STRETCHLEARN · WORKBOOK

Perspective Drawing — Workbook

This workbook turns the course into drawing-board practice. Each section pairs with a course module and gives you construction drills to run, worksheets to plan a scene before you draw it, and checklists to catch the errors that quietly wreck a perspective drawing. Work through it sheet by sheet, keep your construction lines visible on a first pass, and build a personal reference of setups that worked.

The Horizon Line and One-Point Perspective

Lock in the horizon line as eye level, then build boxes and a full room from a single vanishing point.

Exercise: Five-Horizon Thumbnail Strip

Draw the same simple scene (one house and one tree) five times in small boxes, changing only the horizon-line height: at the very bottom of the frame, one-third up, centred, two-thirds up, and at the very top. Change nothing else. Place the five side by side and study how viewpoint and mood shift.

• Which horizon height feels like a bird's-eye view, and which like a worm's-eye?

• At centred eye level, where do the heads of standing figures line up?

• Which version would you choose to make the house feel imposing, and why?

• How did moving only one line change the apparent position of the viewer?

Exercise: Boxes Above, Below, and On the Horizon

With one horizon line and one vanishing point, draw at least nine boxes: three clearly below the horizon, three clearly above it, and three straddling it. Use a ruler for true horizontals and verticals; only the depth edges go to the VP.

• For a box below the horizon, which face do you see (top or bottom)?

• For a box above the horizon, which hidden face is now revealed?

• Did any box accidentally send more than one set of edges to the VP?

• Which boxes read as most solid, and what made them convincing?

Worksheet: Scene Setup Sheet

Fill one of these before starting any perspective drawing. Deciding these up front prevents most mid-drawing collapses.

Subject of the scene

Perspective system (1-point / 2-point / 3-point / curvilinear)

Eye-level / horizon-line height (low / centred / high)

Viewer position (standing / seated / elevated / ground)

Number of vanishing points and where they sit (on page / off page)

Approx eye-level height in scene units (e.g. 1.6 m)

Mood or story the viewpoint should convey

Reference photo used (yes / no, source)

Checklist: One-Point Room Check

[ ] Horizon line drawn first and treated as eye level
[ ] Back wall drawn as a true rectangle with the VP inside it
[ ] Floor, ceiling, and both side walls created by projecting the four corners outward
[ ] Every door, window, and item of furniture sends its receding edges to the one VP
[ ] Verticals kept plumb and width-horizontals kept level
[ ] Receding spacing (floorboards, ceiling tiles) compresses with distance, never equal
[ ] Construction lines kept light for checking, cleaned up only in the final pass

Two-Point Perspective and Measuring Depth

Draw corner-view boxes from two vanishing points, then divide and repeat space accurately with diagonals.

Exercise: Corner-View Box Cluster

Set a horizon line with two vanishing points pushed as far apart as your sheet allows (tape on extra paper if needed). Draw six boxes at the corner angle: some above, some below the horizon. Rule every vertical as a true plumb line; send only the side faces to the two VPs.

• What happened to the boxes when your VPs were too close together?

• Did all your verticals stay plumb, or did any begin to lean?

• How far apart did the VPs need to be before the boxes stopped distorting?

• Which box sits most believably on the ground plane, and why?

Exercise: Picket Fence by Doubling

In two-point, draw the first two pickets of a fence receding into the distance. Then generate the next eight using ONLY the half-then-double diagonal method (X-method to find centre, line from the far top corner through the centre vertical, extend to the next bay). No measuring or eyeballing the gaps.

• Did the on-page gaps between pickets compress smoothly as they receded?

• Where did the X-method centre fall compared with the flat halfway point?

• How does your compression rate compare to a real photo of a fence?

• At which picket did the construction start to drift, and why?

Worksheet: Two-Point Construction Plan

Plan a two-point structure before drawing it, so the geometry is decided rather than discovered halfway through.

Object / building being drawn

Left VP location (on page / off page, how far)

Right VP location (on page / off page, how far)

Position of the nearest vertical corner edge

Repeated elements to place (windows / posts / tiles) and count

Method for repeats (X-method / doubling / measuring points)

Any inclines present (stairs / roof / ramp) and their auxiliary VP location

Checklist: Divide and Repeat Accuracy Check

[ ] Perspective centre of each plane found with crossed diagonals, not measured flat
[ ] Repeated elements placed by doubling, with gaps compressing toward the VP
[ ] Measuring line and measuring point used where true scale was required
[ ] Inclines (stairs, roofs) sent to an auxiliary VP on a vertical through the horizon VP
[ ] Overall slope established first, then subdivided into equal steps
[ ] Ridge and tread lines re-checked against their correct vanishing points

Three-Point Perspective and Foreshortening

Add a vertical vanishing point for towering views, then render objects and limbs receding toward the viewer.

Exercise: Tower Up and Tower Down

Draw the same tall building twice. First in worm's-eye three-point with the third VP high above the frame (verticals pinch toward the top). Then in bird's-eye with the third VP far below the frame (verticals pinch toward the bottom). Mark and label all three vanishing points each time.

• How did moving the third VP from above to below flip the emotional read?

• What happened to the lean when you moved the third VP closer to the frame?

• Would either of these scenes have been better left in two-point? Why?

• Did the two horizon VPs stay put while only the third point changed?

Exercise: Foreshortened Limb Study

Using a mirror or a reference, draw your own outstretched forearm or a baseball bat pointing straight at you, three times. Each pass, push the near-large / far-small contrast further and block the form as a chain of overlapping cylinders with a cross-section ellipse at each joint.

• Did you draw the true length, or the compressed length you actually saw?

• How explicit were your overlaps in showing which part is nearer?

• How did the cross-section ellipses change as the form turned toward you?

• Which of the three passes reads as deepest, and what made it work?

Worksheet: Ellipse and Foreshortening Log

Record each cylindrical or foreshortened form you draw so you can repeat what worked. Keep these with your studies as a personal reference.

Form drawn (wheel / cup / limb / can / column)

Central axis direction

Minor axis aligned to central axis? (yes / no)

Ellipse degree (thin sliver to near-full circle)

Distance from horizon (near / mid / far)

Depth cues used (overlap / relative size / cross-contour)

What looked wrong and how it was fixed

Checklist: Foreshortening and Ellipse Check

[ ] Third VP reserved for genuine up or down angles, not level eye-line scenes
[ ] Near segments drawn large, far segments surprisingly small
[ ] Every overlap explicit so the near form clearly covers the far
[ ] Cross-section ellipses added at joints to sell roundness
[ ] Each ellipse's minor axis aligned to the form's central axis
[ ] Ellipse ends kept symmetrical, with no pointed lens shape
[ ] Ellipses opening up away from the horizon and flattening toward it

Interiors, Exteriors, and Curvilinear Perspective

Compose full street and room scenes with correct scale and shadows, then build a five-point fisheye view.

Exercise: Street of Buildings on One Horizon

Draw a row of three or four buildings along a street, each a two-point box at a slightly different angle. Draw the horizon line all the way across first; confirm every building's VPs land on that one line. Build at least one repeated-window facade using the doubling method, and scale two or three figures off the horizon.

• Did all the buildings' vanishing points fall on the single horizon line?

• How did the heads of your figures relate to the horizon line?

• Did the repeated windows compress correctly across the facade?

• Compared with a reference photo, does your scale of people to buildings hold up?

Exercise: Sunlight Shadow Construction

Draw a few vertical posts and one box on a ground plane. Choose a sun direction on the ground and a sun-ray angle in the sky. Construct each cast shadow: ground-direction line from the base, light ray grazing the top, mark the intersection as the shadow tip, then join. Add a calm-water reflection beneath the box.

• Did all the shadows fall in a consistent direction for parallel sunlight?

• Where did each shadow tip land, and how did you find it?

• Does the reflected height equal the real height above the waterline?

• Do the reflection's edges share the box's vanishing points?

Exercise: Five-Point Fisheye Room

Draw the same kind of simple room you built in one-point at the start, but now in five-point curvilinear perspective inside a circle: centre point plus four edge points, with a curved grid that straightens near the centre and bows toward the rim. Place the room's edges along the nearest arcs.

• Which lines stayed straight (through the centre) and which bowed the most (near the rim)?

• How does this fisheye room compare to your earlier straight-line one-point room?

• Where did the fisheye effect help, and where did it feel like too much?

• Would a real scene justify this view, or is straight-line clearer here?

Checklist: Finished Scene Sign-Off

[ ] One horizon line governs the whole scene; all on-ground VPs sit on it
[ ] Figures and vehicles scaled off eye level, with heads keyed to the horizon
[ ] Repeated windows and storeys built by division, compressing with distance
[ ] Cast shadows constructed from a defined light source, not invented
[ ] Reflections mirrored through the surface, sharing the objects' VPs
[ ] Curvilinear used only where an ultra-wide or dramatic view genuinely calls for it
[ ] Construction lines cleaned up; final line weight reads clearly
[ ] Whole drawing checked against a reference for scale and compression

Your Action Plan

1. Assemble a kit: large paper or a roll, a long ruler or straightedge, a set square for true verticals, masking tape to extend the sheet for far-apart vanishing points, and an ellipse template if available.
2. Complete the Five-Horizon Thumbnail Strip and fill a Scene Setup Sheet so eye level becomes a deliberate choice.
3. Drill boxes above, below, and on the horizon in one-point, then draw one complete one-point room and run the One-Point Room Check.
4. Move to two-point: draw the Corner-View Box Cluster with VPs pushed far apart and verticals kept plumb.
5. Build the Picket Fence by Doubling, then practise the X-method and measuring points until dividing space is reliable.
6. Construct a short staircase and a gabled roof using auxiliary vanishing points for the inclines.
7. Draw a tower in worm's-eye and bird's-eye three-point, then study a foreshortened limb and log it on the Ellipse and Foreshortening Log.
8. Draw cylinders, wheels, and cups, hanging every ellipse on its correct minor axis.
9. Compose a full Street of Buildings on One Horizon with repeated windows and figures scaled off eye level.
10. Construct sunlight shadows and a water reflection, then draw the Five-Point Fisheye Room and complete the Finished Scene Sign-Off.