

# Creating a Diptych Sundial

## Instructions

1. Print the template onto a letter-sized piece of paper or cardstock. If printed on paper, paste the template onto a piece of Bristol board or cardstock, making sure that glue is spread evenly over the entire surface.
2. Trim along the outside solid lines on the template diagram.
3. Fold flaps "A" inwards on the dotted line, and fold flaps "B" outward on the dotted line.
4. Fold the dotted center line so that the two panels form a right angle.
5. Determine the latitude of your location using an atlas.
6. On the right and left sides of the sundial base (flaps "B"), you will see scales marked 35°-55°. Once you have determined the latitude of your location, mark that latitude angle on both scales. Draw a line from those marks to each of the X symbols at the top. Cut the flaps off along these lines.
7. Poke two small holes through the diptych where the hour lines converge. String an elastic band through the top and bottom holes, tying knots in each end. Be sure to adjust the tension so the band is stretched straight, but the diptych remains at a 90° angle.

*This band is the **gnomon** (pronounced **no-mon**). It casts the shadow that indicates the time on the face of the sundial.*

## Personalizing your Sundial

**At the top of your sundial, you may want to write your location and latitude. You may also want to write your name, followed by the word "fecit" (i.e. "Sam Smith, Fecit"). Fecit is Latin for "maker" and often appears on early instruments.**

Diptych sundials were portable, and as such they were often seen as stylish accessories (much like a fancy watch would be today). You may wish to embellish the back of your dial with an old-style graphic from a book about sundials, a drawing of your pet, or whatever appeals to you. This is where you can individualize your diptych dial!

## Setting the Time: Three Possible Methods

The sundial must be orientated with the gnomon pointing north/south, in a location where a shadow will be cast by the gnomon most of the day. Here are three methods for setting up your sundial to tell the time accurately:

### *Method 1 (The Purist's Method)*

This method will enable you to orient your sundial without using other mechanical devices — just as they would have centuries ago!

Looking at the night sky, locate Polaris (the North Star). You will find Polaris at the end of the Little Dipper. Point your sundial's gnomon in its direction. You will in effect be pointing the gnomon towards the North Celestial Pole, which is within 1° of the North Star. You might want to record the orientation for your dial on a window sill for future reference, using low tack tape (or "painters' tape").

**This method will not work in southern latitudes, as there is no bright star near the South Celestial Pole.**

### *Method 2 (A Practical Method)*

Use a magnetic compass to determine the north/south line. As there is a difference between the magnetic north and the true north, your sundial reading could be out by an hour or more, depending on the local difference between magnetic and true north (or south, if in southern latitudes).

### *Method 3 (The "Lazy Person's" Method)*

Use a clock to check the time, and then orient your sundial so that it reflects the current time (in Standard Time). If you choose to use this method, there could be an error of up to 30 minutes over the course of the year. Interestingly, if you use this method on April 15, June 10, Sept. 1, or Dec. 20, this error will be negligible. Similarly, any orientation made between April 15 and September 1 will only be off by, at most, a few minutes.

**Note that sundials always tell the time in Standard Time.**

For more information about how sundials work, consult the following sources: Waugh, Albert E. *Sundials: Their Theory and Construction*. New York: Dover, 1973. ISBN 0486229475; Kelly, Patrick. ed. *Observer's Handbook 2008*. Toronto: Royal Astronomical Society of Canada, 2007. ISBN 9780973810950.