Perspective Lesson 4: *Drawing One-Point Perspective*

Materials

- Pencils
- Paper
- Ruler
- ERASERS!!!!

There are three aspects to perspective. The first has to do with how the size of objects seems to diminish according to distance: the second, the manner in which colors change the farther away they are from the eye; the third defines how objects ought to be finished less carefully the farther away they are.

Leonardo da Vinci [1]

Tutor: Today, we're going to work with "perspective". Have you ever seen photos like this?

<Show the Train track photo.>

Or a long hall like this?

<Show the Indy Outside Portico> [2]

Both of these photos show how objects get smaller and closer together until they seem to "vanish" at the "vanishing Point" on the "horizon". These are some of the art vocabulary for the drawing technique of perspective, and both the photographs depict "One-Point Perspective"—where the object all seem to head for a single point in the picture.

We are going to do something similar today.

This type of art is very step-by-step process, so we're going to work on this together.

But before we begin, what is "Perspective?"

---

[1] A note about the drawing you see paired with this quotation. The portrait is from Leonardo's later career, but the landscape is his FIRST surviving drawing of his that we know of. Dated August 5, 1473, Leonardo completed it when he was 21. It depicts that Arno river valley, and the castle on the left is the Montelupo Castle. This drawing is an example of informal/zero-point perspective.

[2] Both of these photos are listed as being in the public domain on the website pixabay.com.

In art, perspective comes from the Latin term "Perspicere", meaning "to see through". We're going to draw a one-point perspective of a castle in a minute, but to do so, we need some vocabulary terms.

You probably know that "vertical" means a line that goes straight up and down, and "Horizontal" means a line that goes straight and level side-to-side.

The most important horizonal line in any perspective drawing is the "Horizon" line. It comes form the Greek work "horos" meaning "boundary" or "limitation". In landscapes, it is where the sky meets the ground far off in the distance.

In terms of science, if you could see far enough over flat land or water, the horizon would be the point where the Earth's surface curved away from you until you couldn't see over that curve.

So, if we have horizontal lines, including the Horizon, and we have vertical lines, what do we call these…

<point to the tracks in the first picture>

…lines which go diagonal and appear to come together at horizon? These have two names, which different artists use. We will be calling them "Orthogonal" lines. In math, "Orthogonal" is another word for perpendicular, which is another word for a right angle (like the corner of a printer paper, or book). In art, it's the line that heads off of a right angle and heads to the vanishing point, which is the point where all these Orthogonal lines meet. In a perspective picture, all these lines that go away from the viewer deep into the picture, head for the vanishing point. [3]

The other word for these lines is "Converging" lines.

See this?

<Show the Perspective Grammar pic, the one with many boxes drawn at various angles. >

These are some boxes drawn in "Perspective". Can you see the Horizon Line? Vanishing Point? How about the "Orthogonal Lines?" Can you find these things in the picture of railroad tracks? If we traced the Orthogonal Lines of this large portico, could we find the horizon in this city-scape (since the sky is not visible?)

Now that we know some "Perspective" Grammar terms, we're going to draw a replica of Rochester Castle, one of the castles the King John of England and his barons fought at after the signing of the Magna Carta. (Because the Magna Carta wasn't the end of a battle, it was a pause in the middle of several battles.) Drawing in perspective is step-by-step, so watch what I do and follow me!

<I tried to make the tutorial (pgs 8 – 10) easy to follow. That being said, I do encourage practicing the tutorial step-by-step before demonstrating it!>
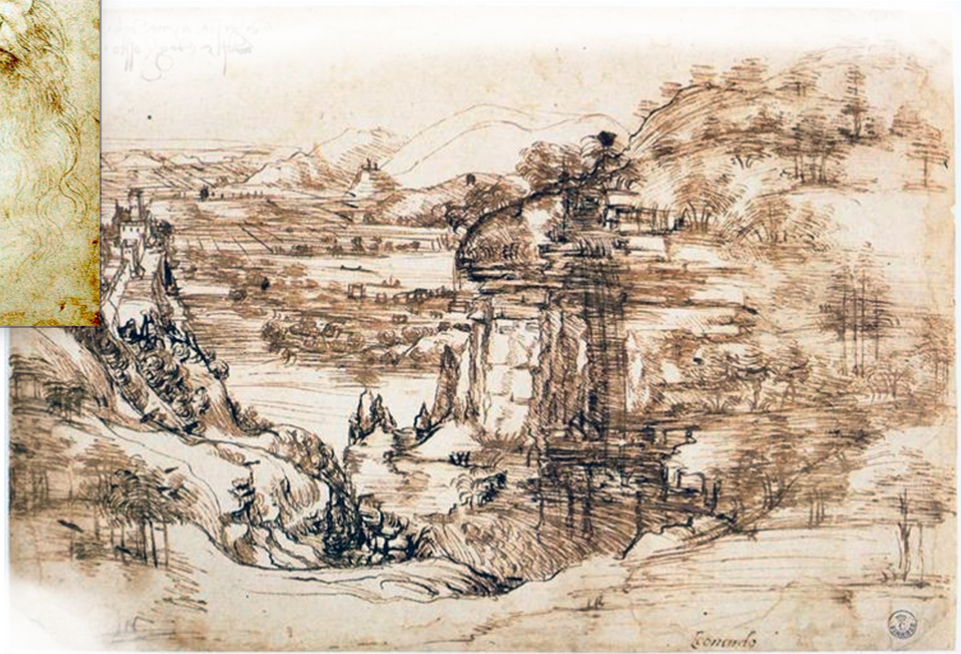
---

[3] Like everything, this is a somewhat over-simplified statement of the complex truth. IF everything we were looking at was built on a regular, right-angle based grid, then all the Orthogonals would head to vanishing points. But if anything curves, or is inserted at an angle, that creates a different let of orthogonals and lines. This is why doing railroads are pretty easy in perspective, but doing a small European or New England village might be impossible to capture in purely perspective drawing…too many things twist and turn.

"There are three aspects to perspective. The first has to do with how the size of objects seems to diminish according to distance: the second, the manner in which colors change the farther away they are from the eye; the third defines how objects ought to be finished less carefully the farther away they are."
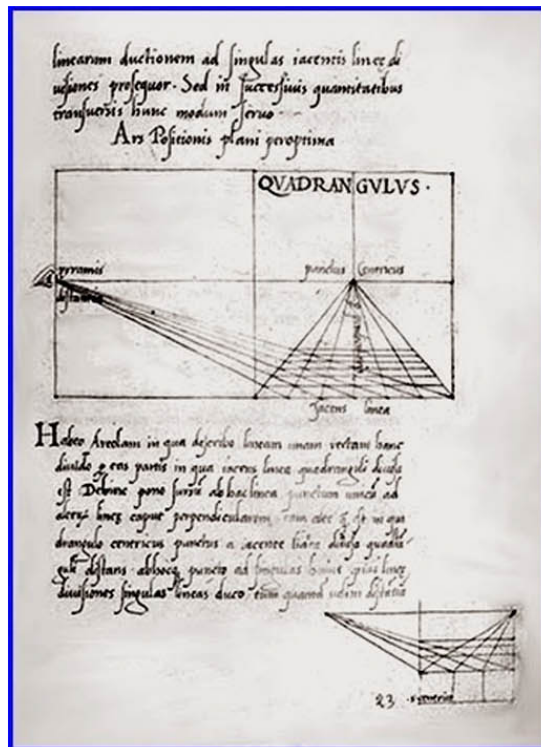
~Leonardo da Vinci

PERSPECTIVE: In art and drawing, these are the techniques which create the appearance of three-dimensional space on a two-dimensional surface

Etymology: from the Latin *"perspicere"*, which means "to see through."

Horizon:

The height of the viewer's eye. In landscapes, this usually is where the land meets the sky at the farthest point.

Etymology: From the Greek root "Horos" meaning "limitation" or "boundary."

Vanishing Point:

The point where all Orthogonal / Converging Lines seem to meet;

From the Latin: *evanescere,* meaning "to disappear" or "to die out."

A page from Leon Battista Alberti's 1450 book, "De Pictura", the first art textbook ever published in Europe. Here he shows the horizon line, the vanishing point, and the Orthogonal/Converging lines coming together.

── Same Thing: Different Names... ──
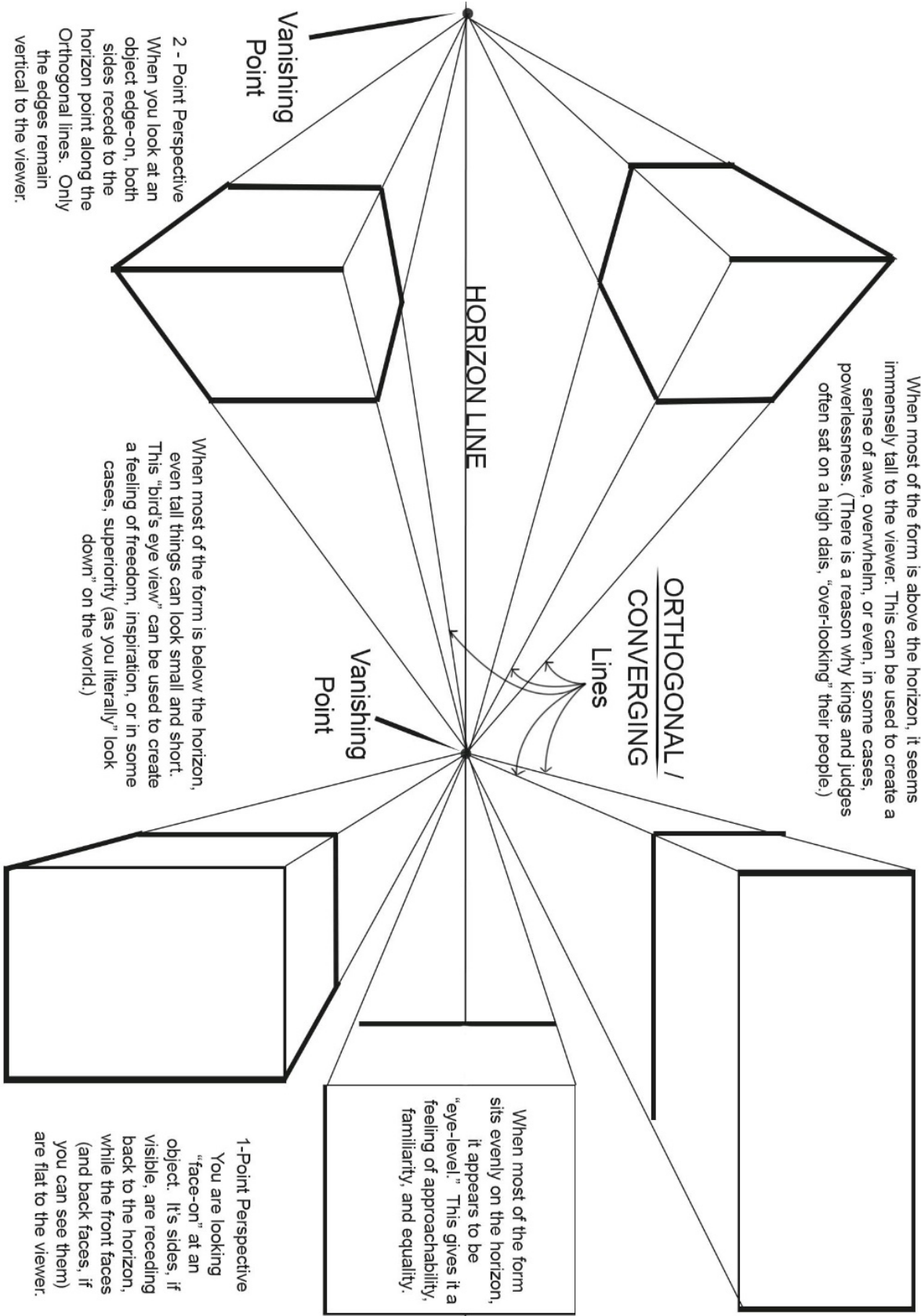
Orthogonal Lines:

In Art, these are the lines that trace back to the vanishing point. In math, they are right angles (aka: Perpendicular), but in perspective drawings, these angles would bend in such a way they would appear appear to vanish at the horizon.

From the Greek *"ortho"* meaning "striaght, and *"gonia"* meaning "angle" or "corner".

Converging Lines:

In math and art, these are any two lines that come together, usually at a point. While any two lines that end in a point are technicaly converging lines, in perspective drawing, it usually means lines that come together on the Horizon at the Vanishing Point.

From the Latin *"Con"* meaning "together" and *"vergere"* meaning "bend" or "turn".
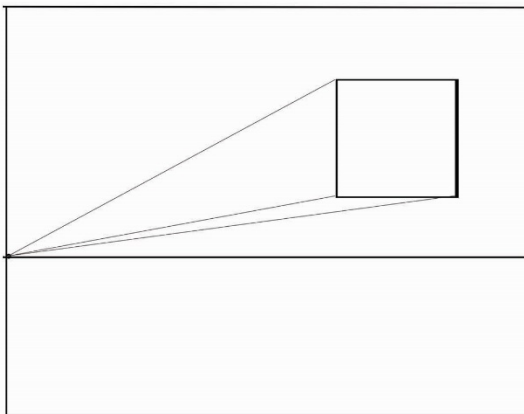
HORIZON LINE

Vanishing
Point

2 - Point Perspective
When you look at an
object edge-on, both
sides recede to the
horizon point along the
Orthogonal lines. Only
the edges remain
vertical to the viewer.

When most of the form is above the horizon, it seems
immensely tall to the viewer. This can be used to create a
sense of awe, overwhelm, or even, in some cases,
powerlessness. (There is a reason why kings and judges
often sat on a high dais, "over-looking" their people.)

ORTHOGONAL /
CONVERGING
Lines

When most of the form is below the horizon,
even tall things can look small and short.
This "bird's eye view" can be used to create
a feeling of freedom, inspiration, or in some
cases, superiority (as you literally" look
down" on the world.)

Vanishing
Point

When most of the form
sits evenly on the horizon,
it appears to be
"eye-level." This gives it a
feeling of approachability,
familiarity, and equality.

1-Point Perspective
You are looking
"face-on" at an
object. It's sides, if
visible, are receding
back to the horizon,
while the front faces
(and back faces, if
you can see them)
are flat to the viewer.

ROCHESTER CASTLE

A square-plan castle, Rochester Castle was the site of a major battle between King John and his Barons during the fallout from the Magna Carta (King John wasn't going to accept that graciously!) Draw this castle using these step - by - step instructions.
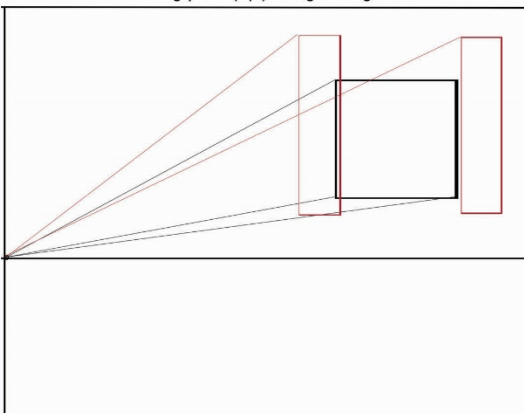
If you visit England, you can still visit this castle and learn about the Baron's War and King Louis of England.
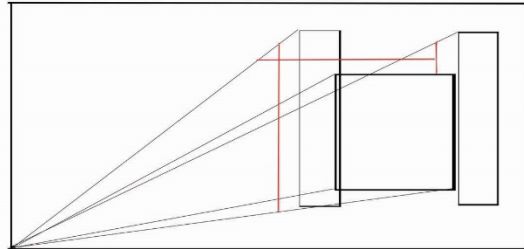
Begin by establishing the horizon line and vanishing point. For this composition, set the horizon just below the halfway point and the vanishing point on the edge of the paper.

On the right side tower, draw a straight vertical line from the top octagonal to the top fo the square. (The tower should visually appear square if viewed from overhead.) Draw a similar line from the left-tower's top orthogonal to the base of the tower. These are the back walls of the towers. Draw a horizontal line as shown, this is the leading top edge of the second set of towers.

Draw a square above the horizon line, and trace the corners back to the vanishing point (v.p.) using orthogonal lines.
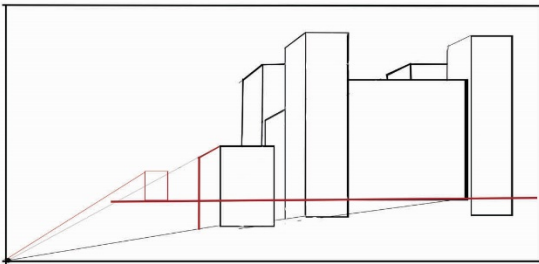
These two lengths should be nearly equal

These too

Where the new horizontal line touches or crosses the orthogonal, drop a vertical line down. These are the front faces of the rear pair of towers. The back vertical will touch the central square, and the front will drop to the ground. Trace the orthogonal from that face back about the same length as the front pair's, then drop a vertical line down, making the sides of the towers.

Draw two towers, tall and thin. The left tower should overlap the central square slightly, and the right tower should be separate from the square. Trace via orthogonal back to the v.p
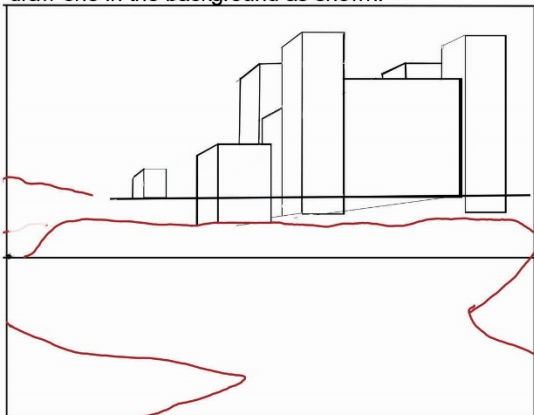
Erase all the overlapping lines that won't be seen in the final product (grayed out above, erased here). You now have a basic early medieval castle (The White Tower at London is built like this.) Add the gatehouse: draw a rectangle mid-way through the side face of the cube. This is the front face of the gatehouse. Trace the orthogonal back to the vanishing point.
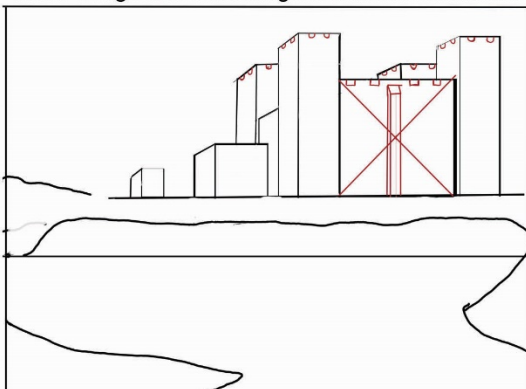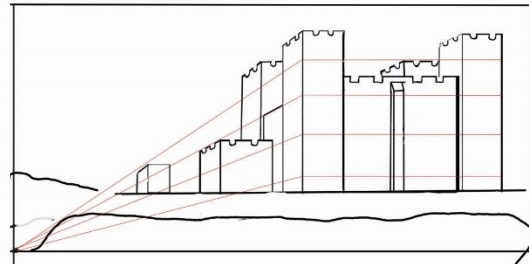
On the Gatehouse, trace the orthogonal back until the Gatehouse appears square-ish. Drop a vertical line, and erase the remainder of the orthogonal. Draw the top of the curtain wall: it should pass along the base of the cube and cut off the bases of the towers. If you want to draw a distant tower in the back wall, draw one in the background as shown.
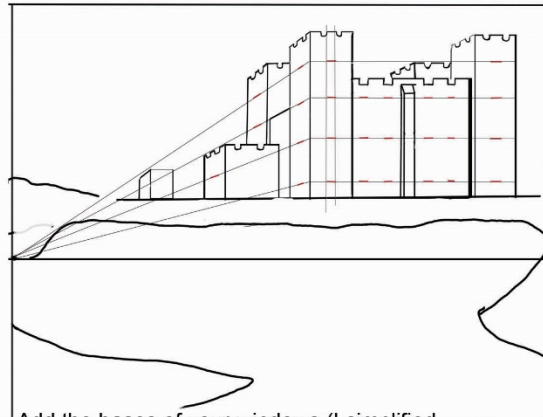

Now add some landscaping. The horizon line becomes the surface of the river which the castle overlooks. Set the castle wall in a bluff, and add some foreground and background details as shown.
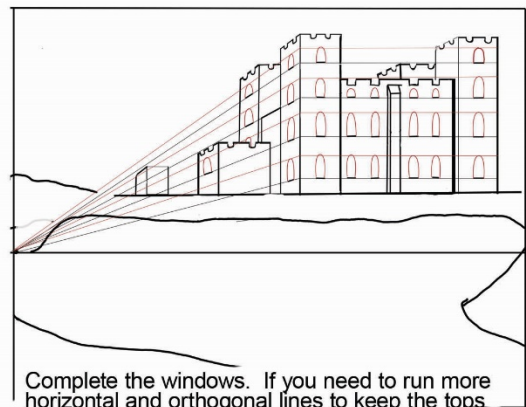

To add the reinforcing section on the castle, find the center (you can measure side-to-side, or cross the corners to find the central intersection, as shown). Draw two verticals equidistant from the center, then a second line on the left edge to show the strip is raised from the wall. Add marks for crenellations.

Erase the cross-mark. Erase the gaps in the crenellations along the top. Now, we are going to add windows. To keep the base of the windows straight, run horizontal lines across the face of the castle. Where they touch the edge of the left front tower, use your ruler to take those same lines to the v.p on an orthogonal. Make these lines light-you will erase most of them when done.

Add the bases of your windows (I simplified Rochester here-it has MORE windows than shown.) If you want to draw vertical measuring lines (shown on the face of the left-front tower) I used the width of a central crenelation as my measurement guide.

Complete the windows. If you need to run more horizontal and orthogonal lines to keep the tops even, do so (shown). Otherwise, you can also measure from the base sill to a chosen height. You can either draw tall arches (shown) or rectangular windows.
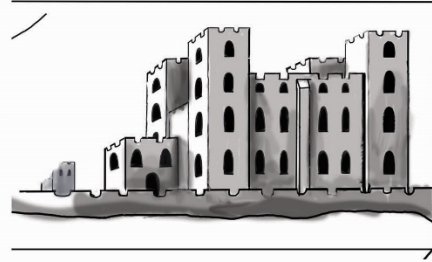
SHADING

Top: The castle was shaded as though the sun was coming from behind the viewer. Because of this, the faces are lit and the sides are dark. Also, note how the front towers cast shadows onto the faces of the back towers.

Bottom, the castle is shaded traditionally, throwing light from the left-hand side, like the early morning. This lights the sides, and throws the face into shadow.
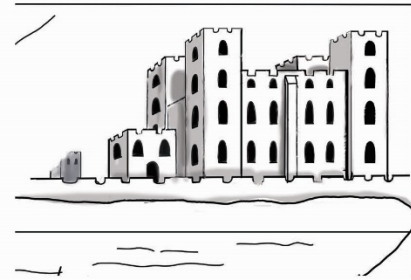
Now, you can add any details you like: a tree in the foreground, the crenelations on the wall, shade in the windows. At this point too, the drawing is ready to be shaded or colored, if desired.

COLORING

Now that the castle is done, you can choose to color it. You can produce VERY different effects, even with the same base castle, depending on the colors you use and the details you add or delete.

Leaving the edges crisp and keeping the castle a bright color (they were traditionally whitewashed,) you can create a medieval environment, whether peaceful or in the midst of a war. The picture to the left shows a moment in the Seige of Rochester in late 1215. King John used the fat of "40 pigs too fat to eat" to burn a corner tower, causing its collapse. (It was later repaired). Cool blue and grey colors create a feeling of cold winter and provide a contrast to the hot fire in yellow and red.

A peaceful summer by the old ruin: Soften the castle's outlines by hand-tracing the ruler-straight lines. This slight "wobbles" created by the natural irregularities of hand-drawing creates a more organic "straight" line, which the brain interprets as older, more worn. Using vibrant, clean colors, create the feeling of a summer by the old castle, full of bright plant life. (Be sure, however, to color the castle more "grey-it is no longer whitewashed by its missing residents) While not ruined, the castle is covered in ivy, (accurate to its appearance in the late 19th century) creating a scene of nostalgia, looking at the days gone by..

Unless you are looking at a ruin, one of the easiest ways to construct a ruin on paper is to create the entire building, then select the parts you want to artistically "tear down." For this picture, I eased part of the towers and walls, then inserted plants and overgrowth. Fall colors, the trees bending under an intense wind, and the broken tree in the foreground all contribute to a haunted feel, like the castle is slowly dying.

While Rochester Castle has not reached this level of ruin, many other similar castles throughout Europe have. Or, this could be Rochester in some apocalyptic future. Let your imagination run.

10