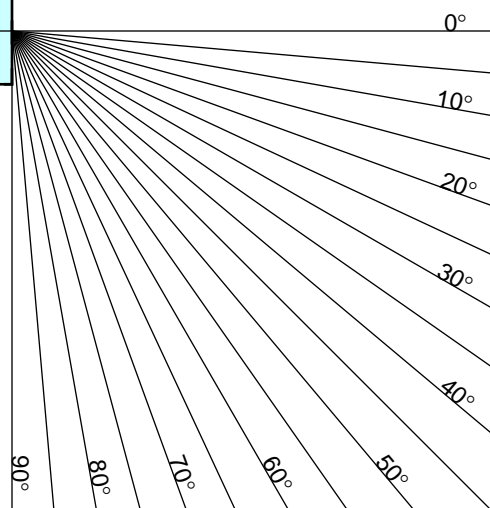
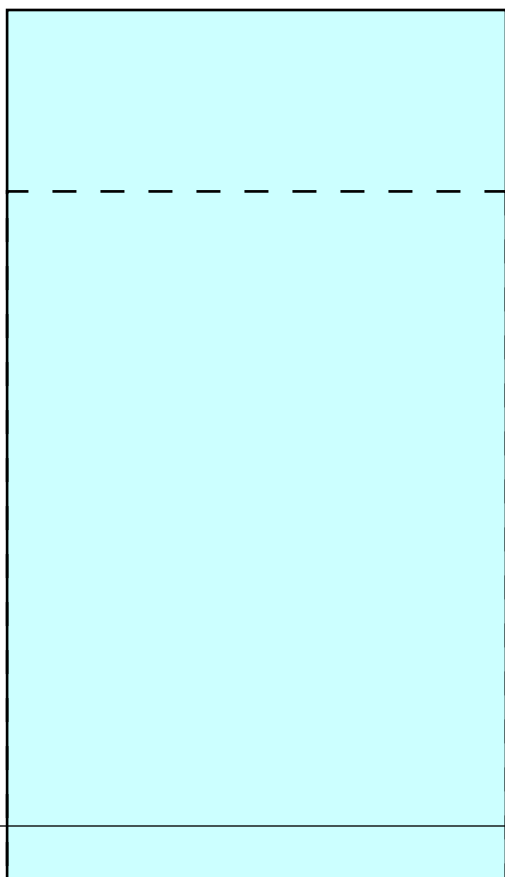


# INDEX OF REFRACTION (ACRYLIC)



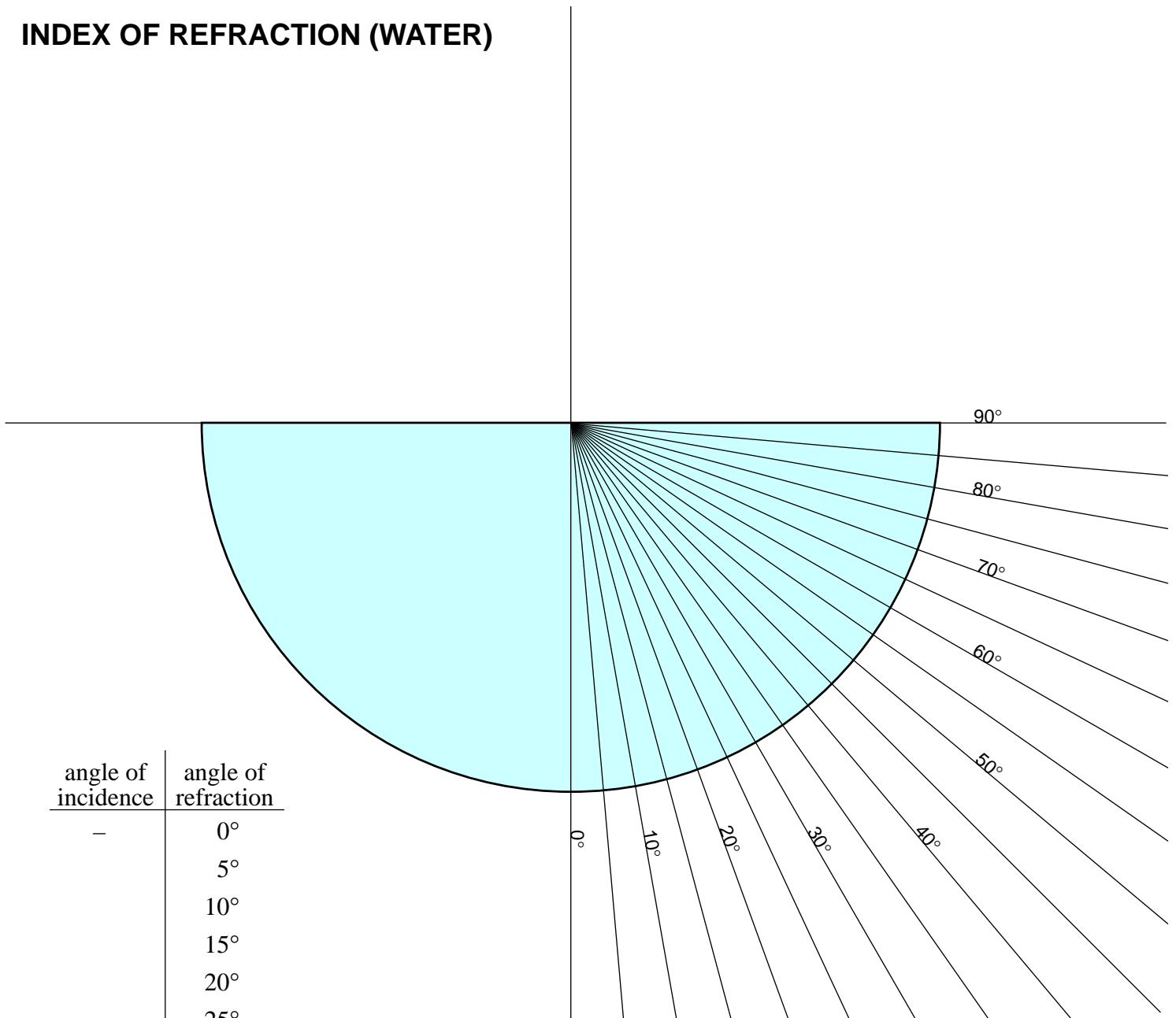
angle of incidence	angle of refraction
0°	—
5°	
10°	
15°	
20°	
25°	
30°	
35°	
40°	
45°	
50°	
55°	
60°	
65°	
70°	
75°	
80°	
85°	
90°	—

Place this page on a piece of cardboard or other suitable base. Obtain an acrylic block and place it in the appropriate outline above. Stab a pin through this sheet and into the cardboard at the point where the incident rays converge. (This first pin should not be moved until the experiment is complete.)

Place a second pin at the end of the 5° incident ray. Close one eye and move your head until the second pin lines up with the first when viewed through the block. Take two additional pins and place them on the opposite side of the block so that four pins now line up: two in front of the block and two behind it. Remove all pins (except for the first one) and repeat these steps for the other incident rays until it is impossible to align all four pins while looking through the block. (Label the pinholes as you progress.)

Connect the appropriate pairs of pinholes with a line that runs from the margin of the page to the outline of the block. Connect the end point of this line with a line running back to the point where the incident rays converge. Draw an arrowhead on each segment of the transmitted rays and all the incident rays you used showing the path of the light to your eye. Measure the angle that the refracted rays make with the normal inside the block and record them. Fill in as much of the table as is possible. Use this data to determine the index of refraction of acrylic.

# INDEX OF REFRACTION (WATER)



angle of incidence	angle of refraction
—	0°
	5°
	10°
	15°
	20°
	25°
	30°
	35°
	40°
	45°
	50°
	55°
	60°
	65°
	70°
	75°
	80°
	85°
—	90°

Place this page on a piece of cardboard or other suitable base. Fill a semicircular tray with water and center it in the outline above. Stab a pin through this sheet and into the cardboard at the center of the semicircle. (This first pin should not be moved until the experiment is complete.)

Place a second pin at the end of the 5° refracted ray. Close one eye and move your head until the second pin lines up with the first when viewed through the water. Take a third pin and place on the opposite side of the semicircular tray so that all three pins now line up: one in front of the tray and two behind it. Remove the two pins and repeat these steps for the other refracted rays until it is impossible to align all three pins while looking through the water. (Label the pinholes as you progress.)

Draw a ray from the center of the semicircle through each of the pinholes and extend it to the margin of the page. Draw an arrowhead on each incident ray and all the refracted rays you used showing the path of the light to your eye. Measure the angle that the incident rays make with the normal and record them. Fill in as much of the table as is possible. Use this data to determine the index of refraction of water.