

No Small Parts: The Role of Scale Models in Theater Set Design

September 18 through November 11, 2012
A Guide to the Exhibit for Educators

No Small Parts: The Role of Scale Models in Theater Set Design includes more than a dozen scale models created by professional scenic designers for local theaters showcasing the application of miniatures for theatrical productions. The exhibit and this guide provide students the opportunity to learn about the production aspects of putting on a theatrical performance, discover career opportunities in theater beyond acting, and illustrate a practical application for miniature artwork.

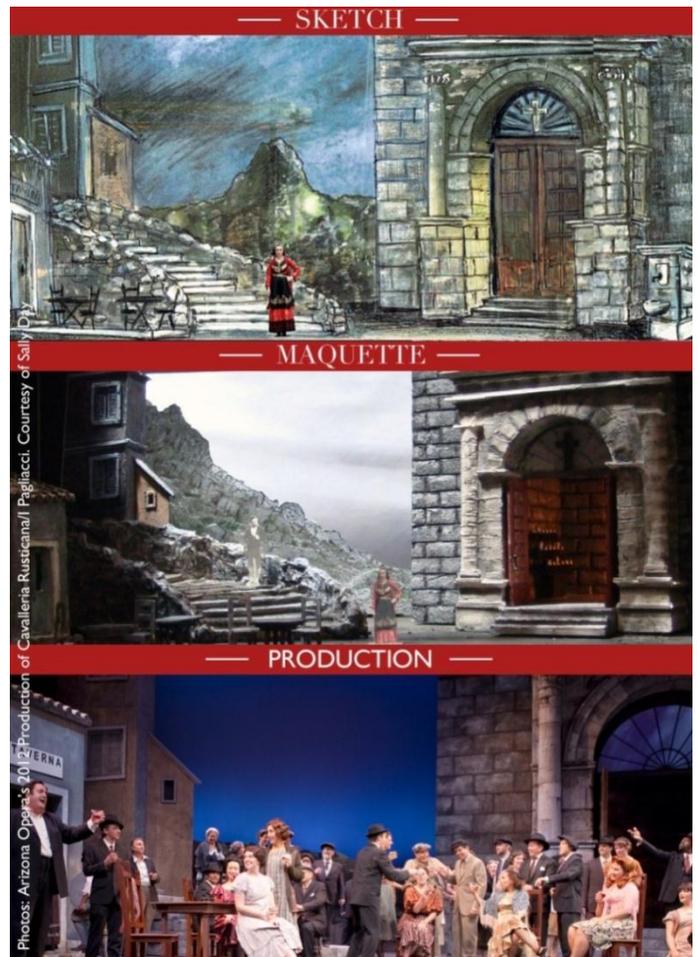
This guide addresses Arizona state education standards for theater arts, social studies, and mathematics.

To arrange a visit to The Mini Time Machine Museum contact Education Director, Lisa Hastreiter-Lamb, lisahl@theminitimemachine.org, or 520-881-0606, ext 105. Please allow one week advance notice for a self-guided tour, three weeks advance notice for a docent-led tour.

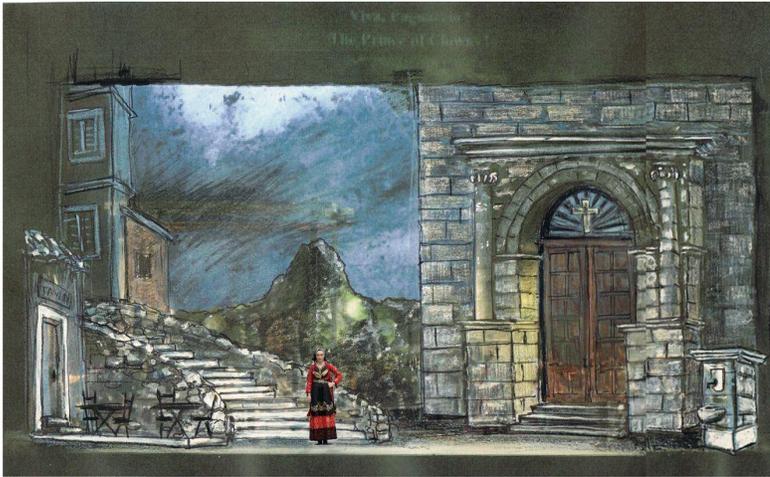
EXHIBIT OVERVIEW

Certainly a theatrical production cannot get off the ground without defining the world the actors will occupy. The job of the scenic designer is to interpret the script (under the guidance of the director) and produce surroundings for the actors that engage and captivate the audience while setting the tone, atmosphere, time frame, and location for the show. They must keep in mind what is physically and technically possible, and work within a budget. A job of such large proportion is made manageable by starting small. *No Small Parts: The Role of Scale Models in Theater Set Design* presents scenographic models of theater sets, which were created for theatrical productions in Tucson area theaters.

These tiny worlds played a big role in the development of the full-scale theatrical sets long before the audience filled the house. Each scenic designer began by creating a variety of scale drawings and several miniature scale models, also referred to as **maquettes**. In order to create a cohesive production, the final scale model, or **scenographic model**, is used by everyone involved in the show. Our museum's exhibit takes you behind the curtain, revealing beautiful miniature scenographic models created by various talented scenic designers in a variety of formats and artistic styles. Follow the development of a theatrical set by comparing the sketches, maquettes, and production photographs featured in the exhibit.



The Development of a Theatre Set



Scenic Designer Sally Day's rendering of the set for Arizona Opera's 2012 production of *Cavalleria Rusticana/Pagliacci*. Photograph by Tim Fuller



Scenic Designer John Ezell's rendering (left) and full-scale partial set (right) for Arizona Theatre Company's 2011 Production of *Sherlock Holmes and the Adventures of the Suicide Club*. Photograph by Tim Fuller.

SKETCH

A theatrical production comes together through collaboration. When a play has been selected for production one of the first steps is a **concept meeting**. During this meeting general concepts about the production are thought through and worked out by the director, designers and technicians. The scenic designer takes the ideas discussed at this meeting, reads the script several times, and begins research- gathering information about the time period of the production including architecture, furniture, and images of everyday life, along with objects that represent the mood that the director has in mind.

Once the scenic designer settles on a design concept, he or she will sketch the ideas using pencil, paint, photographs and collage, and then shares these sketches with the director and other designers (set, costume, lighting, and sound designers). These sketches are discussed and fine tuned by the team. The next step for the scenic designer is to create $\frac{1}{4}$ " scale ($\frac{1}{4}$ in. = 1 ft.) technical drawings. The scale drawings are the "blue prints" of the set. Several sets of drawings are produced by the scenic designer including: a **ground plan**, **designer's elevation**, **painter's elevation**, **cross section drawings**, **light plot** and **detail drawings**. The scenic designer usually produces a three-dimensional **sketch model** in tandem with the early **elevation drawings**.

How are the sketches used?

A **ground plan** is the floor plan of the set drawn to scale looking from above the stage. This drawing indicates the general layout of each set and the placement of the furniture and large props.

Designer's elevation drawings represent the flats from audience view. The shop crew uses these elevation drawings to determine the height and architectural detail of each scenic unit.

The **painter's elevation** is a copy of the **designer's elevation** which has been rendered to indicate the color and painting techniques which are to be applied to the final set. These drawings are used by the **scenic artist** to paint the full-scale set.

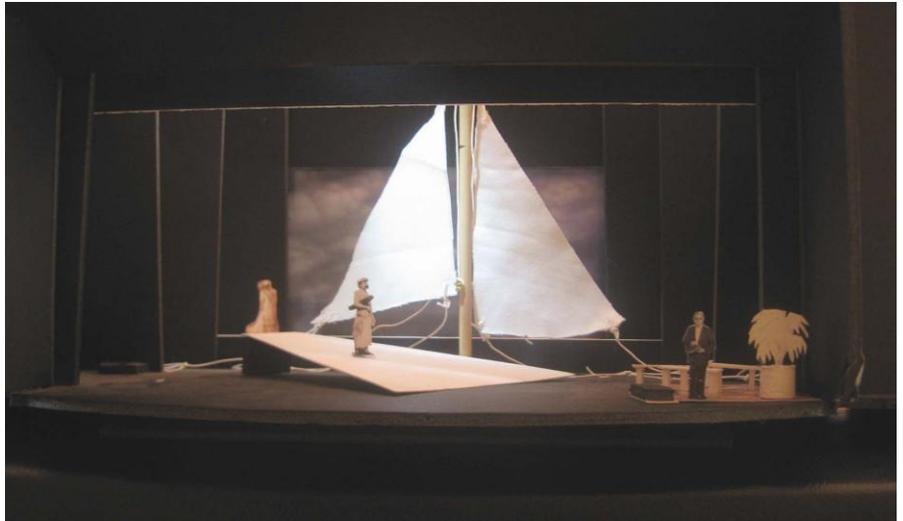
A ground plan of the set is drawn and superimposed on it are drawings of the locations of all the required lighting, naming the type of lamp and its location and the areas it is intended to illuminate. These drawings are called the **light plot**.

A **detail drawing** is usually drafted in $\frac{3}{4}$ in. = 1 ft., and $1\frac{1}{2}$ in. = 1 ft. These drawings describe the details of a scenic unit or prop and are used by production crew as they build the elements of the set.

MAQUETTE

Sketch Model

The **sketch model** is the first three-dimensional model developed to show the shape of the set. It is simply made from black or white card held together with invisible tape. Black or white card is used so it is easy to visualize silhouettes and shapes across the set. This model may include loose detail drawing in pencil or marker; sometimes photocopies or pictures cut from magazines are used to provide immediate representation.



Scenic Designer Sally Day's white model for the University of Arizona School of Music Opera Department Spring 2008 production of *Postcards from Morocco*.

The scenic designer and the director use this model to work out ideas, thus accuracy is not important but it should be proportionally correct. At this phase the scenic designer may have several ideas and build a rough model for each to determine which direction he or she would like to go with his or her design. Both the scenic designer and the director may make significant changes to the set at this point in the process. They may even throw a whole idea out. The sketch model helps the designer sculpt the space and helps the director visualize the spatial relationships of objects and people on the set.

Before a three-dimensional white model is created the scenic designer constructs a **theater model box**. A theater model box is an exact scale model of the entire stage area including backstage, wings, under-stage, entrances and exits. The theater model box is painted matte black so that when the white model is placed inside, it is easy to see the "difference between the proposed design and the existing theater space."¹

White Model

The **white model** follows the sketch model. This is the first model to be shared with more than the director and the first model created to scale. Typically the white model is built in $\frac{1}{4}$ " scale ($\frac{1}{4}$ in. = 1 ft.), although some designers use $\frac{1}{2}$ " scale ($\frac{1}{2}$ in. = 1 ft.) so that they can add more detail. It is usually constructed from white foam core or card. Though this model is devoid of color it can be quite detailed.

This maquette is constructed to perfect the ideas that formed with the sketch model, and to work out the technical aspects of the set. It is placed inside a **theater model box** and analyzed from many angles and perspectives. The production manager, stage manager, and technical director will provide feedback and input on the design at this point each addressing issues that concern their area of the program. The audience's view of the set is carefully considered and adjustments are made to provide **sight lines** for audience members on the sides of the house or seated in the balcony. It is also at this phase that the set design is scrutinized to determine if it can be built within the established budget.



Scenic Designer John Ezell's scenographic model (left) and a production photograph (right) from Arizona Theater Company's 2011 Production of *Ten Chimneys*. Photographs by Tim Fuller.

Scenographic Model

After completing the white model it is time to build the full-color finely detailed 1/4" scale (sometimes 1/2" scale) scenographic model. According to author Keith Orton in *Model Making for the Stage: A Practical Guide*, "the model should:

- Be accurate in an appropriate scale
- Contain all aspects of the design that are to be constructed
- Be colored and textured appropriately
- Be able to demonstrate working aspects of the design
- Contain all entrances, exits and get-offs
- Contain the furniture that the design requires"²

When the scenographic model is complete it is presented to the production team who begin to determine how they will bring it full-scale. The acting company may see the scenographic model at **orientation** but most often they get their first view at the first **rehearsal**.

Scenographic models though beautiful are not made to last forever; they are viewed as tools for creating the theatrical performance not as works of art. As tools, often the scenographic model is taken apart to be measured, and gets splattered with paint or otherwise blemished by the production crew. It is usually in a state of disrepair by opening night. Just as some elements

A Maquette for Many People

Everyone involved in a theatrical production has a different relationship to the scenographic model.

For the **scenic designer** this maquette must satisfy both their and the director's vision for the show, as well as meet the technical demands of the production. It is the preferred tool for communication.

The maquette provides the best description of the set for the **director**, who uses it for blocking the show, to figure out where to stage different scenes, and to plot the entrance and exits of the actors.

Costume and **light designers** look at the maquette to establish a color palette for their work. The costume designer's choice of fabric and light designer's selection of effects may need to be altered to account for the color and textures of the set.

The maquette helps to establish the mood of the scenes for the **actors**. In addition, it provides a framework for the actor's movement on the set, which, along with the movement of props on the set, is useful for the **stage managers**.

The **production manager** and **technical director** use the maquette to estimate the cost of sets. It is also used to figure out the scene changes and special effect, and helps to determine how to approach the build.

The maquette is invaluable for the **scenery shop** as they are charged with replicating this miniature in life-size. It is the primary guide for the **scenic painters**.

Since many of the props are detailed in the maquette, the **prop shop** is able to clearly determine and coordinate the over-all taste and treatment of all the visual aspects of the show by studying the maquette.

of a full-scale set may be repurposed, some elements of a maquette may be repurposed for use in another production. It may be rescued by the scenic designer or stored away by the theater company, but many scenographic models, like the set itself are destroyed after a production.

Scenic Designers



Scenic designer **Peter Beudert's** recent work includes *Hunter/Gatherers* and *THIS* at the Actors' Theatre Phoenix. Other recent professional productions include *A Going Concern* at the award-winning Famous Door Theatre (Chicago), and *Love's Labour's Lost* at the Illinois Shakespeare Festival, *The Pajama Game* and *WIT* at the Arizona Theatre Company. He is a University Distinguished Professor at the University of Arizona School of Theatre, Film and Television where he has designed scenery for *As You Like It*, *Dracula*, *The Taming of the Shrew* and *The Tamer Tamed*, *Tartuffe*, *Henry IV Parts I & II*, *The Cider House Rules*, *Cabaret*, *Arcadia*, *The Kentucky Cycle* and many other productions. Recently, he was a senior Fulbright Research Scholar working with the Bibliothèque Nationale de France and the Paris Opera. This was his second Fulbright. He is co-author of all three editions of *Scenic Art For The Theatre* with Susan Crabtree. Peter Beudert is a member of United Scenic Artists.



Michelle Bisbee is a third year MFA Scenic Design Candidate at the University of Arizona. She has worked for Arizona Repertory Theatre as scenic designer for *Hay Fever* and is currently in the planning stages of designing the spring musical, *Nine*. Other credits include Assistant Head of Props for Cirque du Soleil's *LOVE*, Props and Puppets Technician for Cirque du Soleil's *KA*, and Scenic Artist for the Arizona Theatre Company.

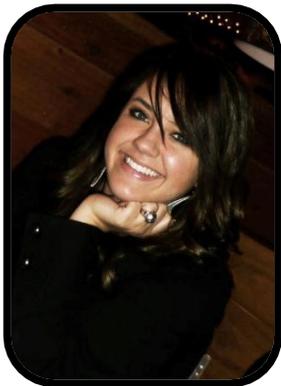


Sally Day is a freelance scenic designer based in Tucson. Productions include Arizona Opera- 2004 production of *Il Tabarro/Pagliacci*, and 2012 production of *Cavalleria Rusticana/Pagliacci*. Ms. Day has designed nearly a dozen presentations for the U of A's School of Music Opera Department. Other companies where she has designed include: Arizona Repertory Theatre Company, Borderlands Theatre, Bloodhut Theatre, Southwestern Ballet Company Dance Festival, New Articulations Dance Company (as Lighting Designer), a.k.a. theatre, and Pima Community College. Ms. Day has trained outside of Tucson as both a scenic artist and design assistant at the Illinois Shakespeare Festival in Bloomington, Illinois.

Scenic Designer **John Ezell** designed the scenery for Arizona Theatre Company's productions of *Hair*, *Sherlock Holmes and the Adventures of the Suicide Club*, and *Ten Chimneys*. He has designed for Broadway, New York Shakespeare Festival and The Public Theater, as well as Roundabout Theatre Company, Crossroads Theatre Company and Shakespeare Theatre Company in Washington, DC. Other regional credits include the Williamstown, Berkshire, and Great Lakes Theatre Festivals, Westport Country Playhouse, The Old Globe, Coconut Grove Playhouse, Asolo Repertory Theatre, Cincinnati Playhouse in the Park and Milwaukee, Indiana, St. Louis, and Kansas City Repertory Theatres. Internationally, Mr. Ezell has designed for the Hong Kong Repertory Theatre, Royal Danish Ballet, Royal Danish Theatre and Swedish Riksteater and Cullberg Ballet in Stockholm, the European Theatre Olympics in Istanbul, Swedish State Television, and The Market Theatre in Johannesburg, South Africa. His work has received the Award for Experimental Television Art in Milan, two Corporation for Public Broadcasting Awards for Excellence and eleven Critics' Circle Awards. He was recognized for contributions to the American Theatre on the 75th anniversary of the founding of the Yale School of Drama and he is recipient of Washington University's 2001 Distinguished Alumni Award.



Jacklyn Fitzgerald is a third year graduate candidate in Theatre Design and Technology with an emphasis in scenic design at the University of Arizona. Before graduating this fall she will have designed three main-stage productions for the university's professional company The Arizona Repertory Theatre: *The Voice of the Prairie*, *How I Learned to Drive*, and *Cymbeline*. After graduation Jacklyn plans to pursue a design career in New York City.



Natalie M. Lape, originally from St. Louis Missouri, graduated from Missouri State University with a Bachelor of Fine Arts in Technical Theatre and a minor in Interior Design. She is currently a third year graduate student at the University of Arizona seeking a Masters of Fine Arts in Scenic Design. Natalie has worked and trained as a Scenic Designer, Scenic Charge, Scenic Artist, Graphic and Event Designer.



Scenic designer **Vicki Smith** has designed eighteen sets for Arizona Theater Company (ATC) productions. Her set design for ATC's *Death of a Salesman* won a Tony Award in 1998. She has designed fifty productions for Denver Center Theatre Company and has also designed for Children's Theatre Company (Minneapolis), Indiana Repertory Theatre, Cincinnati Playhouse in the Park, Kansas City Repertory Theatre, Cleveland Playhouse, Penumbra Theatre Company, Seattle Repertory Theatre, Actors Theatre Louisville, Repertory Theatre St. Louis, Geva Theatre Center, Milwaukee Repertory Theatre, Dallas Theatre Center, Oregon Shakespeare

Festival, Pittsburgh Public Theatre, Alabama Shakespeare Festival, Anchorage Opera, Minnesota Opera, Alley Theatre, ACT (Seattle), Berkeley Repertory Theatre, San Jose Repertory Theatre, and others. She's received Bay Area Critics Award for *Kite Runner* and *Execution of Justice*, a DramaLogue award for *Cyrano*, Colorado Theatre Guild and Denver Ovation Awards for *Mariela in the Desert*, *I'm Not Rappaport* and *Pierre*, which was selected for the Prague Quadrennial Design Exposition 2007. She was associate designer for ACT (San Francisco) and received MFAs in both technical theatre and sculpture from the University of Washington.



Scenic designer **John Wareing** received a BFA and an MFA from the University of Arizona School of Theatre. He recently retired from Arizona Theatre Company where he built scenery.



Peter Wexler (picture on the right in the photograph) has designed Broadway musicals (*The Happy Time*, *Minnie's Boys*), operas for The Metropolitan Opera (*Les Troyens*, *Un Ballo in Maschera*, *Le Prophète*), hundreds of concerts for The New York Philharmonic (*The Rugs Concerts*, *The Promenades Concerts*), The Boston Symphony (Pops), L.A. Symphony (Hollywood Bowl) and the Dallas Symphony Orchestra. He has designed scores of plays on and off Broadway and around the country (*War and Peace*), helped found regional theatres (the Mark Taper Forum in L.A. and the Pittsburgh Public Theatre, among them) and consulted on TV design from The Merv Griffin Show to ABC World News with Peter Jennings. He has also produced large outdoor music festivals featuring artists ranging from the Dixie Chicks and Willie Nelson to Van Cliburn and Mstislav Rostropovich; large museum exhibitions for The Smithsonian Institution and many others; and has consulted on the design of theatres and concert performance spaces. His sketches, paintings, models and photographs are widely held in public and private collections, including those of The New York Public Library for the Performing Arts at Lincoln Center – Billy Rose Collection, the Tobin Collection at the McNay Art Museum and the Cooper-Hewitt National Design Museum of the Smithsonian Institution.

Suggestions for discussing and interpreting the exhibit

- Explain the use of scale in the production of theater models. Measure the stage in your school and record the measurements of the space. Convert the measurements of the full size stage to the standard scenographic model sizes of $\frac{1}{2}$ inch = 1 foot, and $\frac{1}{4}$ inch = 1 foot. Have students build a simple theater model box of your school's stage in either $\frac{1}{2}$ " or $\frac{1}{4}$ " scale.

- Plan the production of a play or a scene from a play. View the exhibit and discuss the steps the scenic designer takes to develop the theatrical set (sketch, maquette and scenographic model). Have students design the set for the play following the same format of creating a sketch, building a maquette, and then developing a scenographic model using 1/2" scale (1/2 inch = 1 foot). To build the scenographic model, students will have to determine the dimensions of the full-scale stage and convert the measurements of the elements of the set according to scale.
- In addition to using scale models in theater set design, miniature scale models are also used in film and television to achieve special effects. This technique is called the miniature effect. Some examples include *Star Wars*, *Titanic*, *The Lord of the Rings trilogy* and *The Dark Knight*. The use of miniature effects has been waning with advances in computer generated imagery (CGI). Discuss the use of scale models verses CGI technology in terms of the advantages and limitations of each practice.
- Discuss the collaborative nature of working in theater and explore the different positions needed to put on a theatrical performance. Research and report on careers in the production side of theater.
- Research the use of scale models by a variety of professionals; engineers, architects, filmmakers, salesmen, etc. Discuss the reasons scale models are used in each profession.

Vocabulary

abstract stage: one in which the bare minimum of settings is used such as free-standing doors, free-hung windows, limited furnishings, stylistic rather than realistic

architectural set: a permanent structure that can be altered to suggest different locations by adding scenic pieces, draperies, and properties

backdrop: large sheet of painted canvas or muslin that hangs at the back of a set

backing: flats placed behind doors, windows, hallways, etc. to hide the space beyond

batten: long iron pipe that stretches across the stage and upon which scenery or drops are hung

box set: realistic, interior setting made of flats to simulate the three interior walls, and sometimes the ceilings. The audience views the play through the imaginary fourth wall.

charge artist: scenic painter

concept meeting: one of the first meetings of the production period, where general concepts are hammered out

cutout: scenery cut out of board or fabric representing profiles of trees, buildings, etc.

dead-hung: scenery or lighting that is hanging in the air and not designed to be moved during the performance

deck: the stage floor, or a temporary floor that has been built on top of the permanent floor

designers elevation: drawings of the flats from audience view, also any platform, that is above the level of the stage floor, front view of each individual piece of scenery used by the shop crew to determine the height and architectural detail of each scenic unit

detail drawings: describes the details of a scenic unit or prop. It is usually drafted 3/4 in.=1ft., and 1 1/2 in.= 1 ft.

erosion cloth: a very loosely woven cloth used to cover freshly seeded ground; used in the theater for texture and background

false proscenium: a portal that sits in front of or inside the real proscenium, giving the set its own picture frame

flat: frame constructed of 1-by-3 boards, covered with canvas, painted and used most often for interior and exterior walls of a building in a stage setting

gel: color medium made of dyed animal material. It is used to change the color in any stage lighting instrument.

gobo: metal cutout that creates a simple pattern when placed on the aperture of an ellipsoidal reflector spotlight

ground cloth: a canvas covering the floor of a stage used as a padding for the acting area usually painted to represent grass, stones, etc.

levels: steps, platforms, etc. that raise the actor from the stage

light plot: a ground plan of the set is drawn and superimposed over the top of it are drawings of the locations of all the required lighting naming the type of lamp and its location and the areas it is intended to illuminate.

lines: steel wires or ropes attached to batten and running up the gridiron and back down to the fly gallery, used to raise and lower scenery and drops

multi-set show: a show that requires several distinct sets

orientation: initial gathering of the cast to explain policies, hand out rehearsal schedules, make introductions, discuss directing approach, and explain the concept of the production. On some occasions the costume and set designers show renderings or models of their work.

painter's elevation: a copy of the front elevation which has been rendered to indicate the color and painting techniques which are to be applied to the final set

partial set: simple set pieces, fragmentary sets, screens or skeletal scaffolding in front of curtains, draperies or the back wall of the stage

pin rail: fixed beam of steel, placed in the fly loft or on the stage floor at one side of the stage, to which are attached the lines that are used to raise and lower scenery or drops

platform stage: stage raised above the audience area, which is placed at one end of a room

production meeting: a meeting of the production staff to discuss items of mutual interest

projected scenery: projection of film, slides or television pictures onto a surface to serve as part of the scenery

proscenium arch: wall forming a picturing frame separating the stage from the auditorium

proscenium stage: "peep-hole"; picture-frame acting areas with all the audience sitting and facing the stage

raked stage: a stage that is slanted, either to increase visibility or to produce false perspective

rendering: perspective drawing of the stage set, colored sketch of the finished set as it will appear, under light, to an audience member seated in the center of the house.

revolving stage set: features a "revolver" which is a circular platform that can be turned to show different scenes

scale model: 1/4" or 1/2" cardboard model built from ground plans and elevations so that the set can easily be visualized

scenic artist: a person who applies paint and other forms of decoration to scenery

scenic designer: one responsible for designing the set

scrim: a net or gauze curtain, drop, or set that appears opaque when lighted from the front but becomes transparent when lighted from behind

set, setting: indicates the place where the action of a play occurs through the arrangement of the scenery, furniture, lighting and props establishing this place of action

set dressing: decorations that have no function on a set but enhance the scene

set line: the setting for a play outlined on the stage floor

sight lines: imaginary lines from seats at the sides of the house and top of the balcony to the stage to determine what parts of the acting area will be visible to audience members sitting in those seats

silhouette: a lighting effect created by lighting the performer only from upstage , or when you light a drop behind the performer

simultaneous staging: stage arrangement in which more than one set appears on the stage at once, often with a neutral playing area (plateau) in front that can be used as part of which ever set is being used at the time

sky drop: a blue drop representing the sky

slip stage: a large platform on wheels that can carry a full setting with properties

technical director (TD): the person who figures out how the set will be built and then oversees construction, sometimes in charge of lighting as well

technical rehearsal: rehearsal for perfecting the technical elements of a show, such as the scene and property shifts, lighting, sound, and special effects

trap: opening in the stage floor, normally covered, which can be used for special effects, such as having scenery or performers rise from below, or which permits the construction of a staircase which ostensibly leads to a lower floor or cellar

unit set: uses flats, screens, curtains, platforms, and stairs that can be rearranged to change locales

wagon set: uses rolling platforms to move pieces on and off the stage

wings: offstage areas right and left stage

working drawings: “blue prints”-floor plan, front (or designer’s) elevation, painter’s elevation, cross section, detail drawings-used by the production crews to build, paint, and assemble the set on stage

Bibliography

Books

Crabtree, Susan and Beudert, Peter. *Scenic Art for the Theater, Third Edition*. Focal Press, 2011.

Orton, Keith. *Model Making for the Stage: A Practical Guide*. The Crowood Press, 2004.

Rowe, Clare. *Drawing and Rendering for Theatre: A Practical Course for Scenic, Costume, and Lighting Designers*. Focal Press, 2007.

Web sources

<http://www.arizonatheatre.org/education/overview-of-programs/lesson-plans>

The Education page on Arizona Theater Company’s website includes a lesson plans, information on student matinees, play guides and more.

<http://www.aact.org/people/setdesigner.html>

The American Association of Community Theatre’s defines the role of the set designer in theatrical productions.

http://diplomaguide.com/articles/Set_Designer_Career_Profile.html

This site provides information about a career as a scenic designer

References

1. Orton, Keith. *Model Making for the Stage: A Practical Guide*. The Crowood Press, 2004. p.110.
2. Orton, Keith. *Model Making for the Stage: A Practical Guide*. The Crowood Press, 2004. p.117.