

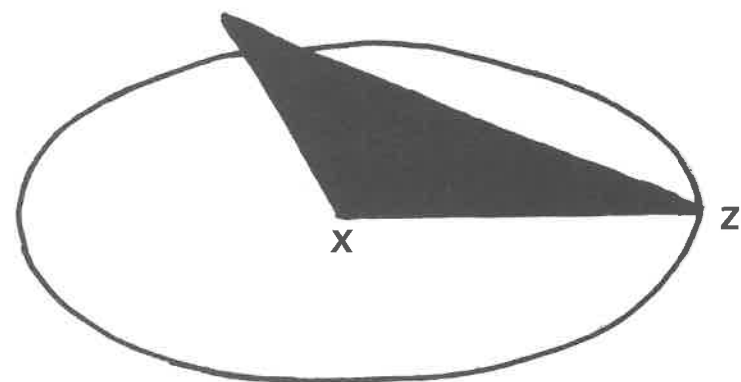
**4.** Mark point  $\Upsilon$  at the top left corner of the cardboard rectangle, as shown in the diagram. Use the pencil and ruler to draw a line from point  $X$  to point  $\Upsilon$ .

**5.** Mark point  $Z$  at the bottom right corner, opposite point  $\Upsilon$ , as shown. Use the ruler and pencil to draw a line from point  $\Upsilon$  to point  $Z$ .

**6.** Cut along lines  $X\Upsilon$  and  $\Upsilon Z$ . This triangle is the gnomon.

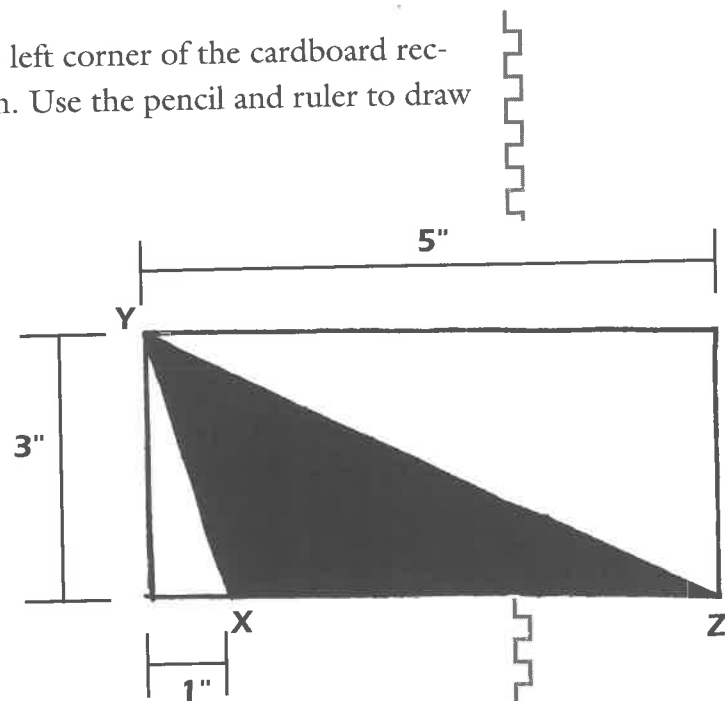
**7.** Put a line of glue along the bottom of the gnomon (from point  $X$  to point  $Z$ ).

**8.** Stand the gnomon on the circle, with point  $X$  at the center of the circle and point  $Z$  on the edge of the circle. Press the gnomon down so it will stick, and hold it until the glue dries.



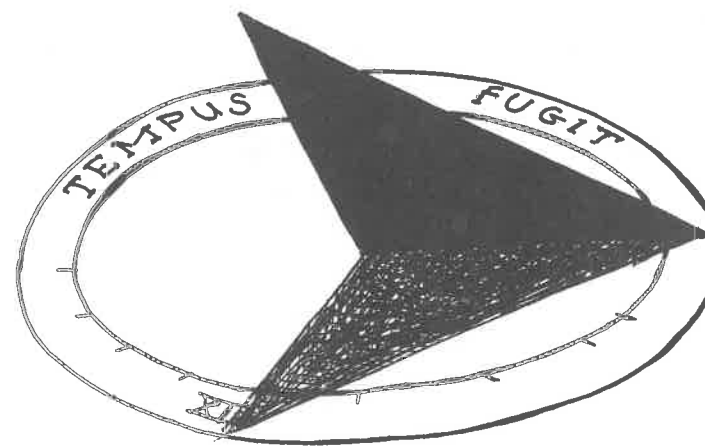
**9.** Use the black marker to write a motto from the Latin Mottoes list around the edge of the circle.

**10.** Take your sundial outdoors at noon on a sunny day. Use a pencil to write XII (12) where the gnomon's shadow falls on the edge of the circle.



**11.** Leave the dial outside. Go back at 3:00 P.M., 6:00 P.M., and 9:00 P.M. At each time, write III (3), VI (6), or IX (9) where the shadow falls on the edge of the circle.

**12.** Go over the Roman numerals in black marker. Test your sundial on another sunny day to see if it tells the same time!



## ROMAN HOURS

A Roman hour was different from our sixty-minute hour. In ancient Rome the length of an hour changed during different seasons. The Roman hour was one-twelfth of the hours of daylight. Since daylight lasts much longer in summer than in winter, the Roman hour was about ninety minutes in summer and about forty-five minutes in winter.