Sphere Model 1

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Instructions

PLEASE NOTE! The author has tried to ensure that the following plans are correct. As mentioned above, this material is distributed **without a warranty**. I recommend that users check it themselves before investing a lot of time and effort into cutting out the paper model.

Any corrections will be gratefully received by the author. Contact information can be found on the title page.

These plans represent a "development" of a sphere: The individual figures are "flattened-out" spherical biangles corresponding to 1/8 of a sphere.

To use these plans, tape, tack or otherwise attach them to a sheet of paper which should be robust, but not too thick. I generally prefer tacking to taping, where possible.

Fairly light, smooth watercolor paper might be a good choice. Bristol board or cardboard cannot be used for this model, because the pieces need to be able to bend.

First, prick out the holes for the stitches and then use a cutting knife to cut out the *outer* lines of the plan. **Please note**: The *inner* lines are only for reference and should not be scored! Crosshairs in black mark the places where holes should be pricked. Toward the ends where the curves get very close to the edges, holes should not be pricked. I have added numbers and tick-marks beside the even-numbered crosshairs and also further along the curves beyond where holes should be pricked. The numbers and tick marks should be written on both sides of the pieces when they are cut out; otherwise, it is nearly impossible to align the pieces correctly when assembling the model.

There are two additional crosshairs at tick mark 15 at each end. Here, holes should be pricked and a thread run through them for pulling the ends together *carefully* to finish assembling the model.

Please Note: This is not an ideal solution for the ends. A better idea would be some kind of "polar cap". I will try to work on this as soon as possible. (2010.06.04.)

Felt mats are available at hobby supply stores. I find they work well for pricking out the holes.

The numbers on the spherical biangles and the letters "L" and "R" (for "Left" and "Right") are merely for reference. Once the pieces are cut out, and especially during assembly when the pieces are bent, it becomes difficult to tell which side is which.

The knife must be sharp as watercolor paper (or other heavy papers) will dull the blade quickly. I have been using knives with disposable blades. I've been meaning to try sharpening them but haven't done so yet. I therefore can't say whether this will work. It seems a shame to waste so many blades, which is why I have a jar full of them. They must be good for something.

It will be necessary to reattach the plans parts of them are cut out.

Make sure that the plan is attached smoothly or you will introduce inaccuracies. *Do not detach it or let it slip until you are done!* You will never get it back where it's supposed to go. However, with this model, this is only important for an individual piece, since they aren't attached to each other.

If you use tape, please use the removable kind. Ordinary masking tape will damage the paper when it is removed. Be aware that "removable tape" isn't completely reliable, especially if left too long on the drawing. Sometimes it's possible to reuse pieces of it, which avoids wasting large amounts of it.

Each figure contains 5 curves: From left-to-right: 1. the left edge of the spherical biangle, 2. an inner curve for stitches, 3. the right edge of the spherical biangle, 4., an outer curve for stitches, 5. a curve that's even further out to provide an offset so that holes can be punched for the stitches in curve number four.

Once they are punched and cut out, two pieces A and B should be joined so that the outer curve for stitches on A (4) should be placed over the inner curve for stitches on B (2). Then, curve 4 of B should be placed over curve 2 of a third piece, C, and so forth. As the sphere closes, it will probably be necessary to pre-thread the holes in such a way that the threads can be pulled tight without having to reach inside the (partial) sphere. However, it may be possible to use a curved needle, such as an upholsterer's needle. While the author has partially assembled the model, he hasn't gotten to this point yet (as of 2010.06.02).

Spherical Biangles