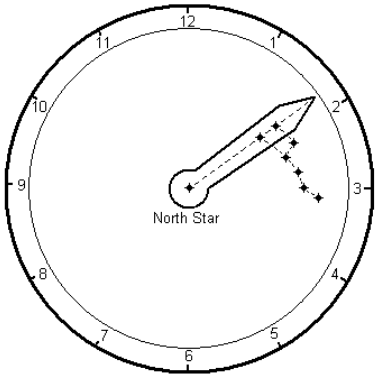
The Star Clock

Adapted from John P. Pratt

You can use the pointers of the Big Dipper as a star clock to tell the time. If you lived in the middle ages, you might have carried a little wheel called a "nocturnal" to do this. Because you are able to do simple math in your head, you don't even need the little wheel, but you need to practice doing it about once a month so you don't forget how. Just follow these five easy steps to read the time to within half an hour.

1. **Read the Clock.** Find the Big Dipper in the sky. It may be low to the horizon in the summer, but the pointers are nearly always visible. Using the pointers, locate Polaris, the North Star. Now imagine a giant clock in the sky with Polaris in the center and "read" the pointer stars of the Big Dipper like an hour hand. In the illustration, they are about 3/4 of the way between 1 and 2, which makes it 1:45, or 1 3/4 hours. This is your **raw time**.



2. **Calculate the date modifiers.** The star clock will read 12:00 at midnight on March 7, so that is the "base" date. To get your modifiers, subtract that from today's date. The date this sheet is being prepared is November 22, so we'll use that in the examples.

Subtract 3 from the month. 11 – 3 = 8. Then subtract 7 from the date, with every 7 days left over (rounding off) being another 1/4. 22 – 7 = 15, so we get another 1/2. The date modifiers for November 22 are 8 1/2, plus the raw time of 1 3/4 gives you a new raw time of 10 1/4.

If you know (or suspect) you'll be using the star clock later, you may want to figure the date modifiers ahead of time. It can be troublesome, but once you have them they're good for a week.

3. **Double the raw time** (because it is really a 24-hour clock). This gives you 20 1/2.

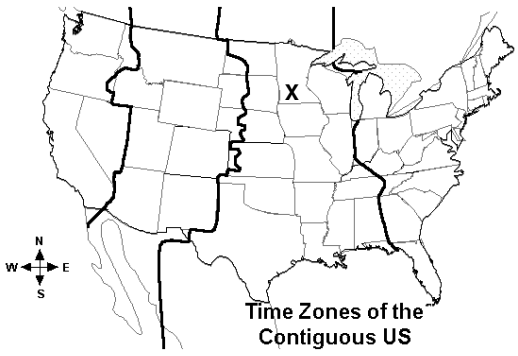
4. **Subtract the raw time from 24** (or 48, if your raw time is higher than 24). You have to subtract because the Big Dipper revolves counterclockwise around the North Star. This gives us a raw time of 3 1/2.

Sometimes you'll end up with a number higher than 12. Remember, it's a 24 hour clock — this is simply military time. Just subtract 12 from the number to get the hour.

5. **Correct for your Time Zone.** If you live in the middle of your time zone, star time is the same as clock time. If you live off to the side, though, you need to adjust. If you live to the **west** of center, you'll need to add time (up to an extra 1/2 hour if you're close to the next time zone); if you live to the **east** of center, you'll need to subtract time. The Jeffers Petroglyphs site is nearly in the center of the Central Time Zone, so no adjustment is necessary.

Also, if you use the star clock during the summer remember that Daylight Saving Time is in effect. Between early April and late October all clocks are set ahead an hour, so you would need to add an extra hour to the star clock to make it agree with a normal clock.

Since we have no time zone modifiers and no DST to correct for, we're left with 3 1/2, or 3:30. This is the final time, and if you check it against a clock you'll be amazed at how close it is.



If you just practice this a few times, you'll remember it and you'll be surprised just how accurately you can tell time by the stars and amaze your friends.