

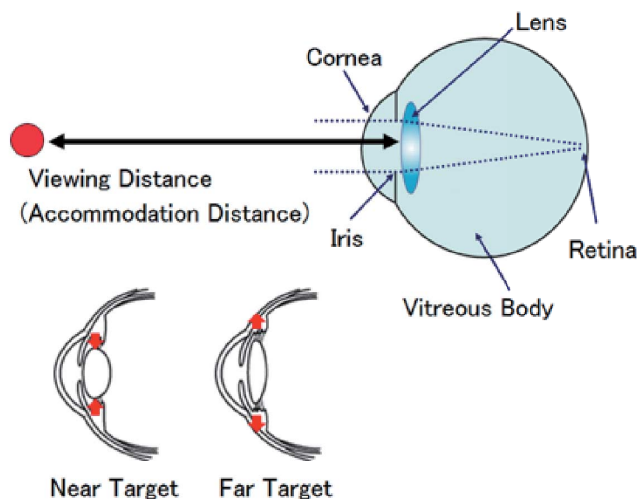


Fig. 1. Lens accommodation.

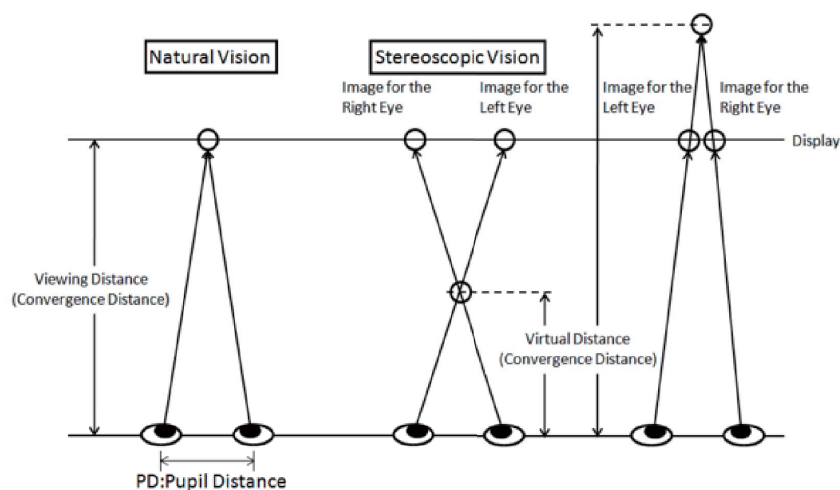


Fig. 2. Convergence.

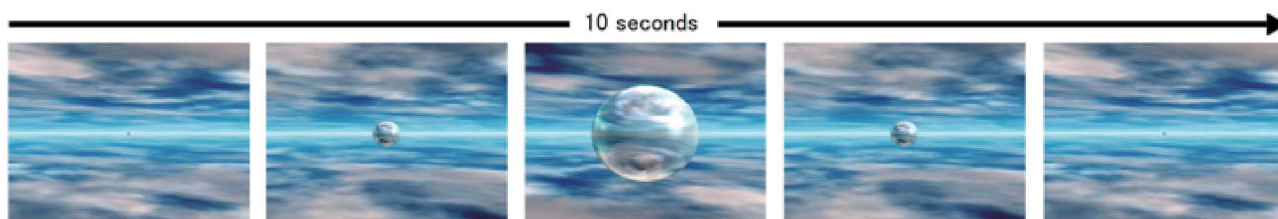


Fig. 3. Spherical object movies.

ward and back with a cycle of 10 seconds (Fig. 3). In theory, the spherical object appears as a 3D image at 1 m (i.e., the location of LCD monitor) and moves toward the subjects to a distance of 0.35 m in front of them. We asked them to gaze at the center of the spherical object for 40 seconds, and measured their lens accommodation and convergence distance during that time. The 3D image was presented by using a liquid crystal shutter system and a circular polarizing filter system. The 2D image was presented by using only a liquid crystal shutter system. Measurements were made three

times each. The performance of the monitor used in the experiment is shown in Table 1. For the measurements, we made an original machine by combining WAM-5500 and EMR-9.

WAM-5500 is an auto refractometer (Grand Seiko Co., Ltd.) that can measure accommodative power with both eyes opened under natural conditions. It enables continuous recording at a rate of 5 Hz for reliable and accurate measures of accommodation. Some previous studies used WAM-5500: measurement of state accommodative re-