orientation, or attitude. Strike and dip serve this purpose (see Figures 14.1 and 14.2):

strike the *compass direction* of a line formed by the intersection of a horizontal plane (like the surface of a lake) and an inclined stratum, fault, fracture, or other surface (Figure 14.1). Because it is a compass direction, strike usually is expressed relative to north or south. Hence, strike is expressed as "north X degrees east," or "south X degrees west." (Refer back to Exercise Seven if necessary.)
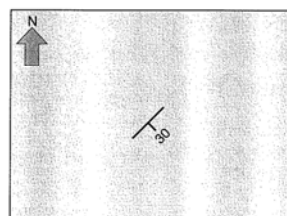
dip the *angle* between a horizontal plane and the inclined stratum, fault, or fracture. As you can see in Figure 14.1, a thin stream of water poured onto an inclined surface always runs down the surface parallel to dip. The inclination of the water line down from the horizontal plane is the **dip angle.** Dip always is measured perpendicular to strike.

This "water-on-the-rock method" for finding the direction and angle of dip is very useful. Because strike is perpendicular to dip, strike easily
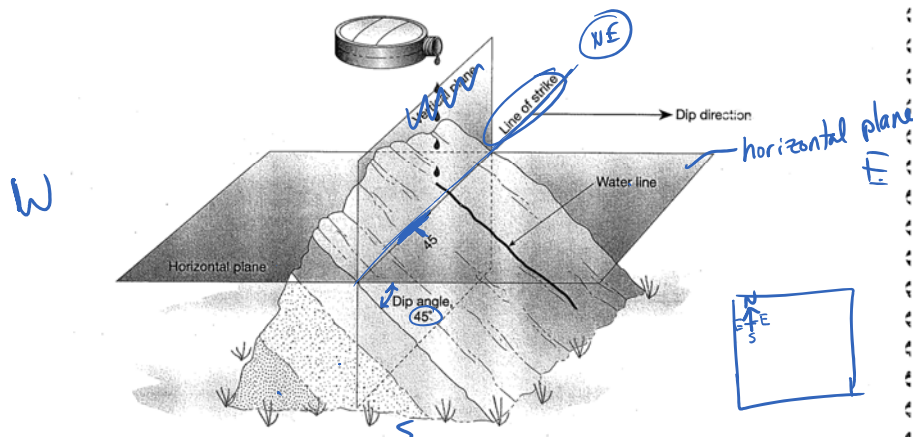
FIGURE 14.1 Strike and dip of a rock outcrop. *Strike* is the direction of a line formed by the intersection of rock strata and a horizontal plane. *Dip* is the maximum angle of inclination of the strata, always measured perpendicular to the line of strike (looking straight down on it, in map view). Water poured onto a dipping stratum drains along the angle of dip. The **T** and **45** together form the standard strike-and-dip symbol: the top of the **T** is the line of strike; the short upright of the **T** shows the dip direction; and the **45** is the dip angle in degrees.

FIGURE 14.2 How to read strike-and-dip symbols. In the left example, strike runs 45° east of north (N45°E), and the rocks dip 30° toward the southeast (30°SE). Strike and dip always are given in this order: N45°E, 30°SE. Compare to the example on the right.
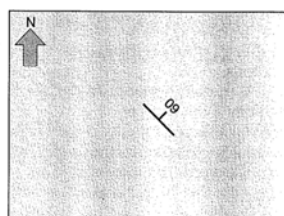
N45°E, 30°SE   N45°W, 60°NE
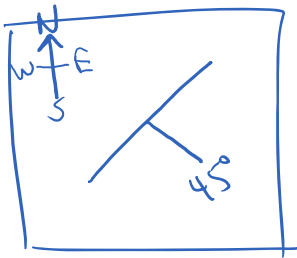

Strike and Dip

Strike — the compass direction of a line formed by the intersection of a horizontal plane

by the intersection of a <u>horizontal plane</u>
and an <u>inclined surface</u>

dip — the angle between a <u>horizontal plane</u> and
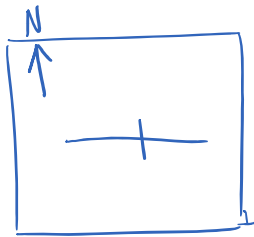   the inclined strata, fault or fracture
  — <u>note</u> — perpendicular to strike, always
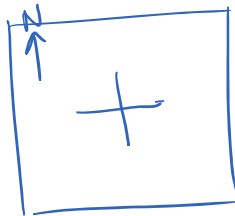 — water ^(would) run₃ in dip direction

<u>Examples</u>

striking: NE (or SW)

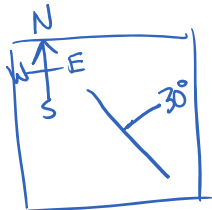dipping: SE @ 45°
    └ slope that water
      will roll down

striking: E or W

dipping: vertical bed, 90°

horizontal bed
(no strike or dip)

striking: NW (or SE)

dipping: NE @ 30°

– Strike and dip are used to describe orientation of tilted layers, faults, etc.