- Preferred image: both shoes, if present; the right shoe at three-quarter perspective with the left shoe further back, complete side view, heel showing. All sides of the shoe pair visible in one image.
- Perspective: other view if desired.
- Details: if desired.



BK-1973-510-A and B

Umbrellas/parasols

- Preferred image: opened and diagonal with handle in the lower right. Image from a lowered perspective so that the inside in the back is visible.
- Perspective: closed lying flat, from above with handle in the upper right and the end in the lower left.
- Details: if desired.



BK-16453

Spectacles

- Preferred image: diagonally from above, if spectacle case is present: to the left somewhat behind spectacles, pince-nez perpendicular from above.
- Perspective: other aspect if desired, pince-nez folded in.
- Details: if desired.



BK-KOG-1669-A

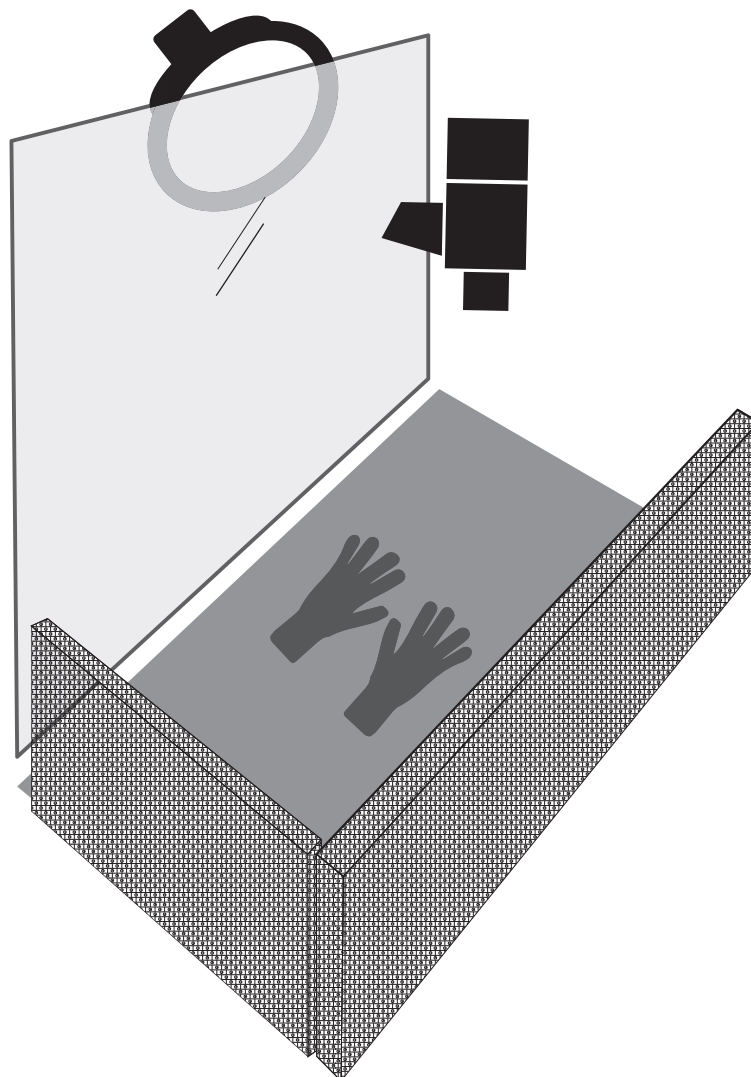


BK-1978-430-B



BK-1970-16

TEXTILES & ACCESSORIES (FLAT)



Gloves

- Preferred image: perpendicular from above, in pairs if available, the top with ornamentation and thumbs visible if possible.
- Perspective: perpendicular from above, image of hand palm side, thumbs towards each other.
- Details: if desired.



BK-1984-159-3-A and B

Fans

- Preferred image: opened, perpendicular from above.
- Perspective: rear side, closed and in the fan case if present, closed and opened, positioning see fan cases.
- Details: if desired.



BK-TN-2191-A

Fan cases

- Preferred image: diagonal from above, from upper left to lower right.
- Perspective: opened if desired.
- Details: if desired.



BK-TN-3349

Handbags

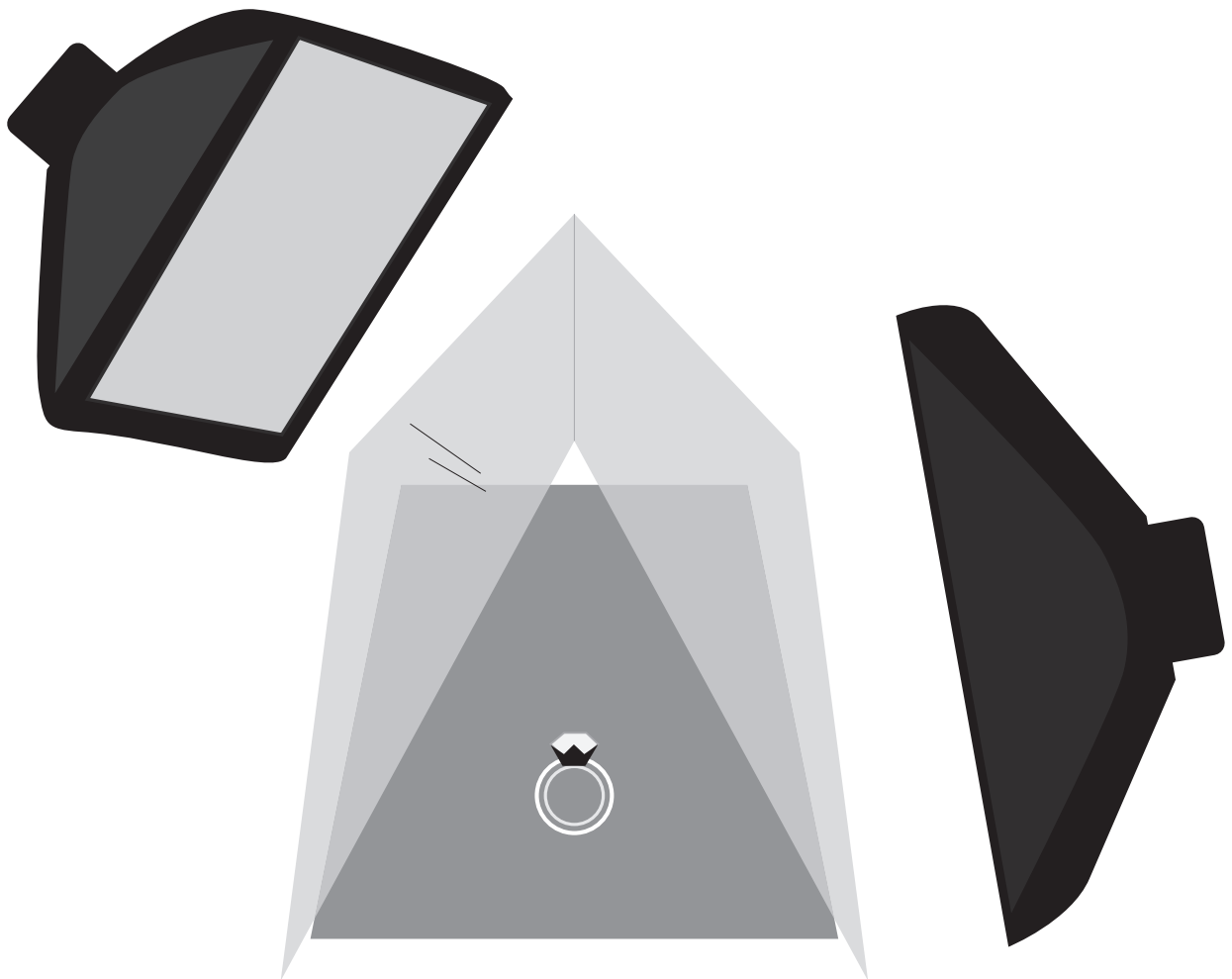
- Preferred image: front side perpendicular from above with handbag handle draped above.
- Perspective: rear side perpendicular from above, handle draped along the handbag.
- Details: if desired.



BK-1992-42



JEWELRY



- Build a tent with tracing paper.
- Softbox on the lower right to soften shadows.
- Reflector with grid as fill light to illuminate the gemstones if they are part of the object.
- From the front and back, if needed place a light reflector board to close the tent some more.



BK-NM-7964

Rings

- Preferred image: somewhat inclined from above so that the depth of the object is visible.
- Perspective: image (top view).
- Details: if desired.



BK-16589

Chains, pendants, brooches

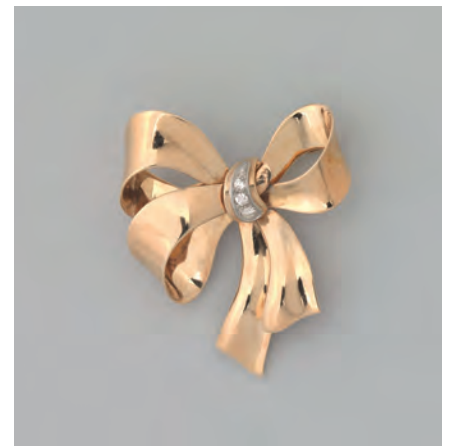
- Preferred image: perpendicular from above.
- Perspective: image of rear side and sides if desired.
- Details: signatures and stamps if present.



BK-2010-2-387



BK-1977-246



BK-2010-2-223

Earrings

- Preferred image: perpendicular from above, in pairs if available.
- Perspective: image of rear side.
- Details: if desired.



BK-NM-12897-C

Bracelets

- Preferred image: depending on the form perpendicular from above or somewhat inclined above so that the depth of the object is visible. If part of a set, include.
- Perspective: image top view.
- Details: if desired.



BK-2010-2-221



BK-2010-2-114



BK-NM-12886-B

Set

- Preferred image: perpendicular from above.



BK-NM-12886

Watches (clockwork, internal case and external case)

- Preferred image: perpendicular from above and depending how it is worn.
- smooth external case: side with winder is preferred image.
- Decorated external case: side with decoration is preferred image.
- Perspective: rear side all scenes on the sides of the external case, if decorated: the same for the internal case, opened with a view of the clockwork.
- Details: if desired.



BK-NM-12834



BK-NM-636



Buckles

- Preferred image: perpendicular from above, in pairs if available.
- Perspective: image of rear side and sides if desired.
- Details: if desired.



BK-NM-7958

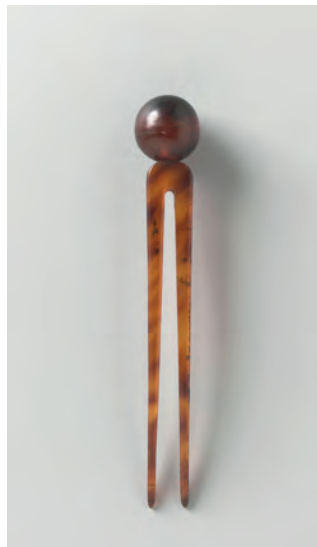


Combs, stickpins and hairpins

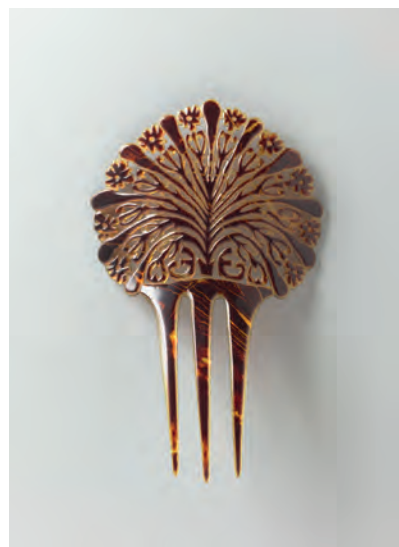
- Preferred image: perpendicular from above with comb or pin pointing down.
- Perspective: image of rear side if desired.
- Details: if desired.



BK-2016-4

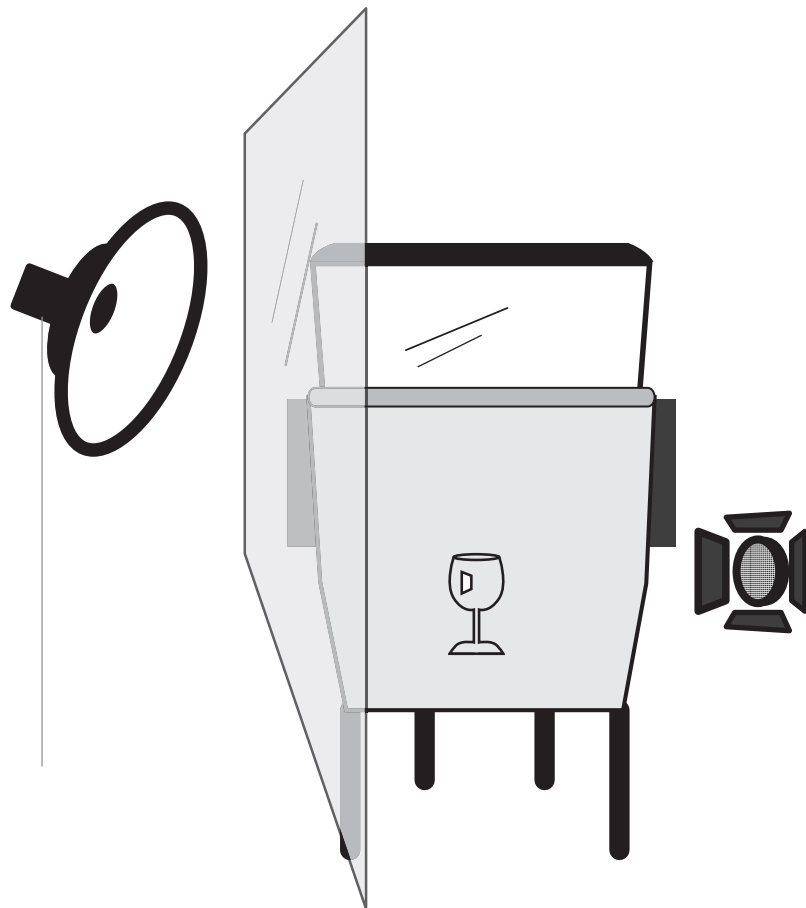


BK-1978-439



BK-1975-443

GLASS



- Have the background graduate low for a tapering of light and improvement of the legibility of the engravings.
- Softbox behind the object.
- Black paper behind the background prevents softbox light from shining through the background.
- Open lamp with grid aimed at the engraving.
- Drape backlighting.
- Take several shots. The light intensity of the left beauty dish remains the same, vary with the softbox. The open lamp with grid is adjusted using several light intensities.
- Merge the diverse images together in Photoshop.



CERAMICS

Cups, bowls, pots, goblets, pitchers, glasses, etc.

- Preferred image: a frontal angle which allows for a bit of the upper part of the object to be seen and the upper edge is readable.
- Perspective: several angles are needed if a running engraving, signature or decoration is present.
- Details: a photo from above should be taken if the inside contains any decoration or text.



AK-NM-13766



Teapots



AK-NM-6580



- The handle or ear of crockery is always positioned on the right side with the preferred image.

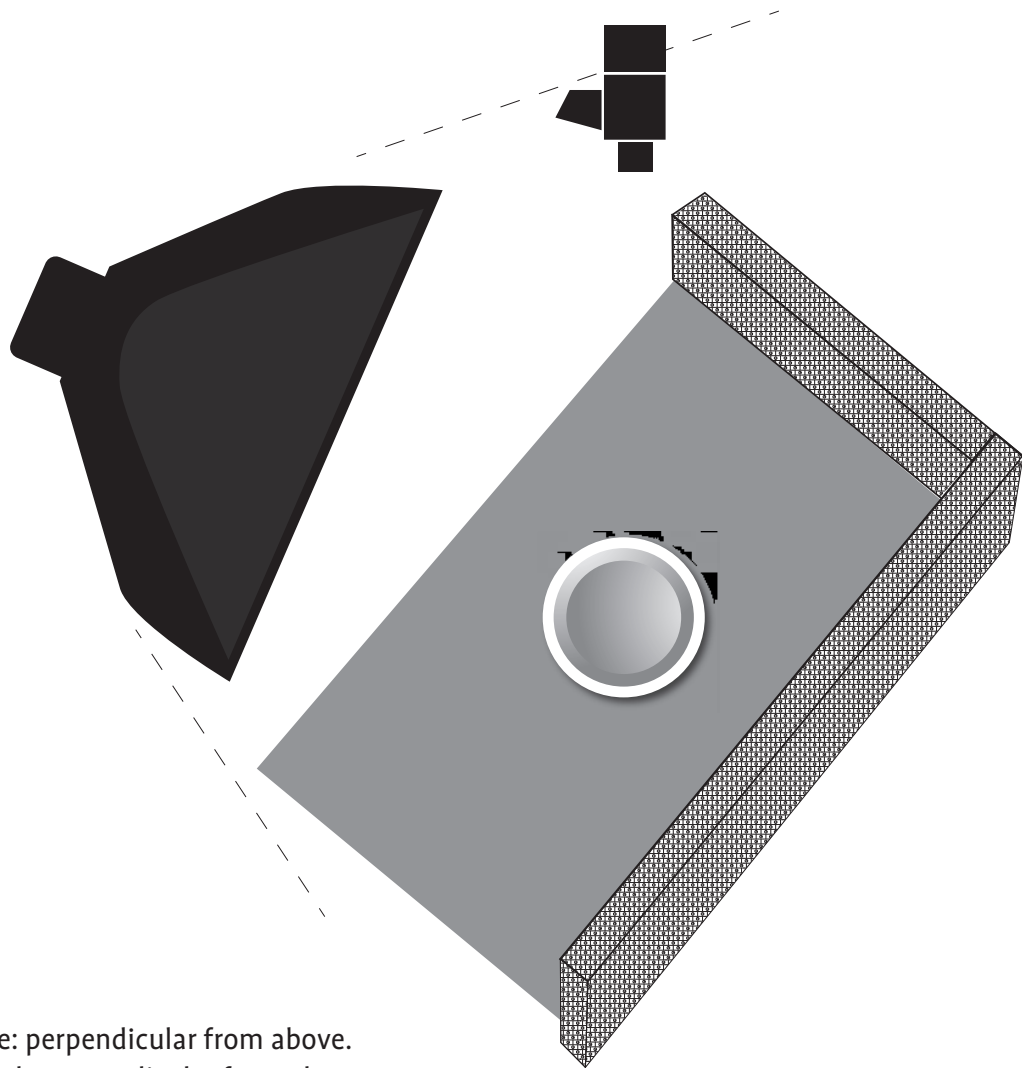
Groups



BK-1974-80

- A group photo is also made of interconnected couples or servings.

PLATES



- Preferred image: perpendicular from above.
- Perspective: back, perpendicular from above.



AK-RBK-14801



Coins and medallions

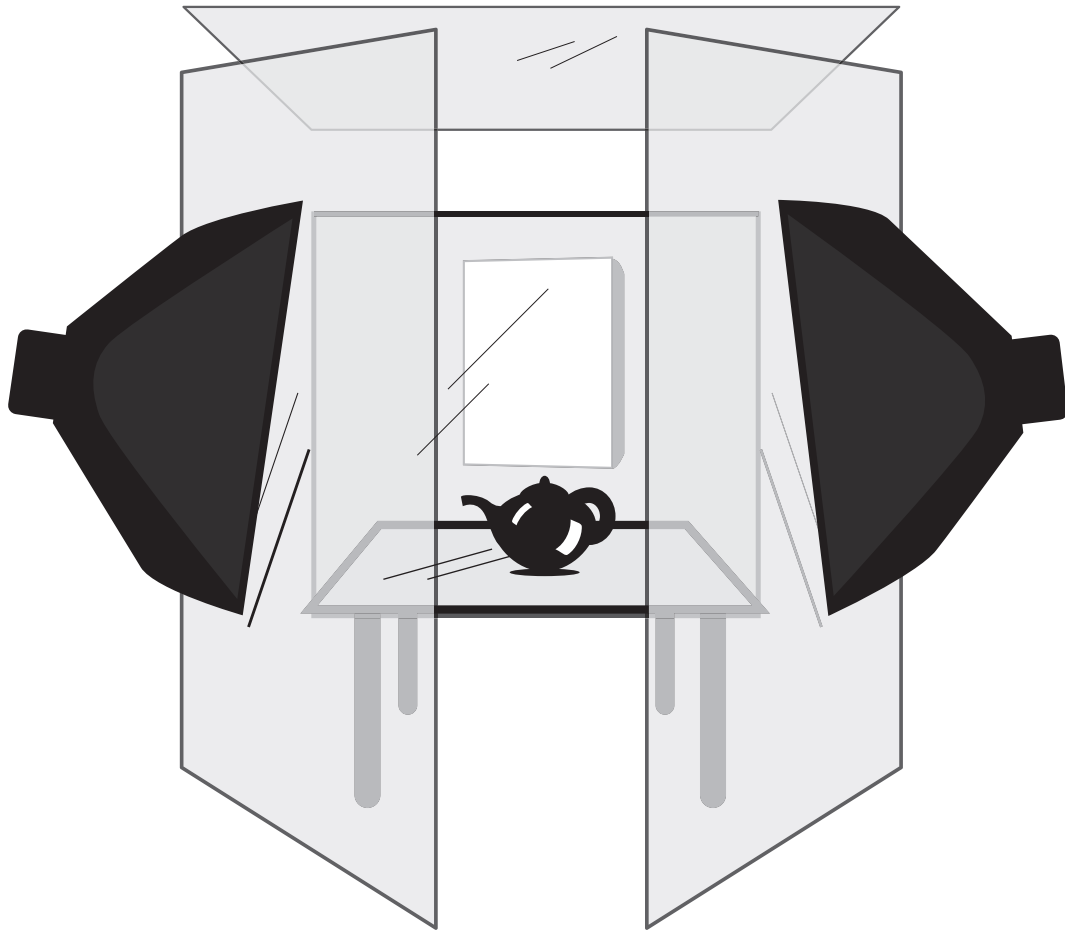
- Preferred image: perpendicular from above.
- Perspective: back, perpendicular from above.



NG-NM-7747



SILVER



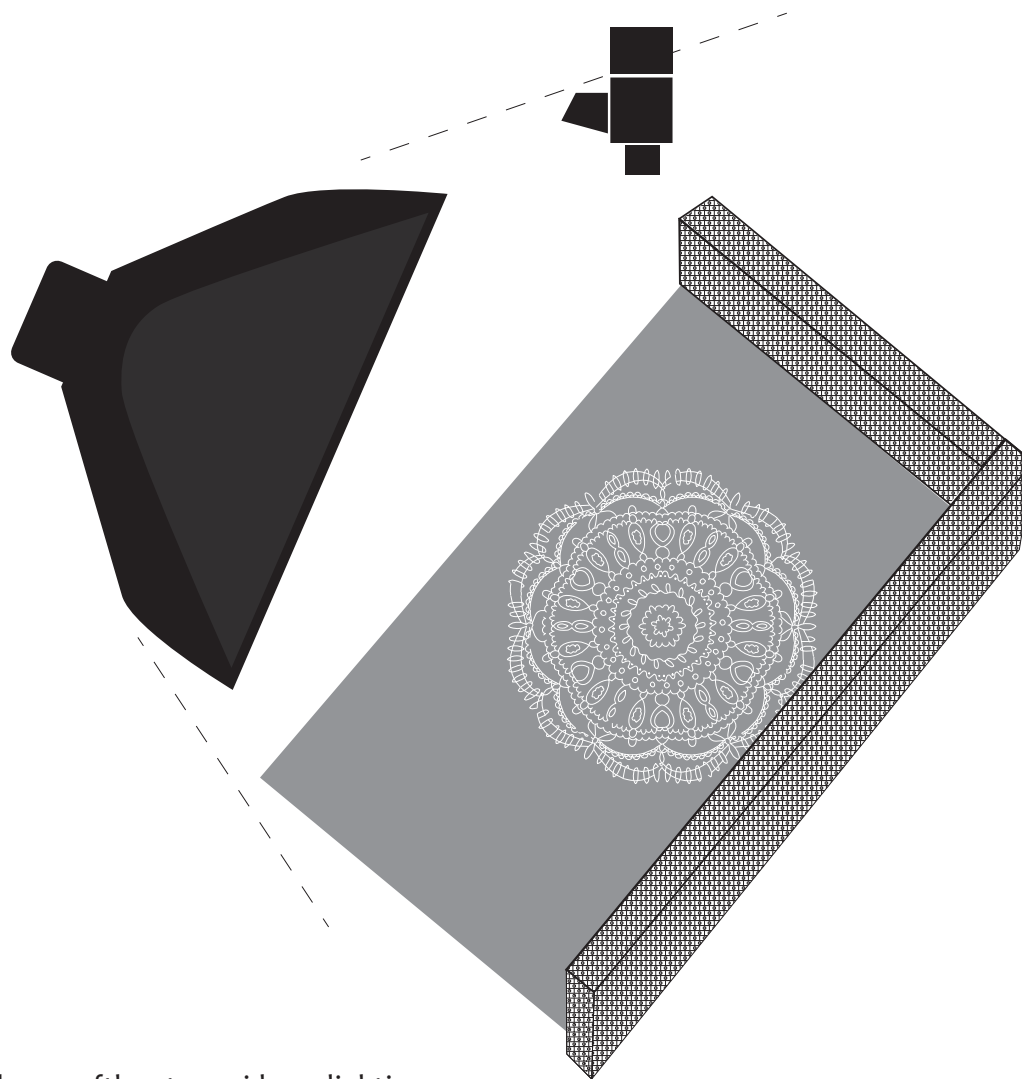
- Use light transparent opal Plexiglas instead of tracing paper.
- Light it from the sides with softbox, striplights or a beauty dish. The shape of the object determines the choice of light source.
- The Plexiglas background is lighted behind the object with a softbox to separate the object from the even background.



BK-1973-158



BK-1989-13



- Use a large softbox to avoid overlighting (clipping) with shiny material.

Flounces, ribbons and scarves

- Preferred image: the end of the flounce, in large format and in its entirety with smaller format, such that the workmanship is visible.

or

- Preferred image: middle section folded such that both ends are visible (less suitable for lace for which the technique must be properly visible).
- Perspective: image of rear side if desired.
- Details: pattern.

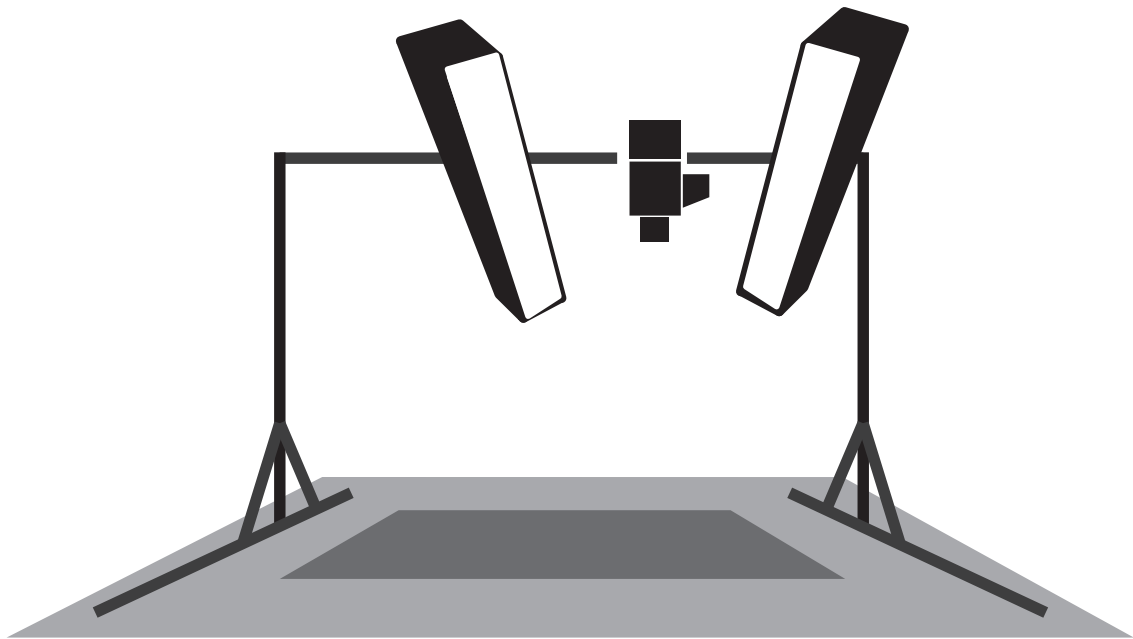


BK-14630



V-15016

CARPETS, wall hangings, sheets, flags and other large textiles



The platform is adjusted for large flat objects, usually large textiles. The object is photographed in tiles. The whole frame can move forward and backward; the bar holding the camera moves from left to right.

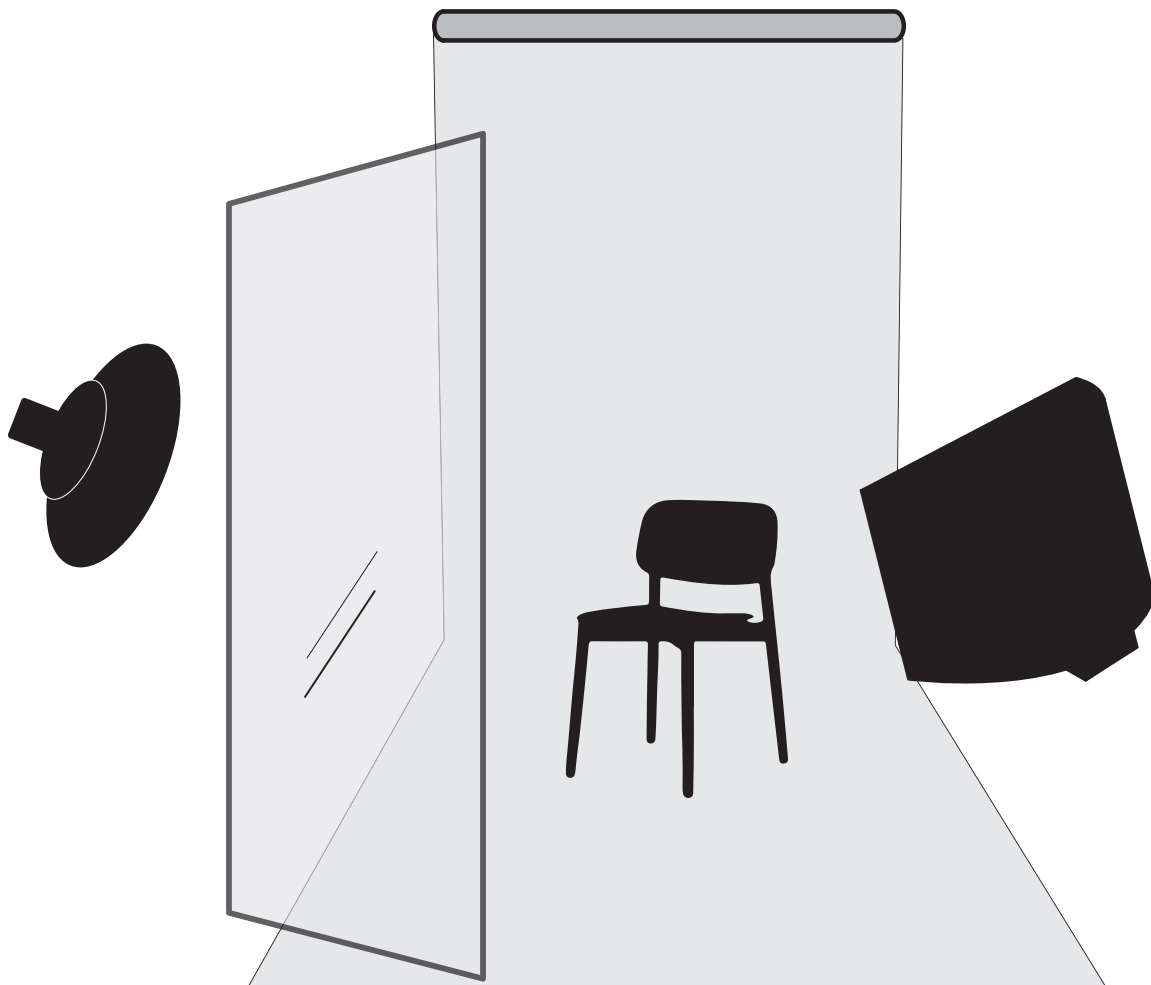
- Non shiny textiles: striplights mounted directly on the part of the frame where the camera is situated.
- Shiny textiles: use softboxes to evenly light the surface in one go.
- Take images with 50% overlap and stitch them together in Photoshop.

-
- Preferred image: perpendicular from above.
 - Perspective: rear side, if the condition of the material permits.

- Details: if desired.



BK-18882

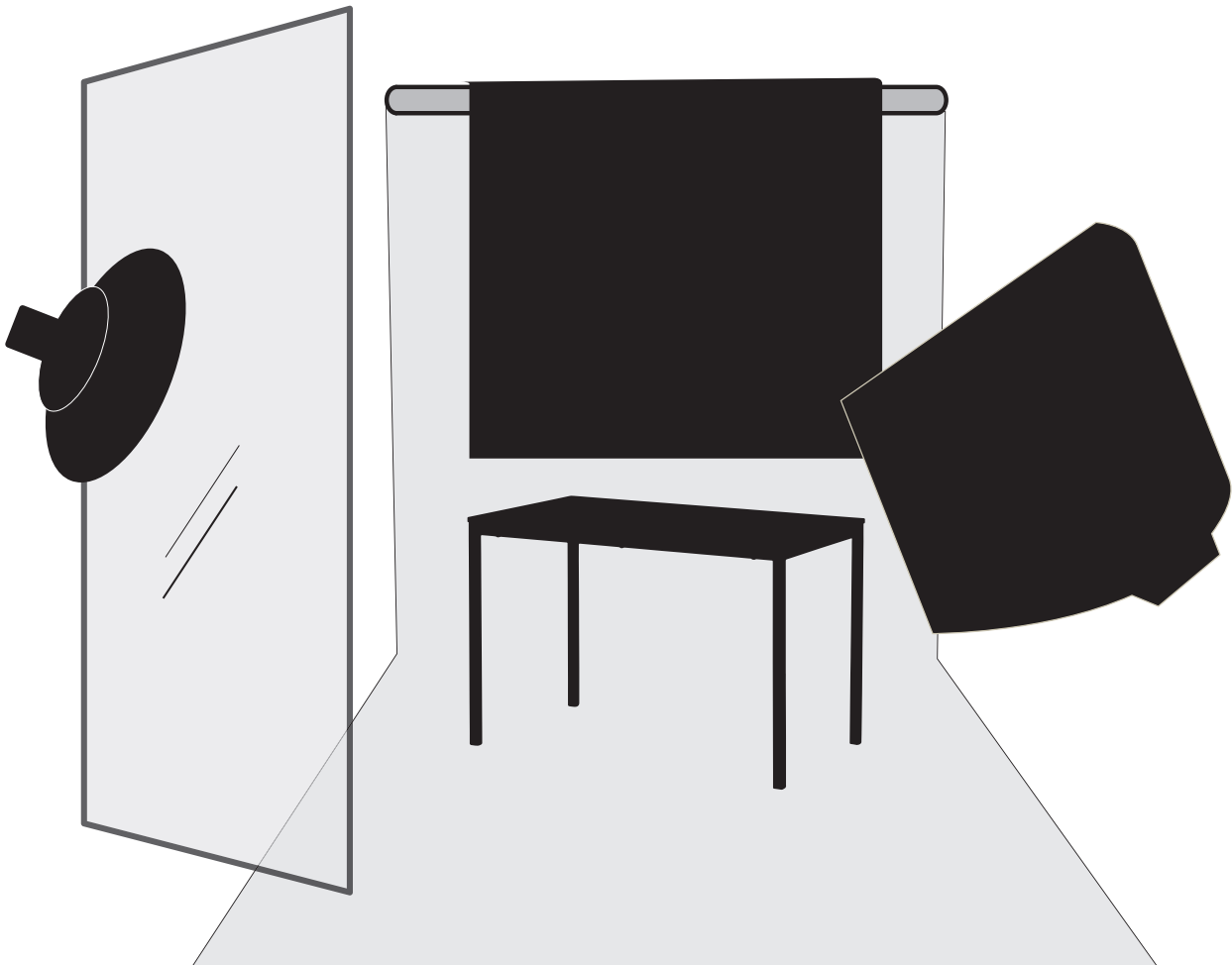


- The basic lighting setup with fill light from the right using a softbox or an umbrella is used for furniture such as chairs.



- Preferred image: usually positioned diagonally with the seat towards the left (toward the light) and the backrest towards the right.
- Perspective: at least on view diagonally from behind.
- Details: if desired.

Tables and desks

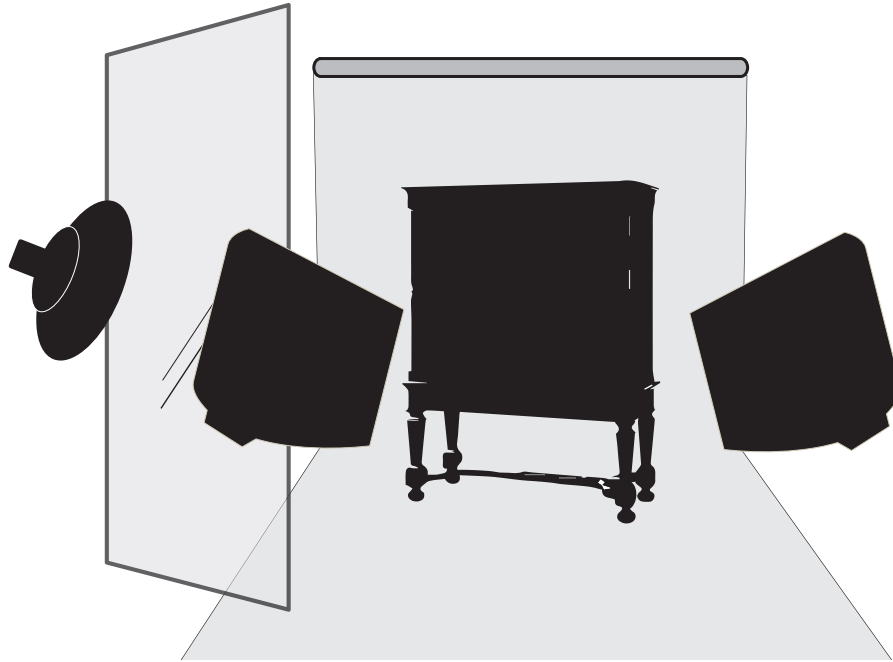


- Use a black cloth to counteract the reflection of the light background paper.
- Two images: Once with and once without the black cloth; merge these images together in Photoshop.



- Preferred image: positioned diagonally such that all legs are visible. A minimum of 1/3 of the top side is visible with the shorter side towards the right.
- Perspective: top view opened with drawers if present, if desired, or if application.
- Details: if desired.

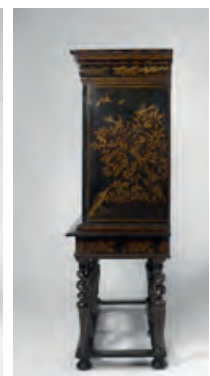
Cabinets and storage furniture



- Add a softbox to the left side of the camera for large cabinets.
- To prevent light reflection from the background and floor, partially cover them with a black cloth, -paper or -cardboard as needed and make

a second image. Merge the images together in Photoshop.

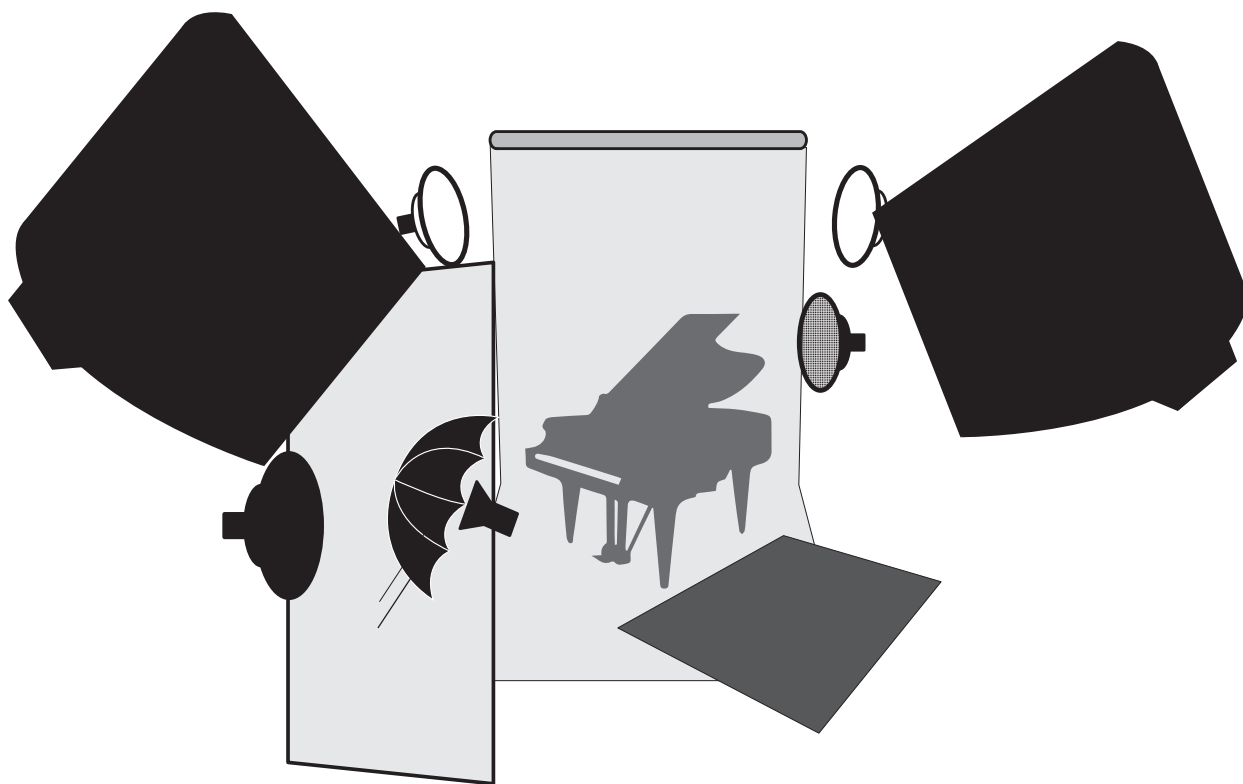
-
- Preferred image: positioned diagonally with the shorter side on the right side.
 - Perspective: various views; side and rear side, with opened doors and/or draws if present.
 - Details: if desired.



BK-1985-25

MUSICAL INSTRUMENTS: keyboard instruments

For further information on photographing musical instruments, please refer to the digitization standards formulated by MIMO (Musical Instrument Museums Online): *Definition of Scanning Properties and Recommendations for Photographing Musical Instrument*'.

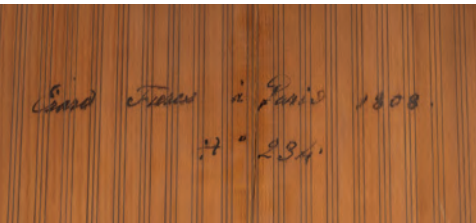
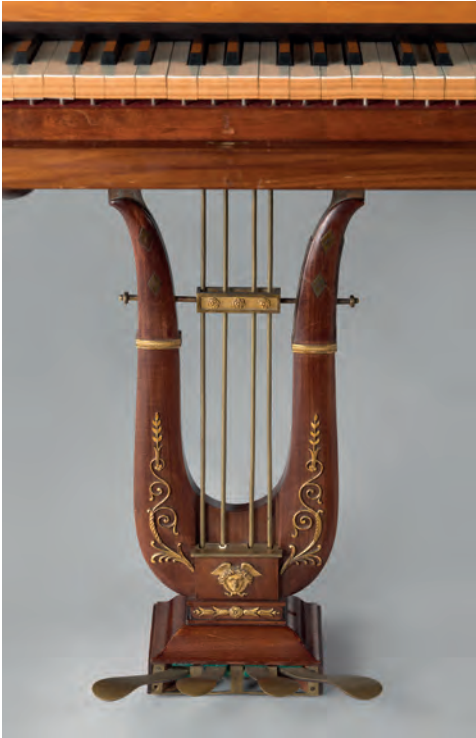


- Two dishes in the back to create an even background.
- Use a black cloth/"flag" to get rid of reflections.
- Use white reflection screens to lit up some details.
- If necessary create one image in Photoshop out of more shots.

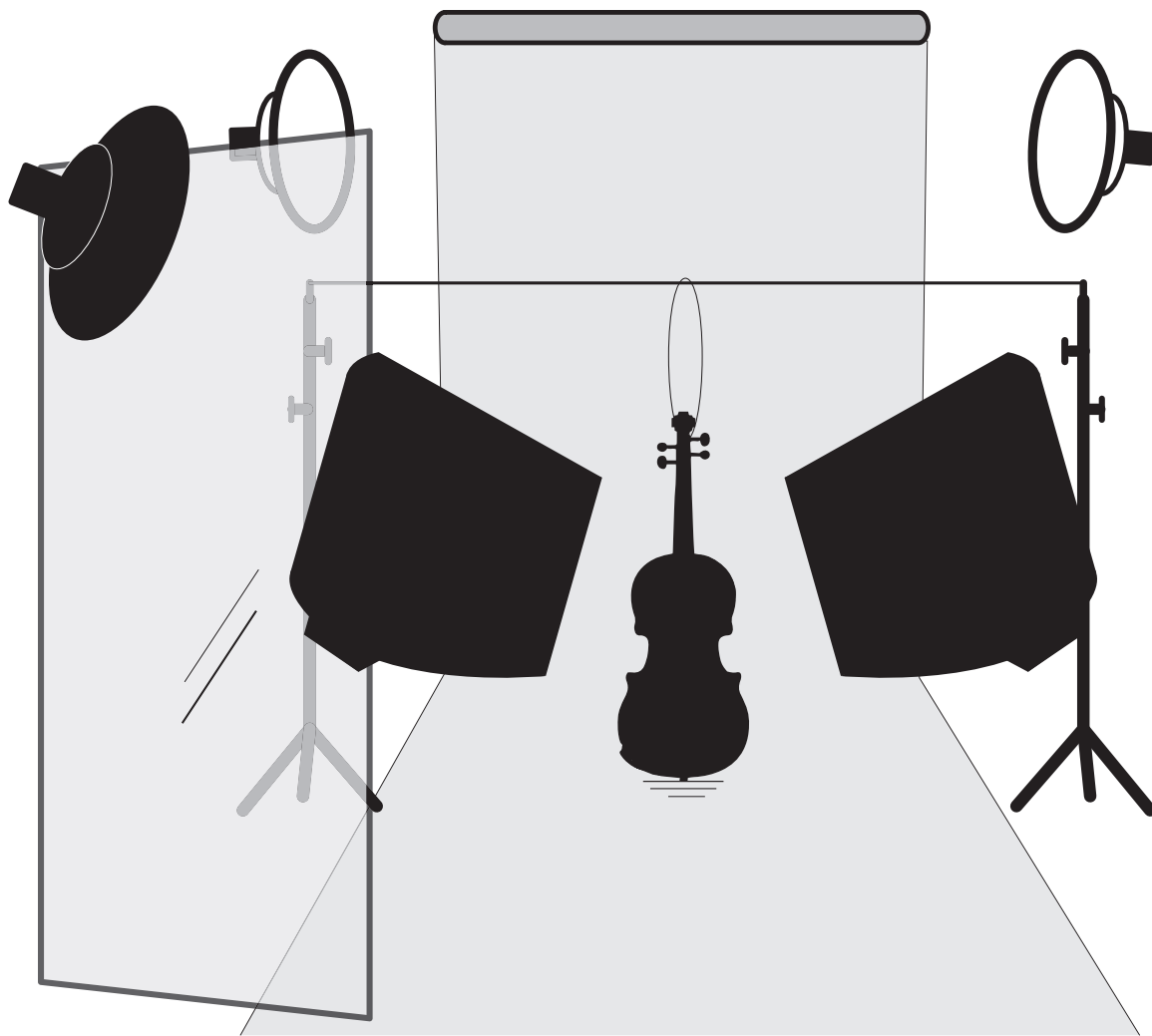
- Preferred image: positioned diagonally, with lid opened.
- Further angles and detail photos are desired (See next page).



BK-BR-589-A



STRING INSTRUMENTS



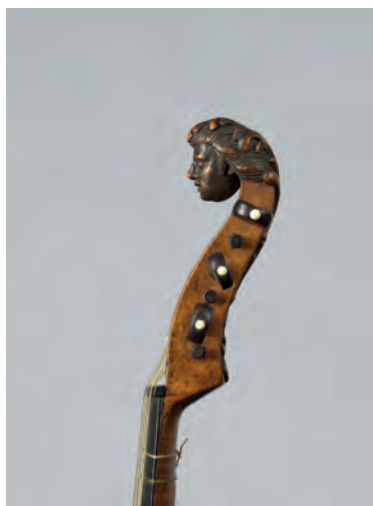
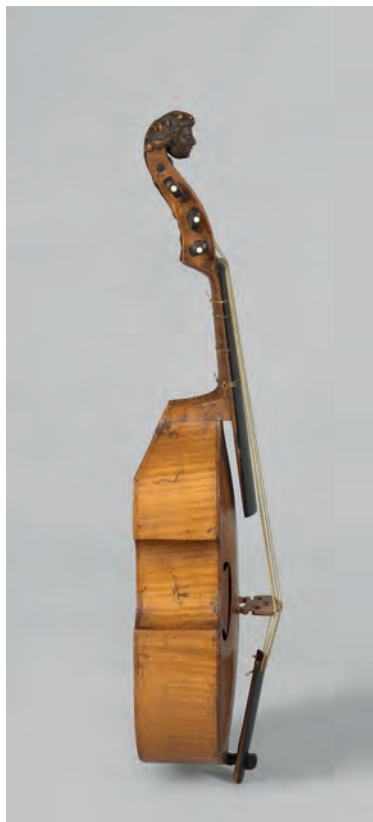
- Two dishes in the back (other flashlights possible) to create an even background.
- Use a (foba) frame to position the object with thick nylon and let it rest on the background.



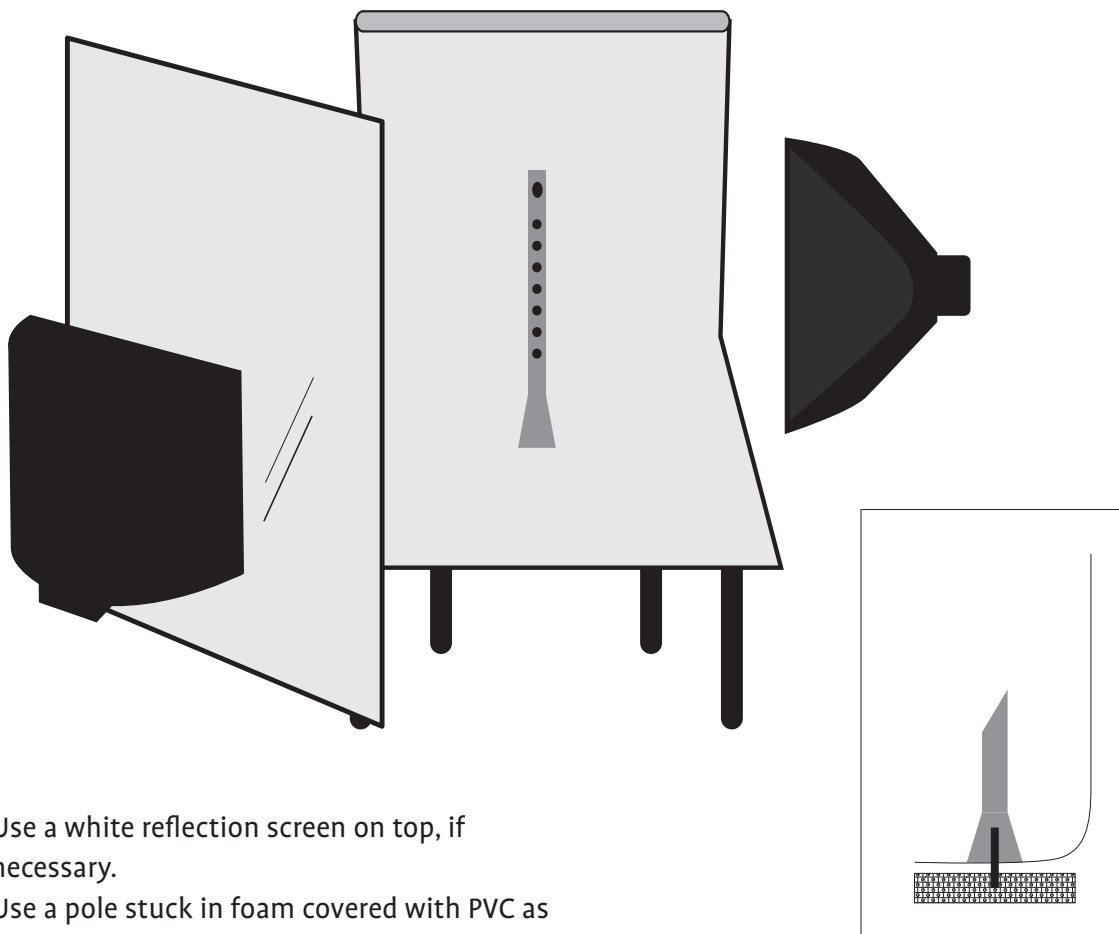
BK-KOG-1347-C

Violins, cellos, etc.

- Preferred image: Standing in frontal position (See previous page).
- Further angles and detail photos are desired.



WIND INSTRUMENTS



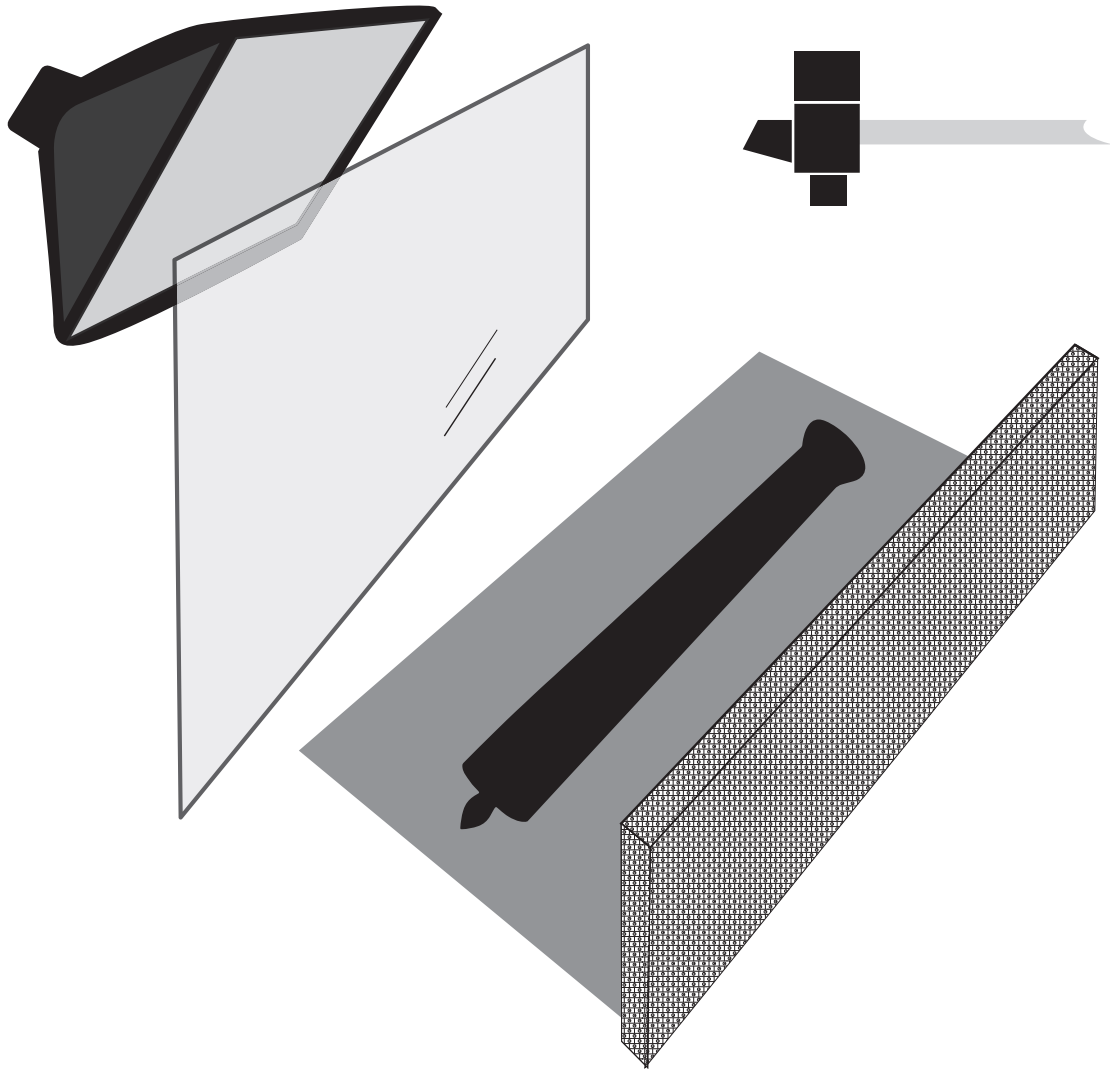
- Use a white reflection screen on top, if necessary.
- Use a pole stuck in foam covered with PVC as a standard, to place the object in an upright position.

- Preferred image: Standing in frontal position.
- Further angles and detail photos are desired.



BK-NM-11430-109

OBJECTS OF MILITARY HISTORY: Cannons without undercarriage



- The camera is suspended above the object for the sides; the cannon is turned for different images.
- Place the camera under a 45-degree angle in the same lighting setup for perspective images.
- Use the same lighting setup for details.
- The same lighting setup as the basic arrangement is used for cannons with a carriage.



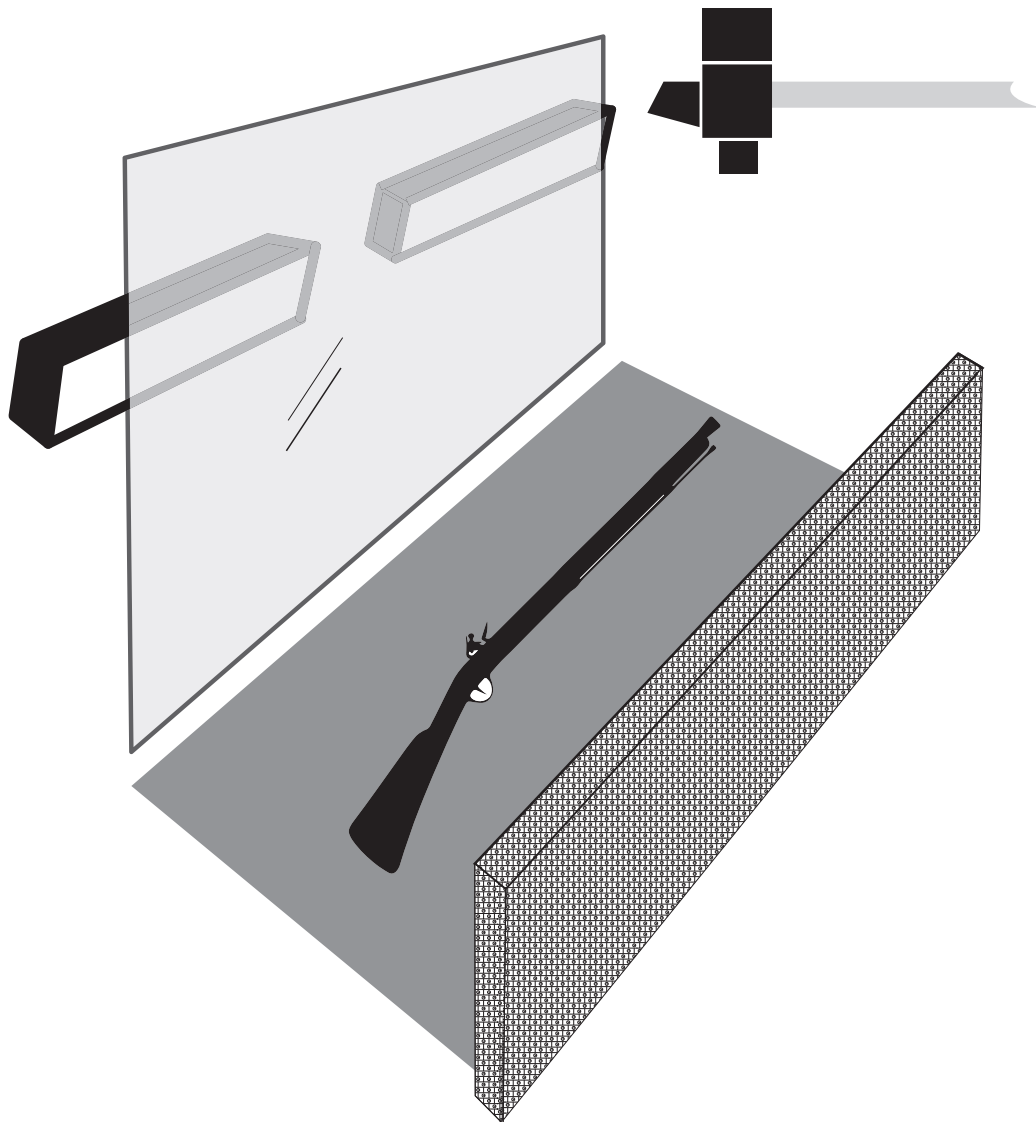
NG-NM-10379

Cannons with a carriage

- Preferred image: diagonal position with the barrel pointing to the right.
- Perspective: downside of the object in diagonal position with the barrel pointing to the right.
- Details: marks and/or inscriptions if present.



NG-2000-32-A



- Preferred image: perpendicular from above with the barrel pointing right. With pairs of weapons, one positioned above the other with the barrel pointing right while the one positioned below has the barrel pointing left. For both options: The weapon is half-cocked and the gunlock is closed.
- Perspective: mirrored to the preferred image. For both options: The weapon is half-cocked and the gunlock is closed.
- Details: pay attention to decorations, ornamented cock, stamps if desired.



NG-2002-23-125-00



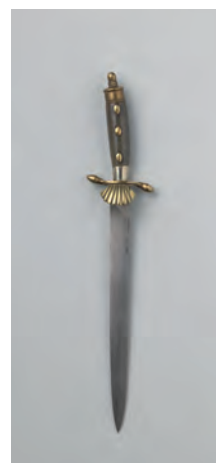
NG-2002-23-123-A



NG-KOG-838

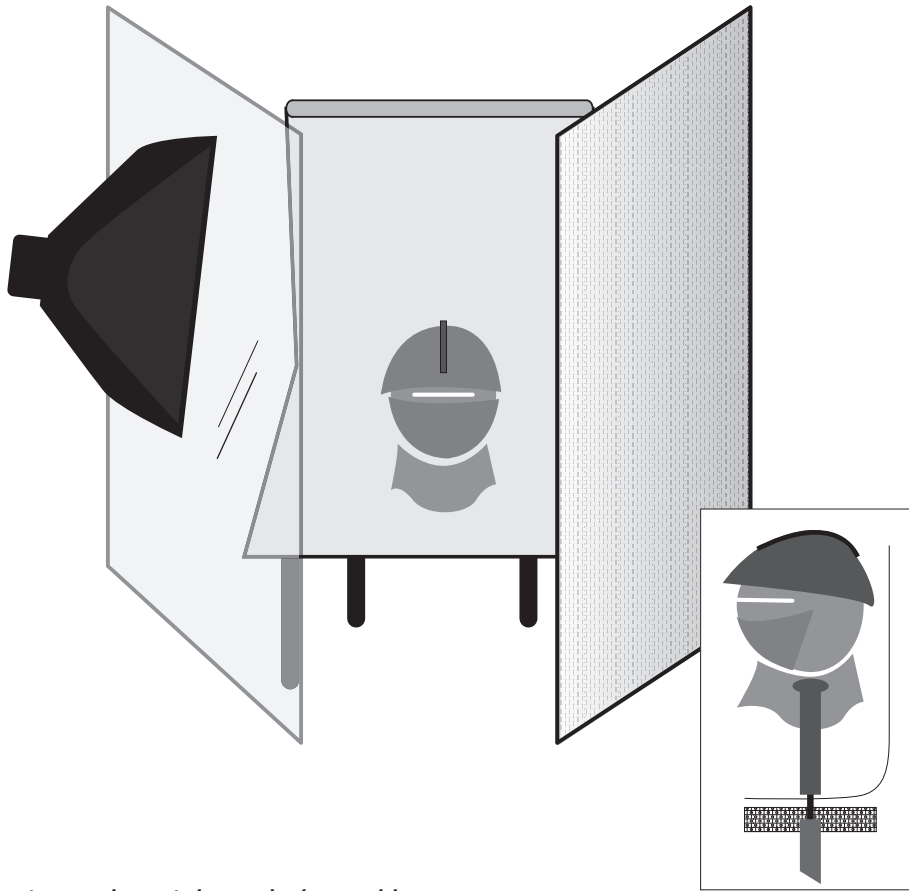
Swords, lances and daggers

- Preferred image: perpendicular from above, vertically positioned, with the handle above and turned towards the left. Preferably the entire object. If present, the sheath on the left in the image, to the right of the weapon.
- Perspective: perpendicular from above, in the sheath if present.
- Details: blade if present, decorations and stamps.



NG-2002-70

HELMETS



A helmet is situated straight up bolstered by support attached to the table.

Helmets

- Preferred image: diagonally to the right.
- Perspective: all four sides.



NG-1794

SHIP MODELS

- Preferred image: positioned diagonally such that the bow of the ship is pointing towards the right. Half models are photographed perpendicularly from the front.
- Perspective: positioned diagonally such that the bow of the ship is pointing towards the left. Half models do not have to be photographed in perspective.
- Details: if desired.

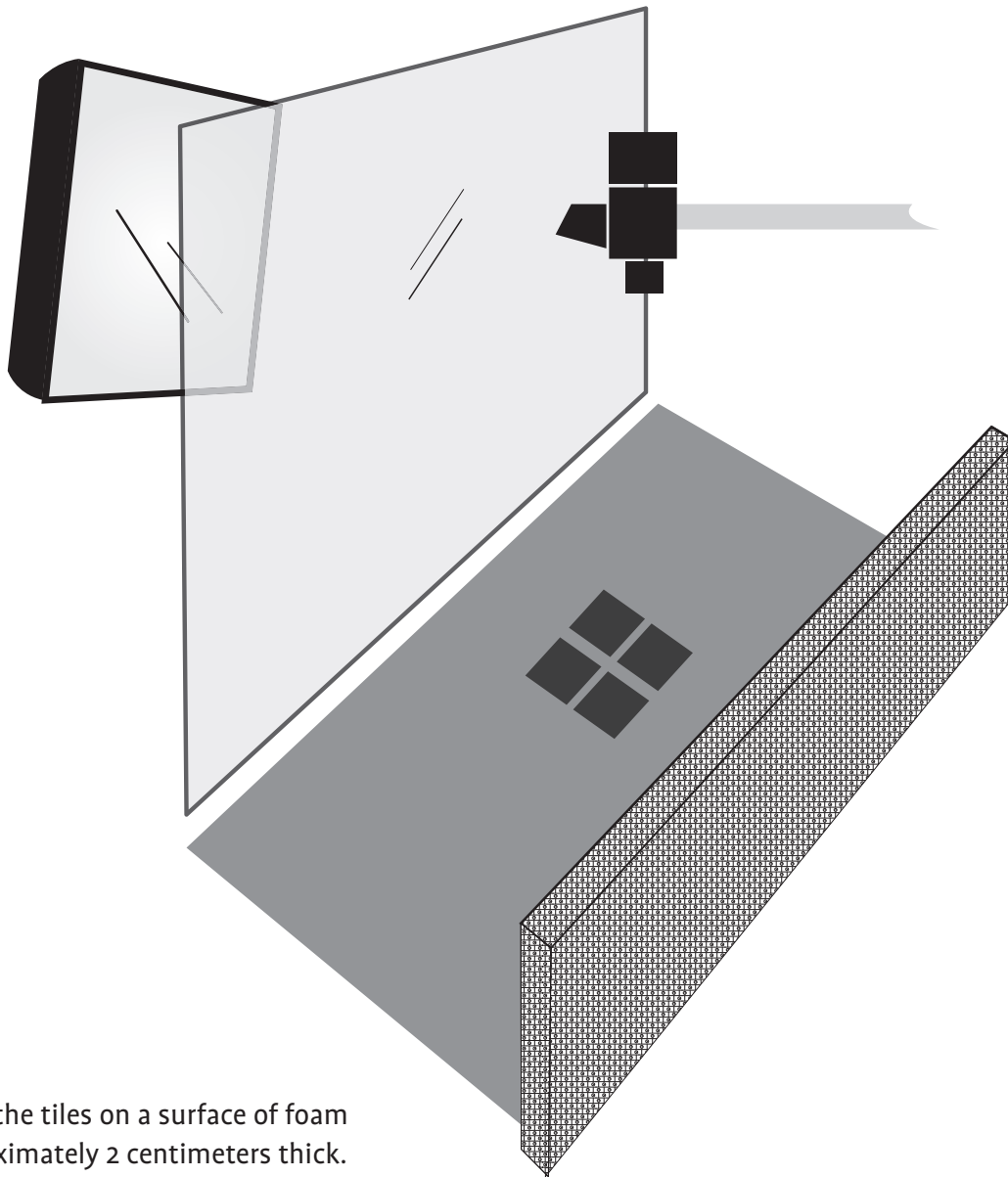


NG-NM-4163

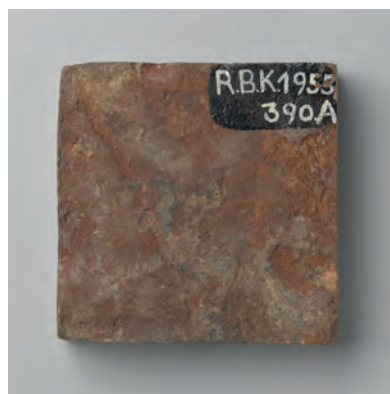


NG-mc-1272

RELIEFS, TILES



- Place the tiles on a surface of foam approximately 2 centimeters thick.
- Large reflectors ensure a very gradual tapering of light.



Reliefs, facing stone

- Preferred image: perpendicular from above.
- Perspective: back, perpendicular from above.



BK-16984-B-02



Group of tiles

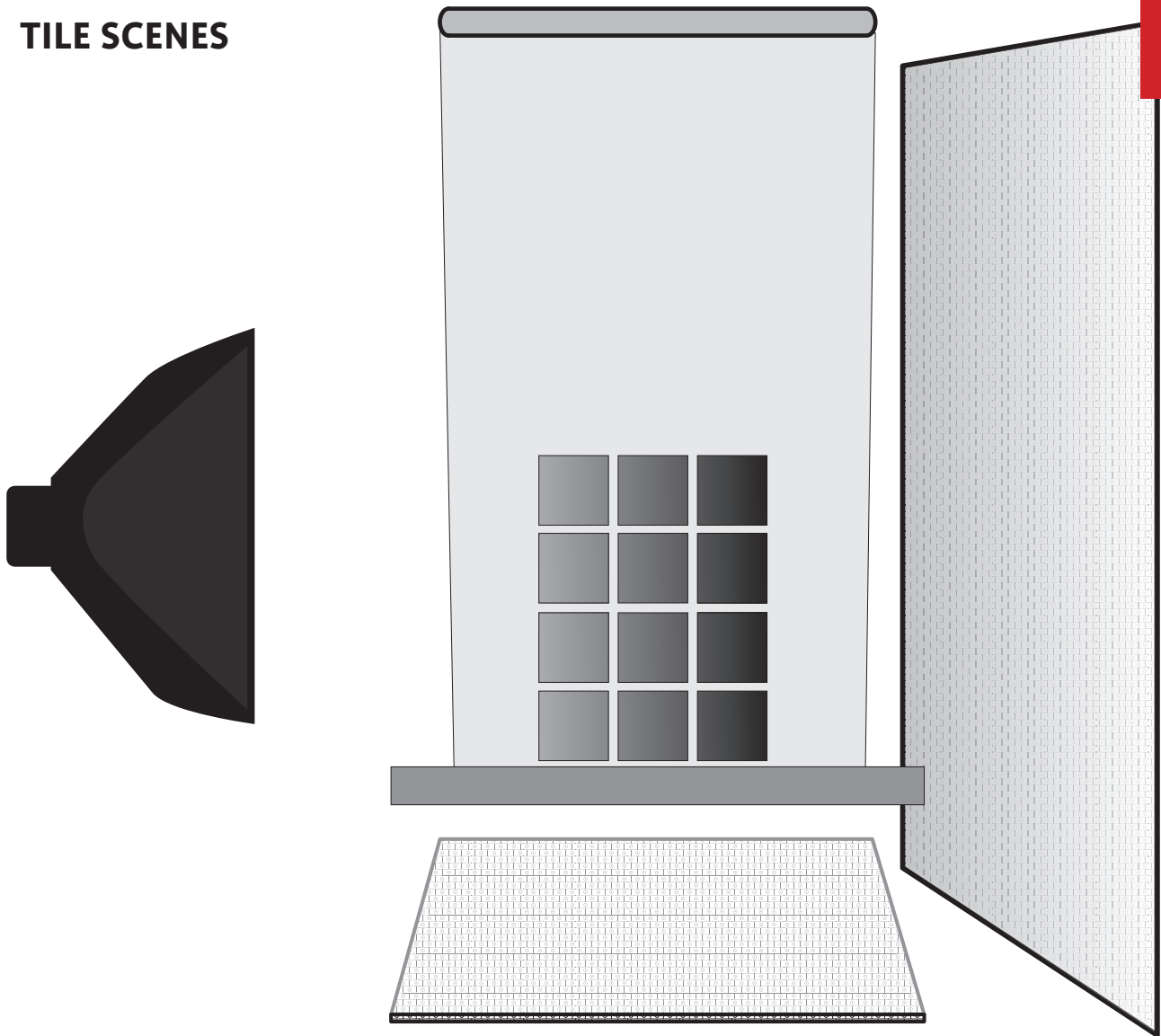
- Preferred image: perpendicular from above.
- Perspective: back, perpendicular from above.



BK-NM-12275



TILE SCENES



- The tile scenes are photographed perpendicular to the floor if possible.
- Fragile tile scenes are photographed lying on a table.
- Place the camera parallel to the tile scene.
- Place a reflector at the underside for an even distribution of light.



BK-KOG-266



COLOPHON

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