The Grid

- A network of uniformly placed horizontal and vertical lines for locating points by means of coordinates. The graph paper we use to plot charts is a simple grid. It allows us to locate points along the x axis and y axis.
- The earliest cultures used mathematical systems to aid design of objects, buildings or surface patterns.

‘Design began with the arrangement of objects in harmonious relationship to each other and to the space they occupied.’
— Alan Hurlburt
Brunelleschi’s design uses a grid based on the most basic of shapes, the square. This system made sense in designing the cross-shaped church.
Brunelleschi was a pioneer in the use of grids, mathematics and perspective, as this drawing demonstrates.

Brunelleschi was among the first Renaissance artists and architects to realize that grids could allow them to render objects more realistically using the mathematics of perspective. Artists also discovered how to use grids to enlarge their drawings in proportion for their huge murals, such as those done by Michaelangelo on the ceiling of the Sistine Chapel.
The design grid fits a proportion that helps to solve the design problem. Brunelleschi was well-grounded in mathematics, and it is said that he used his carefully organized ground plan to develop three-dimensional perspective drawings, such as the one to the right. A photo of the interior of Santo Spirito shows how well he succeeded.
To sum up, a design grid is:

- A network of horizontal and vertical lines for locating points by means of coordinates.
- Spacing of those lines is based on proportions that are relevant to the design problem and which help solve that design problem.
Filippo Brunelleschi based his church floor plan on the square, the simplest of rectangles but perhaps the most important in the development of the designer’s grid. The square is important for two reasons:

- It is a shape that can be derived from natural dimensions, as Leonardo DaVinci’s famous drawing, Vitruvian Man, demonstrates (top).
- Many other important proportions can be derived from the square, such as the Golden Rectangle (bottom).
The square format shows up in some designs, such as compact disc covers and wedding invitations. Although the square is the most static of shapes, sometimes a square document can seem exotic simply because the format is so seldom used.

Hurburt writes, “Any designer who has had the opportunity to prepare a layout within the square format has found this to be an unusual and rewarding experience, even though the shape is uneconomical and impractical for most purposes.”

The double square, Hurlburt writes, provides the proportion for Japanese tatami mats and is the basis for Japanese asymmetrical design.
Tatami mats, as the basic unit of floor covering, become the basis for traditional Japanese architecture.
The square is the basic component of most grids. We saw Brunelleschi's floor plan built on squares. Most graph paper is based on squares.

The sign system above was developed by Otl Aicher, an early proponent of grids in Germany, for the Munich Olympics of 1972. It uses the grid at left and interchangeable elements for a body alphabet.

Aicher’s approach was widely adopted for systems of international signs in airports and other public places.
Orthodox grid

- Also called full Swiss grid or full Zurich, was developed in Switzerland after World War II:
- Based on uniformly spaced horizontal and vertical lines that produce square modules.
- Basic unit of measurement is the line space (ledding) of the basic body text.
- Grid at left is based on 9-point type set on 10-point ledding. Each square is eight lines by eight lines, or 80 points square.
- Gutters (vertical space between columns) and alleys (horizontal space between modules) are 10 points each.

This grid example has six columns, so it is called a six-unit grid.
The full Swiss grid in use

- Body type can be set over two or three units, producing two or three columns of type (right).
- All other type is set on ledging that adds up to multiples of 10 points. In this example, each module is 80 points wide and 80 points deep. The two-line headline of 36-point type is on 40 ledging and takes up one full module of 80 points.

- Small type also is set up with ledging that fits the grid. At left, 7-point type on 8-point ledging give us 10 lines in each module.
The Swiss grid in use

- Illustrations are measured in lines of type.
- With the orthodox grid, designers usually follow rules limiting how many modules may be filled and how many must remain empty. One common guideline is that only two-thirds of the modules can be filled.
- Internal margins must be equal. This pushes white space to the edges, where it focuses the eye in on the content.
The Star Tribune of Minneapolis was one of the first newspapers to adopt a Swiss grid. The Strib, redesigned in the 1970s by Frank Ariss, bases its grid on body type of 9 points set on 9.5 leading.

Ariss’ design followed the rules of the full Swiss grid, but through evolution, the Strib changed its approach to what we call the modified Swiss grid, or leading grid.

This grid still is based on the line spacing (leading) of its body type, 9.5 points up until 2001. But to speed production and provide a more traditional newspaper look, the Strib allows designers more freedom in their approach to the grid.
All grids, works best with modular design. In grid terminology, a module is the square or rectangular unit outlined by the horizontal and vertical guides. In more general terms, a module is a rectangle of any size in which we place artwork or text. Almost all newspapers use modular design:

- The page is divided into a series of rectangles.
- All related items are contained within one rectangle.

On this example, all election matter is contained in one large square module. Within it, other rectangles hold individual stories and related headlines, pictures, captions and graphic devices. The bottom is divided into four modules containing related elements.

The grid provides the structure to quickly perform this division of space.
To set up a leading grid, also called a modified Swiss grid, follow these steps:

- First you must understand the communications problem. What are your objectives? Who is your audience? What are your constraints in production and page size? All of this must relate to content. You must know your budget and your production schedule.

- You must have an accurate measurement of the physical requirements: How many words, how many illustrations? More than that, which elements will you emphasize and which will you de-emphasize?
The next step is to distill all these forces into a design concept. At this point, the grid usually enters in. Remember that the grid and modular system must serve the idea and not lead it.

In the example of newspapers, designers have worked over the years to develop grids flexible enough to serve wild swings in news, from days when nothing happens to days when historic events occur.
Grids are useful for any design that uses text and illustrations.