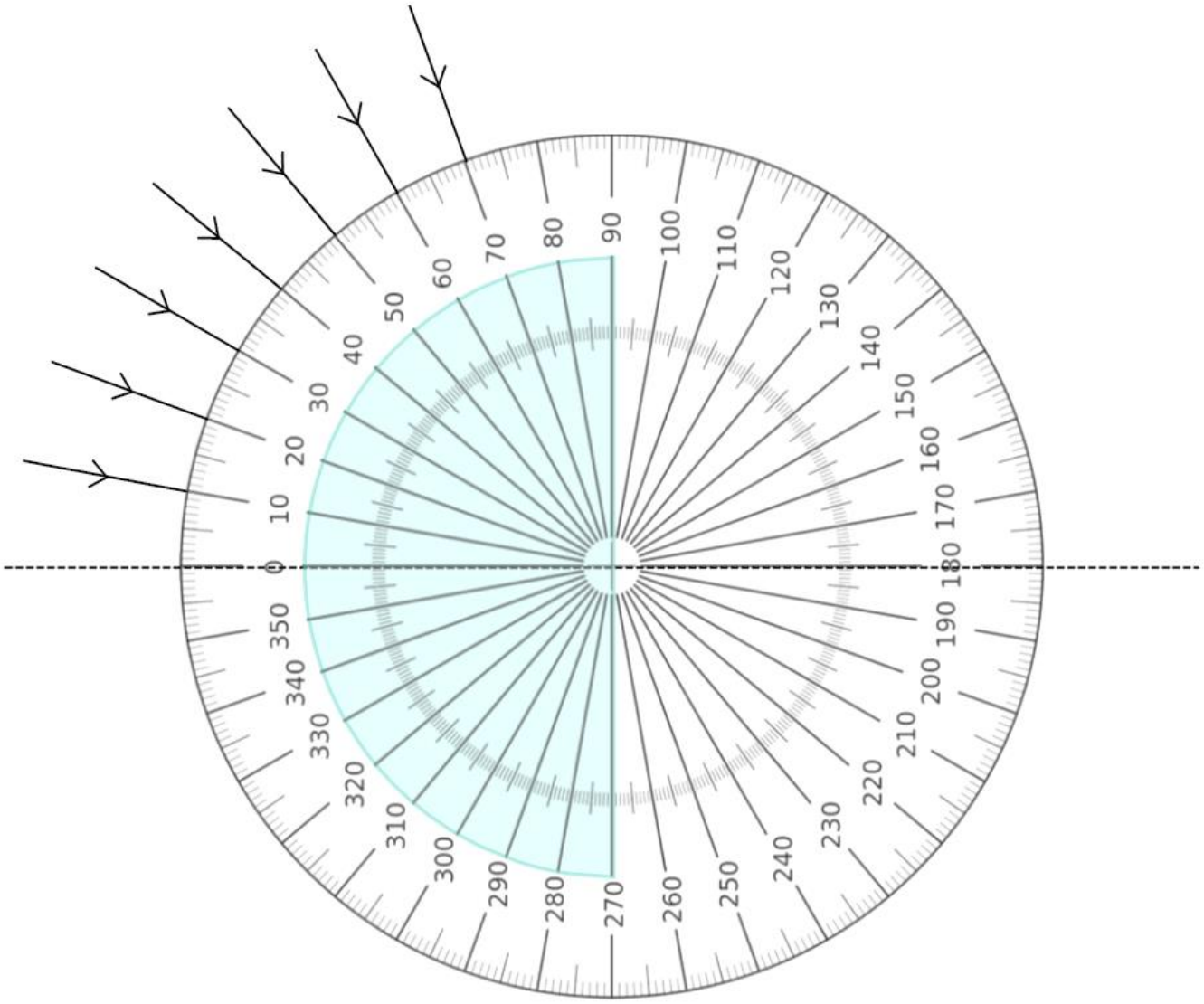
Investigating Total Internal Reflection



Place a semi-circular block over the blue area. Make sure the centre of the flat face is over the cross in the middle of the circle. Direct rays of light along each of the black arrows, and record your observations in the table below.

angle of incidence (degrees)	brightness of incident ray (arbitrary units)	angle of reflection (degrees)	brightness of reflected ray (arbitrary units)	angle of refraction (degrees)	brightness of refracted ray (arbitrary units)		
10	5						
20	5						
30	5						
40	5						
50	5						
60	5						
70	5						

Analysis

1. Between which two angles of incidence did the ray stop refracting out of the glass? (1)

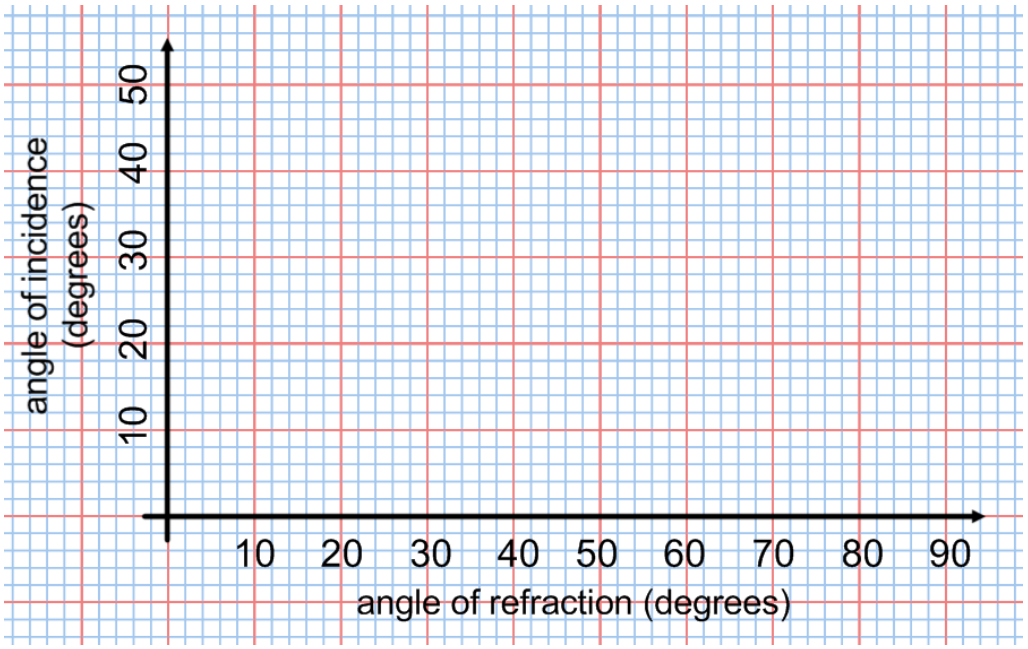
2. Describe the relationship between the angle of incidence and the brightness of the reflected ray. (2)

3. To measure the brightness you could try using an electronic component that responds to light levels.

a) Name the component and draw its symbol (2):

b) Describe how the component responds to an increase in light level (2):

4. Plot your results for angle of incidence and angle of refraction on the graph below. (2)



5. Use your graph to estimate the angle of incidence that would give an angle of refraction of 90°. (2)

6. What is the range and interval of the angle of incidence in this experiment? (2)

range:

interval: