

Enrich

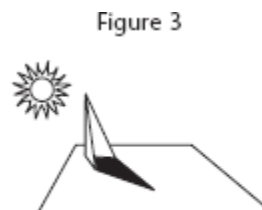
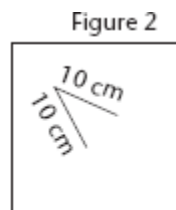
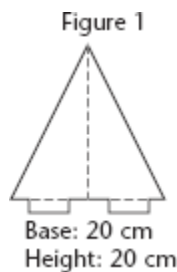
Earth in Space

Read the passage, follow the directions for building a simple sundial, and study the figures below. Then use a separate sheet of paper to answer the questions that follow.

Build a Simple Sundial

Long before the invention of clocks, people measured time with *sundials*. A simple sundial is a vertical pointer projecting from a flat surface. Marks on the surface show where the shadow cast by the tip of the pointer falls at different times. You tell time by noting where the pointer's shadow falls on these marks. For the shadow to fall in the right places, the sundial has to stay in one place, so sundials are usually built on permanent pedestals or as parts of buildings. To build a simple sundial, you can start with two pieces of stiff poster board and masking tape.

- On the first piece of poster board, draw the figure shown in Figure 1. Cut it out, and fold it along the dotted lines. This will become your pointer.
- On the second piece of poster board, draw the figure shown in Figure 2, with the point of the angle close to a corner of the poster board. Now, tape the pointer onto the second piece of poster board so that its base aligns with the figure you have drawn. The finished sundial will look like Figure 3.
- Around midday, place the sundial on a stable, flat, sunlit surface, such as an outdoor tabletop, so that the pointer's shadow falls towards the opposite corner of the poster board. Tape down the sundial so it won't move. Every half hour, mark the location of the shadow of the pointer's tip and label it with the time. Continue this process throughout the afternoon and again the next morning to "set your clock."



1. At some moment when you don't know what time it is, look at your sundial and read the time. Compare your sundial time with the time on a clock. How accurate is your sundial?
2. Do you think a "moondial" could be made to tell time at night? Explain.
3. Name two practical disadvantages of sundials compared with clocks.