An Introduction to the Web version of String Art

The Electronic String Art files were originally created in *Excel* and if you are just starting out and have access to *Excel*, that is the wise place to start. The web version can do many of the same things as the *Excel* files, and it also has additional capabilities that are not available in the *Excel* files. The reason to start with the *Excel* files can best explained by a simple analogy. If you are just learning how to drive, you are generally better served if you start out in a Volvo or Toyota with an automatic transmission instead of a Ferrari or Corvette with manual transmission. It is best to minimize the number of things you need to think about and not overwhelm yourself as you learn the basics.

The *Excel* files are layered and allow you to see one thing at a time until you have learned the basics, but the web version provides access to everything at once. Most basically, string art is created from four parameter, *n*, *S*, *P*, and *J* and the *Excel* files allow users to individually focus in on each of those parameters rather than face all four at once.

You will be able to use the web model to recreate any string art image created using the *Excel* files shown in the book, with a few exceptions. One version of the Double Jump Set model, and The Centered-Point Flowers, Four-Color Clock Arithmetic, and Non-Polygonal String Art chapters are ONLY available using *Excel*. You cannot examine functional relations between parameters as seamlessly using the web version. The *Excel* files are also more fine-tuned for those who are interested in teaching from this material. On the other hand, there are a few topics that are ONLY available on the web version (including larger jump set models or images with more than 2000 lines), for example. Additionally, *Excel* does not have an automated *Drawing Mode*, although there are *Excel* files that allow manual drawing of the first *k* lines. In short, the two modalities complement one another nicely.
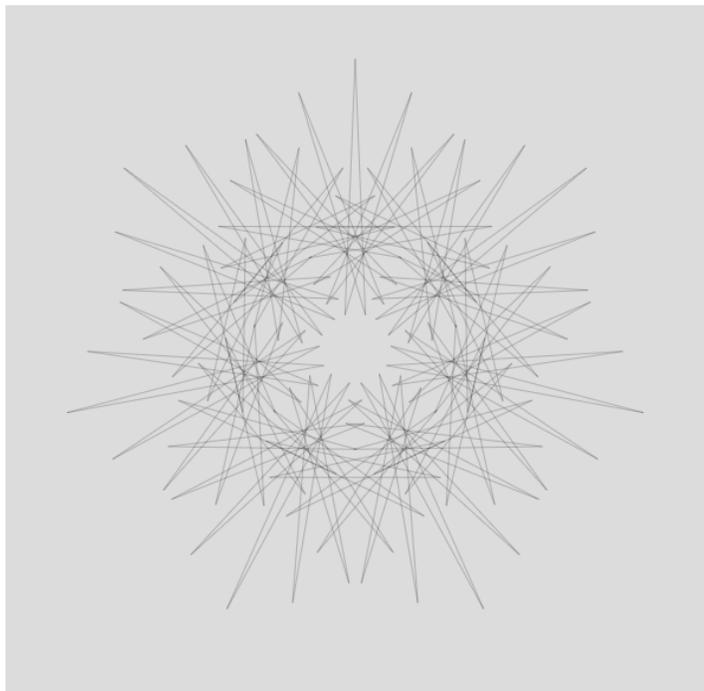
Web *explainers*. The image below highlights three sets of controls which we discuss in three separate *explainers*. Each presupposes a familiarity with the "just the basics" *explainers* noted here (to avoid having to redefine string art basics).

    Changing Numbers, highlighted green, focuses attention on how to enter data in the web version.
    Web Jumps, highlighted yellow, discusses the open-ended way that jumps are handled in the web version.
    Drawing Modes, highlighted blue, examines how to use the various *Drawing Modes*.

The final three web *explainers* provide **guided inquiries** into the basics for younger users. These explore the basics from the ground up without assuming a knowledge of multiplication or division, or string art basics. They provide a heuristic visual introduction to these concepts. A Teaching Companion is in the *Suggestions for Teachers* chapter.