

Teacher Candidate

Host Teacher

Class and Period (i.e. Algebra I, gr. 8, 2nd period) Drawing I

Date

Lesson Title: Using and Understanding Two-Point Perspective

I. Central Focus

Students will learn to use mathematical perspective to create the illusion of depth on a 2-dimensional surface as developed by Renaissance artists.

II. Essential Questions

1. What advantages were gained by visual artists and their patrons with the development of linear perspective?
2. How do advancements in optical studies and methods in the Renaissance reflect ideas and philosophies of the period?

III. Standards Addressed**VA:Cr2.1.IIa**

Through experimentation, practice, and persistence, demonstrate acquisition of skills and knowledge in a chosen art form.

VA:Re.7.1.Ia

Hypothesize ways in which art influences perception and understanding of human experiences.

VA:C11.1.IIIa

Appraise the impact of an artist or a group of artists on the beliefs, values, and behaviors of a society.

IV. Learning Objective(s)

1. Students will use a No. 2 pencil to draw a series of illusionistic cubes drawn in accurate 2-point perspective that depict the illusion of 3 dimensions as developed by Renaissance artists.
2. After reviewing historical artworks and the development of linear perspective in Renaissance Italy, Students will use examples from art history to demonstrate the difference between mathematical and approximate perspective.

V. Prior Learning

Students will have previously learned one-point perspective and understand the concept of the two-dimensional picture plane and the illusion of depth.

VI. Academic Language/Language Function Objective(s)

Vocabulary: Students will be able to *define* and *compare* examples of approximate and linear **perspective**.

Function: Students will *apply* the use of linear **perspective** in developing drawings of cubes.

Discourse: Students will *describe* how **humanism** played a role in **Renaissance** use of linear **perspective**.

VII. Assessments (note any relevant differentiation)**Evaluative Criteria (note any relevant differentiation)**

- | | |
|----------------------------------|--|
| 1. Two-point perspective drawing | Accurate rendition of illusionistic space using linear perspective |
| 2. Identification Quiz | Demonstrated Understanding of the difference between approximate and mathematical perspective |
| 3. Short Answer response essay | Demonstrated understanding of the cultural affects during and arising from the development of linear perspective |

VIII. Key Vocabulary

Perspective - The art and mathematics of realistically depicting three-dimensional objects in a two-dimensional plane

Italian Renaissance – A period of European history that began in the 14th century (Trecento) and lasted until the 17th century (Seicento), marking the transition from the Medieval period to Modernity

Humanism - An outlook or system of thought attaching prime importance to human rather than divine or supernatural matters. Humanist beliefs stress the potential value and goodness of human beings, emphasize common human needs, and seek solely rational ways of solving human problems.

VIII. Day 1: Learning Outcomes

Students will create a series of illusionistic cubes drawn in accurate 2-point perspective.

Students will use examples from art history to demonstrate the difference between mathematical and approximate perspective.

IX. Day 1: Teacher Preparation

- Prepare PowerPoint presentation with examples
- Prepare Identification Quiz
- Prepare 9" x 12" bond paper
- Prepare HB pencils, sharpeners, erasers

X. Day 1: Lesson Procedures/ Learning Tasks and Timeline

Times	Teacher Actions (include differentiation)	Student Actions	Formative Assessments
	Initiation		
10 min	Students will be provided with paper, pencils and rulers and asked to draw three cubes using two-point perspective	Students will attempt to draw the cubes as directed in the instructions.	Initial drawing will be assessed for proper use of linear perspective including horizon line, vanishing points and orthogonals
	Lesson Development		
15 min	Present the PowerPoint presentation on the development of linear with examples and questions. Discuss the role of humanism in Renaissance Italy and the mathematical basis for linear perspective.	Students will engage in discussion. And discourse related to the images shown and questions posed.	Class discussion: question and response. Identification quiz.
20 min	Students will be provided paper, pencils and rulers for drawing exercise. Powerpoint demonstration of methods and techniques in creating a cube using two-point linear perspective.	Students will follow the class demonstration creating a drawing using two-point perspective. Students will develop a drawing of multiple illusionistic cubes using two-point perspective.	Drawings that demonstrate correct use of horizon lines, vanishing points and orthogonals.
10 min	The short answer response question with appropriate images will be handed out to students who will be directed to answer the question with supporting evidence for their assertions.	Students will answer the 10-minute response essay in writing.	Short answer Response Essay.
	Closure		
5 min	Present images used on quiz for class discussion.	Students will orally provide answers to respond whether the images use approximate or mathematical perspective.	Note student responses to images and grade written quizzes.

Day 1: Lesson-Specific Materials

Instructional Materials: • PowerPoint presentation with images of artwork using approximate and linear perspective. Also including material on Brunelleschi and the development of humanism in 15th century Italy. • Identification Quiz. • Short answer response essay prompt.	Studio Materials: • Bond paper • HB pencils • Rulers or triangles	Targeted Materials (any specific materials required for differentiation, accommodation, or modification)
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Day 2 Learning Outcomes

Day 2: Teacher Preparation			
Day 2: Lesson Procedures/ Learning Tasks and Timeline			
Times	Teacher Actions (include differentiation)	Student Actions	Formative Assessments
	Initiation		
	Lesson Development		
	Closure		
Day 2: Lesson-Specific Materials			
Instructional Materials		Studio Materials	Targeted Materials (any specific materials required for differentiation, accommodation, or modification)

Commentary on Planning Decisions

In answering these questions explain your thinking AND cite research to support your instructional decisions. These will typically be answered when you have planned the lesson but before it is implemented.

Why is it important that these students learn this content?
Understanding the use and manipulation of the picture plane in drawing is an essential concept in helping students communicate and understand the context of both art historical and contemporary art. The development of linear perspective represents a major innovation in artists' abilities to develop illusionistic space and reflects humanist interests of the Renaissance period.
How does this lesson fit into the current sequence of instruction/unit?
This lesson follows a unit in which students use value to develop the illusion of three-dimensional forms in drawing. This lesson demonstrates additional tools artists use to develop the illusion of three dimensional space. It will be followed by lessons addressing architecture in which an understanding of perspective is critical to accurate depictions of buildings and space.
Why are the learning procedures you have developed for this lesson appropriate for this particular content?
This lesson presents students with the opportunity to both understand the development of perspective theory in its art-historical context and to utilize newly acquired drawing skills to demonstrate their own ability to develop illusionistic space using the rules and techniques of linear perspective.
Why are the learning procedures for this lesson appropriate for these particular students?
These students have had some previous exposure to linear perspective using one-point perspective in the 8 th grade curriculum. These are Foundation students (Drawing I) who are learning to develop skills for fundamental problems in representing illusionistic space.
What contextual factors were especially important in shaping your plan for this lesson and how did they shape your planning?
The curriculum for this course states that students will be able to develop representations of three-dimensional space on a flat surface. Developing these skills will provide the tools students need to realize more complex visual problems in later projects.

Resources

Cite Sources: Provide citations for the sources that you did not create (e.g., published texts, websites, materials from other educators).
Kahn Academy: SmartHistory video on Brunelleschi and the development of perspective https://www.khanacademy.org/humanities/renaissance-reformation/early-renaissance1/beginners-renaissance-florence/v/linear-perspective-brunelleschi-s-experiemment
Images of artwork including works by: https://commons.wikimedia.org/wiki/Main_Page
Giotto

Lorenzetti
Massacio
Raphael
Durer
Canalietto

Reflective Commentary on Lesson Implementation

After implementing the lesson, answer these questions.

What patterns of learning were evident in the data from this lesson?
What worked and for whom? Why?
What didn't work and for whom? Why?
What are your instructional next steps based on the data from this plan?
As a beginning teacher, what did you do well in planning and implementing this lesson?
As a beginning teacher, what are your next steps to build your teaching skills? (Set a couple, specific SMART objectives for yourself.)

Attribute	Needs Improvement	Meets Standard	Target
Correct Orthogonals	Few to none of the orthogonals recede to appropriate VP	Most orthogonals recede to appropriate VP	All orthogonals recede to appropriate VP
Corners	Several corners within the cubes do not meet precisely and show gaps or extensions	Most corners within the cubes meet precisely with no gaps or extensions	All corners within the cubes meet precisely with no gaps or extensions
Vertical	Many or most vertical lines are not perpendicular to the horizon line	Most vertical lines are perpendicular to the horizon line	All vertical lines are perpendicular to the horizon line
Lines	Lines are uneven or broken in many instances	Most lines are even in width and Unbroken	All lines are even in width and Unbroken

Name:

Using the two examples shown below, explain how the different artists developed an illusion of space and depth in their artworks. Address the effectiveness of each artist in achieving the illusion of depth and describe why that illusion was an important facet of artwork in the Renaissance and Post-renaissance eras of European art. (10 minutes)



Figure 1



Figure 2

Perspective Essay Rubric.

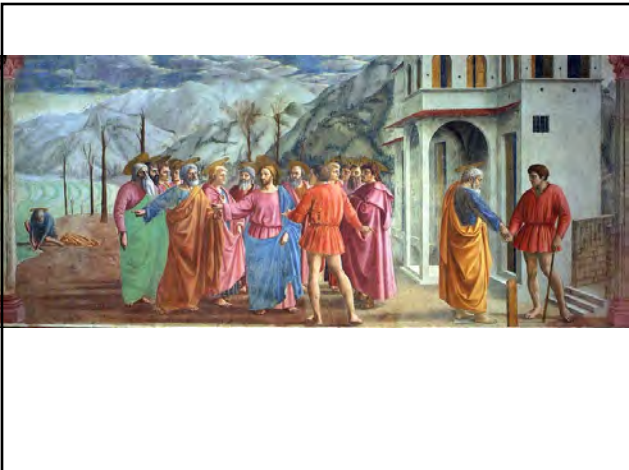
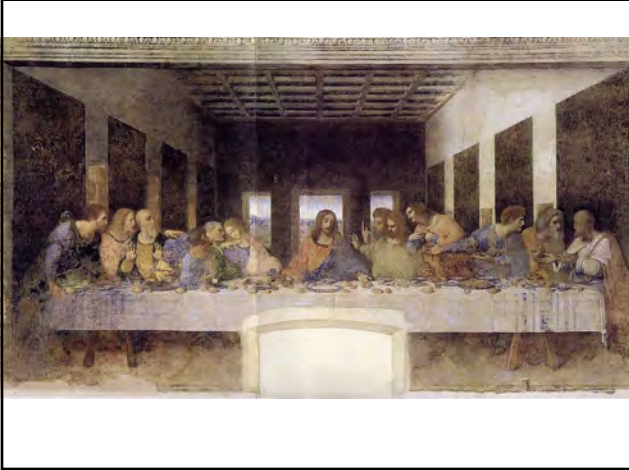
Name:

4 – Excellent: Exceeds Expectations	3 – Very Good: Meets Expectations	2 – Needs Improvement	1 – Does not Meet expectations
Student makes strong connections between the development of linear perspective and cultural changes in the Renaissance era.	Student makes connections between the development of linear perspective and cultural changes in the Renaissance era.	Student makes some connections between the development of linear perspective and cultural changes in the Renaissance era.	Student makes little to no connections between the development of linear perspective and cultural changes in the Renaissance era.
Student describes in strong detail how mathematical perspective affects the perception of artwork images	Student describes with some detail how mathematical perspective affects the perception of artwork images	Student describes with little detail how mathematical perspective affects the perception of artwork images	Student does not describe how mathematical perspective affects the perception of artwork images
Student addresses with strong detail how linear perspective made an impact on the visual arts of the Renaissance era.	Student addresses with some detail how linear perspective made an impact on the visual arts of the Renaissance era.	Student addresses with little detail how linear perspective made an impact on the visual arts of the Renaissance era.	Student does not address how linear perspective made an impact on the visual arts of the Renaissance era.

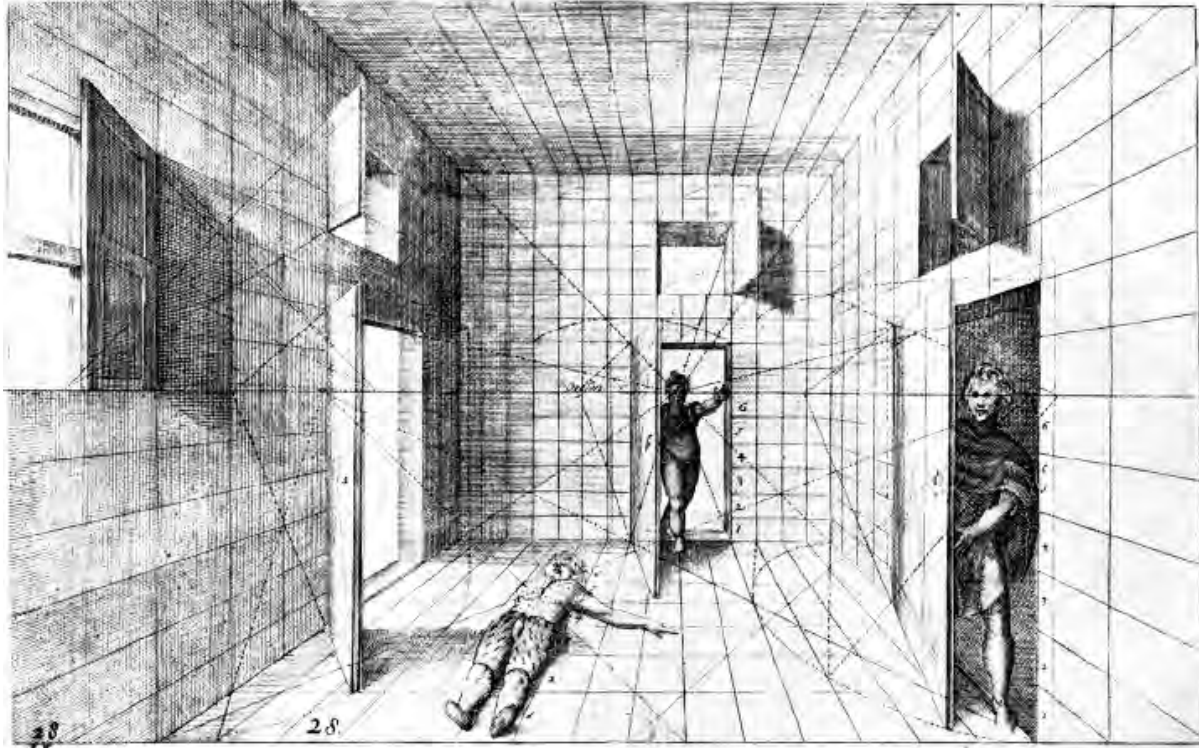
Perspective Quiz

Choose between Mathematical and Approximate perspective for each of the following artworks.



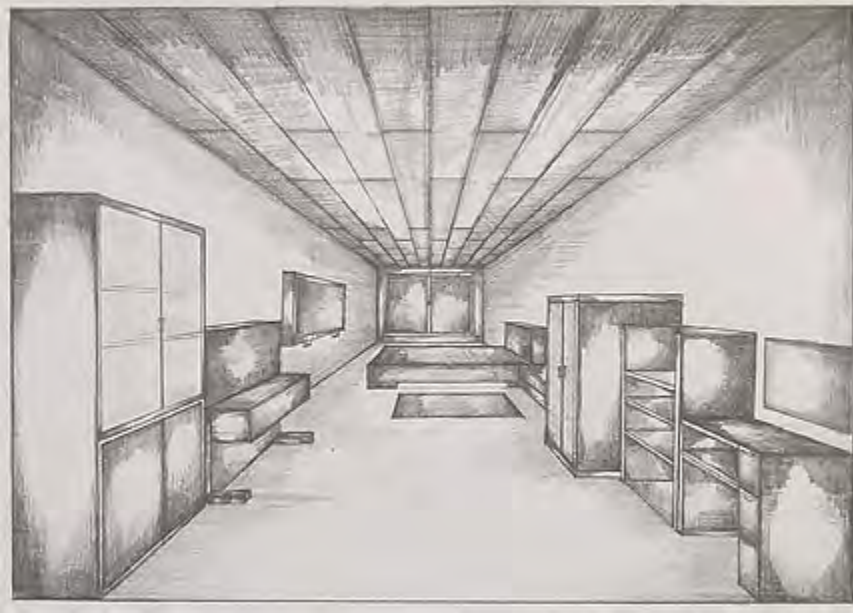


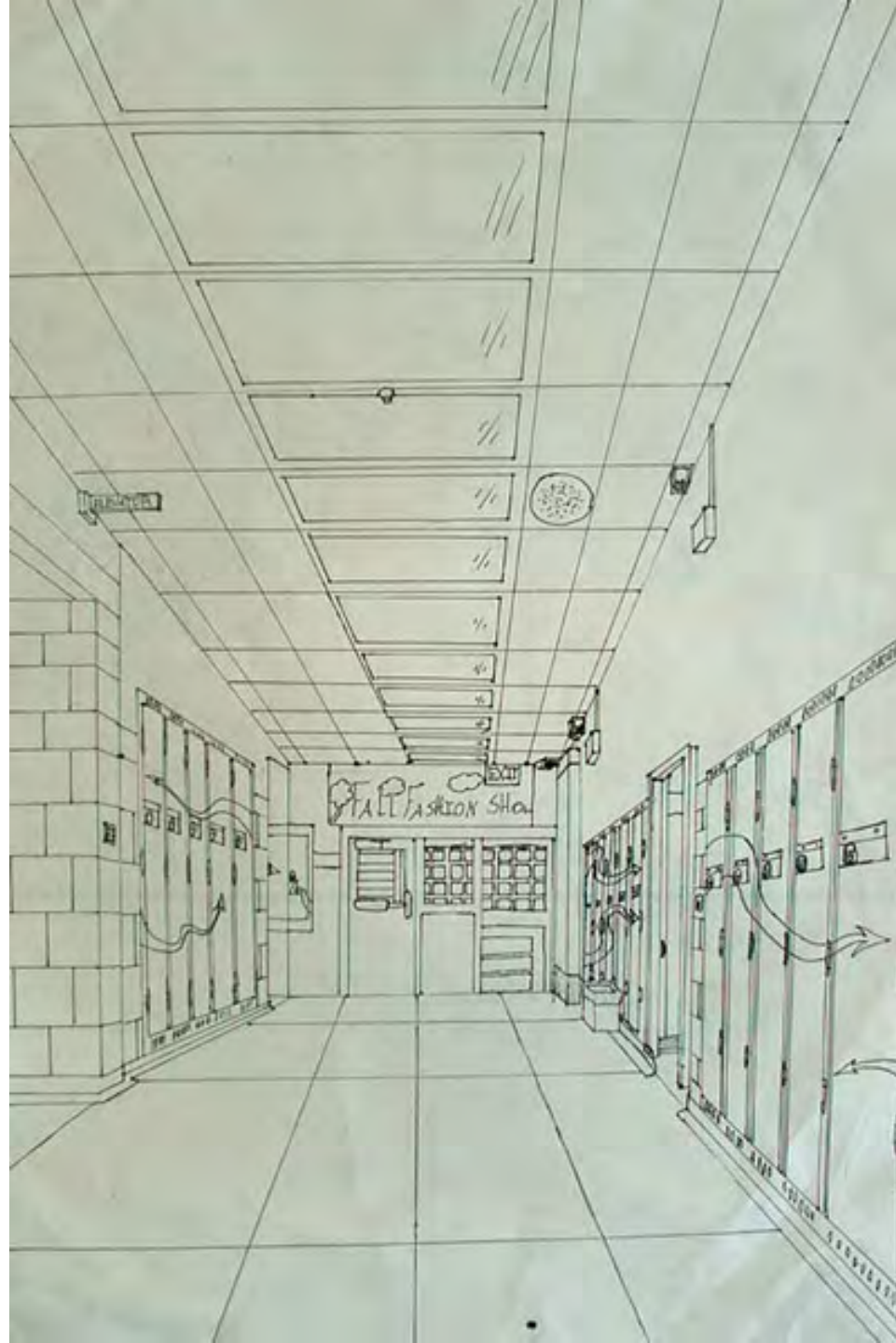
Linear Perspective

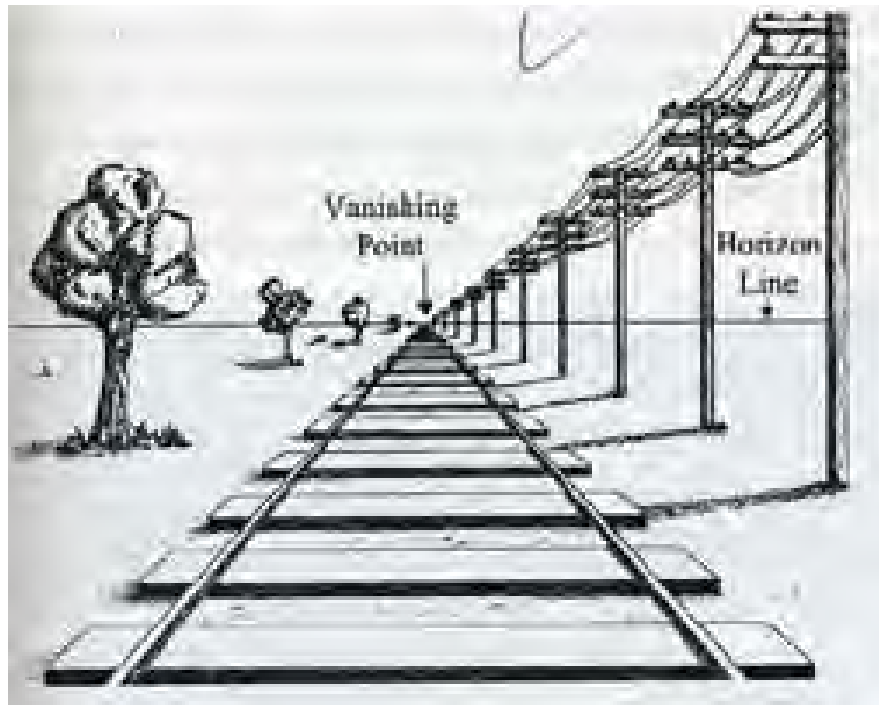


JAN VREDEMAN DE VRIES, *Perspective* (Leiden, 1604–5), plate 28. Courtesy, the Bancroft Library, Berkeley, California.

Establishing Prior Learning







Requirements for Linear Perspective

- Use of a Horizon Line
- Use of Vanishing Points on the Horizon Line
- *All* Orthogonals must recede to the *appropriate* Vanishing Point



Art Historical Context

*What Is linear perspective? What is approximate perspective?
What does linear perspective do and why is it used?*



The Allegory of Good and Bad Government is a series of three fresco panels painted in the Sala Dei Nove by Ambrogio Lorenzetti from around February 26, 1338 to May 29, 1339. The paintings are located in the Sala dei Nove (Salon of Nine or Council Room) in the **Palazzo Pubblico** (or Town Hall) of the city of **Siena**, Italy.



Torre del Mangia

Sienna, Italy
1338-1348

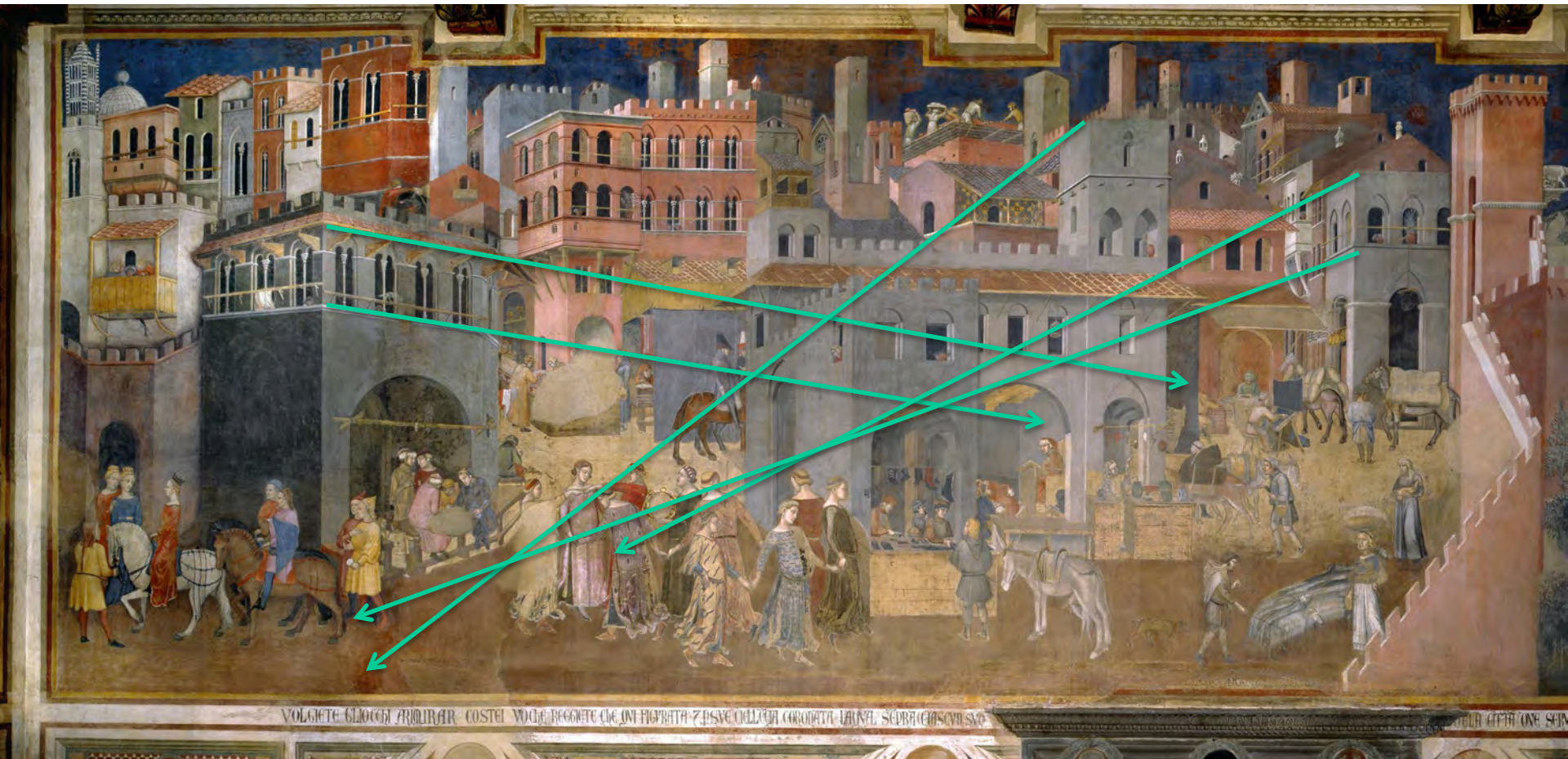


Union Station, Waterbury, CT
1909



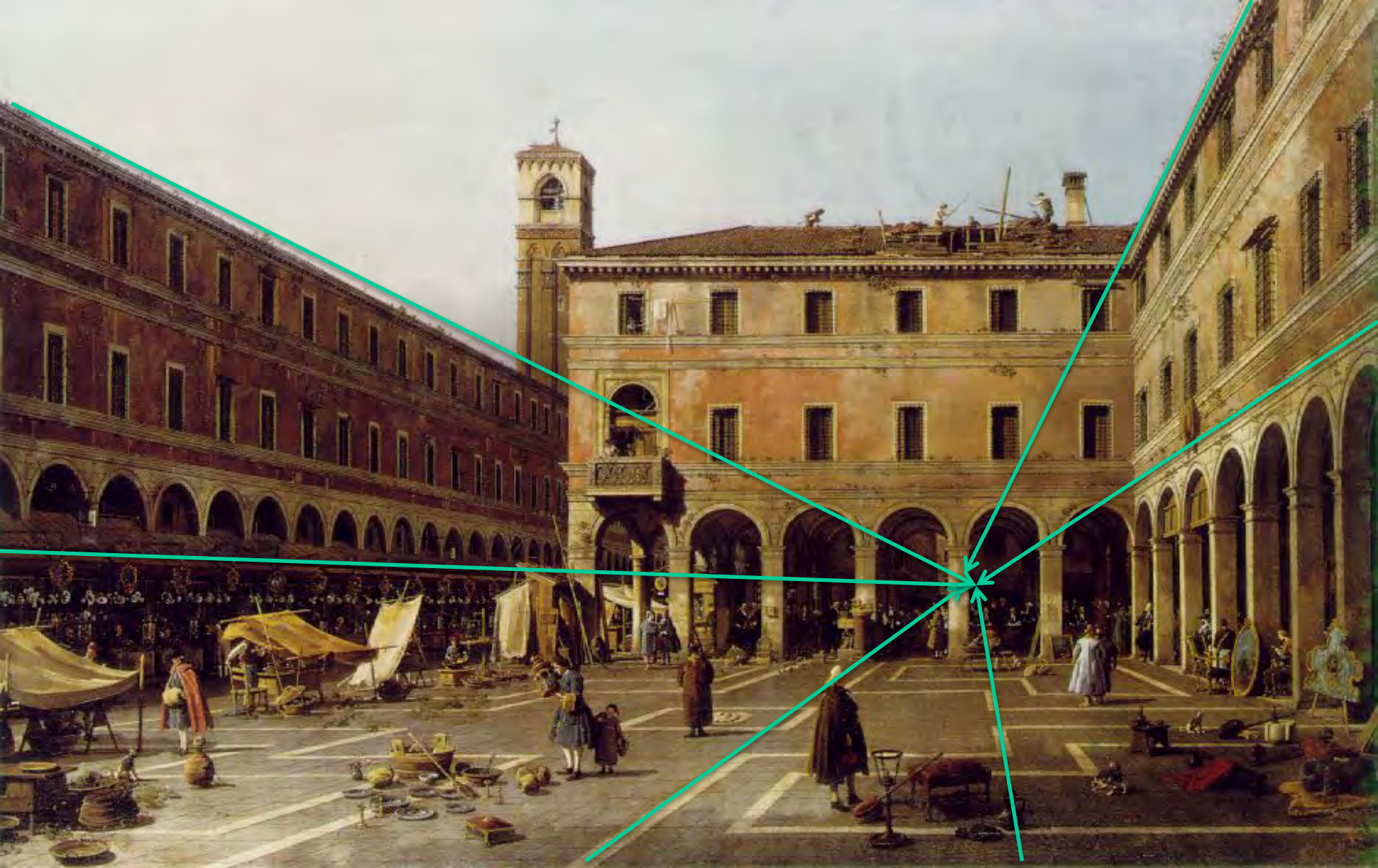
Art Historical Context

What is approximate perspective?

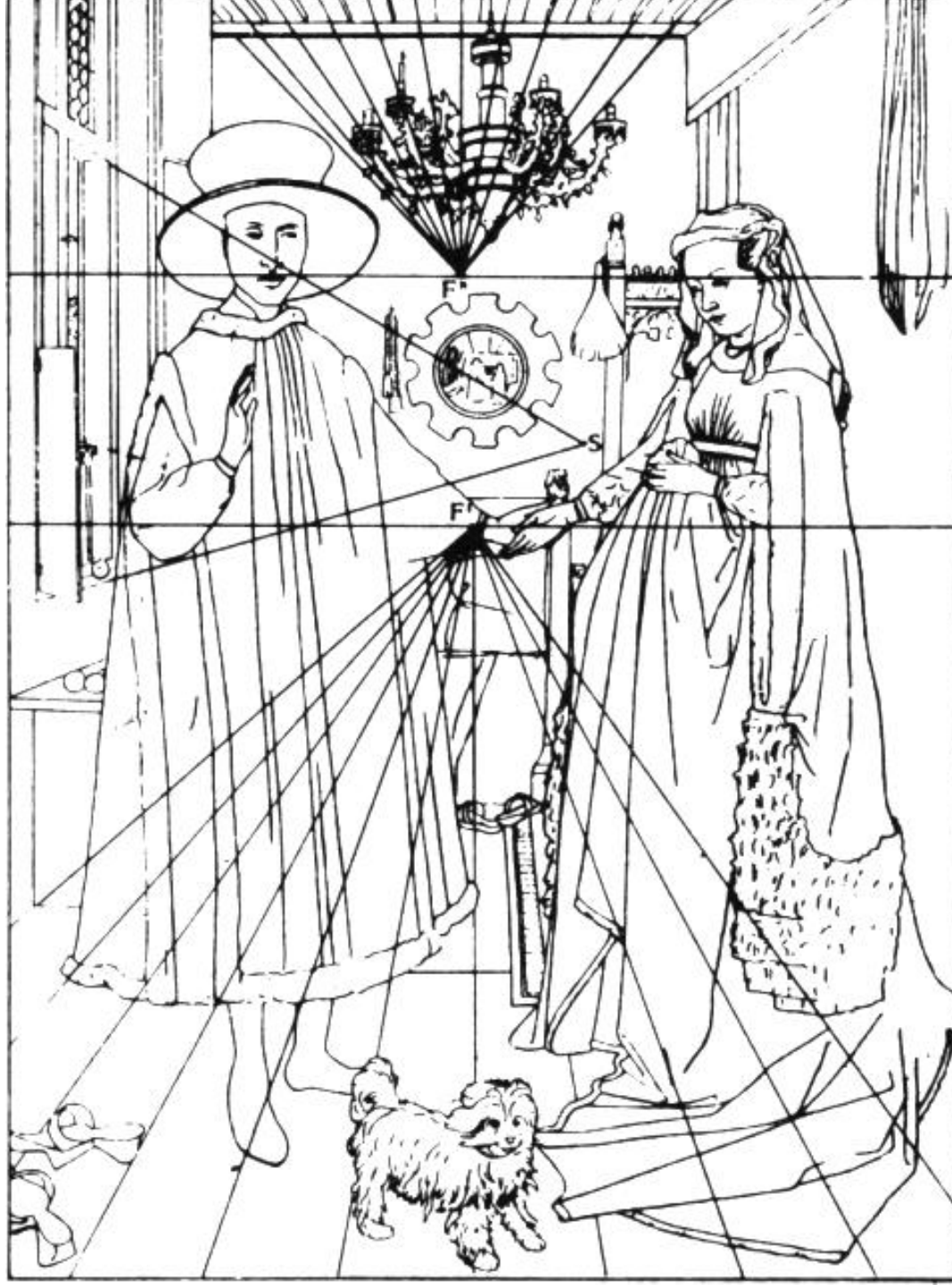


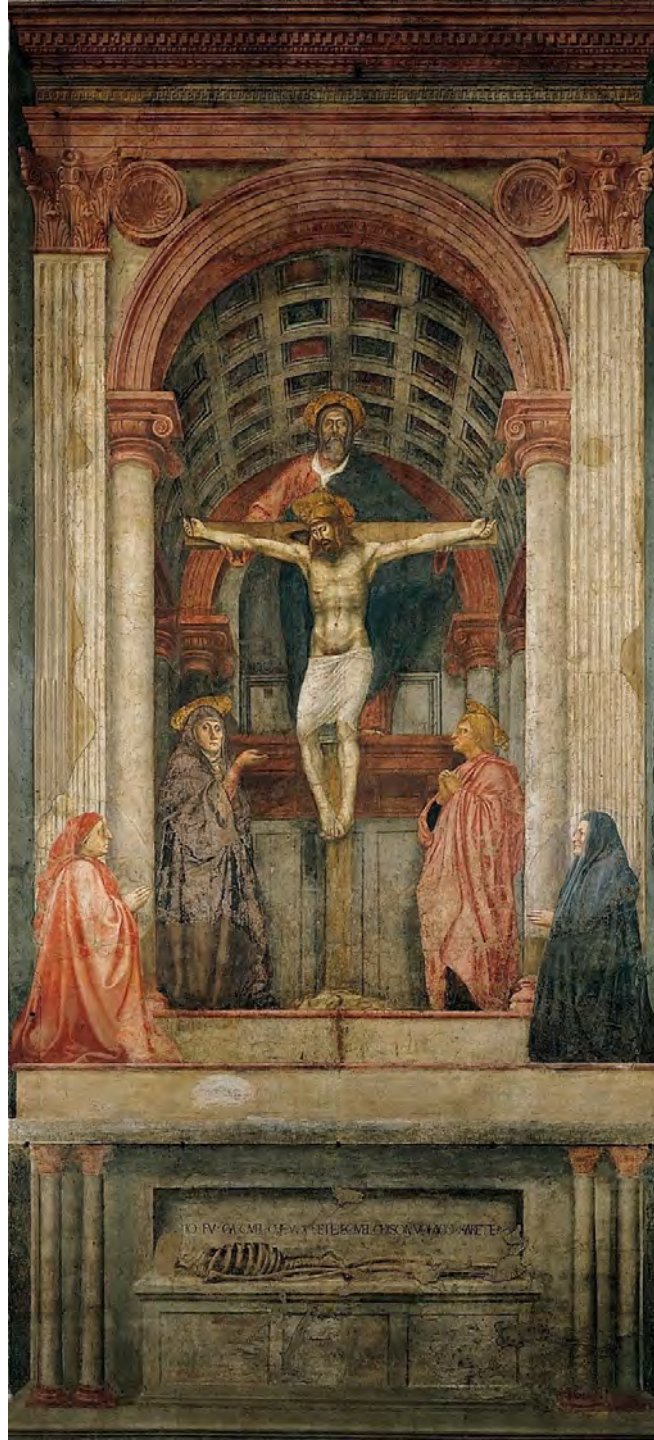


Canelletto,
Venice, c. 1730

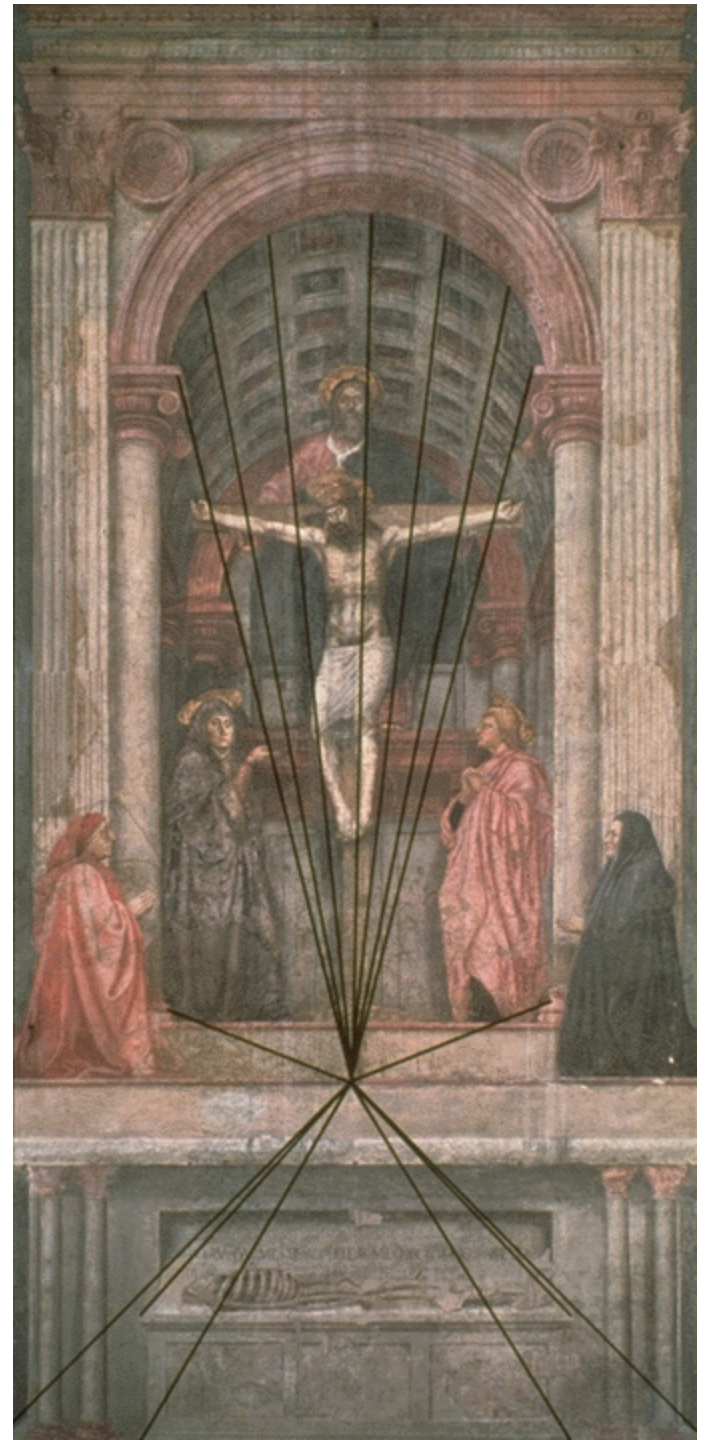








Masaccio,
*The Holy Trinity, with the
Virgin and Saint John and
donors*
1425





What is linear perspective and how was the theory developed?



PHILIPPVM BRVNELLESCHI FILIVM

Brunelleschi's Discovery of Perspective

Filippo Brunelleschi (1377-1446)

A Florentine goldsmith, Brunelleschi moved to Rome and visited the ancient ruins. Brunelleschi codified the principles of geometrically accurate linear perspective, making possible the exact representation of a 3-dimensional object on a 2-dimensional surface.

In making careful drawings of such repetitive elements as the arches of aqueducts, he realized that parallel horizontal lines converge at a point on the horizon and that elements of like size diminish proportionally in the distance.

This discovery had a profound effect of art, architecture and civic design during and after the Renaissance.



◀ EARLY RENAISSANCE IN ITALY

A beginner's guide to Renaissance Florence

1

Florence in the Early Renaissance

2

The study of anatomy

3

Contrapposto

4

Linear Perspective: Brunelleschi's Experiment

5

How one-point linear perspective works

6

Early Applications of Linear Perspective

7

Linear perspective Interactive

8

Orsanmichele

NEXT SECTION:

Sculpture and architecture in Florence

⋮

Linear Perspective: Brunelleschi's Experiment

Total energy points0



Questions

Tips & Thanks

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Ask a question...

Are there any other videos of Brunelleschi's works in smarthistory?

9 Votes

3 Comments

Flag

3 years ago by  oliviaCassandra

From what I've searched, I dont think there is, Brunelleschi does interest me a lot and I wish there were more.

13 Votes

Comment

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2 years ago by  Max

[Show all 4 answers](#) - [Answer this question](#)

How is it that such a beautiful child would be born from the marriage of Art and Math?

4 Votes

Comment

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3 years ago by  wildio

How wouldn't it? Take the most beautiful, creative, perfect subject in the world, then combine it with art. Who would expect anything less?

13 Votes

Comment

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3 years ago by  CasualJames

[Show all 5 answers](#) - [Answer this question](#)

Report a mistake in the video

Example:

At 2:33, Sal said "single bonds" but meant "covalent bonds."

Report a mistake in the video

Discuss the site

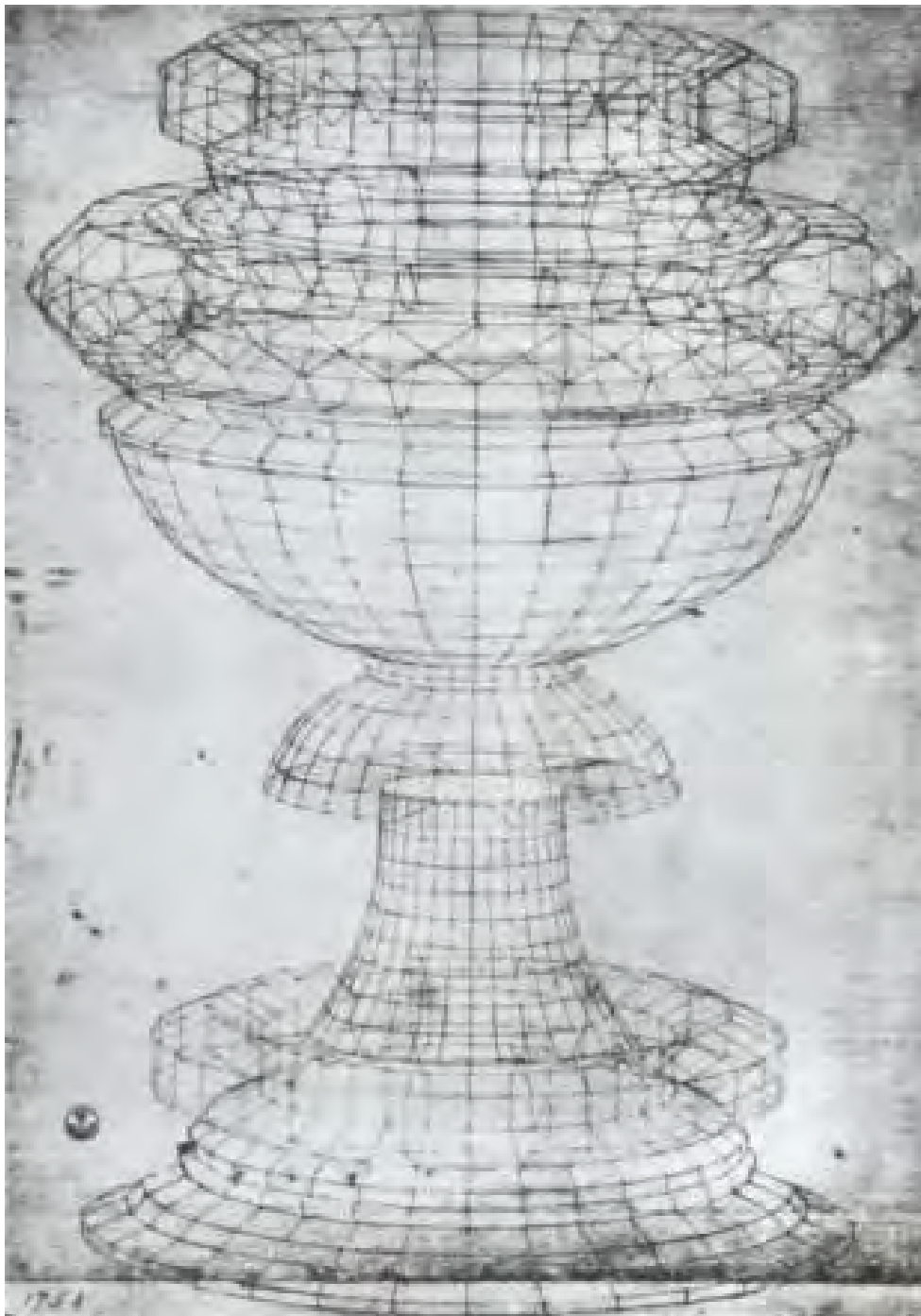
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abuse

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- an advertisement

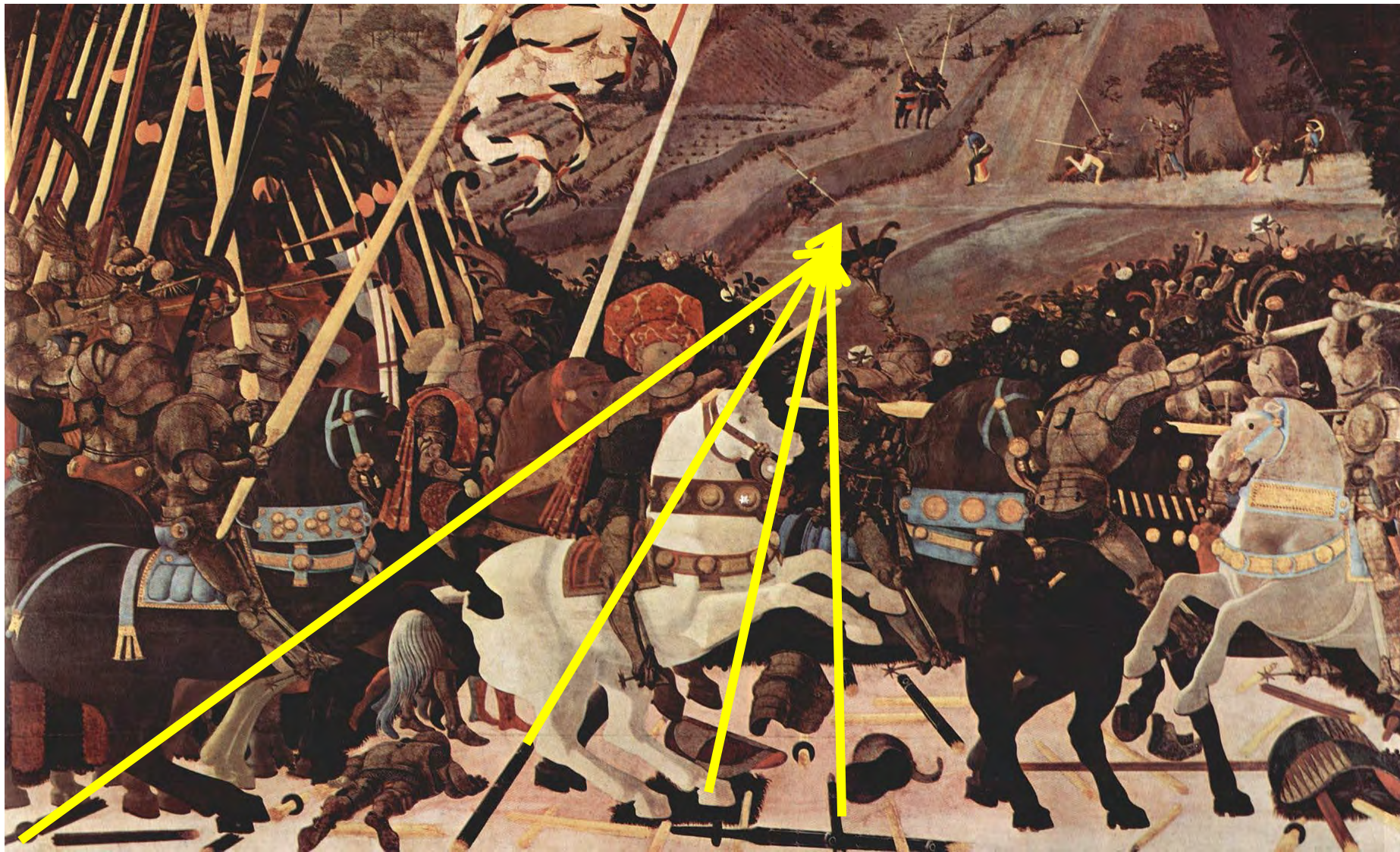


How and why was linear perspective used after it was developed?

Paolo Uccello: study of a chalice
1430

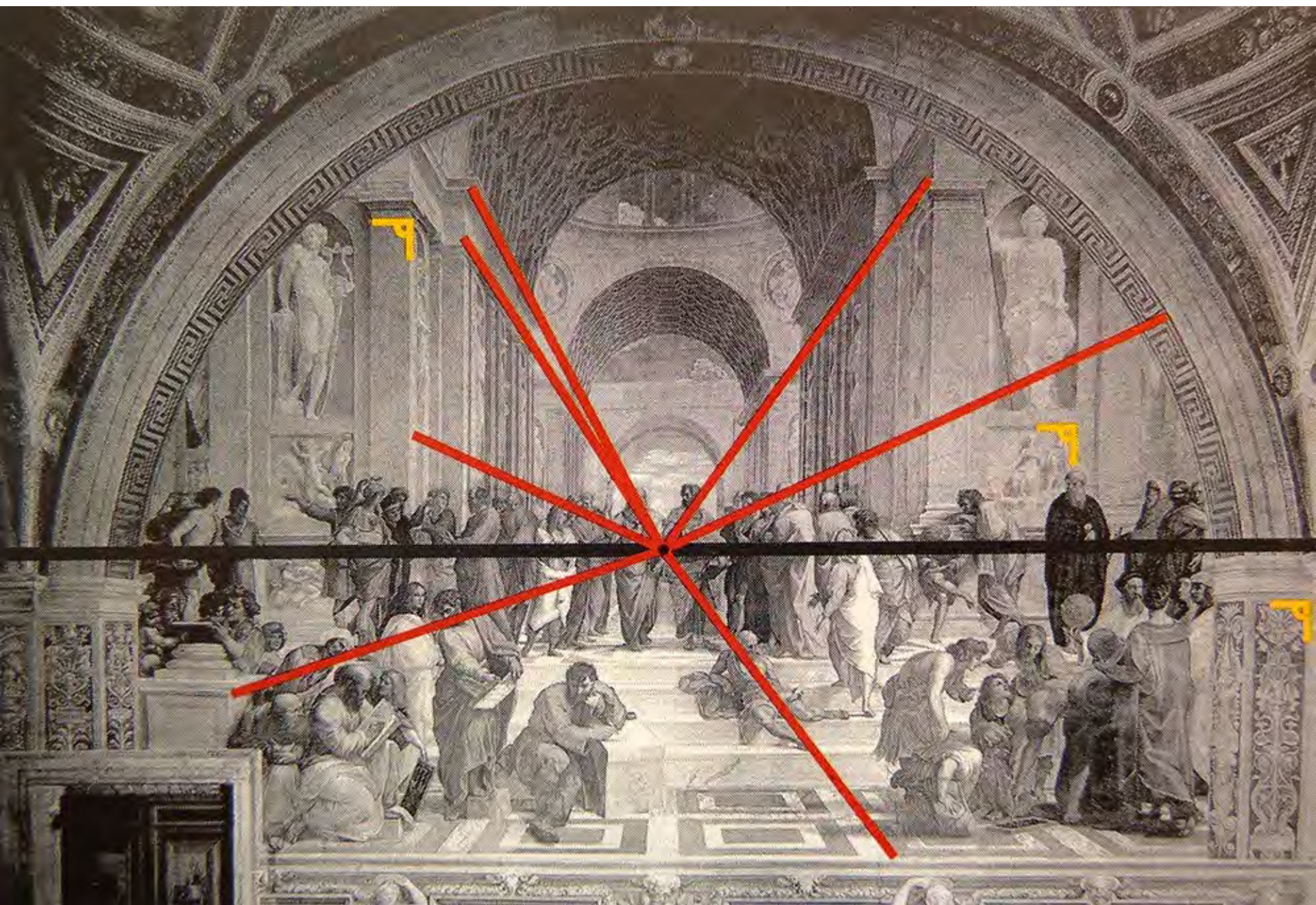


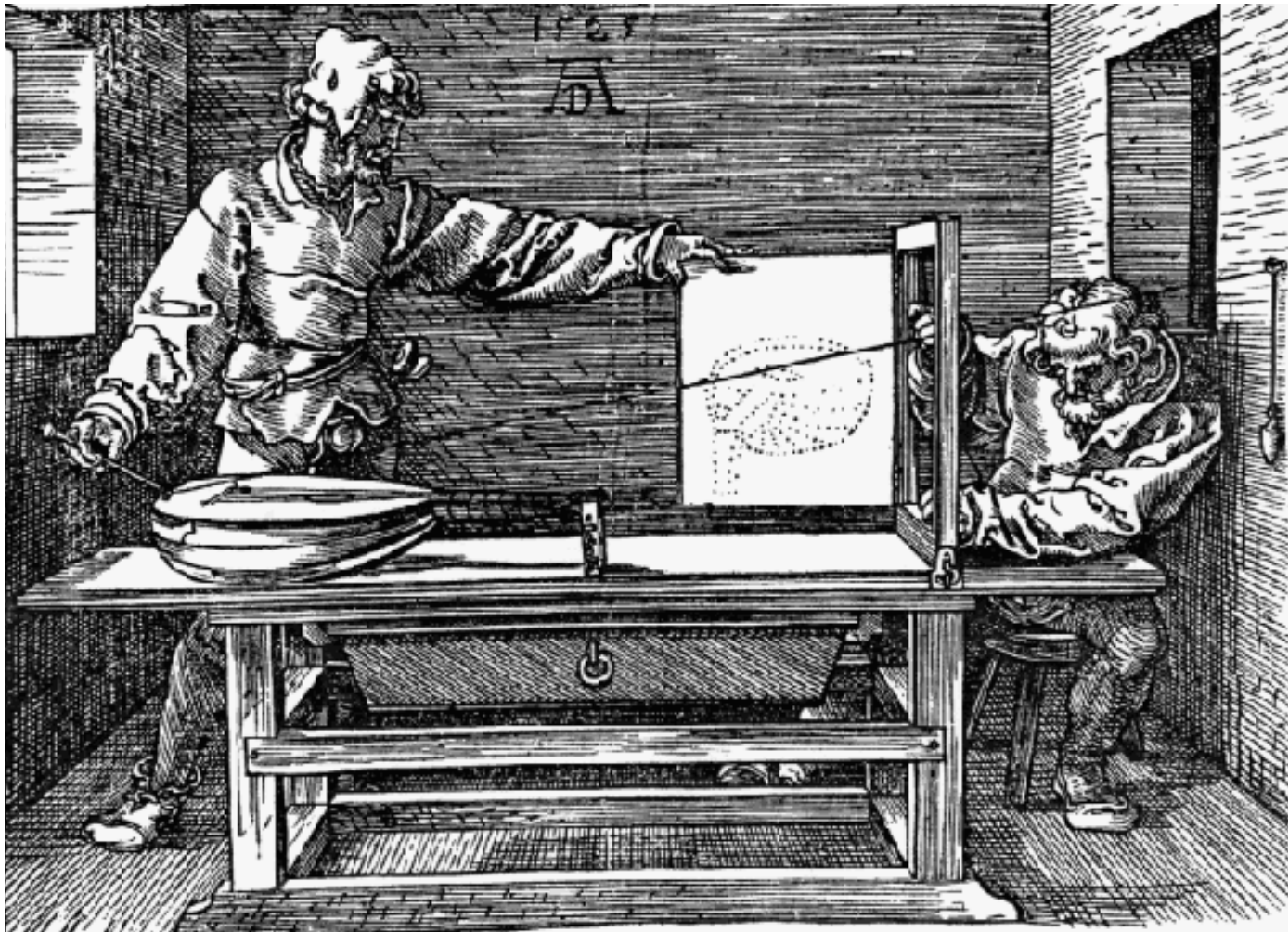
Battle of San Romano (1)



Battle of San Romano (1)





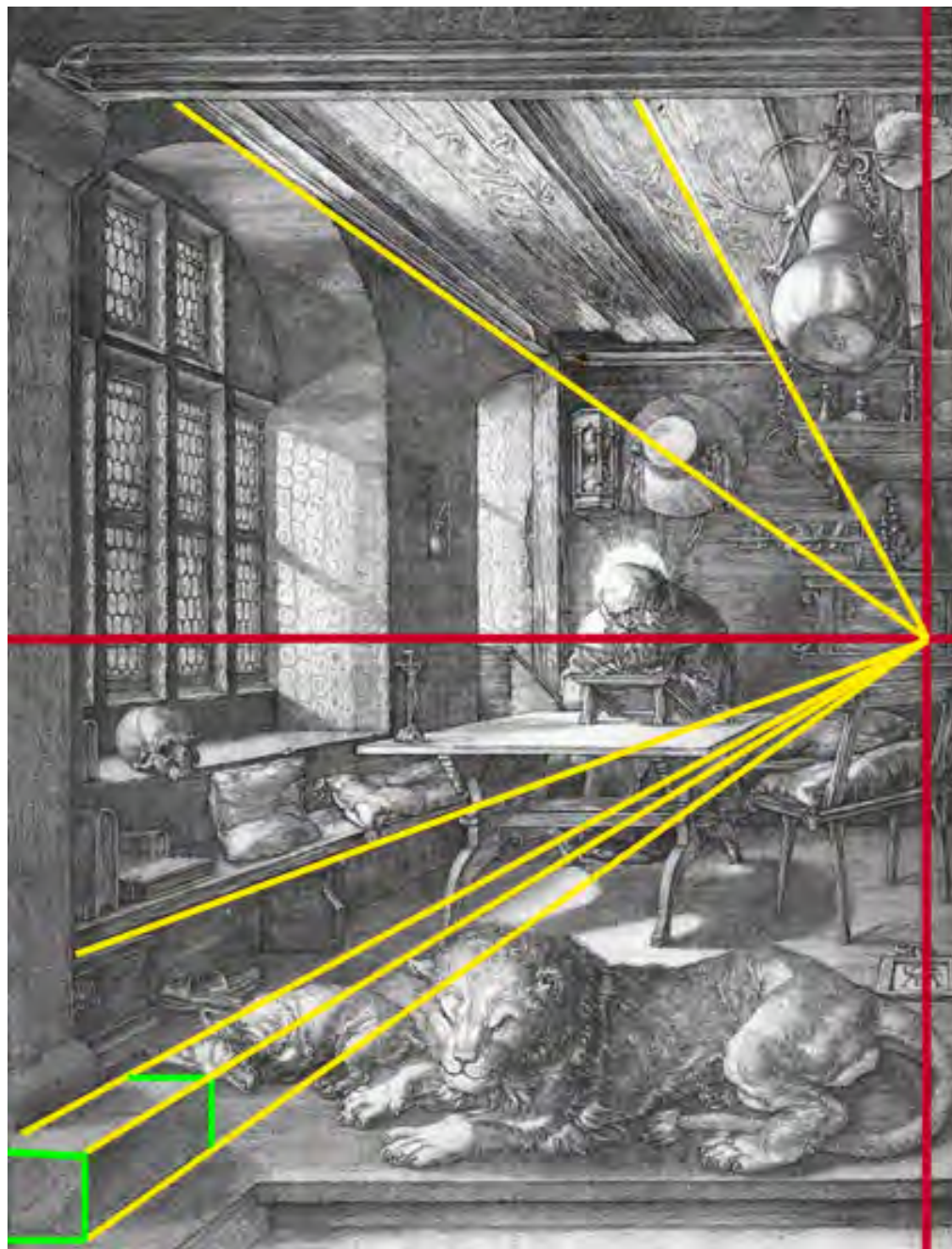


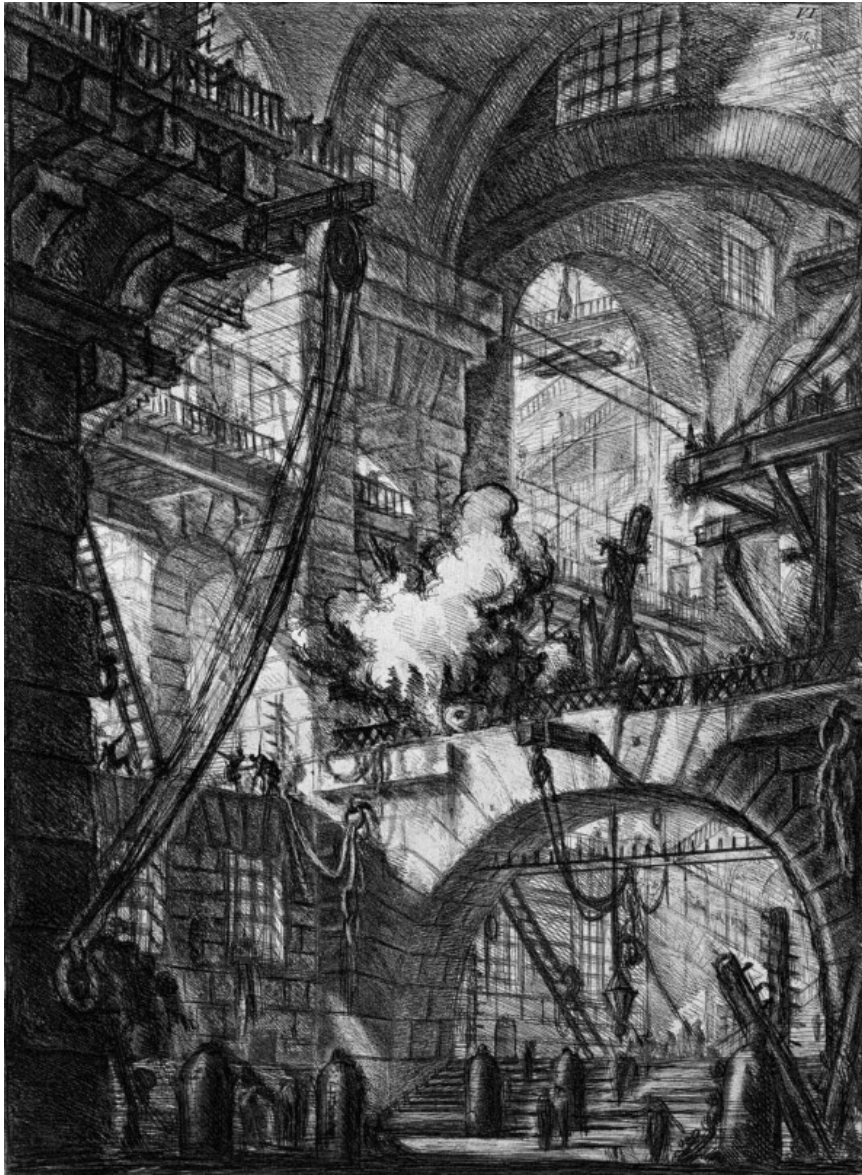
Why was this development important?

New Innovations in Visual Art During the Renaissance

- Linear perspective
- Foreshortening
- Atmospheric Perspective
- Sfumato
- Chiaroscuro
- Empirical Studies
- The Natural World
- Mathematics

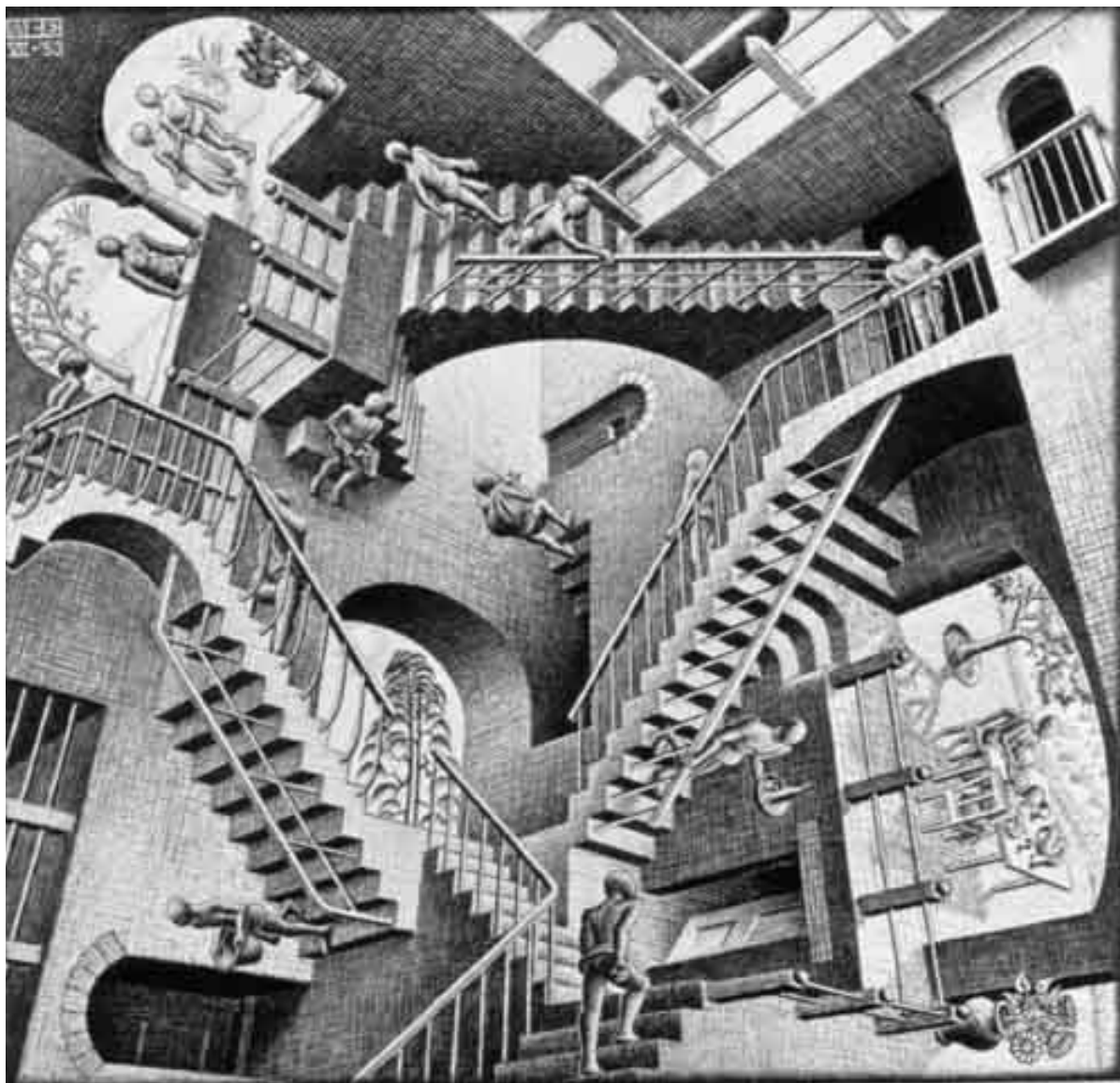


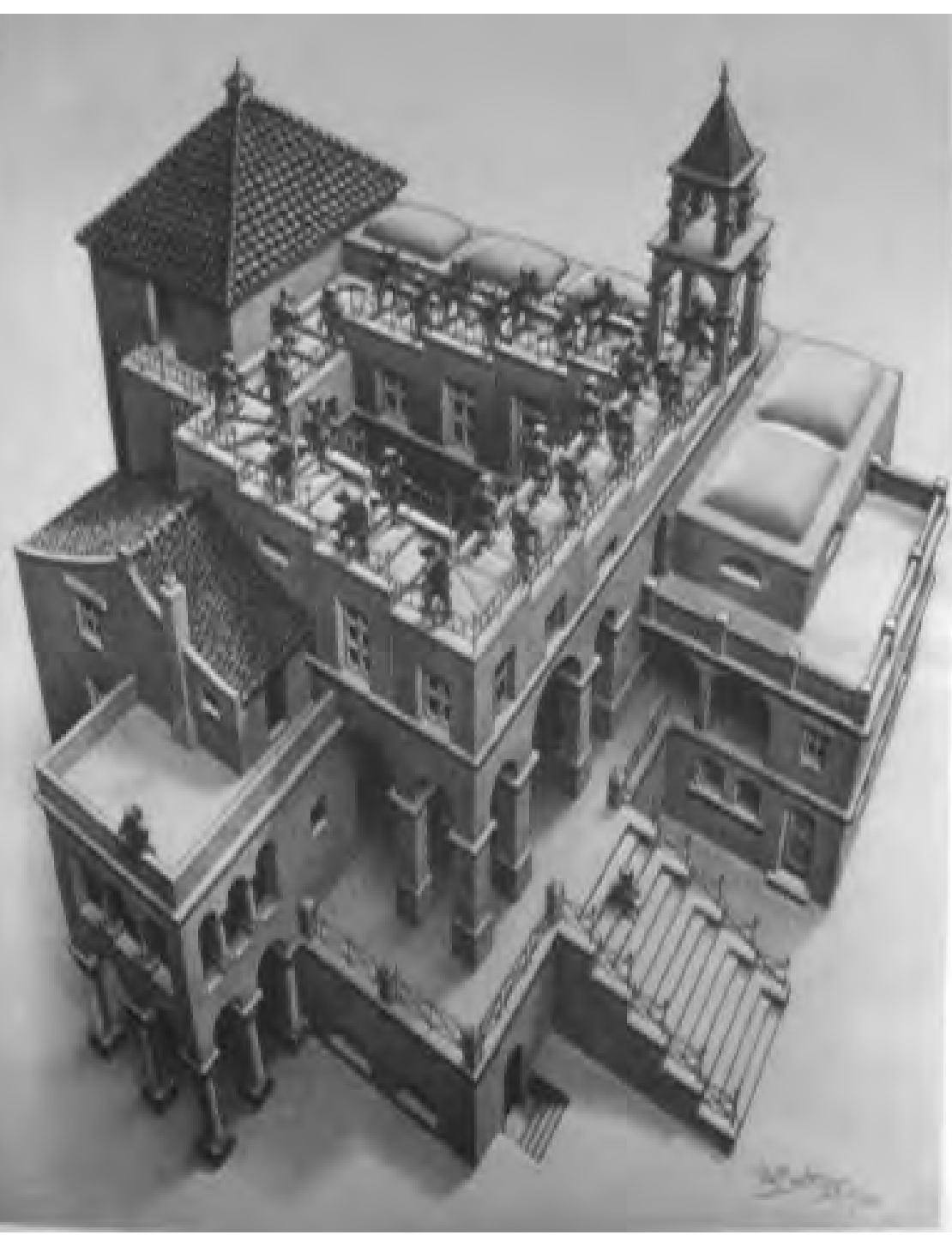




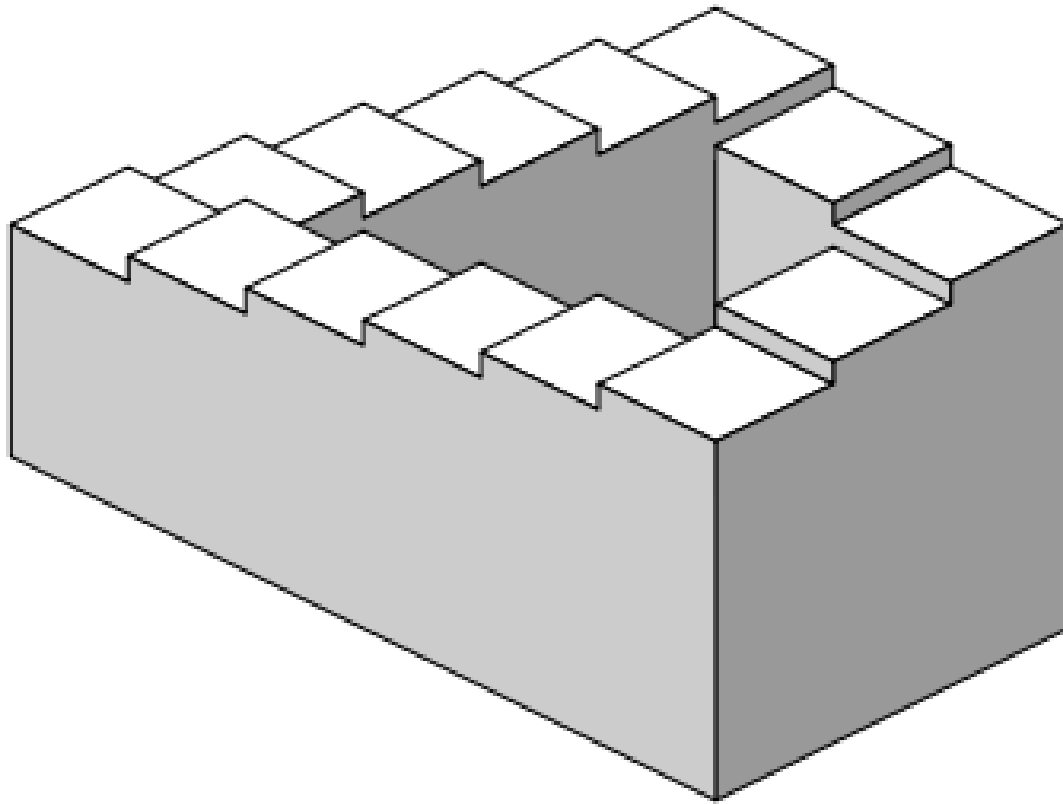
Giovanni Battista

18th Century



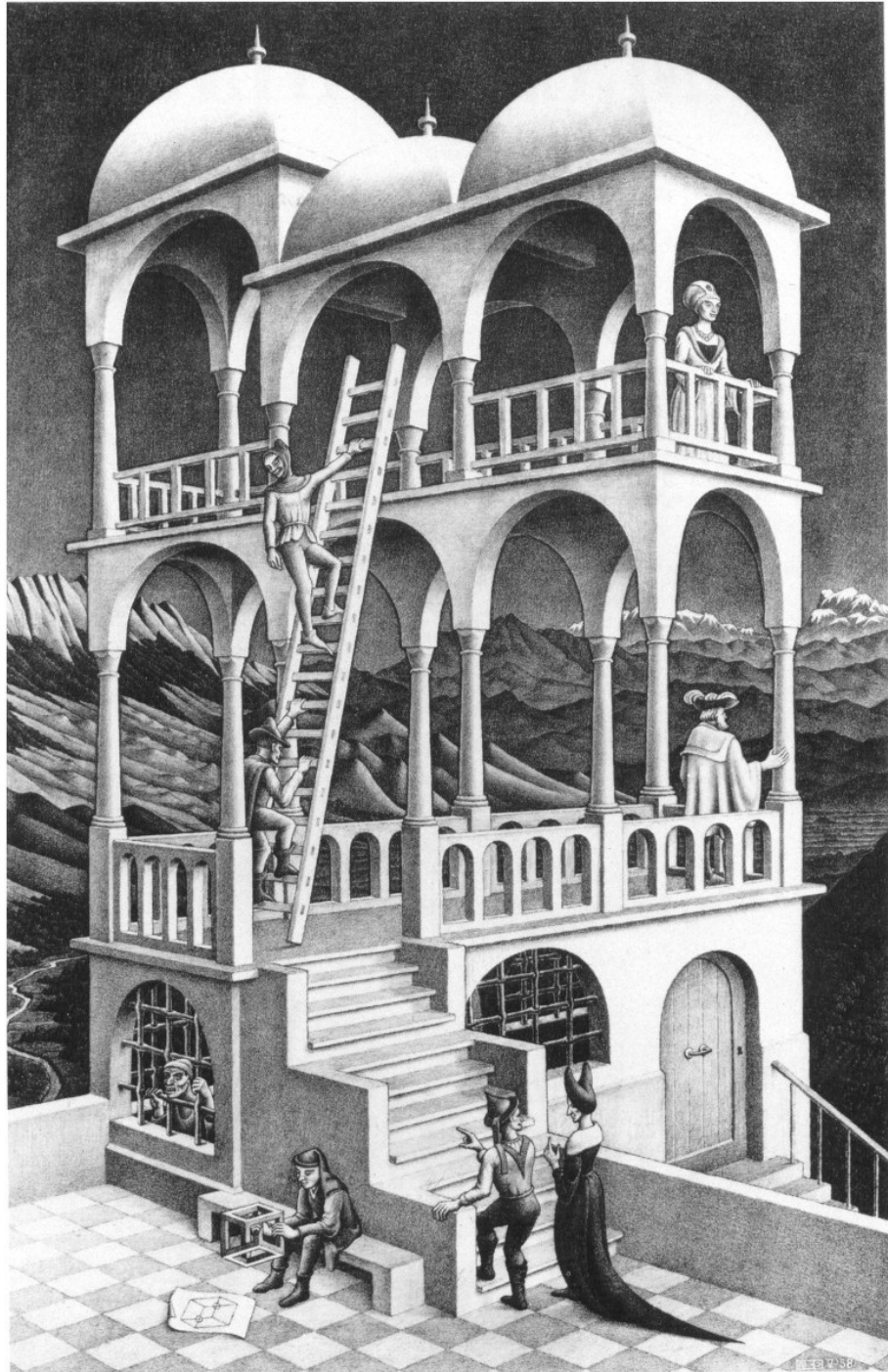


Ascending and Descending, 1960



Penrose Stairs

Designed by Roger Penrose, 1958



Assessing Objectives

- *Students will use examples from art history to demonstrate the difference between mathematical and approximate perspective.*
- **(VA:Re.7.1.Ia) HS Accomplished**
- Hypothesize ways in which art influences perception and understanding of human experiences.

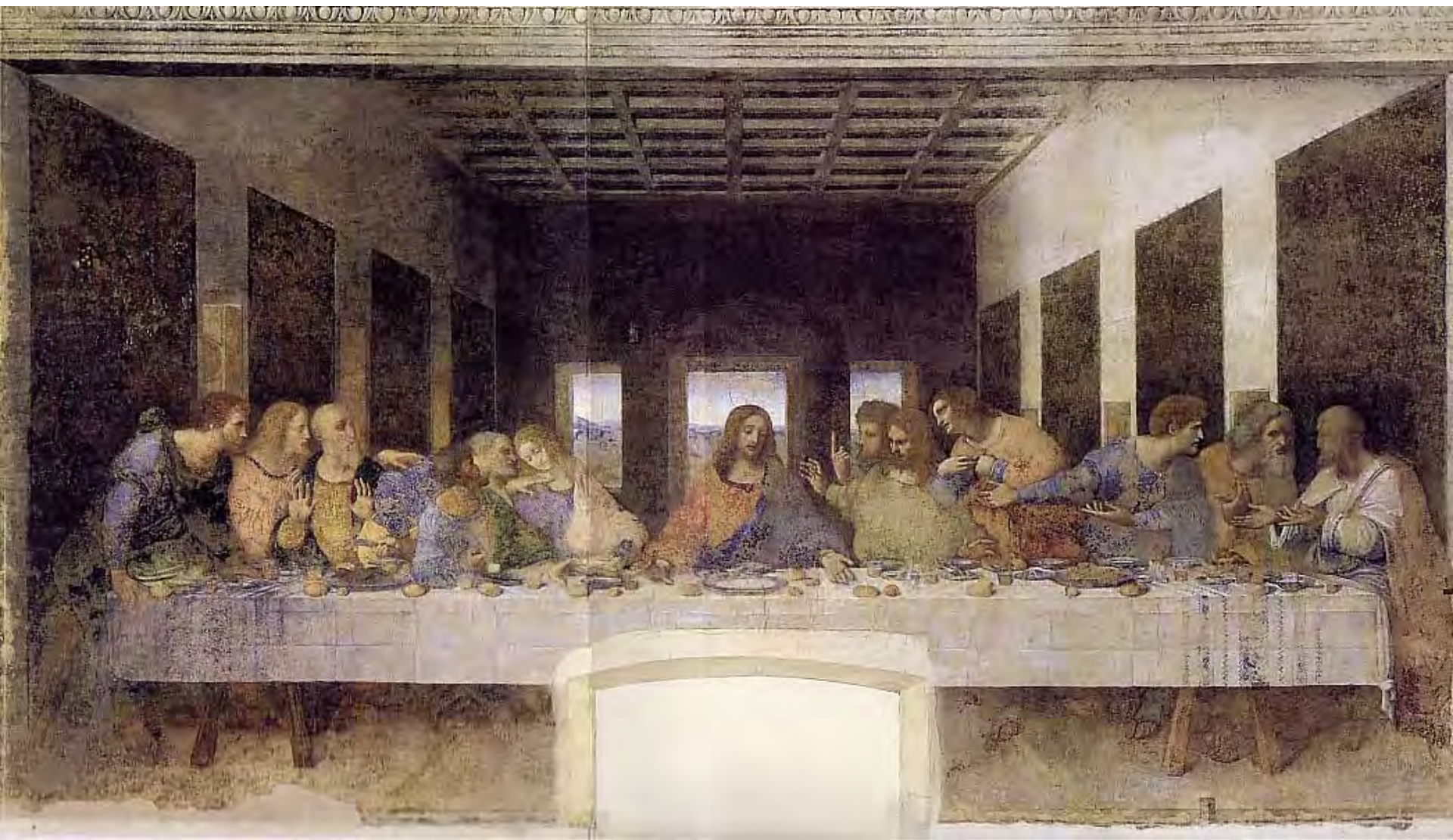
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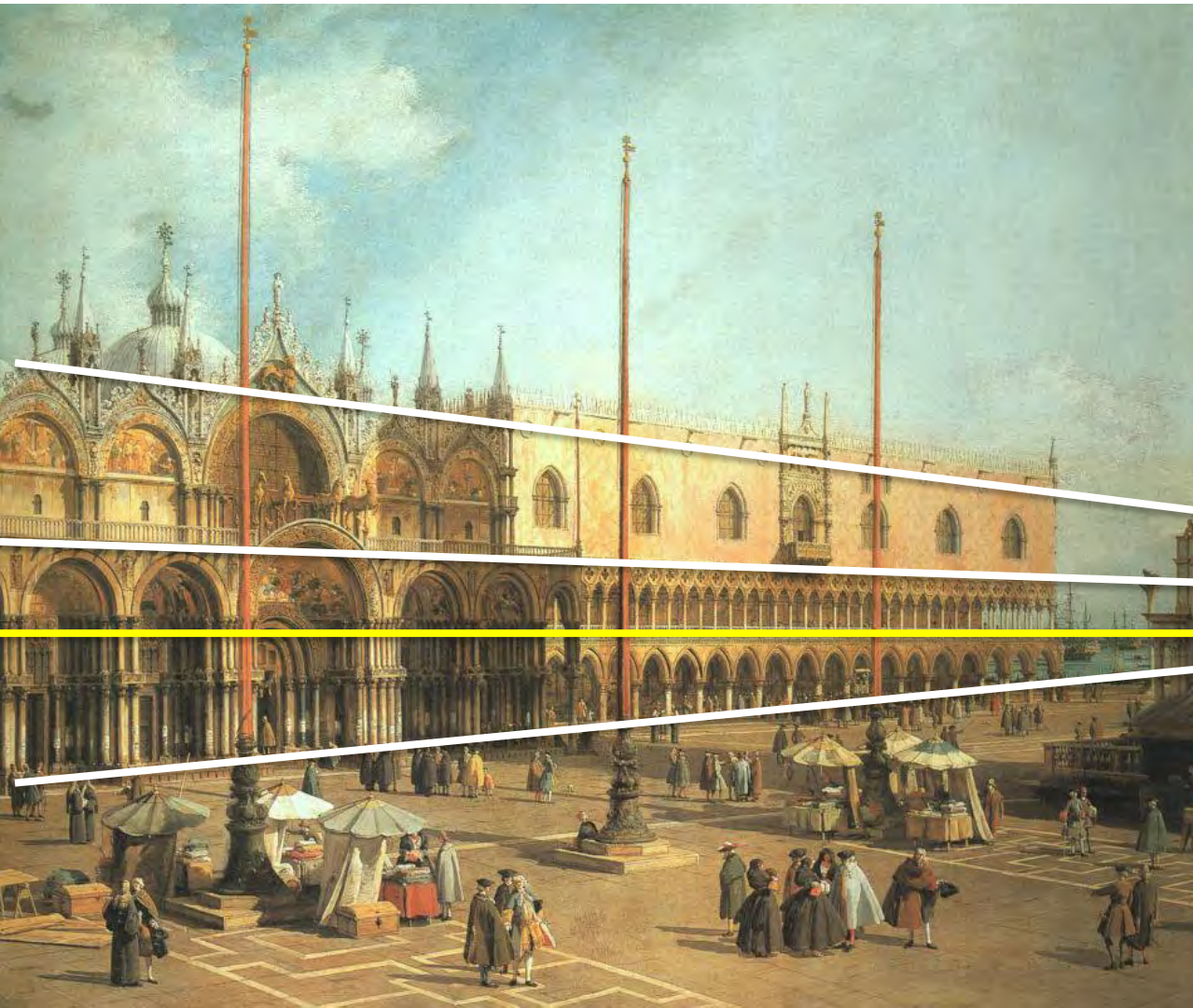






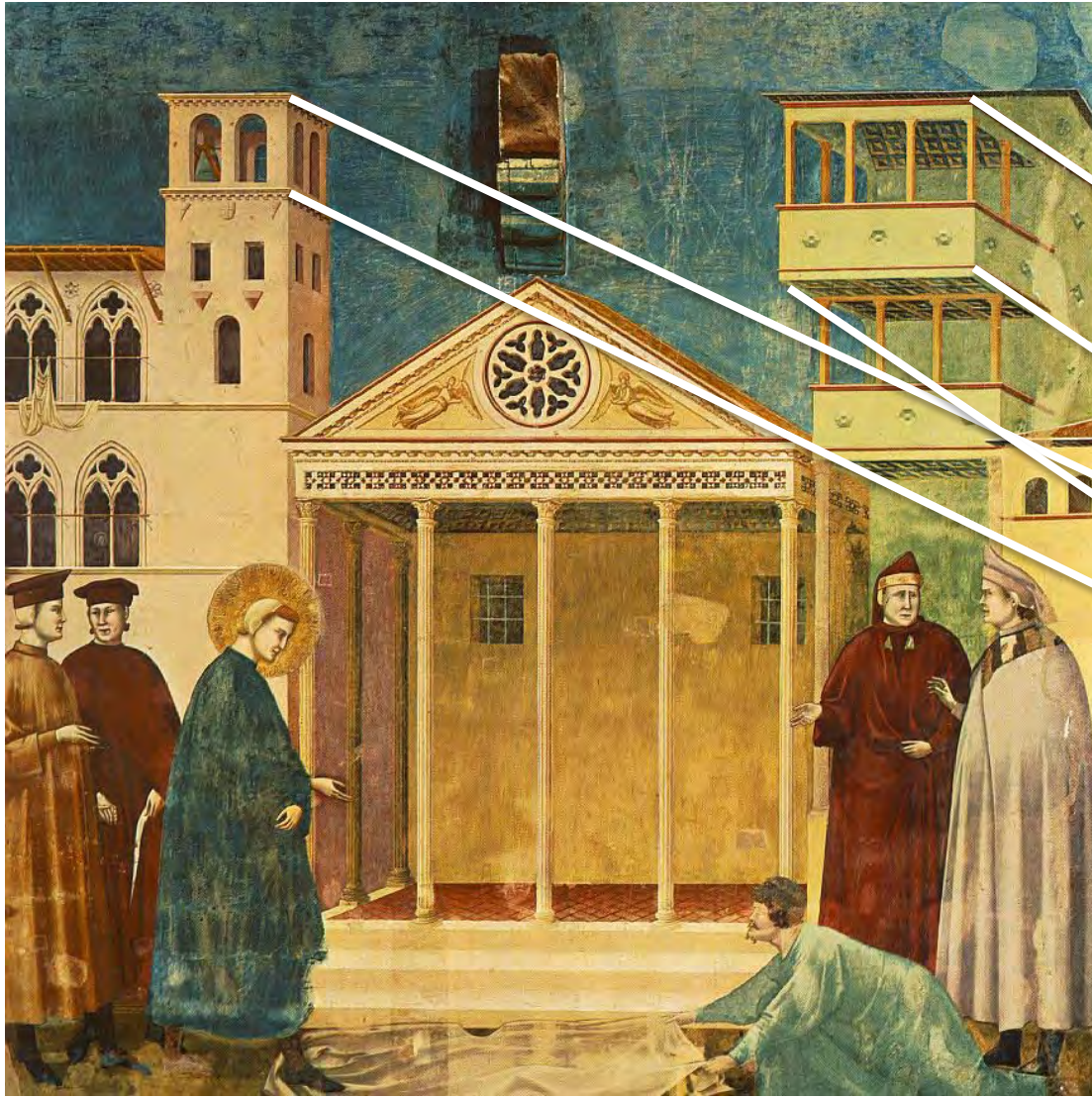




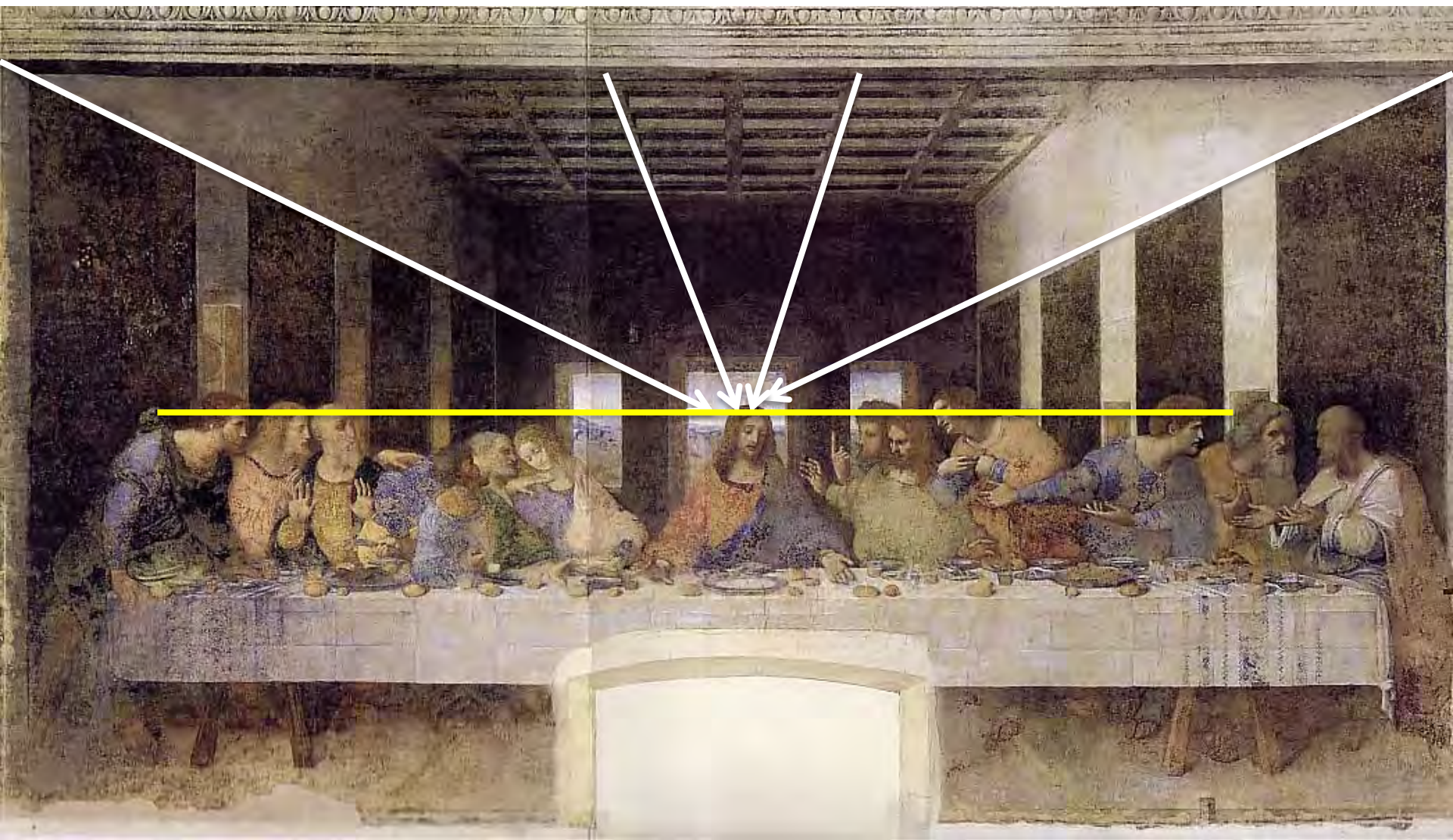


Vanishing
point

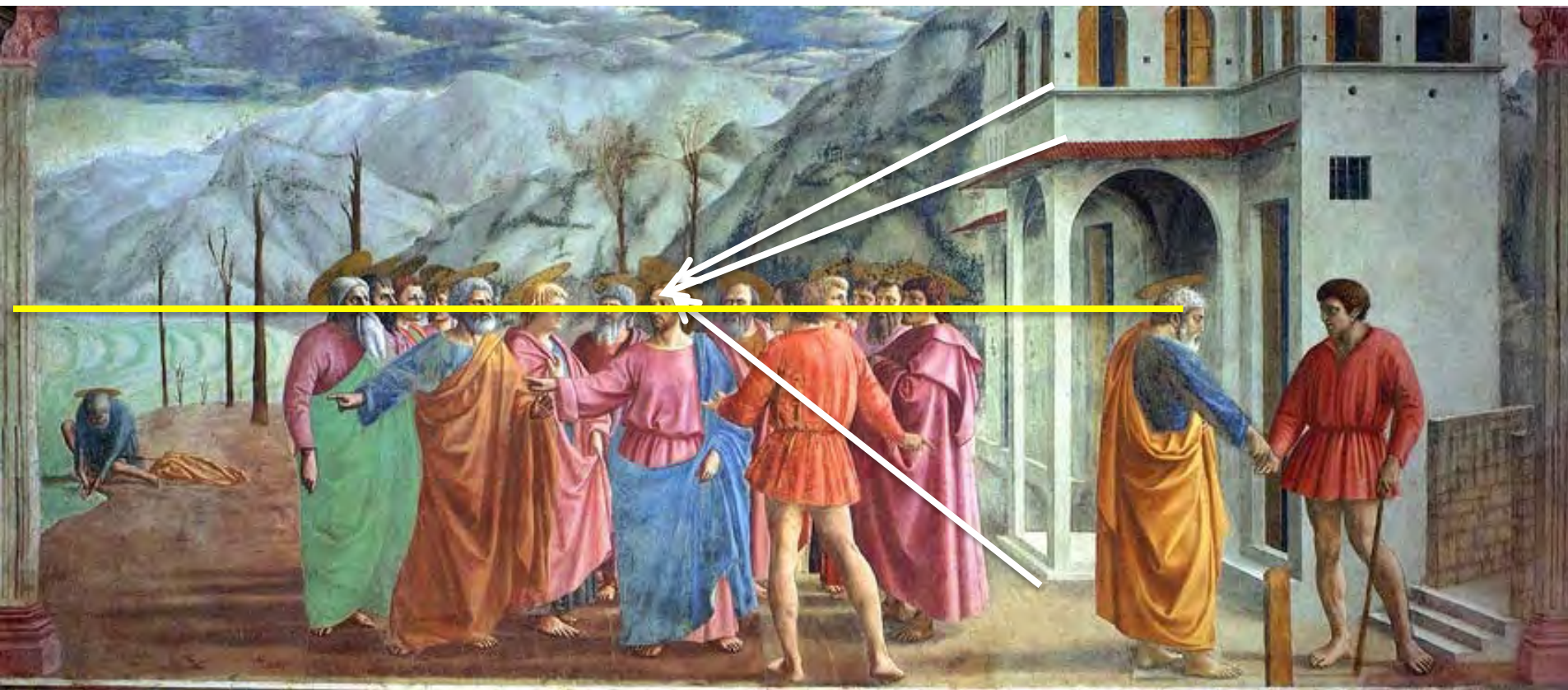
orthogonals



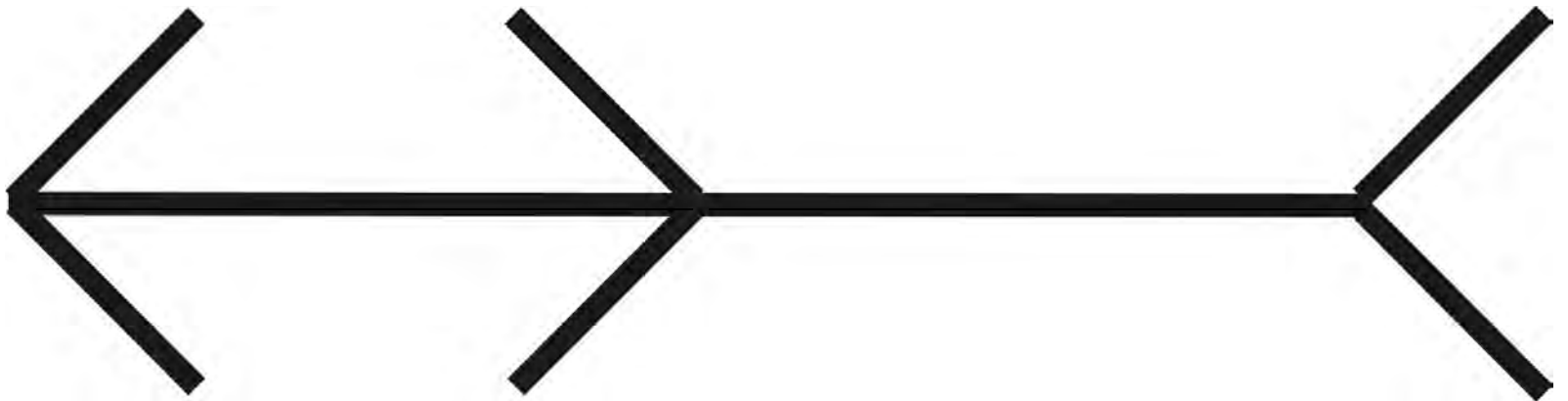
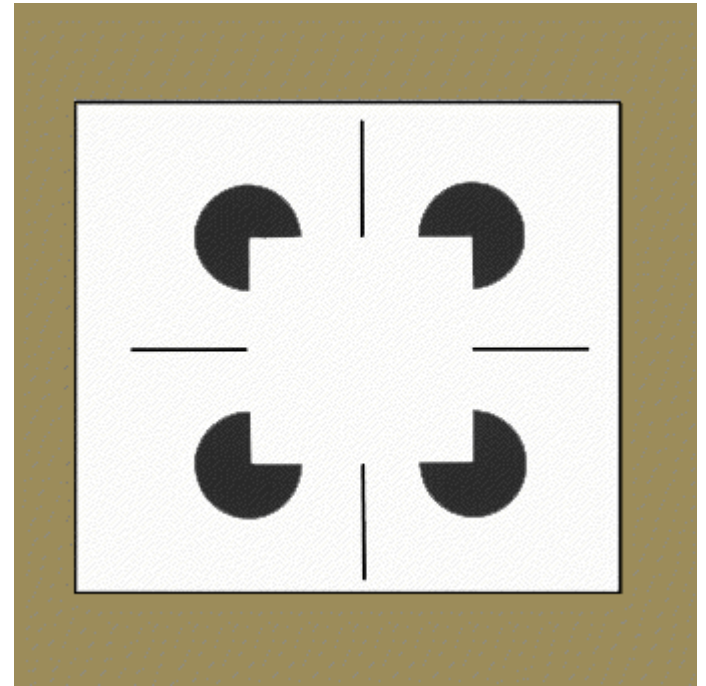
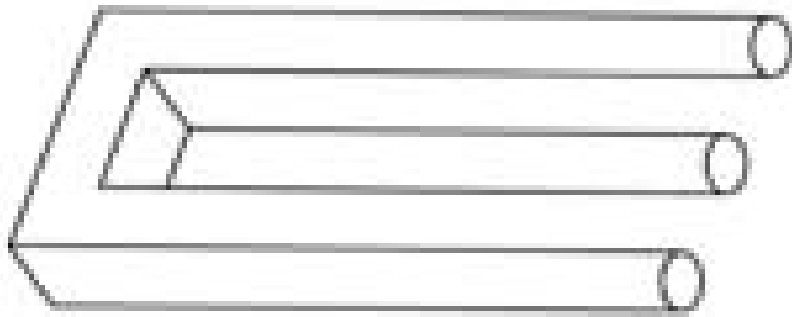








Other Options



One Point Perspective



This is called the horizon or you could refer to this as your line of sight.



This is called your vanishing point or the point in which your sight meets at the farthest point on the horizon.

There are three simple rules to remember when your are dealing with one point perspective. They are:



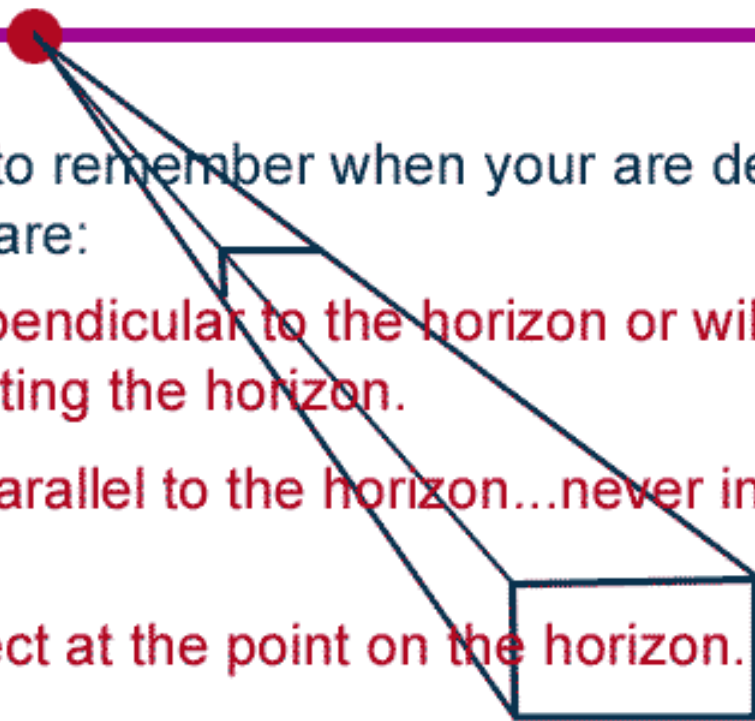
All vertical lines are perpendicular to the horizon or will form a 90° angle when intersecting the horizon.



All horizontal lines are parallel to the horizon...never intersecting with the horizon.



All diagonal lines intersect at the point on the horizon.



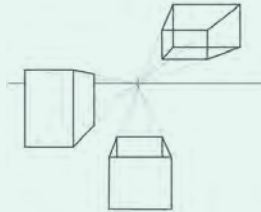
Unit 2 Perspective and Space

Part I: Preliminary Drawings

Using linear perspective, students will create a series of drawings based on the following themes:

1 Point Perspective

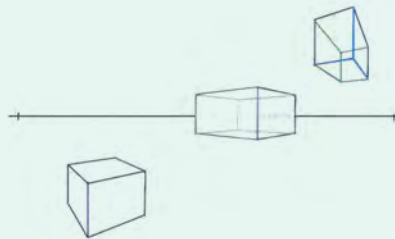
1. Minimum of 12 Boxes at varied eye levels, including bird's eye, normal, and worm eye views. Also include overlapping and cutouts.



(1 point)

2 Point Perspective

2. A series of 12 boxes which illustrate hidden edges (2 point)
3. A city block (2 point)
4. Circles and cylinders in perspective (2 point)
5. A set of stairs, eight steps minimum (2 point)

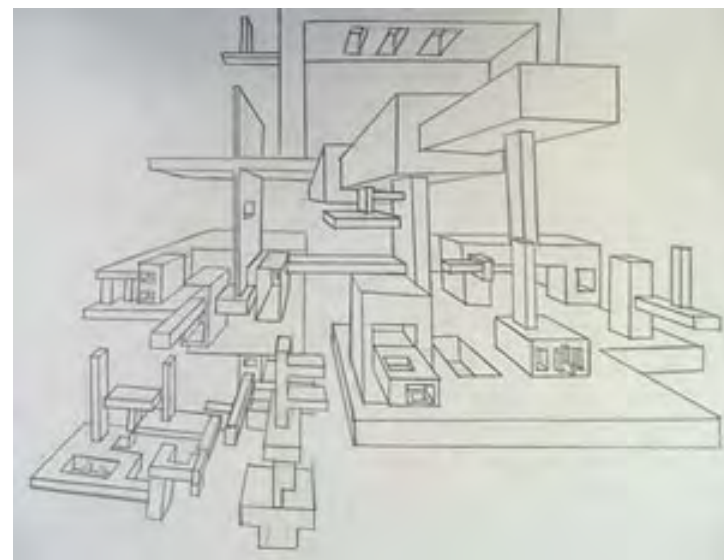
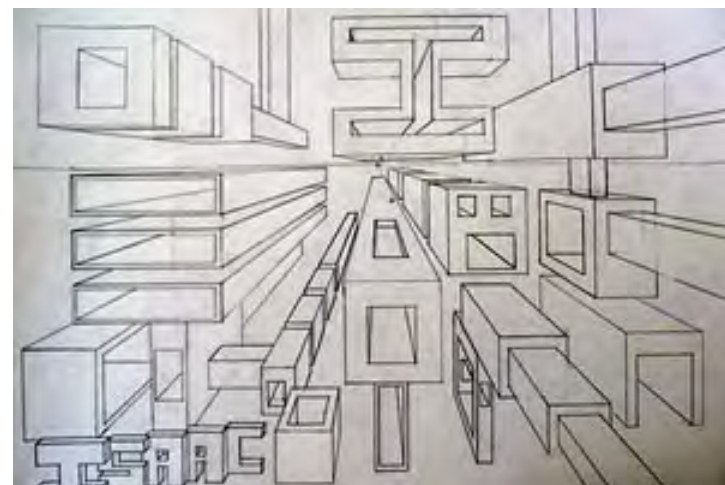
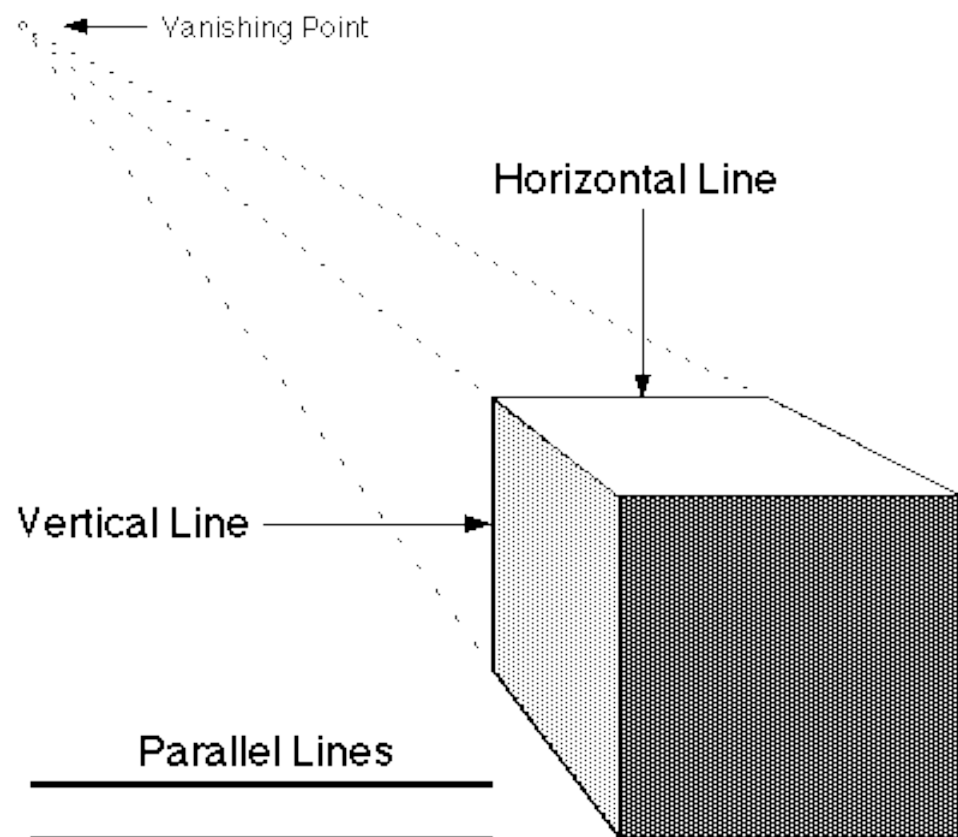


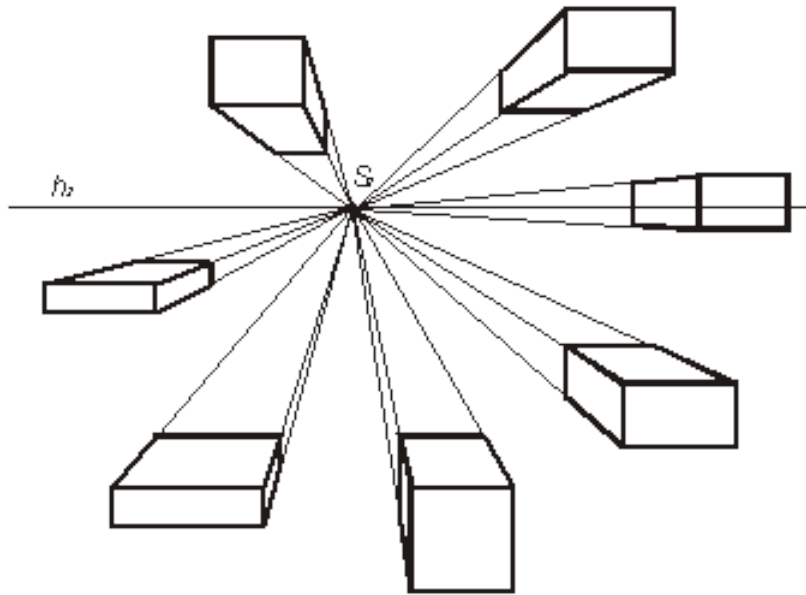
All drawings should have the proper vanishing point(s) and discernible horizon line.

Work will be completed on 9 x 12 inch paper using a No. 2 or HB pencil.

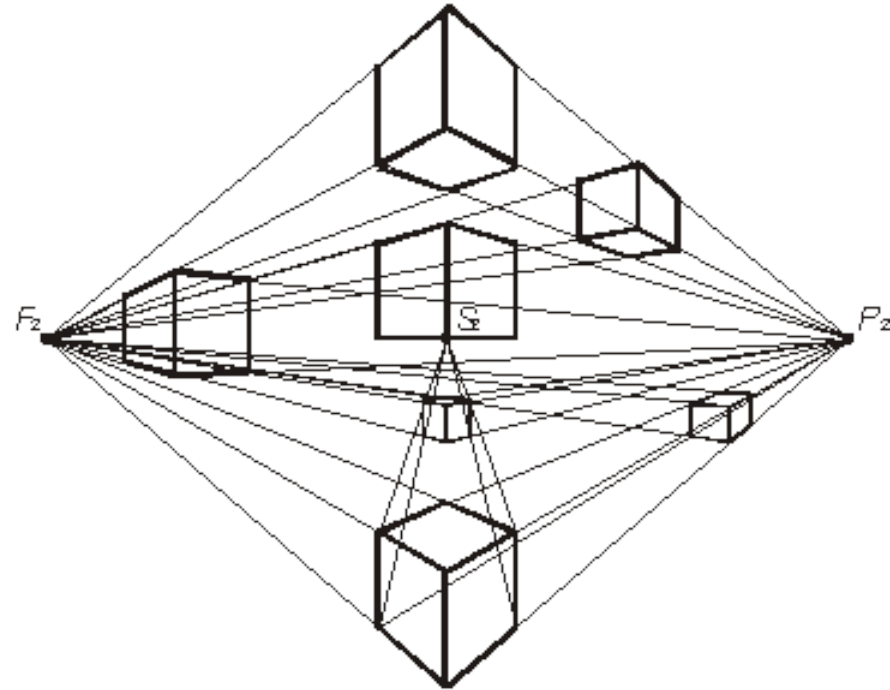
Setting Goals & Objectives

Establishing Prior Knowledge

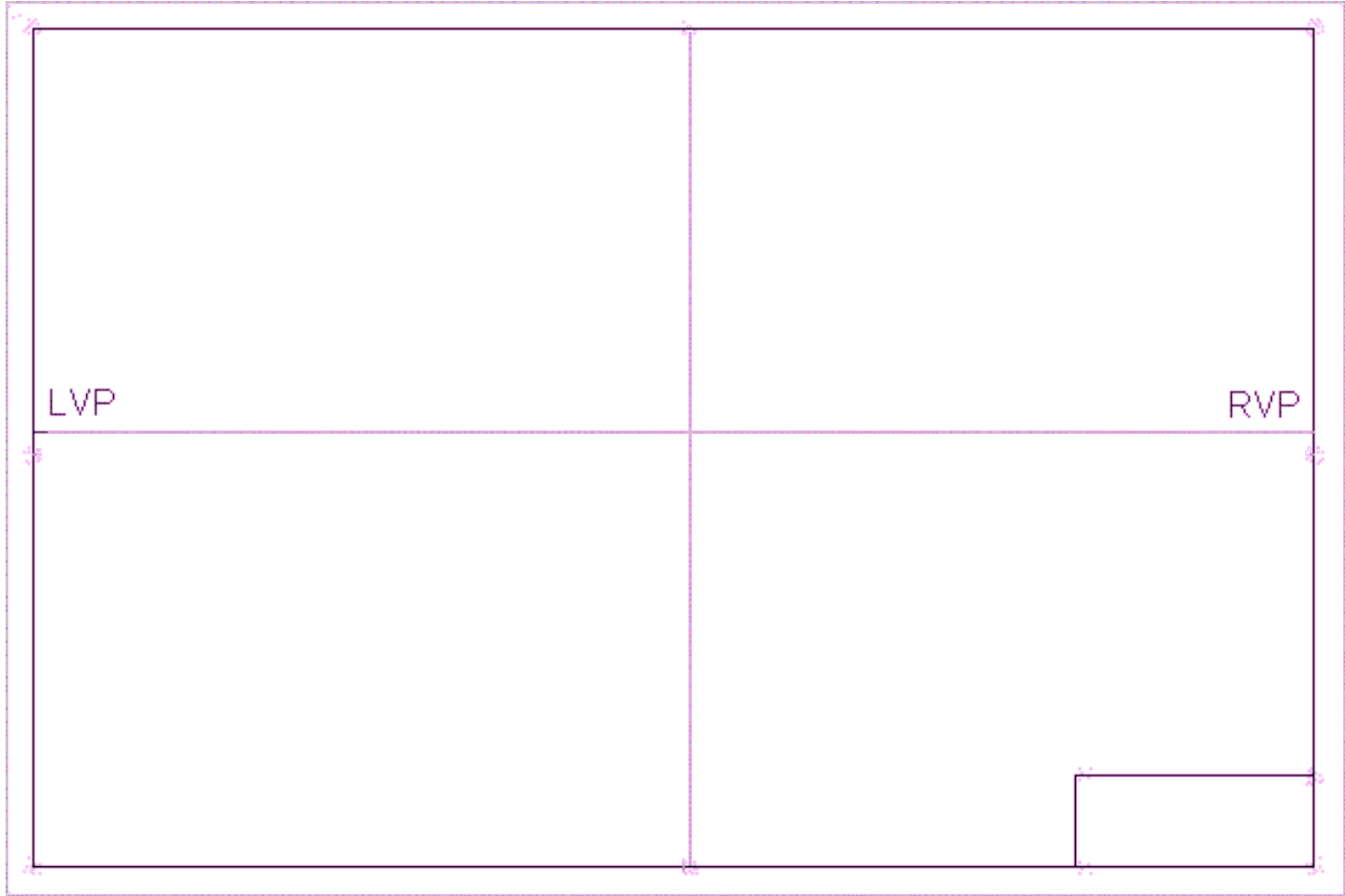


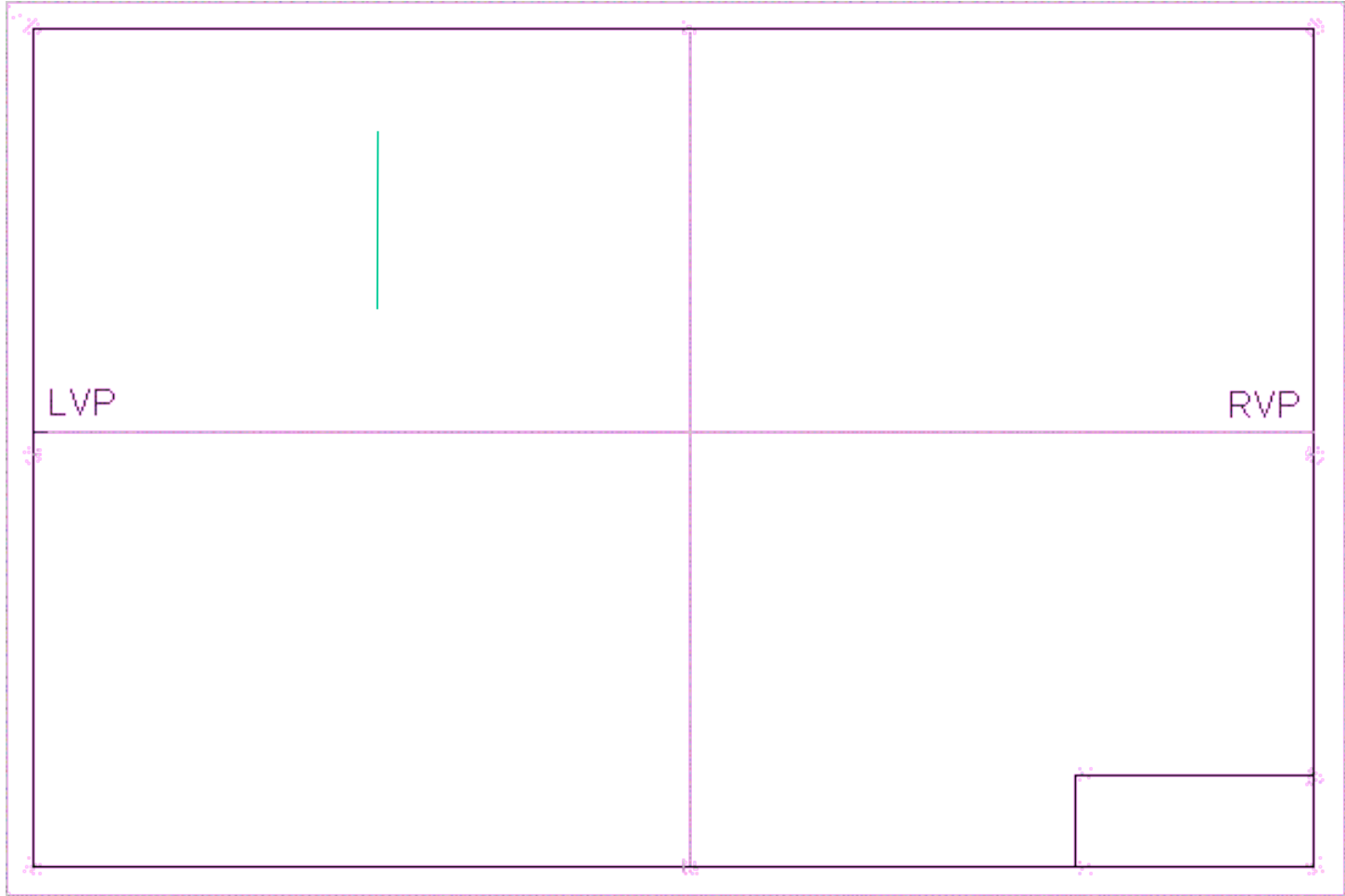


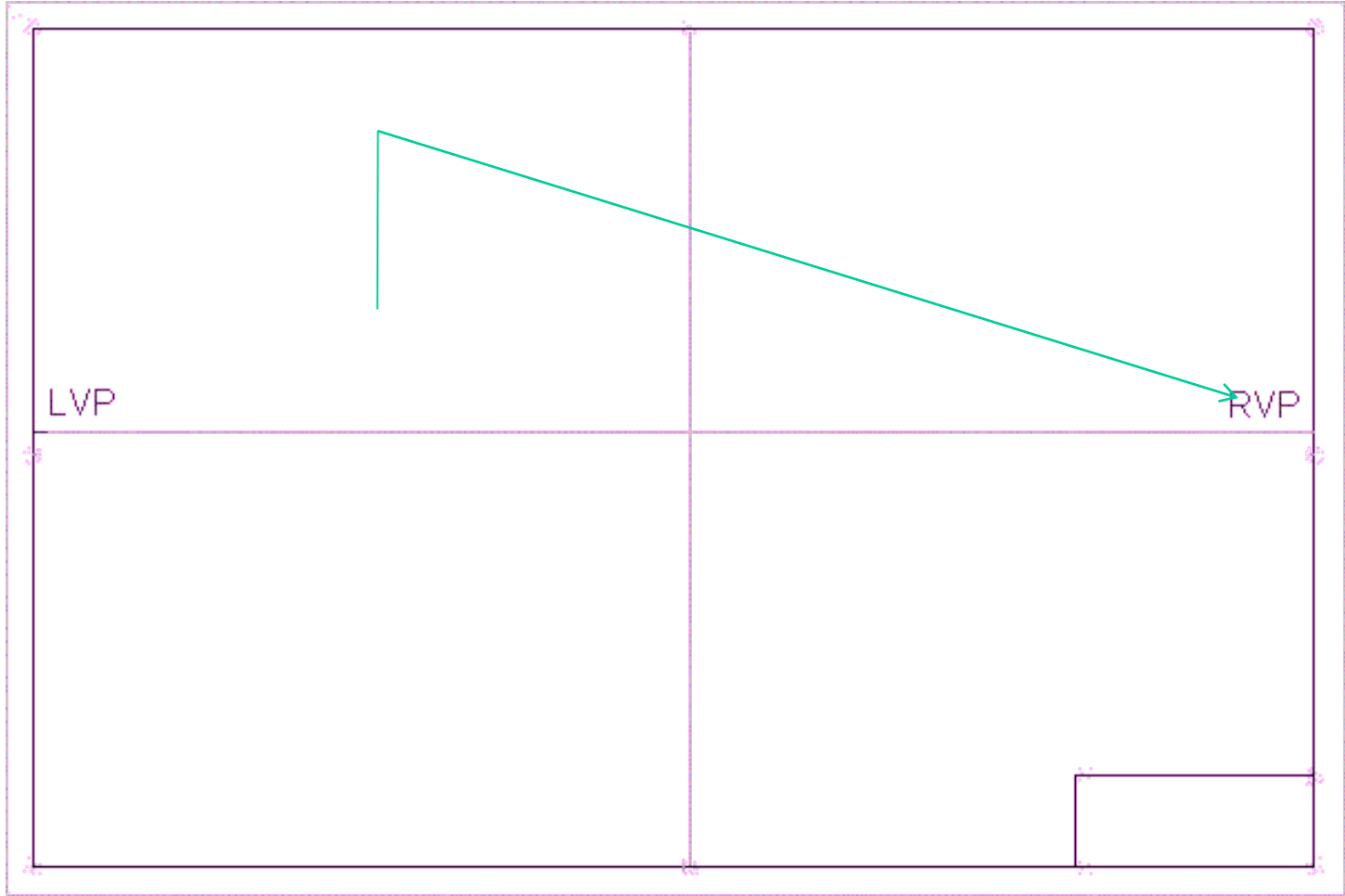
One Point Perspective

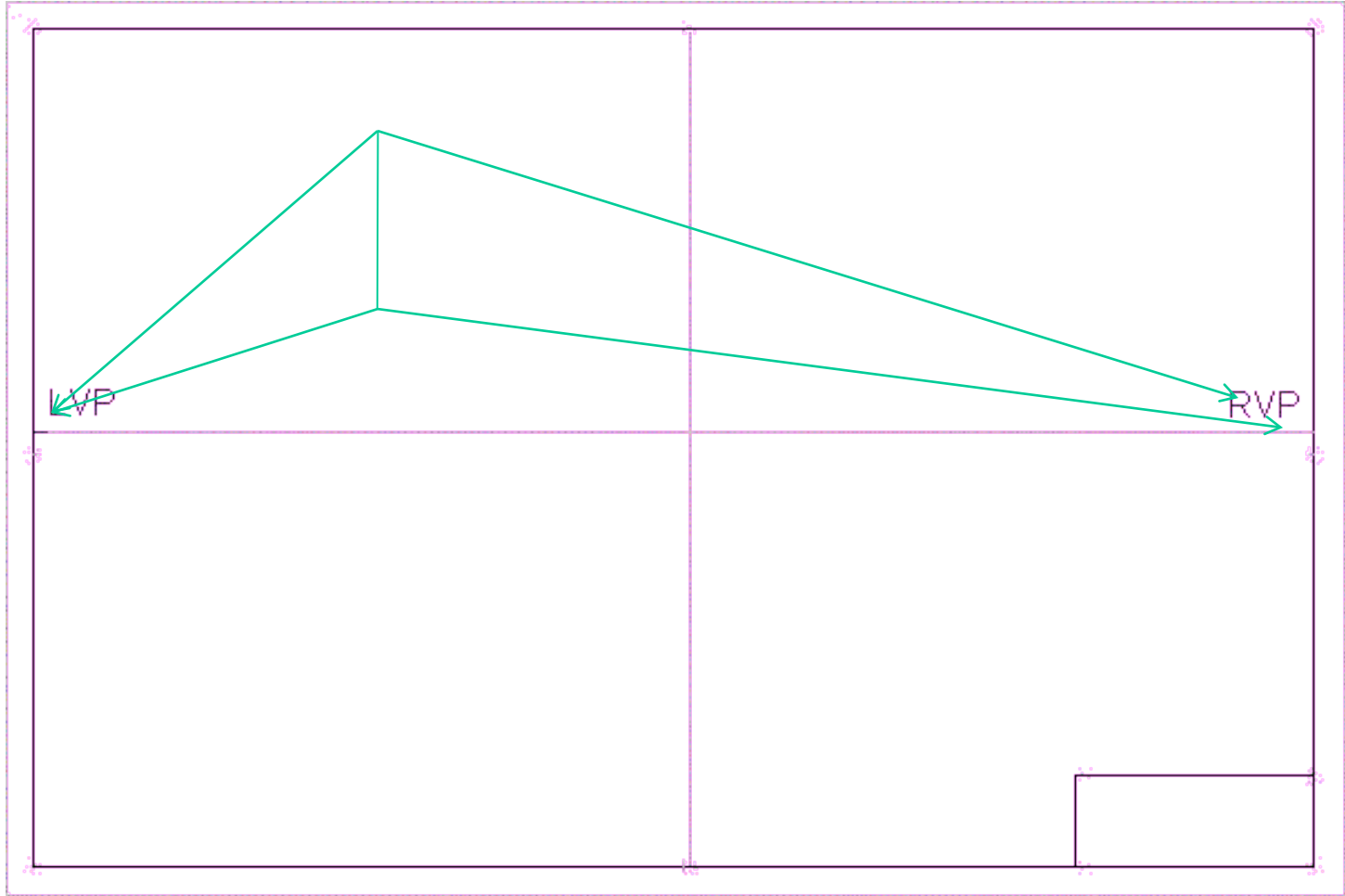


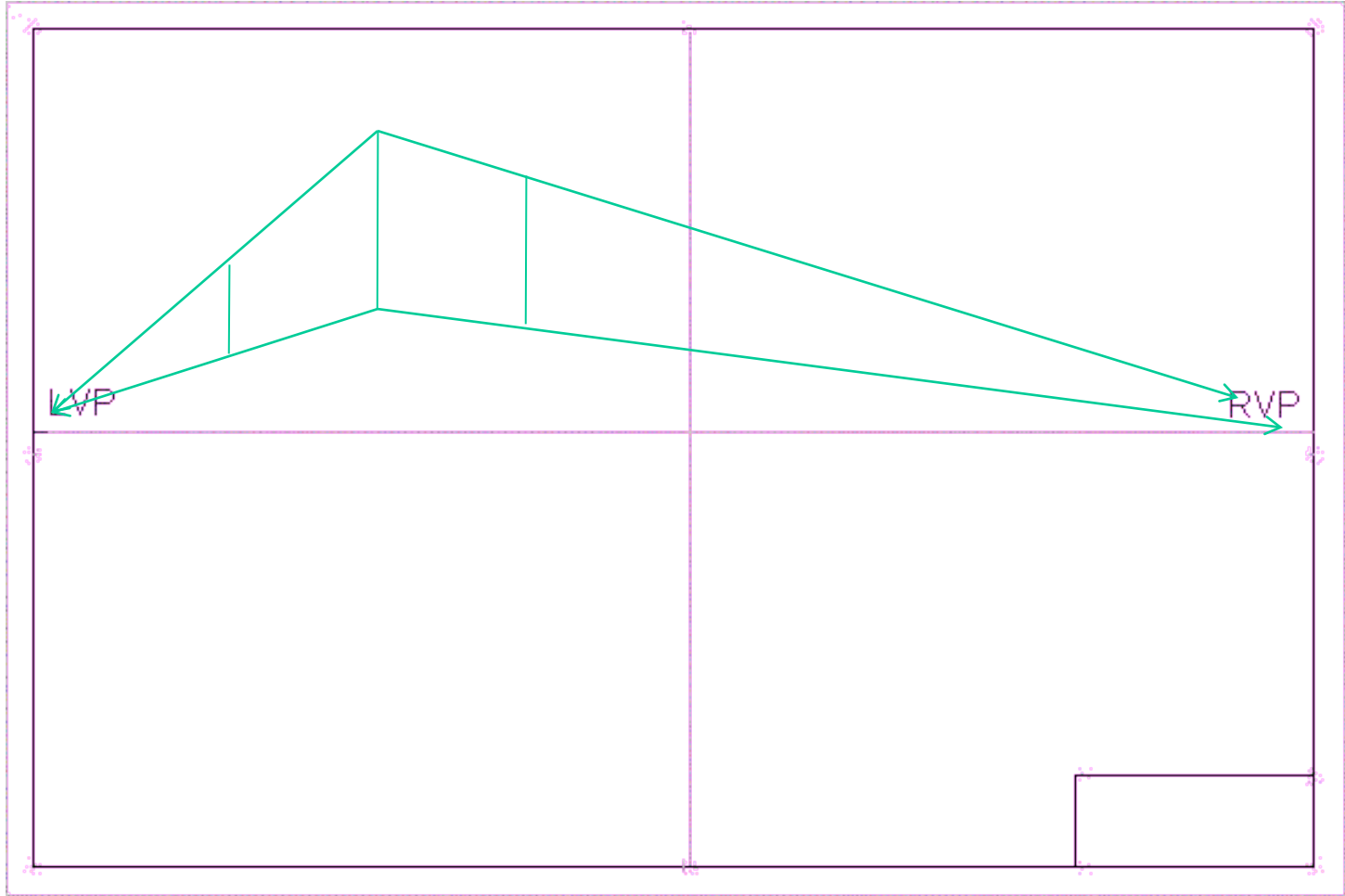
Two Point Perspective

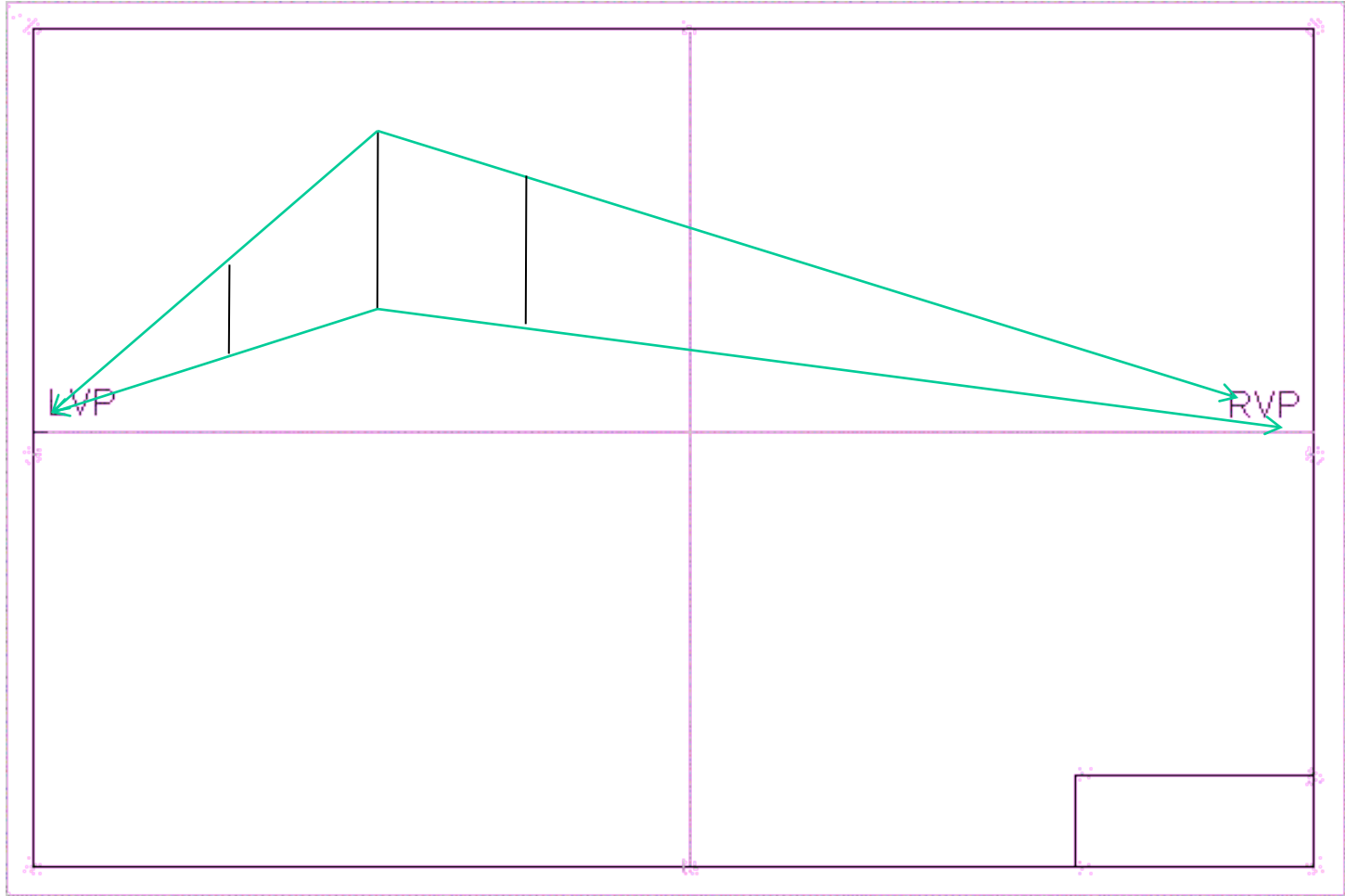


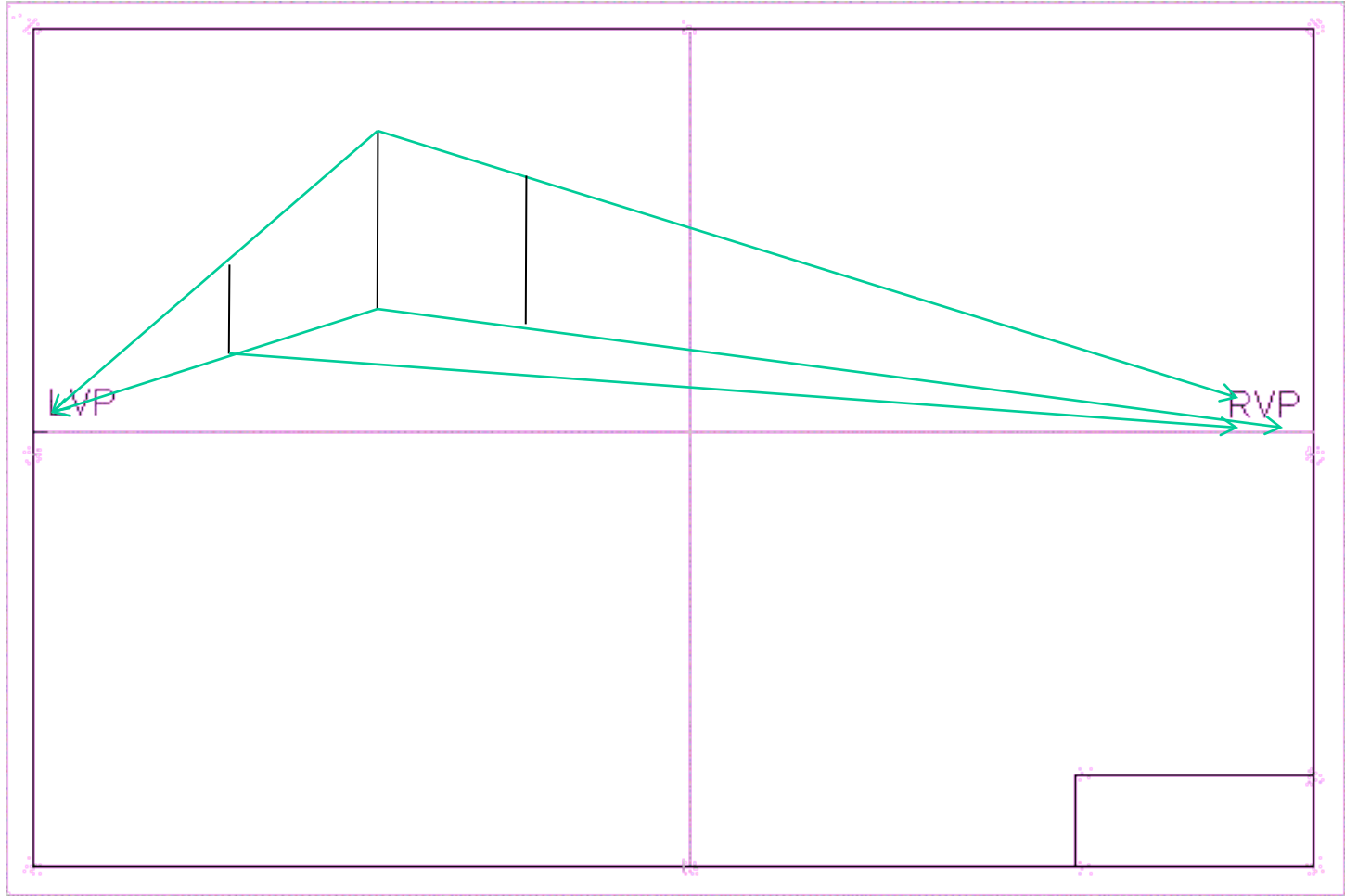


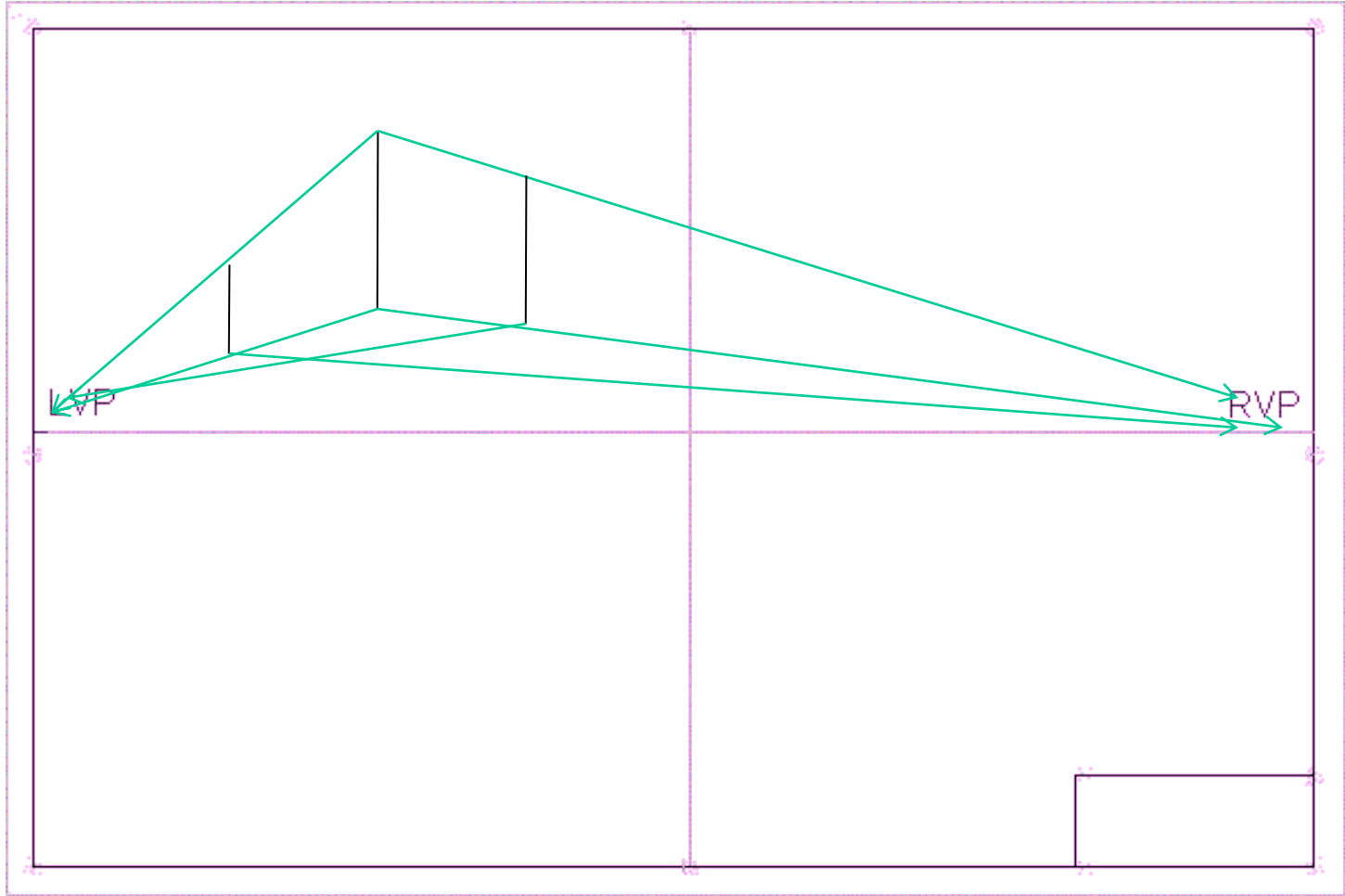


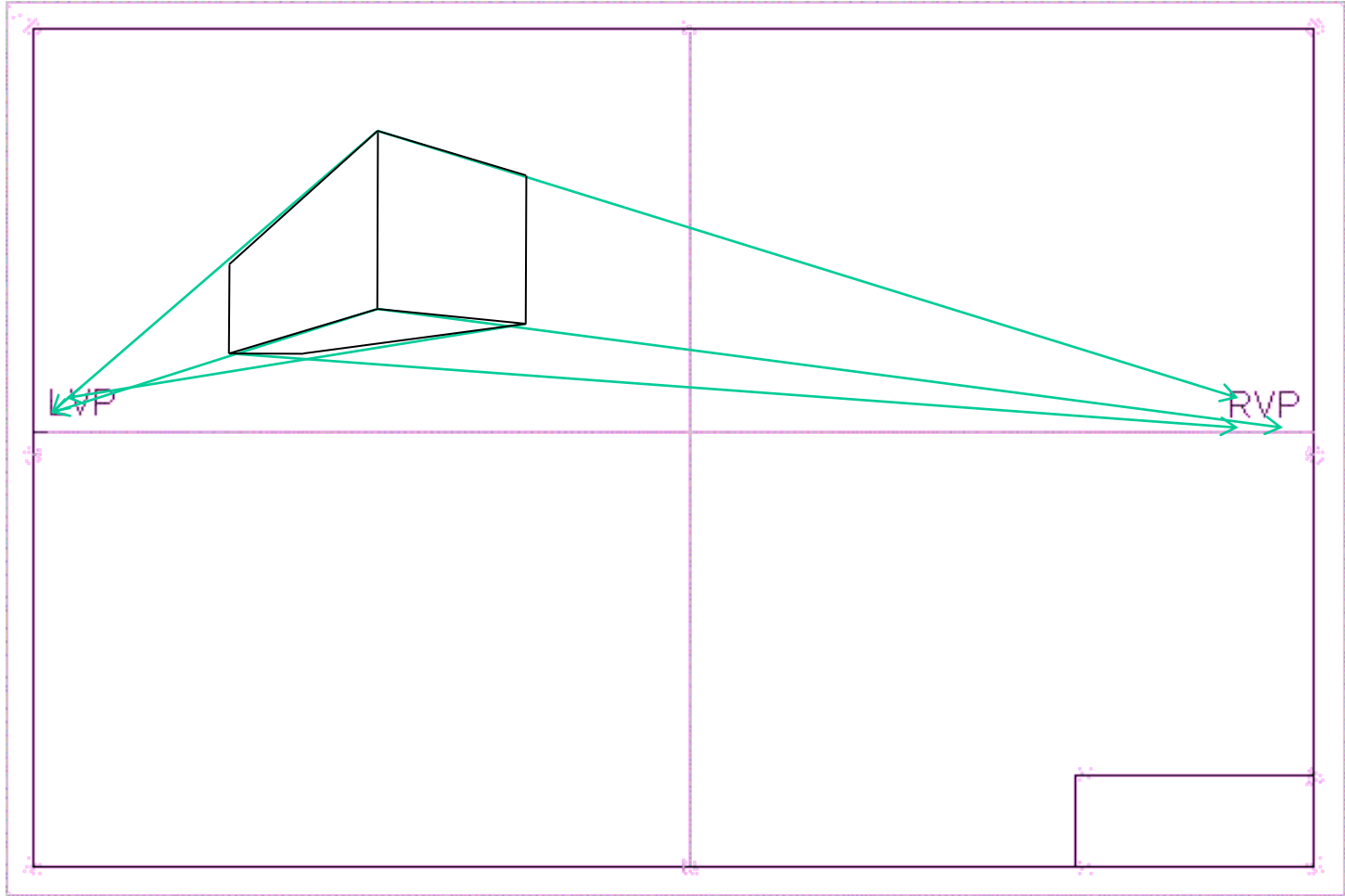


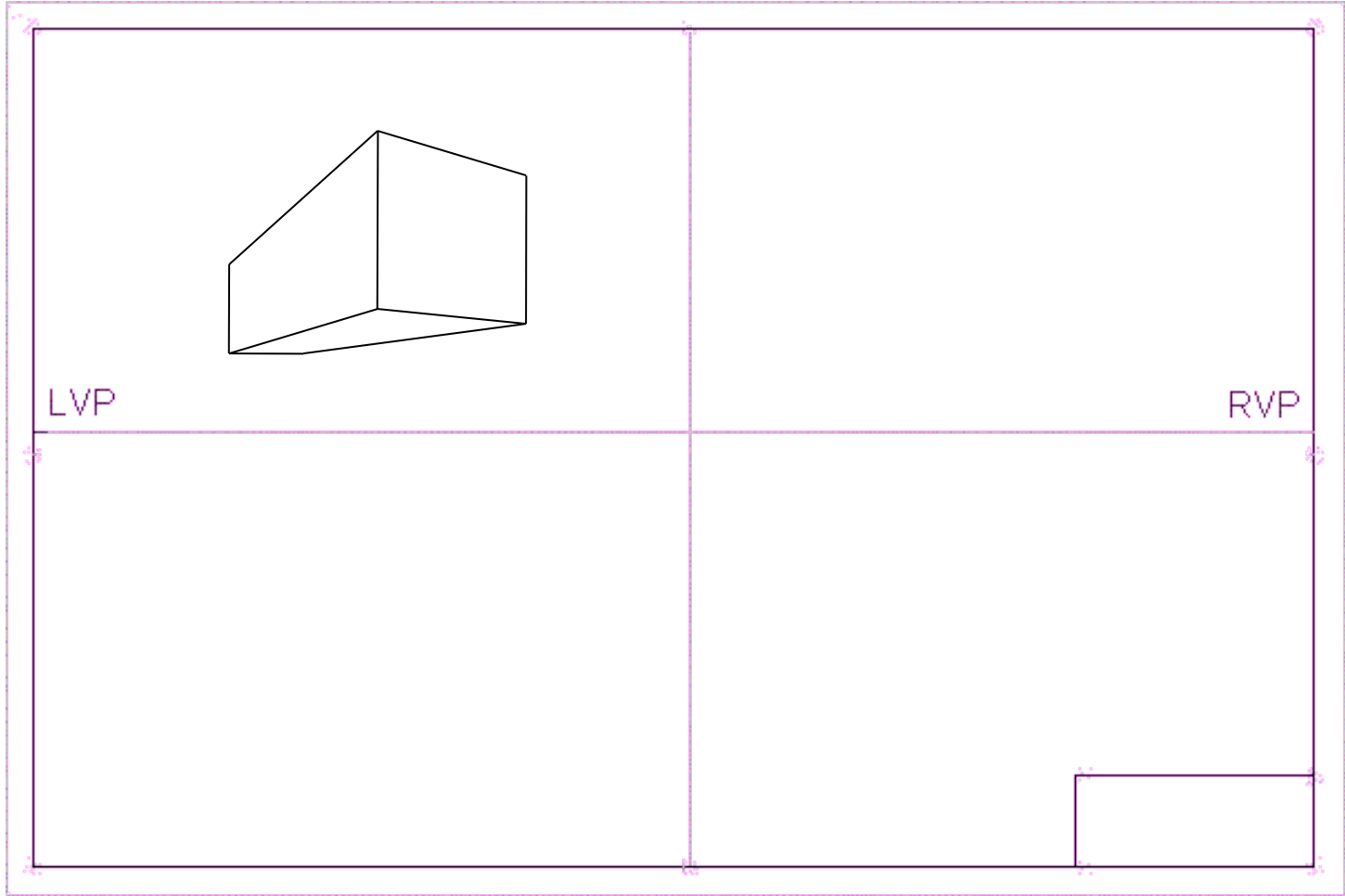


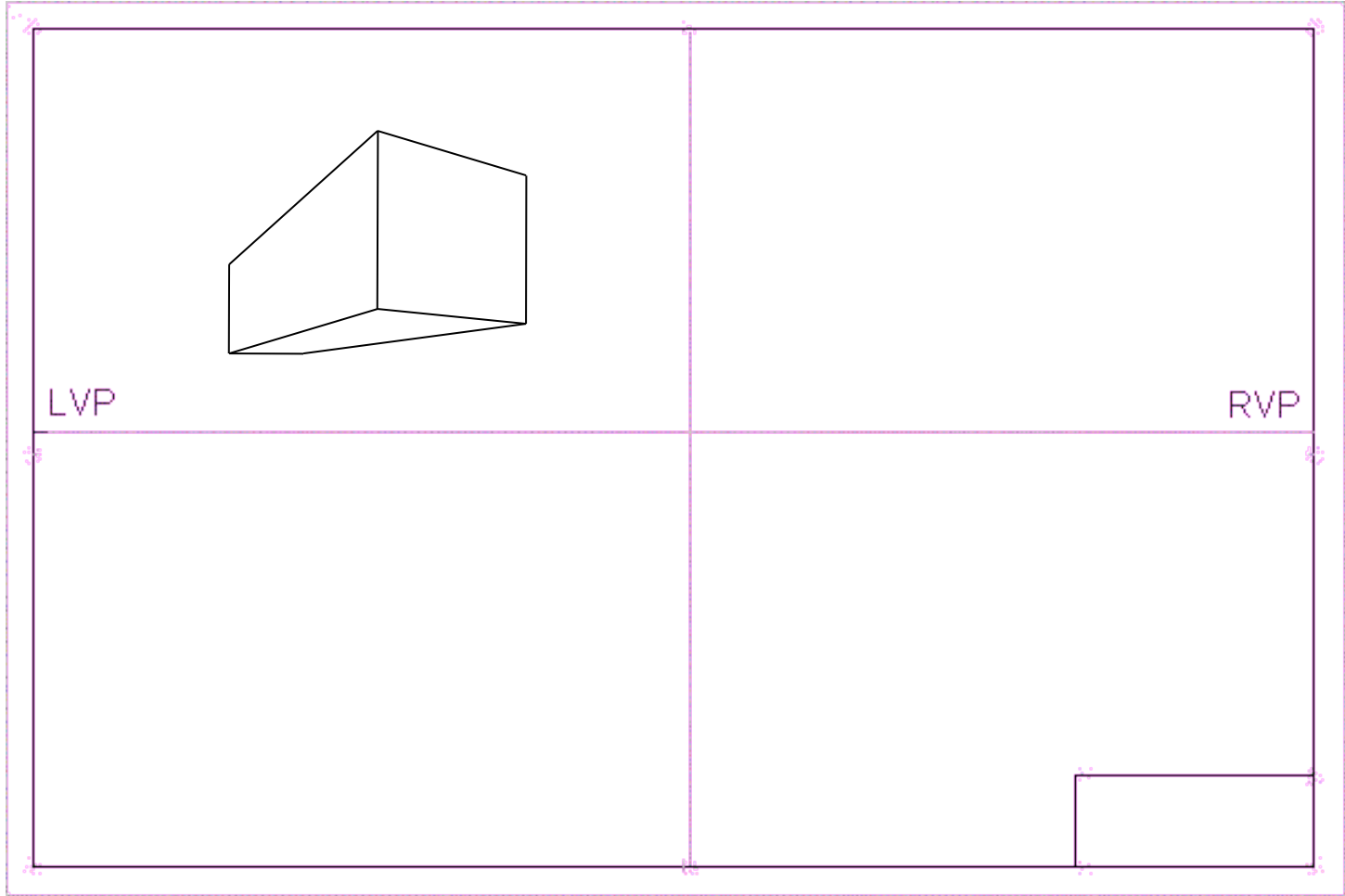


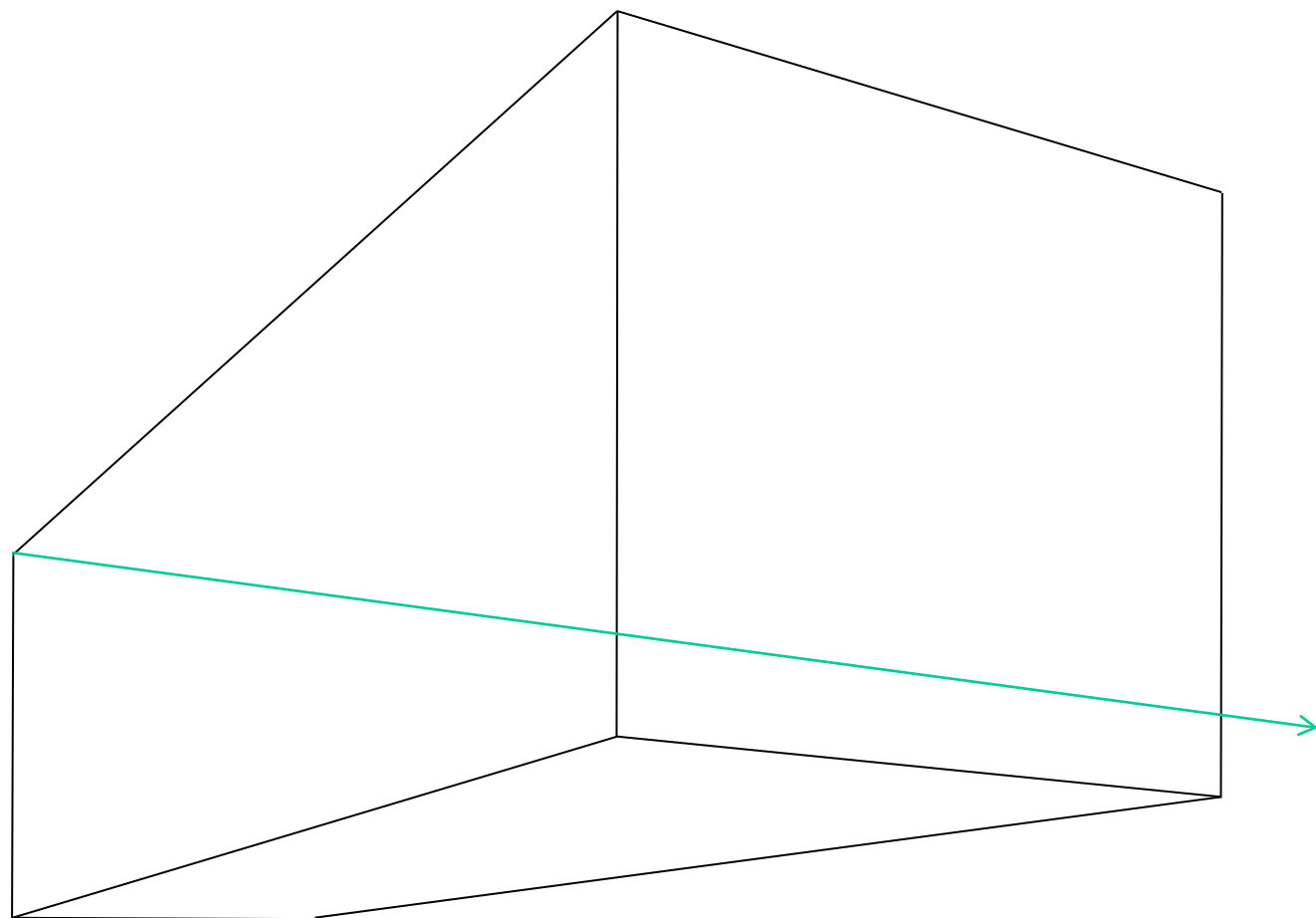


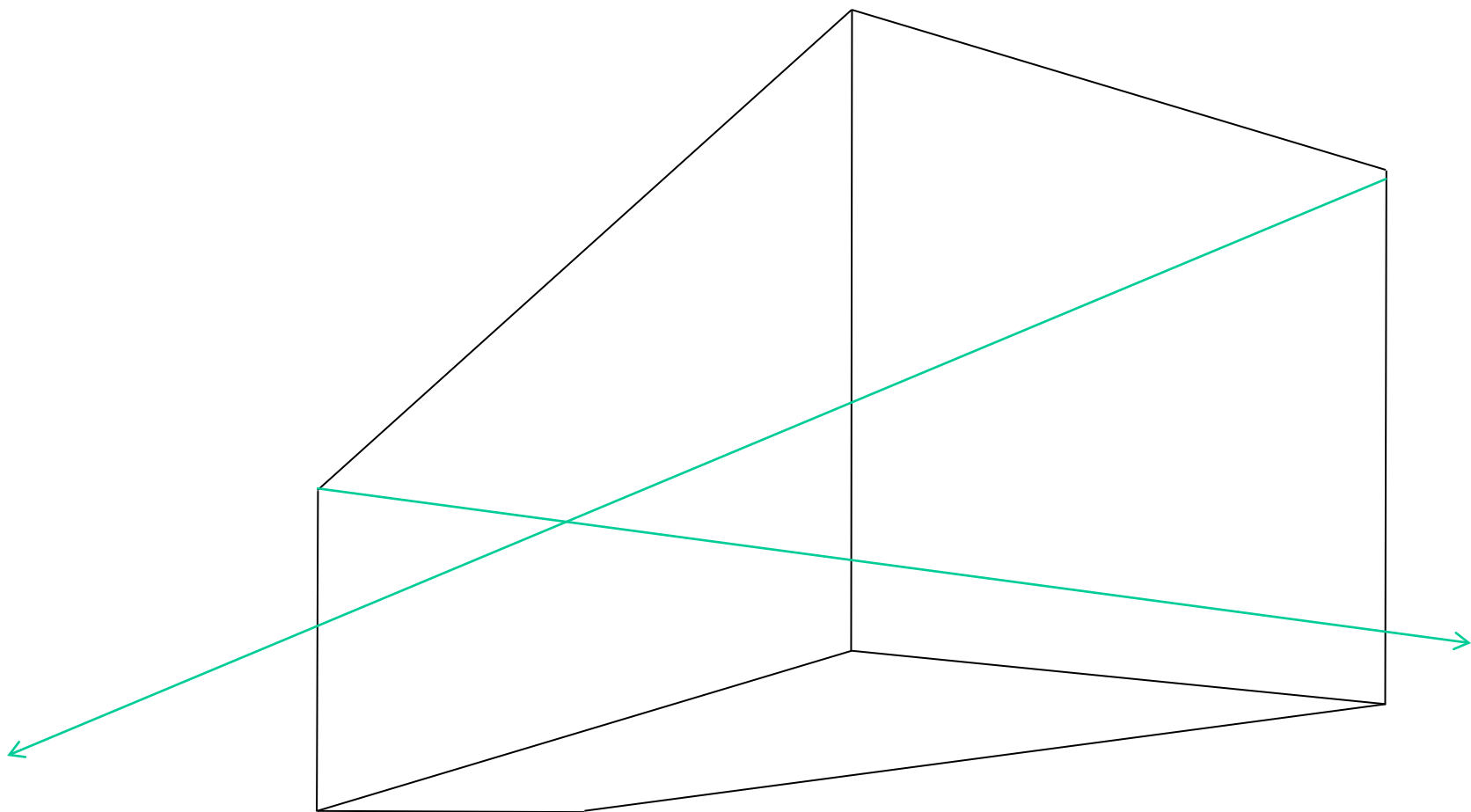


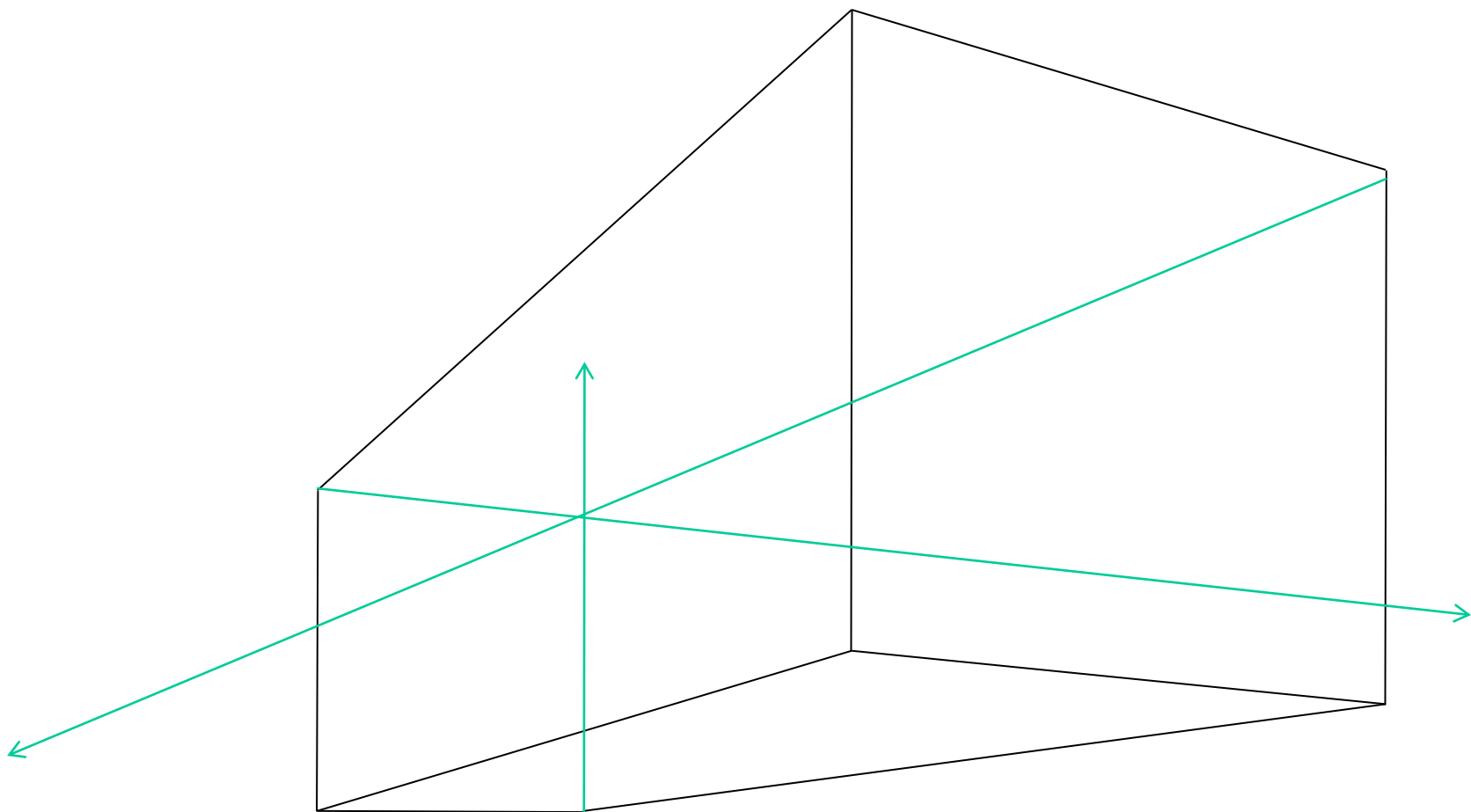


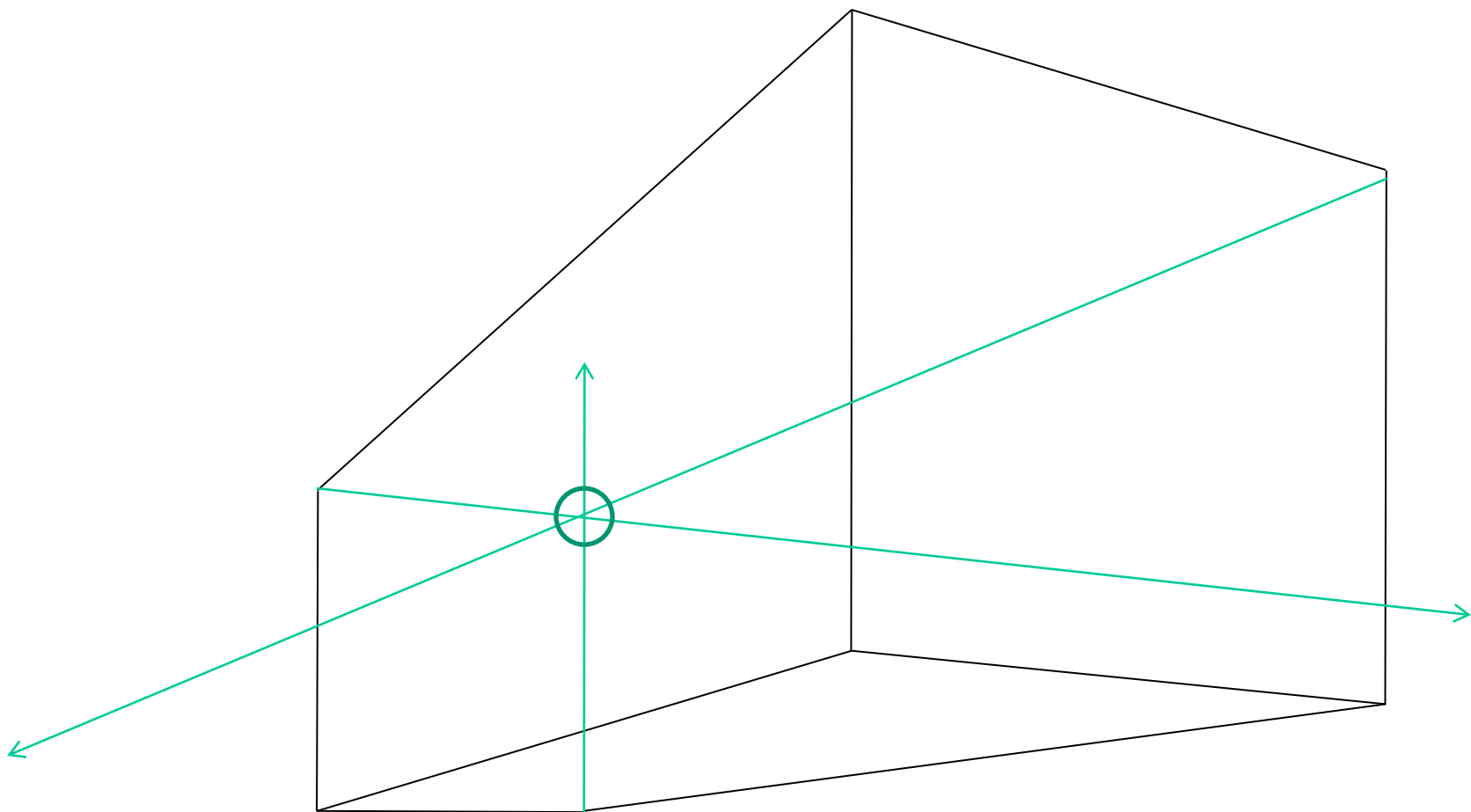


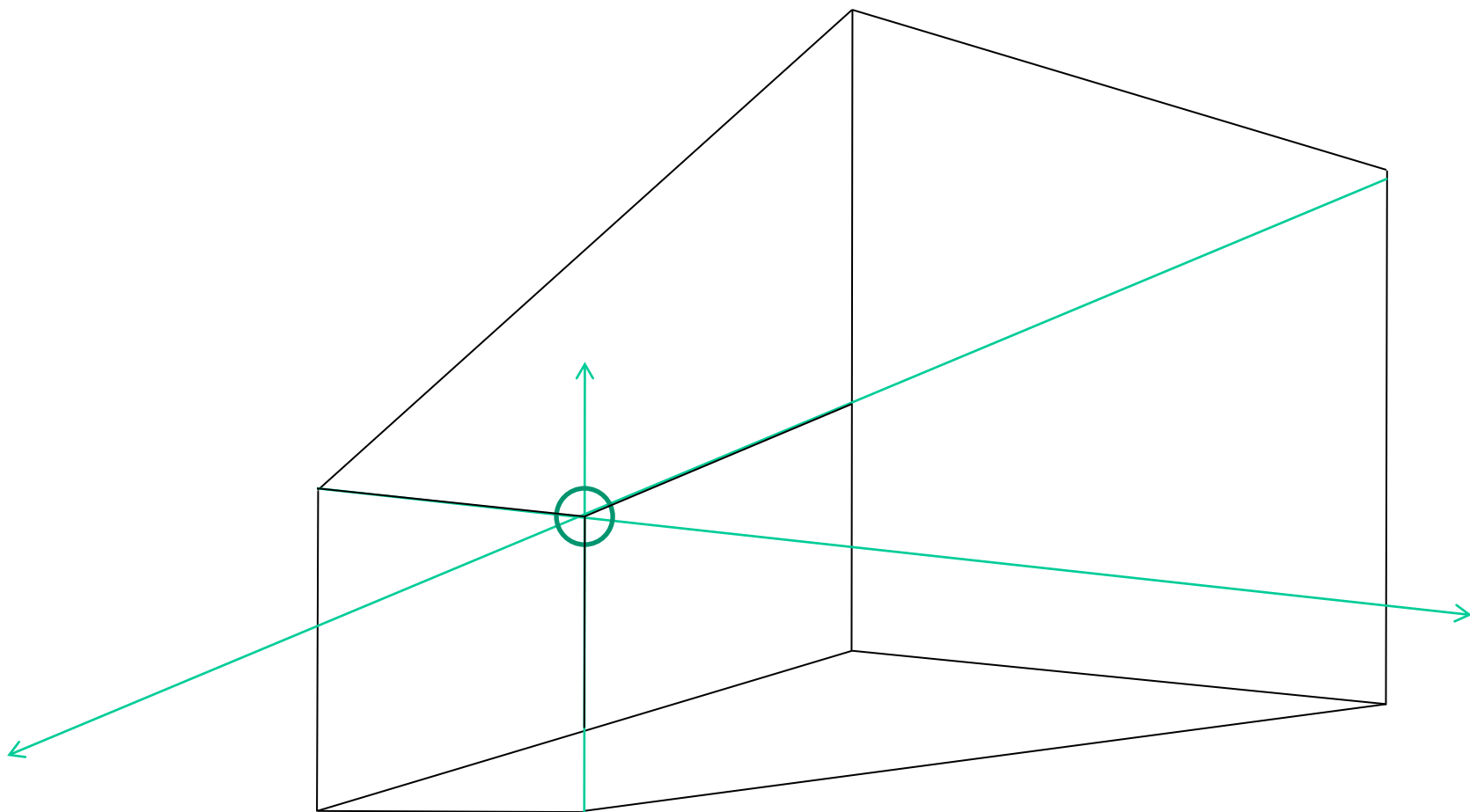


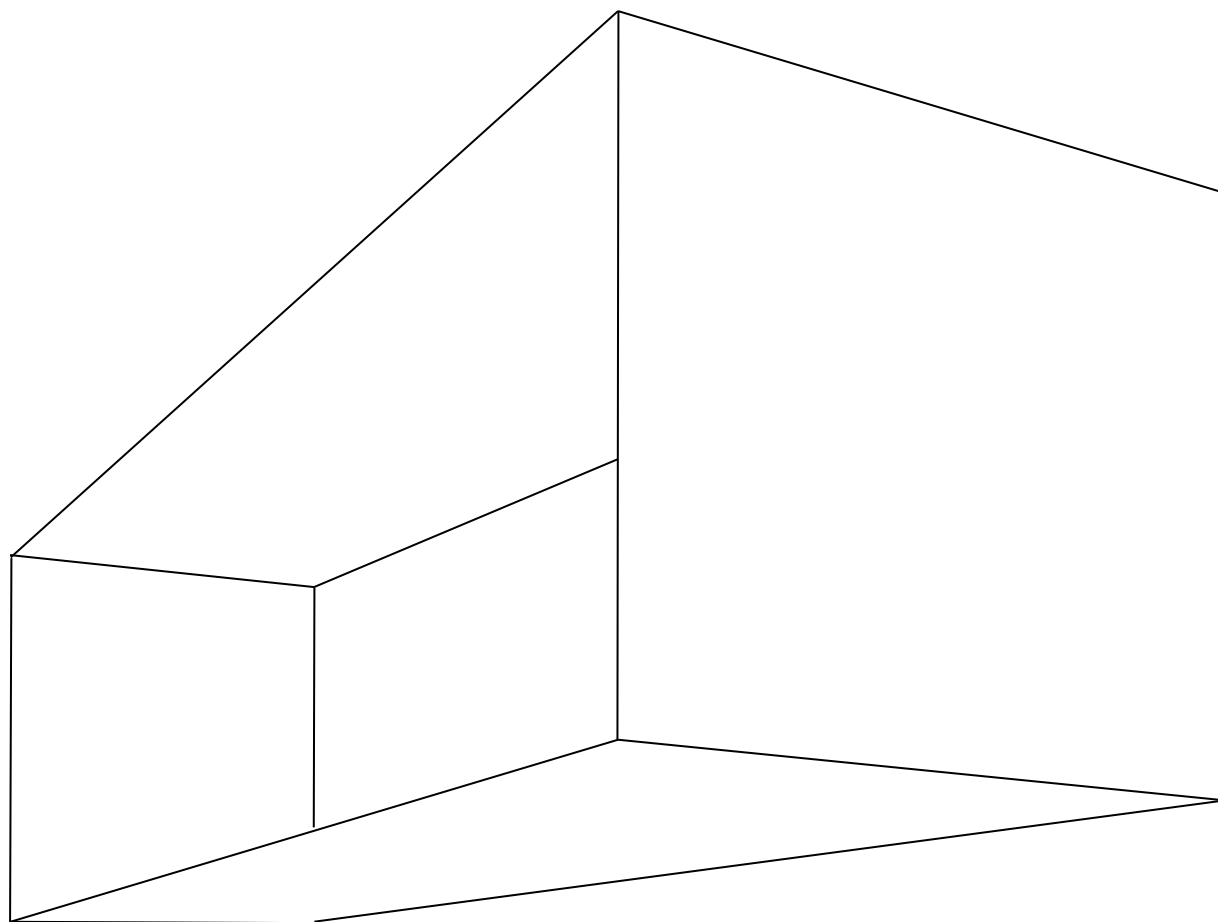


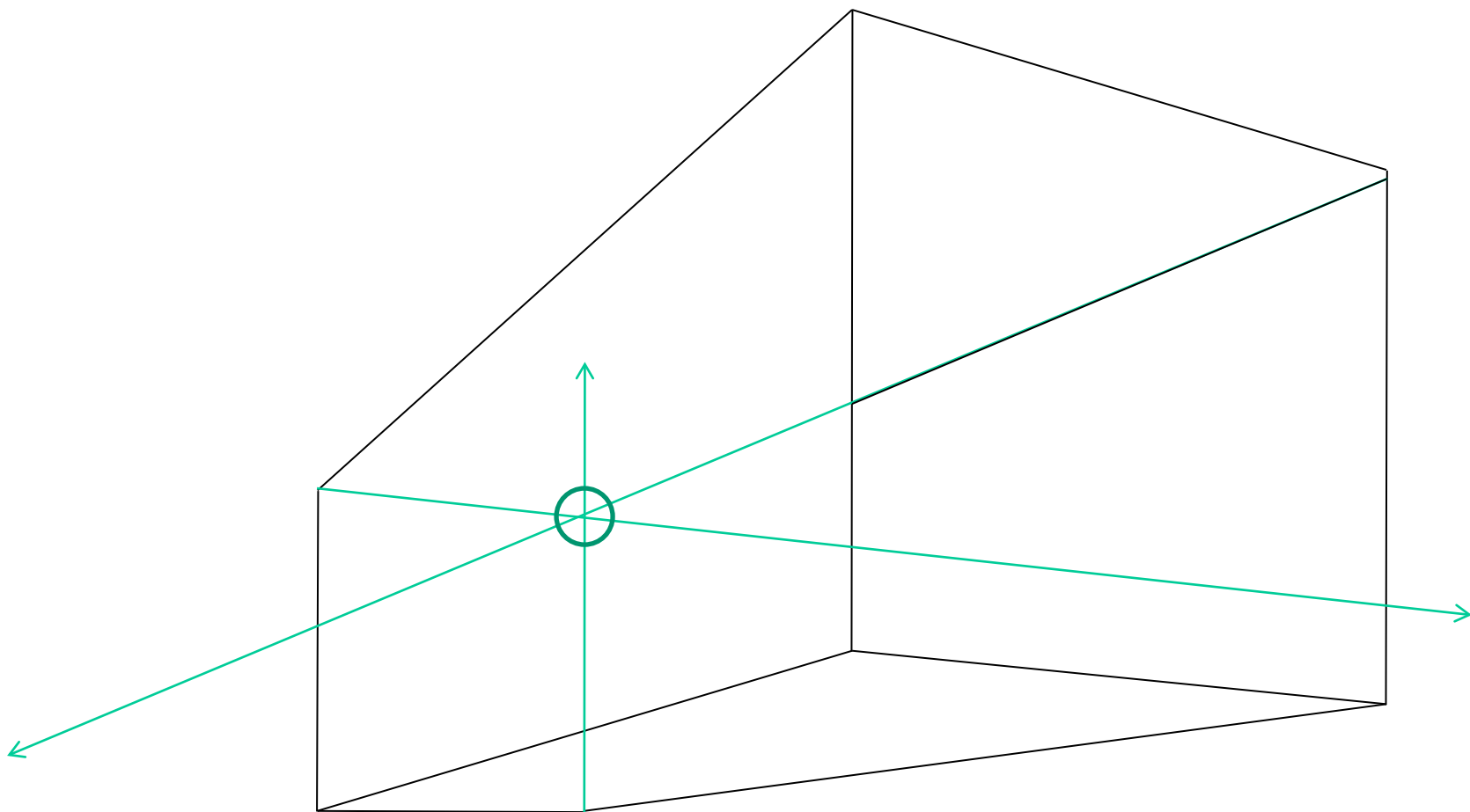


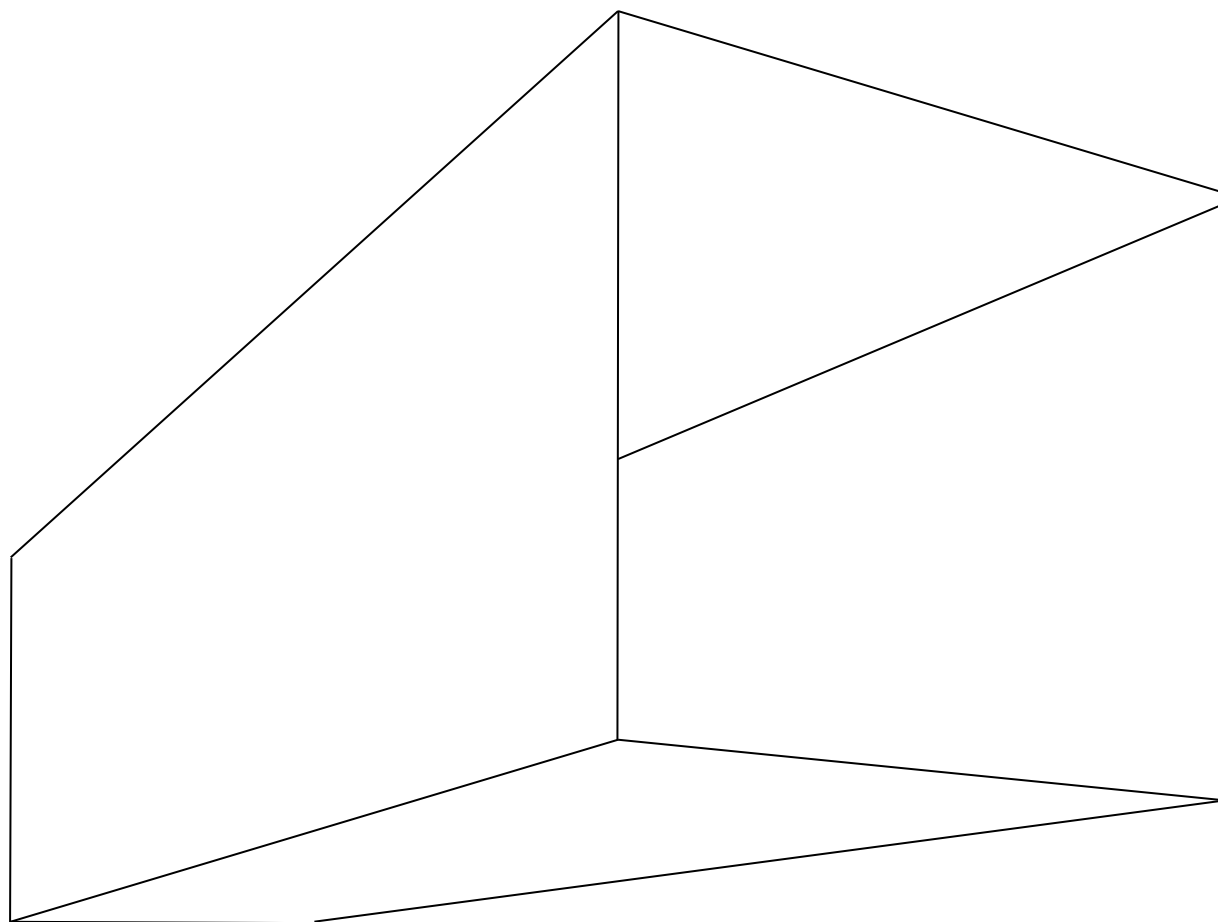


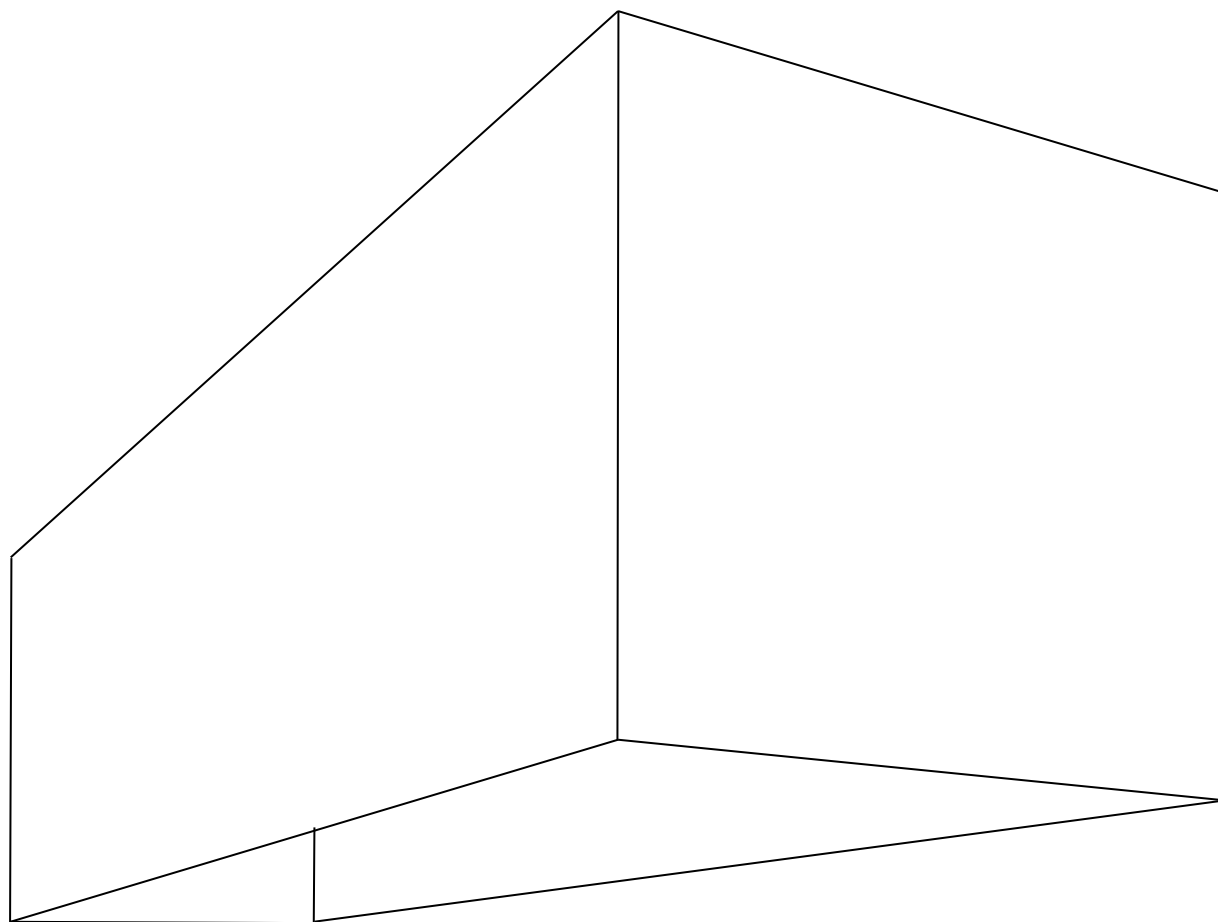


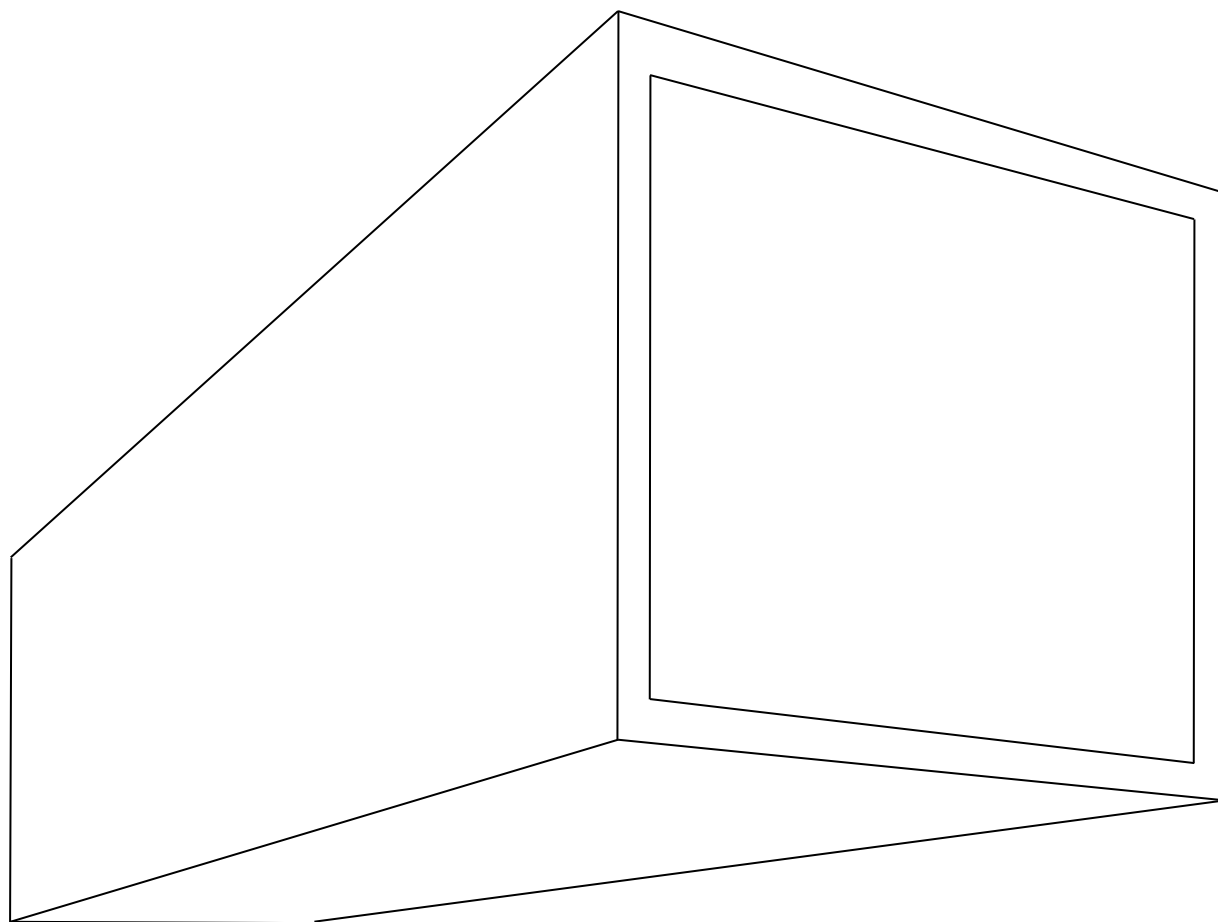


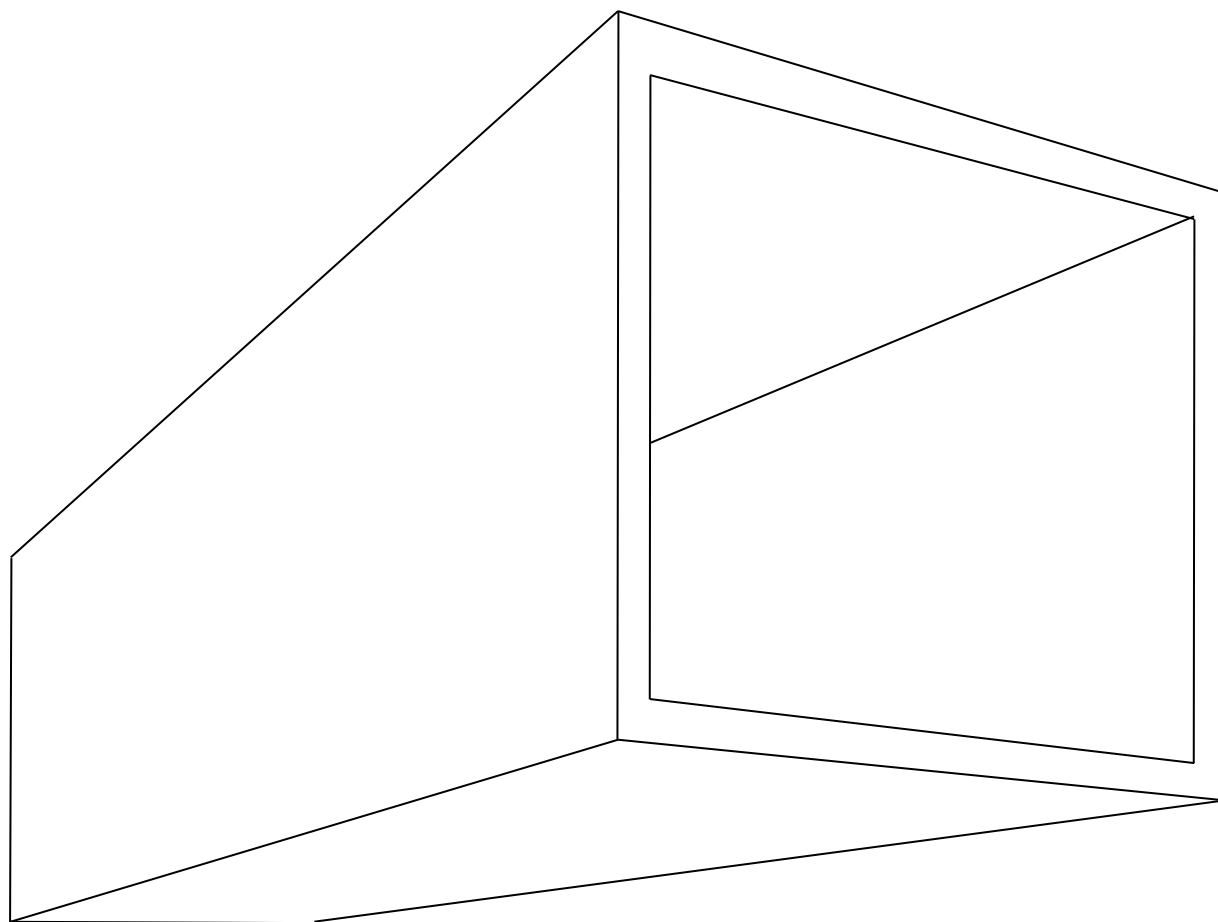


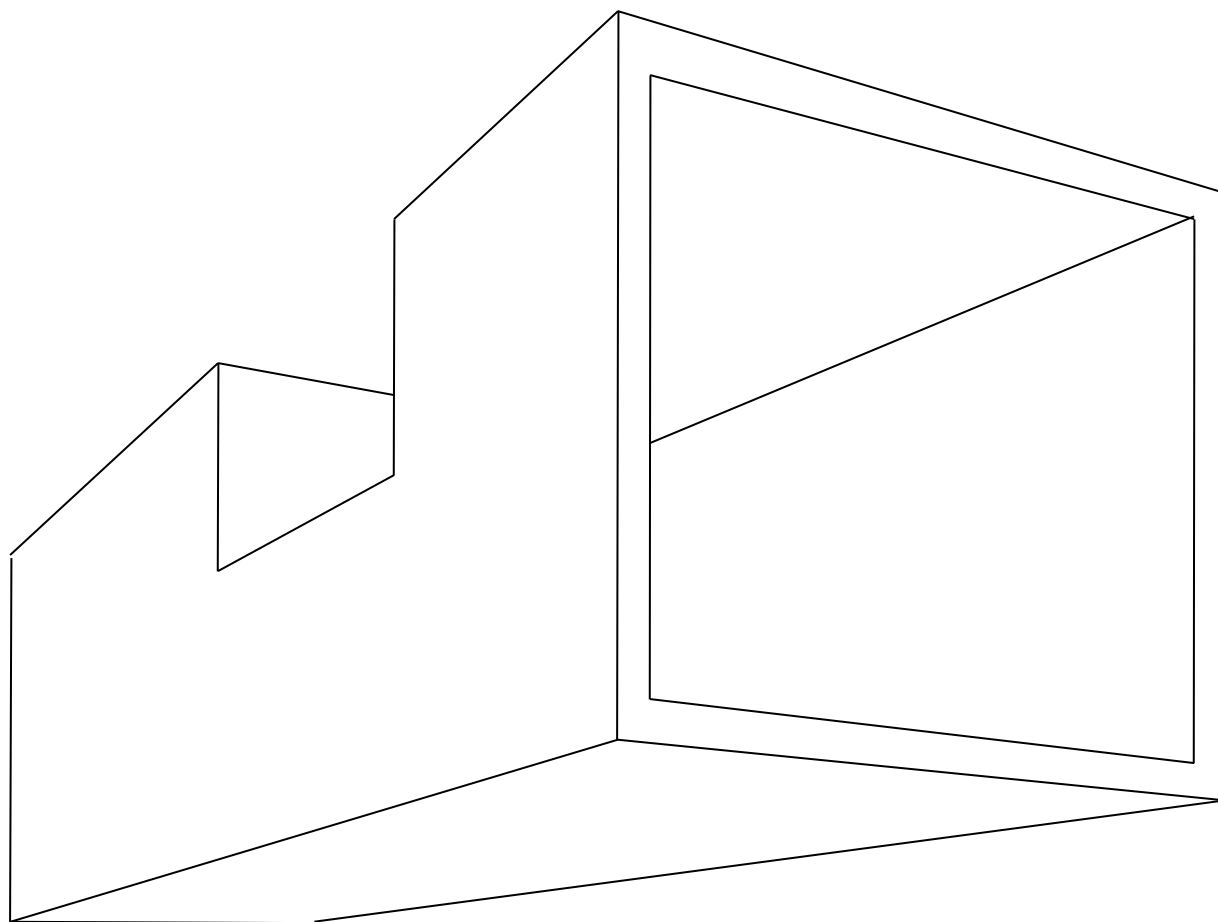


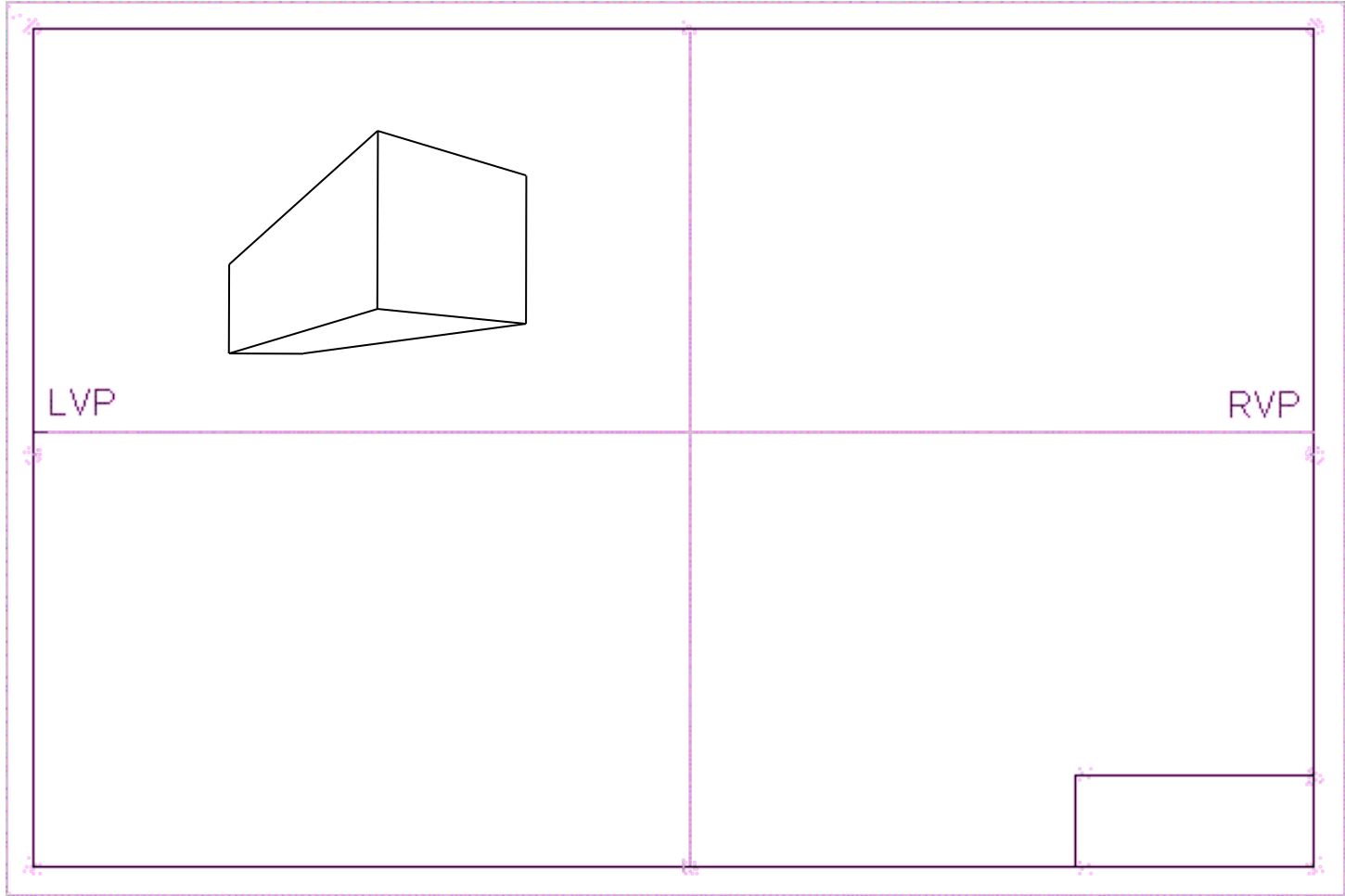












Assessing Objectives

- *Students will create a series of illusionistic cubes drawn in accurate 2-point perspective.*
- **VA:Cr2.1.IIa HS Accomplished**
- Through experimentation, practice, and persistence, demonstrate acquisition of skills and knowledge in a chosen art form.

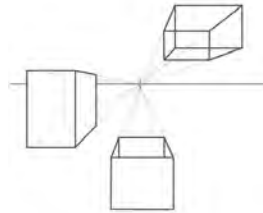
Unit 2 Perspective and Space

Part I: Preliminary Drawings

Using linear perspective, students will create a series of drawings based on the following themes:

1 Point Perspective

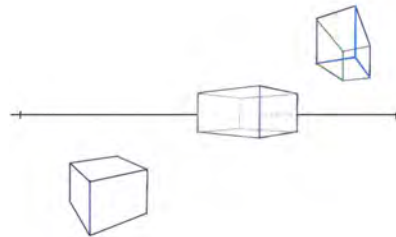
1. Minimum of 12 Boxes at varied eye levels, including bird's eye, normal, and worm eye views. Also include overlapping and cutouts.



(1 point)

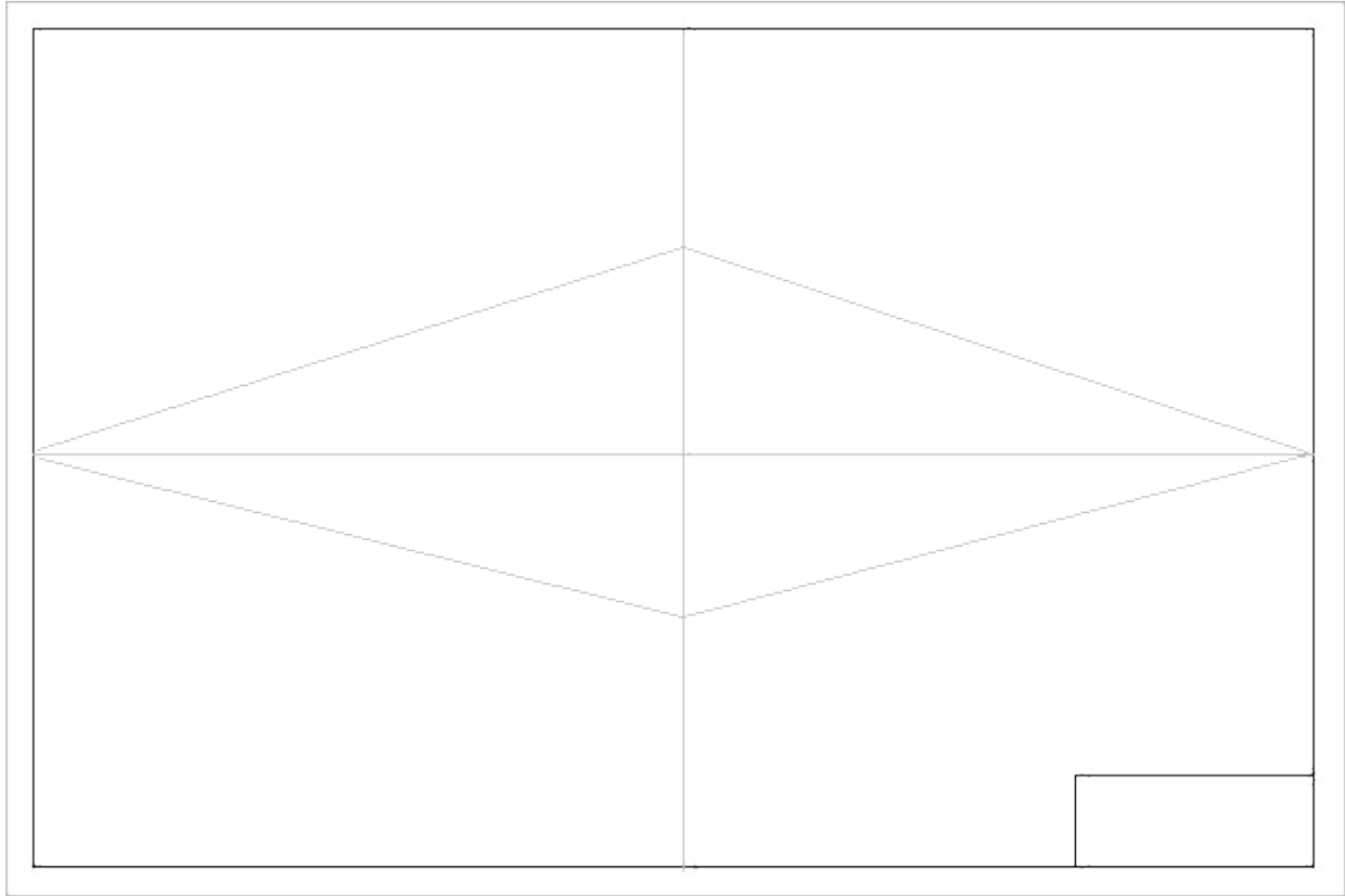
2 Point Perspective

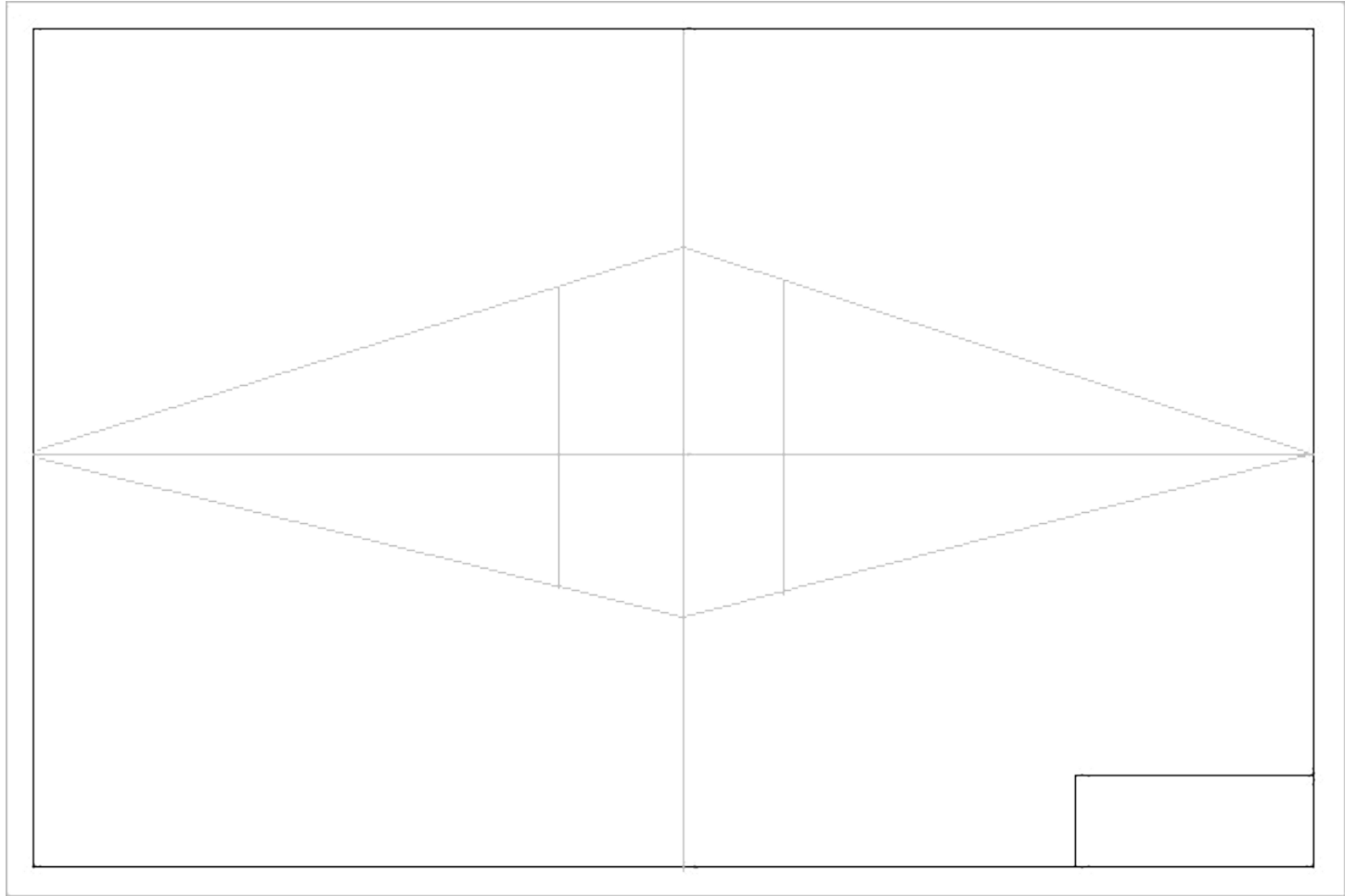
2. A series of 12 boxes which illustrate hidden edges (2 point)
3. A city block (2 point)
4. Circles and cylinders in perspective (2 point)
5. A set of stairs, eight steps minimum (2 point)

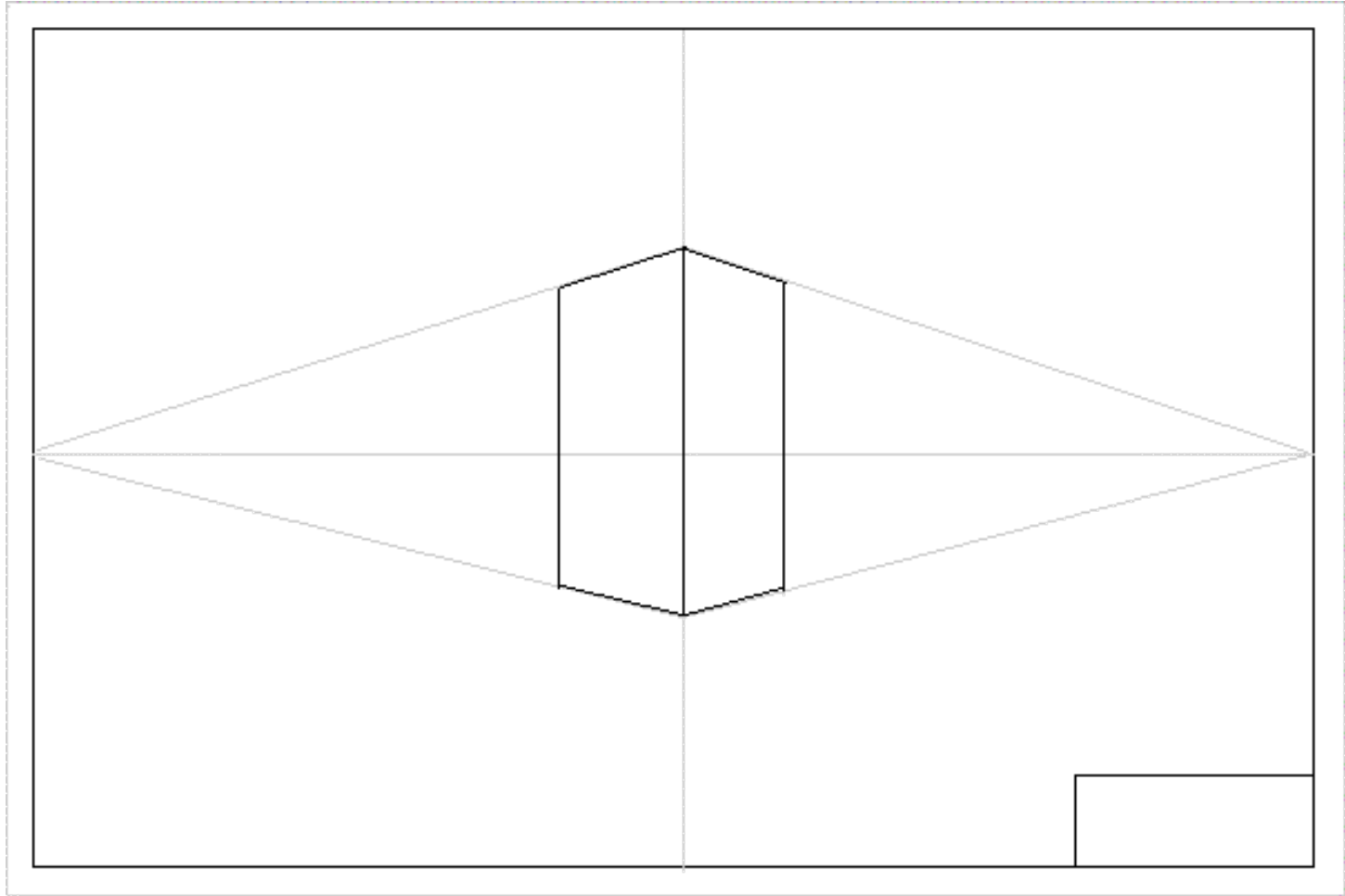


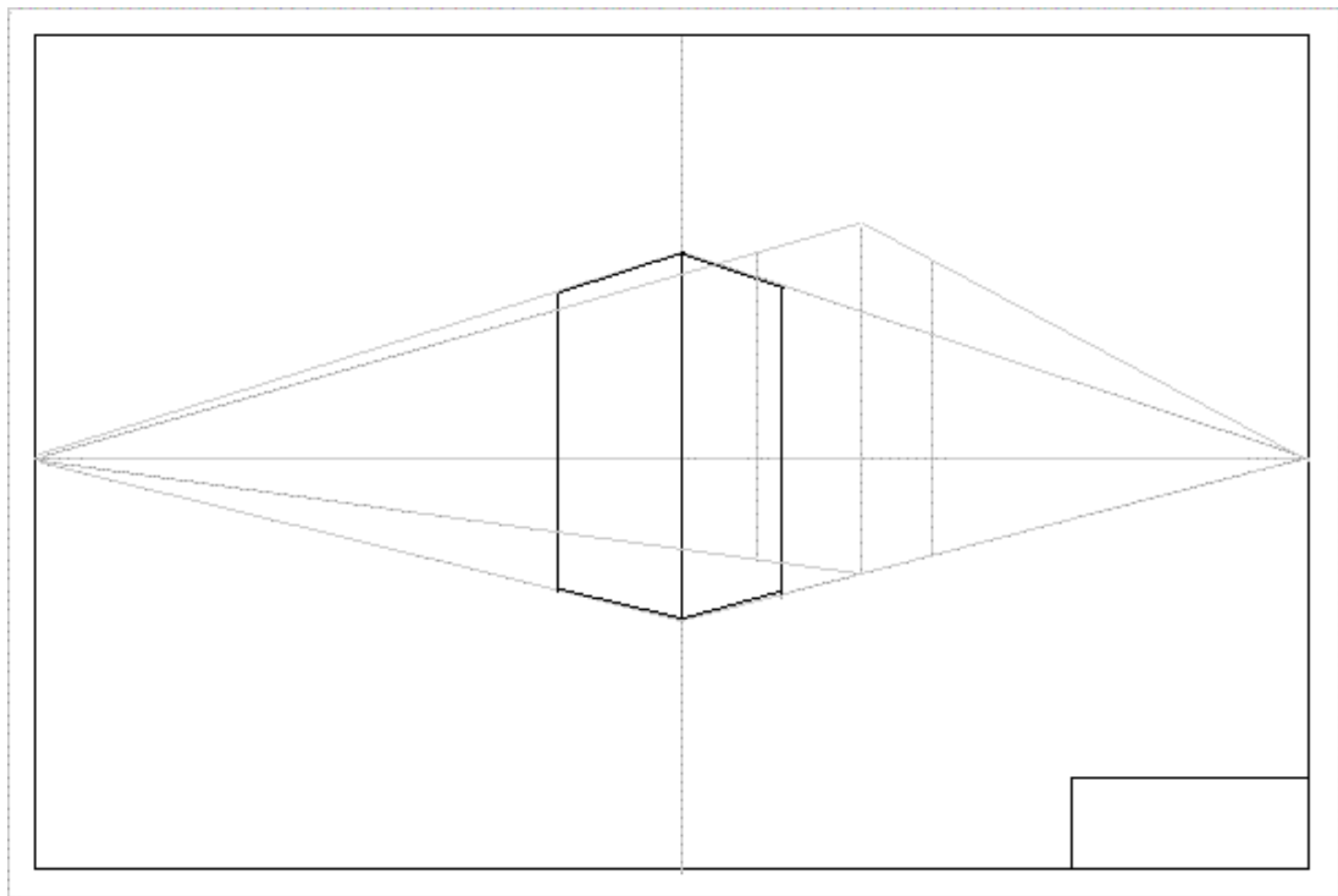
All drawings should have the proper vanishing point(s) and discernible horizon line.

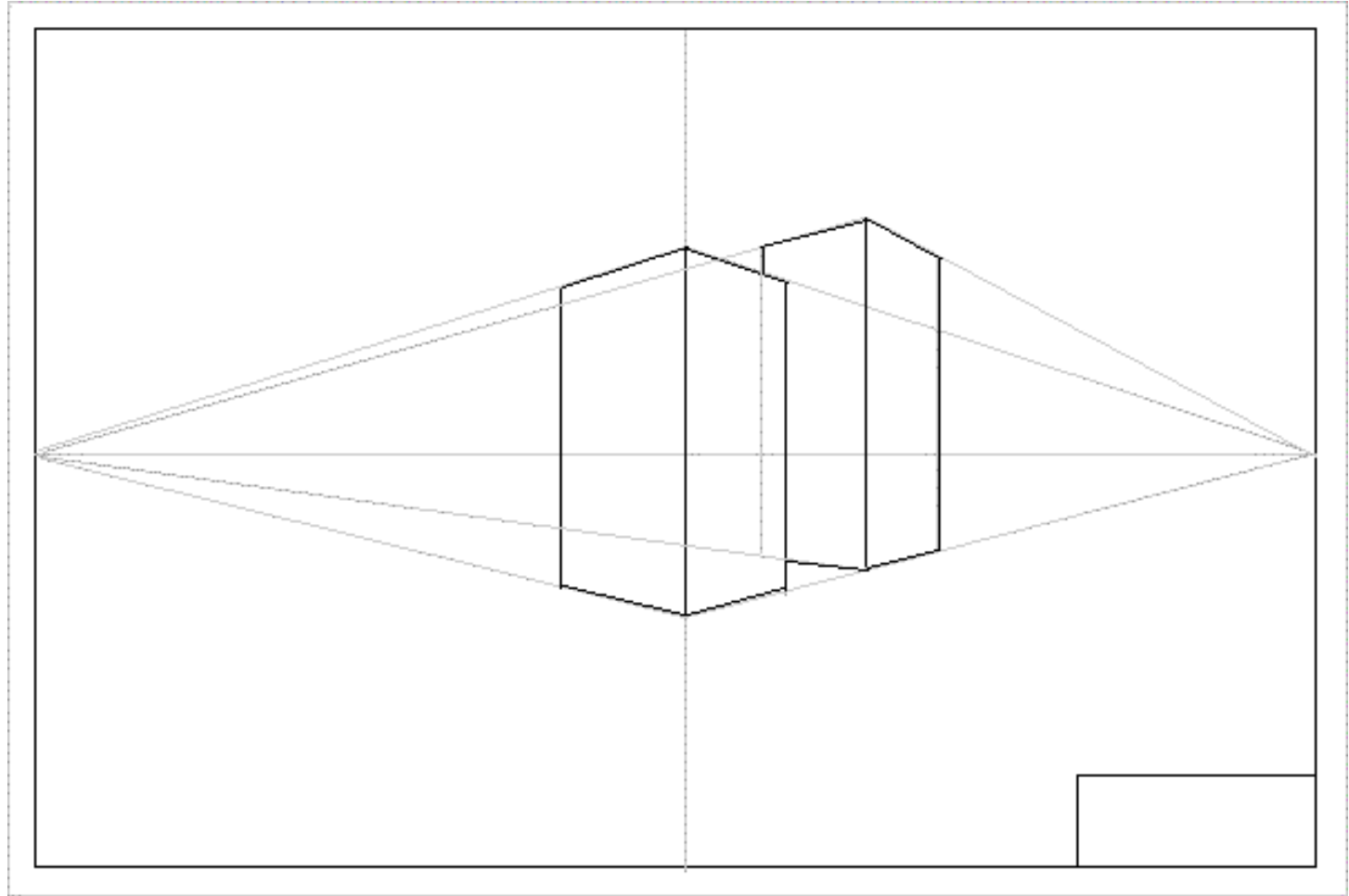
Work will be completed on 9 x 12 inch paper using a No. 2 or HB pencil.

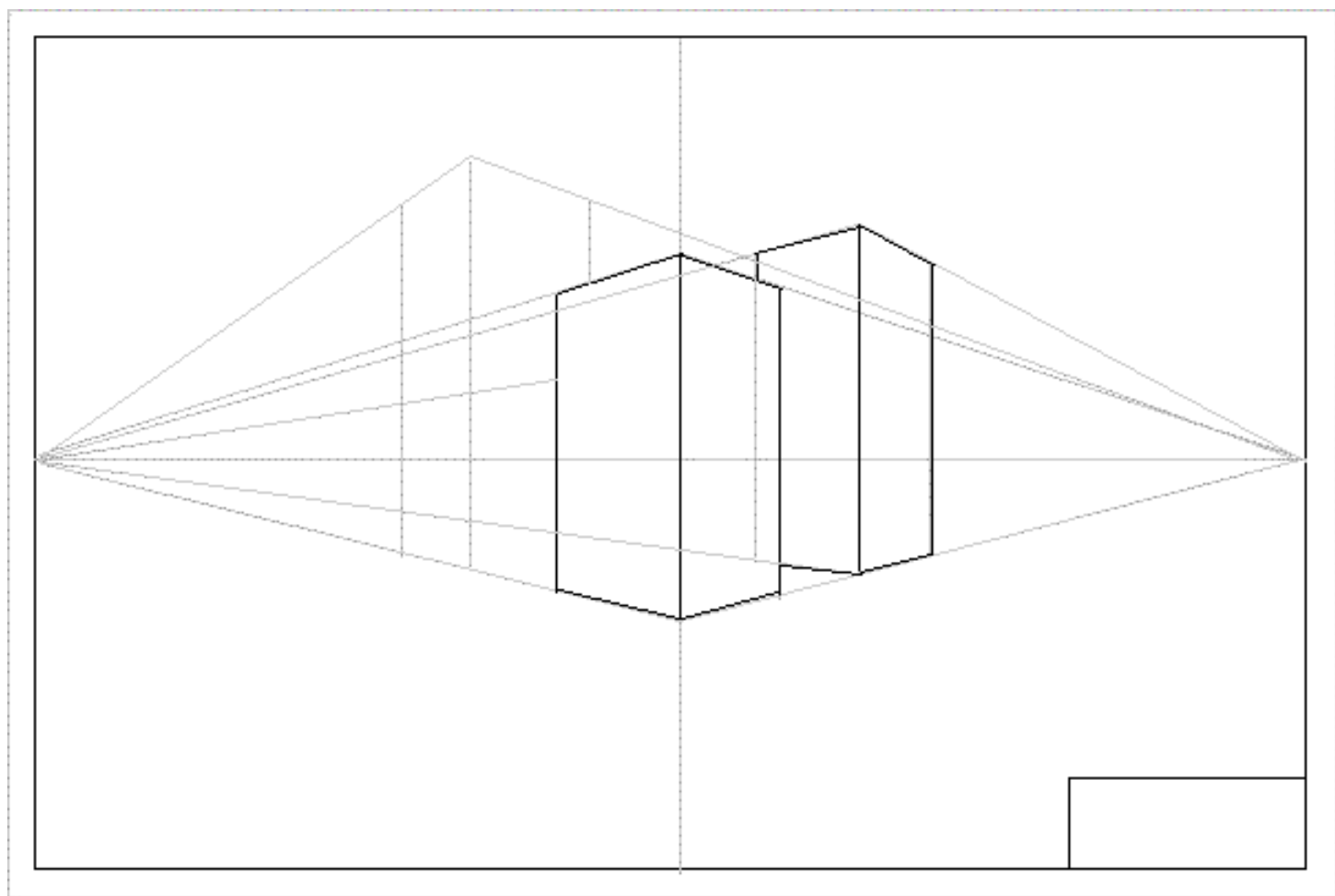


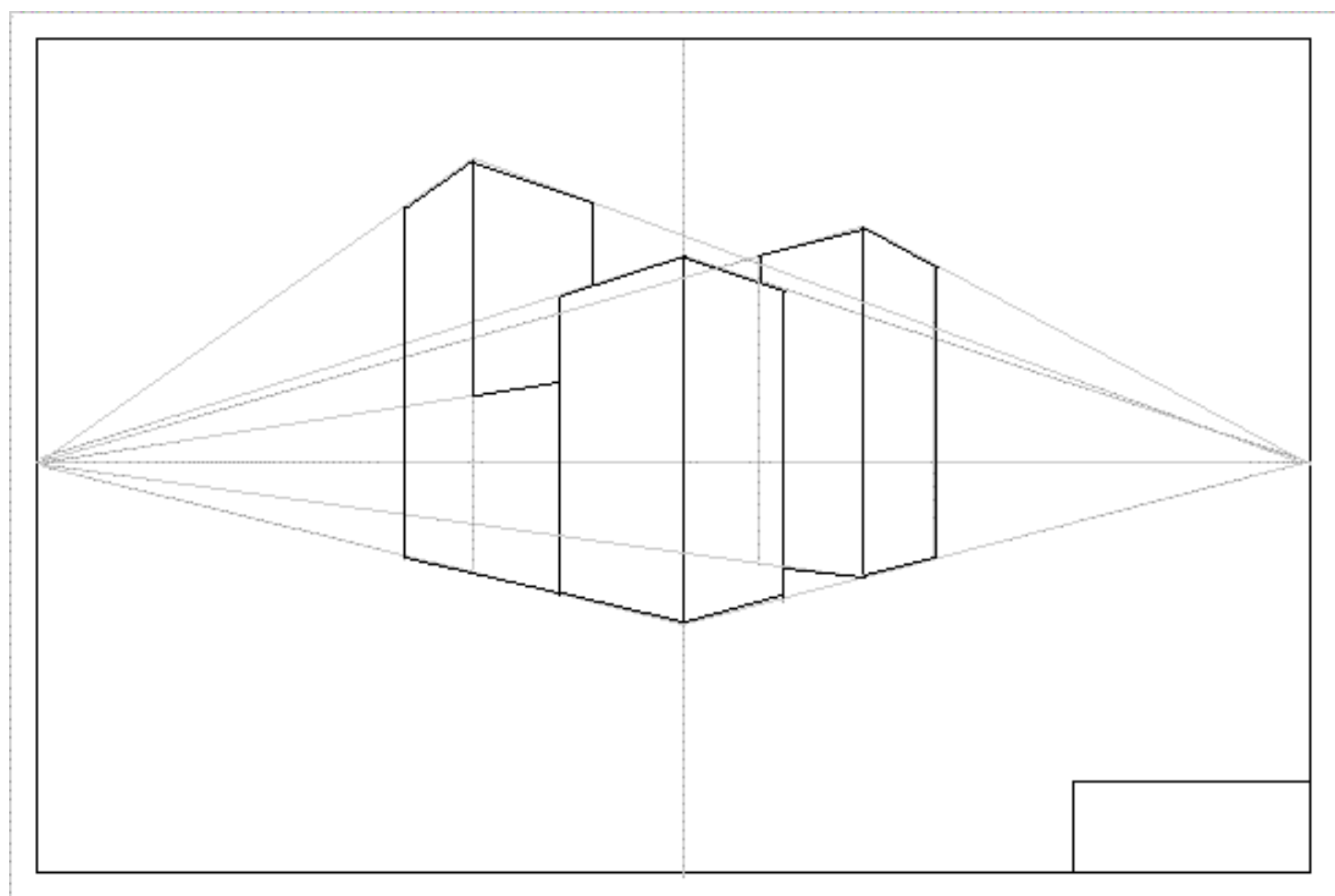


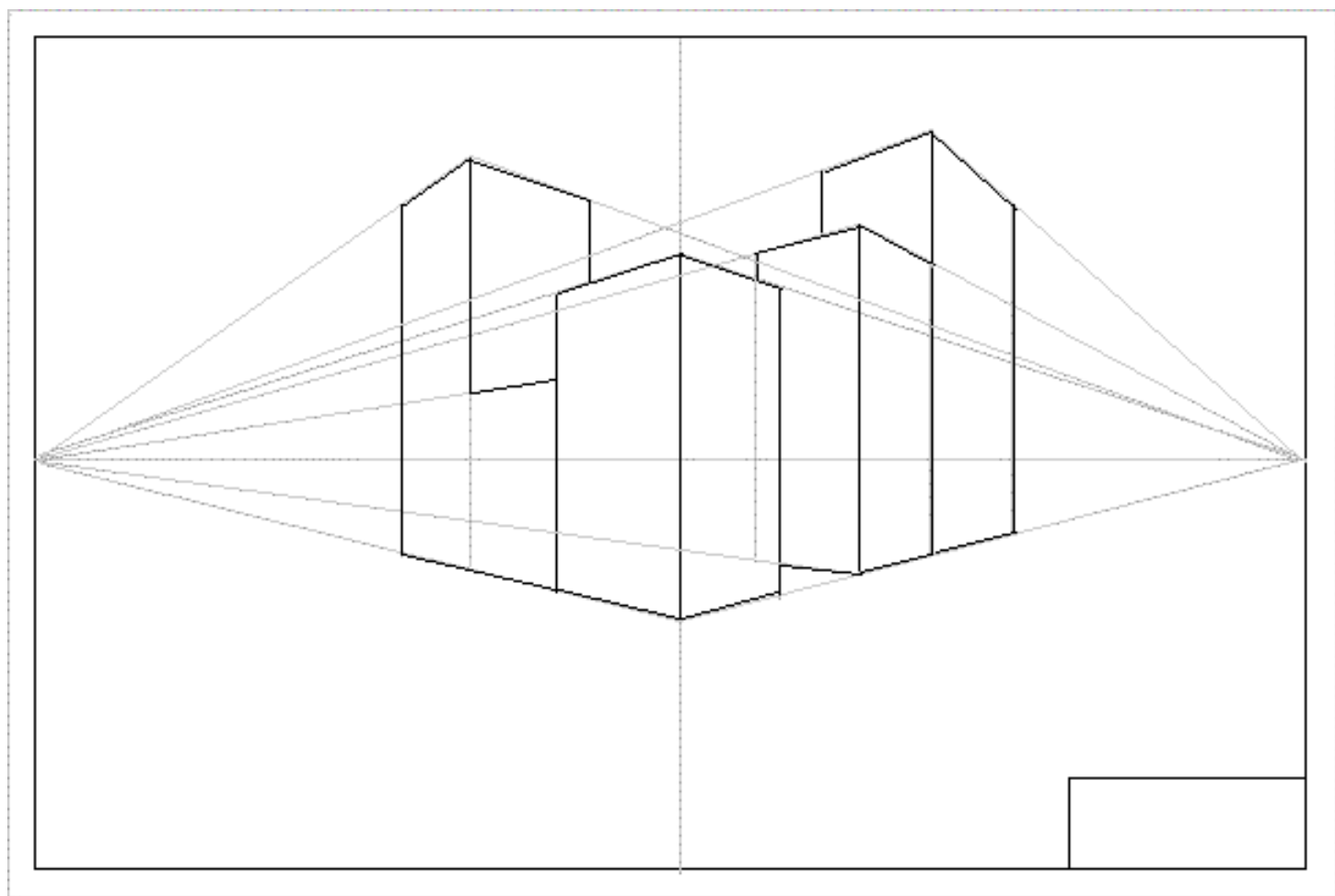


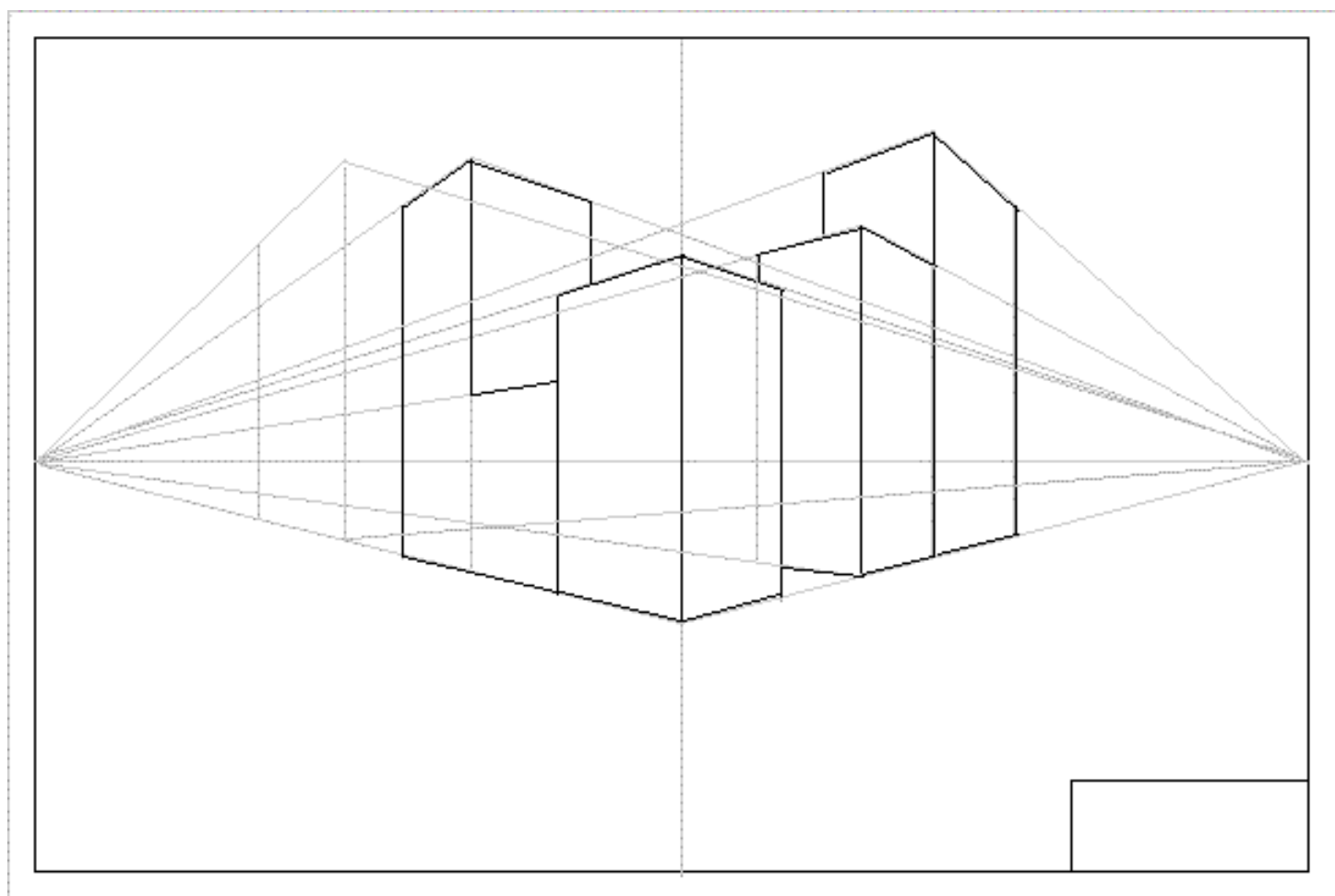


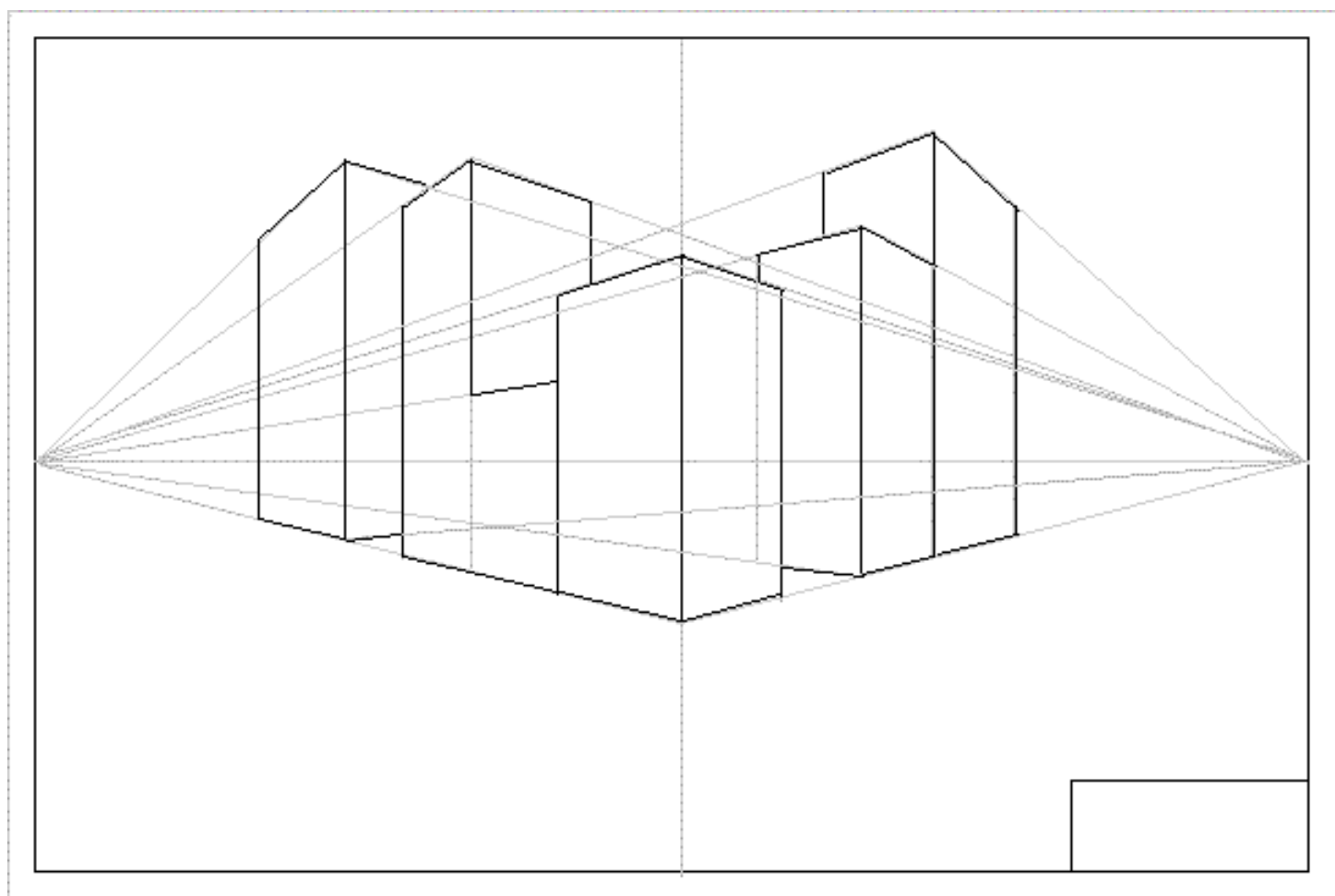


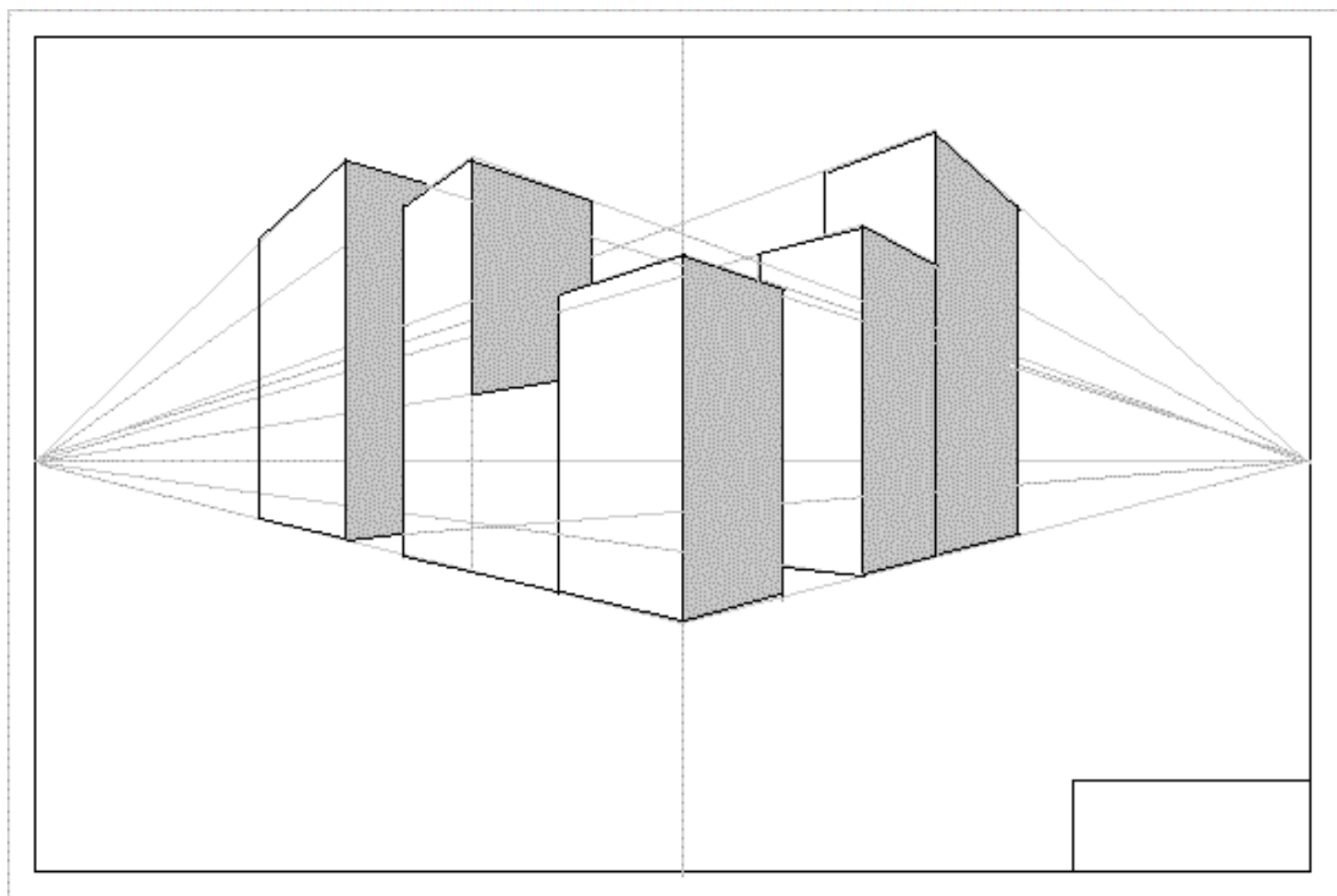


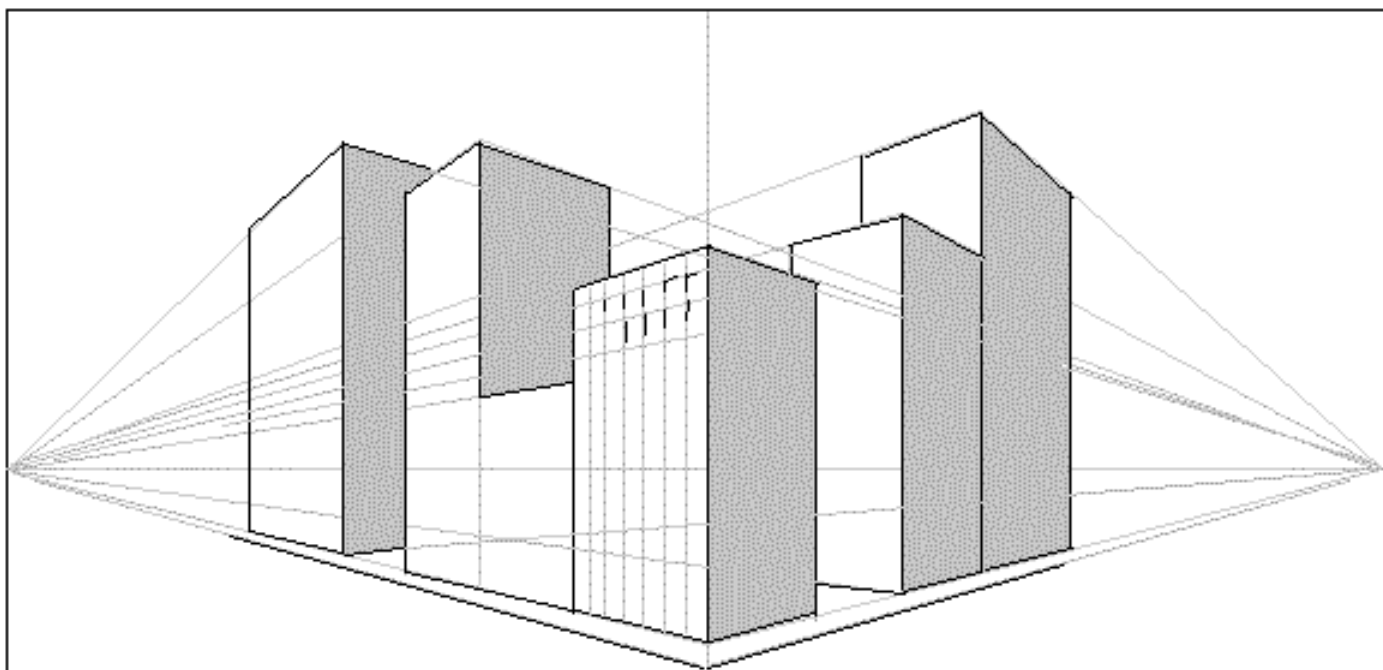




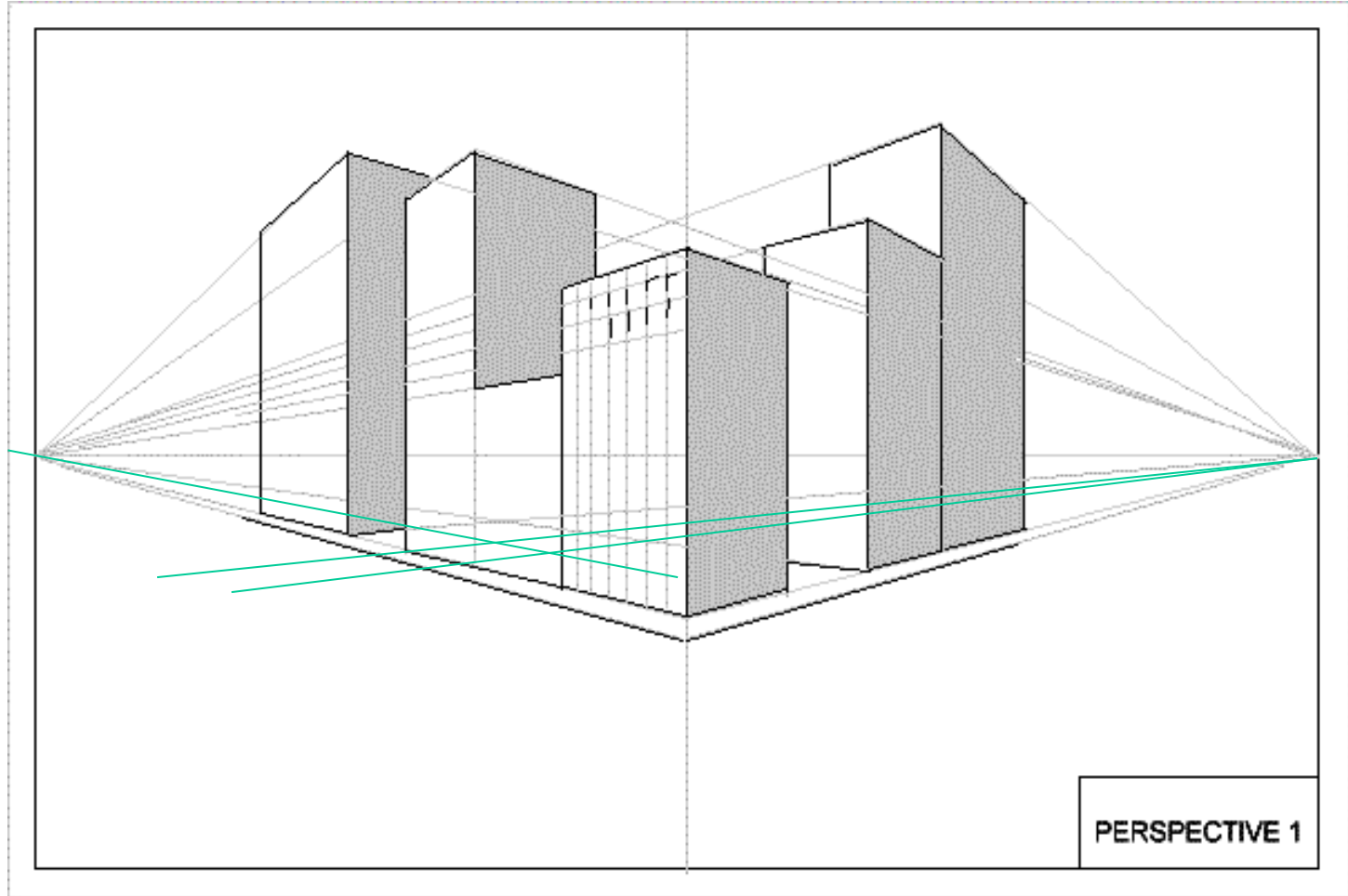


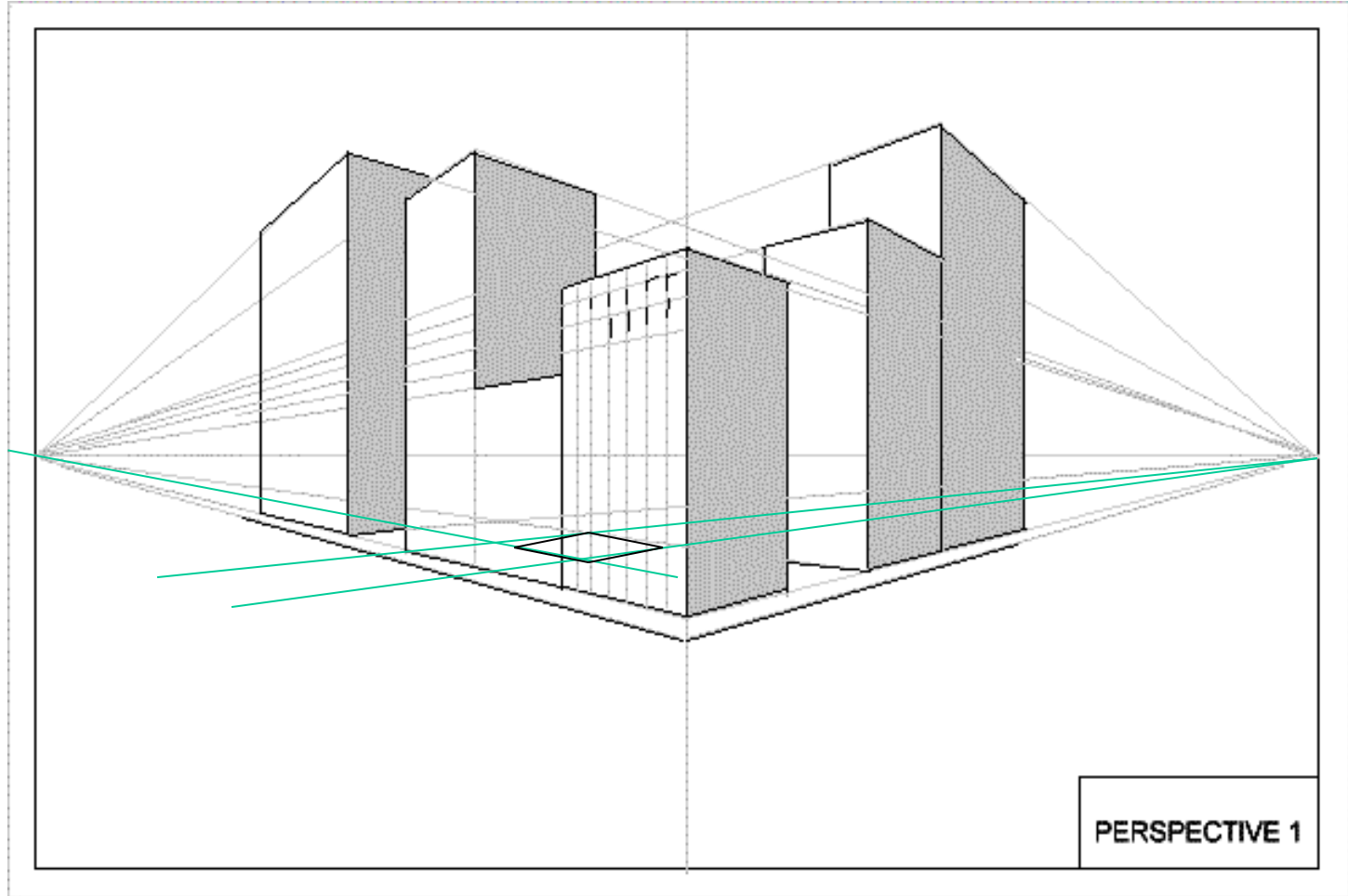


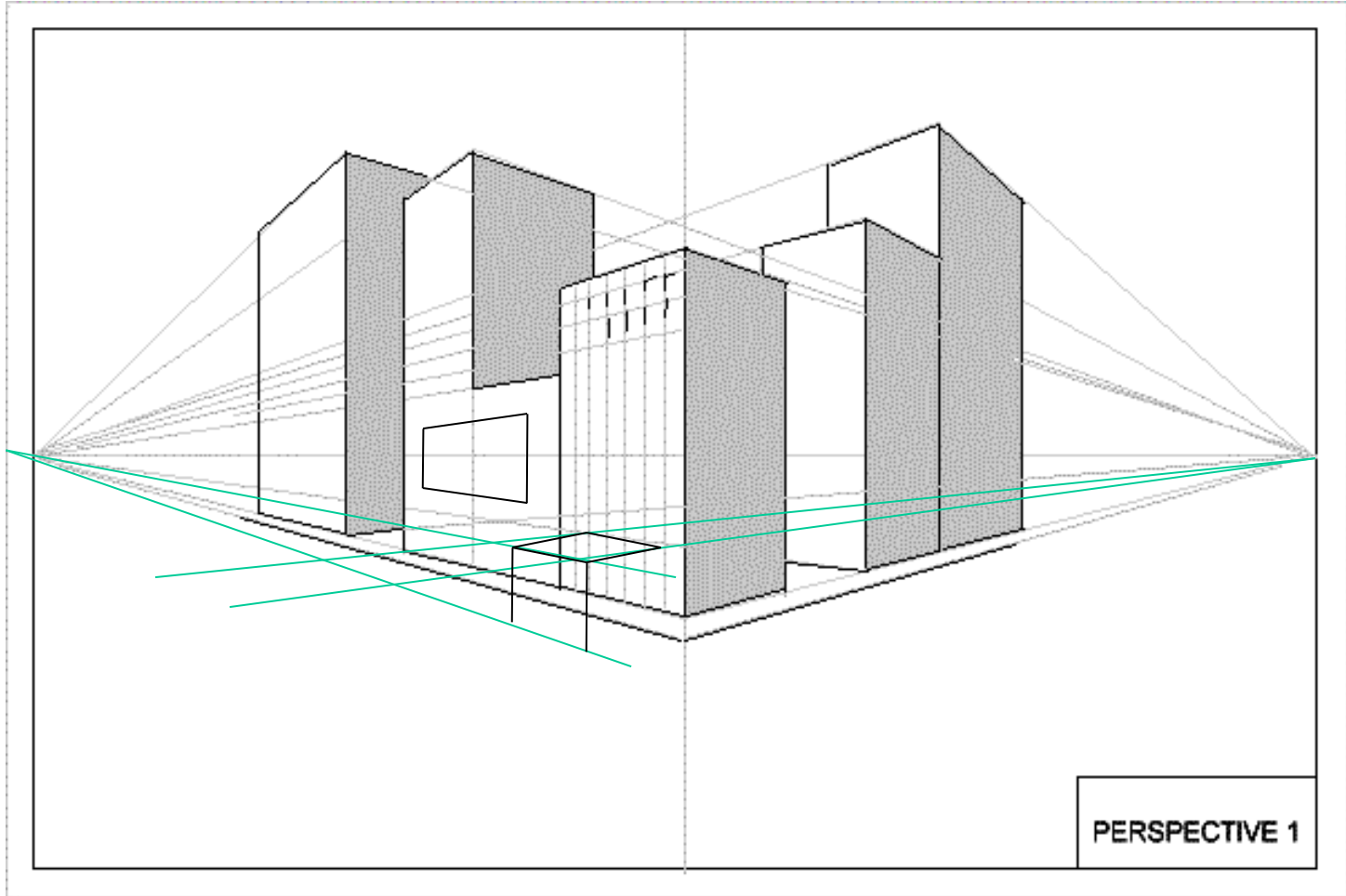


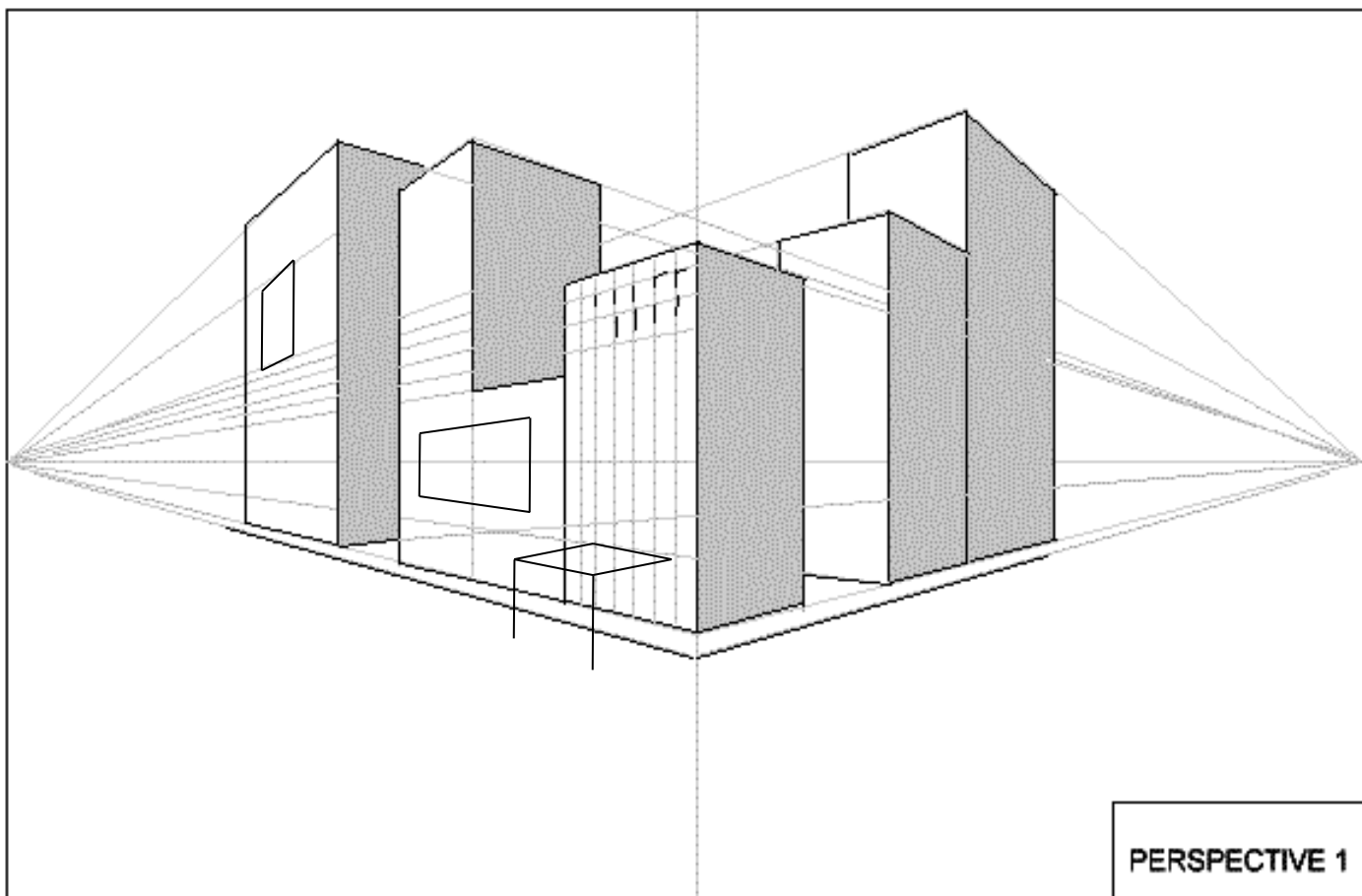


PERSPECTIVE 1









PERSPECTIVE 1

Lessons within a 2-Point Perspective Unit Plan

- Cubes in Perspective
- Buildings in Perspective
- Stairs in Perspective
- Architectural Research
- Designed Structure in Perspective

Aligned with NAEA
Standards

1. Creating
2. Responding
3. Presenting
4. Connecting