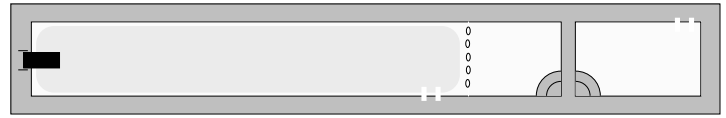
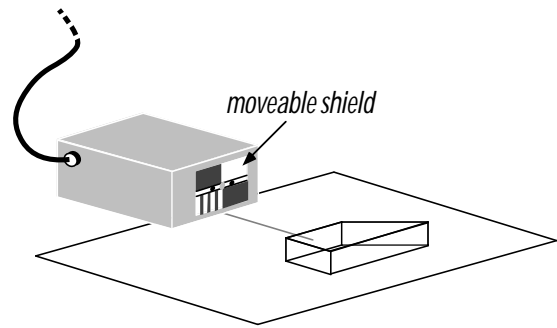


# PHYZLAB SPRINGBOARD: USING SNELL'S LAW



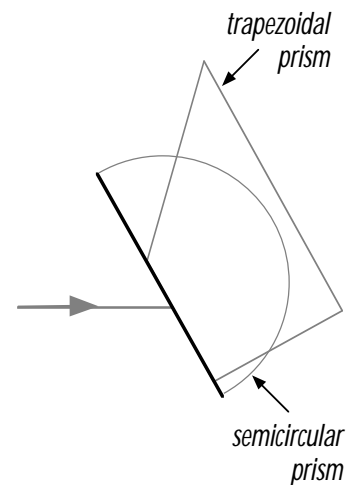
## • Apparatus •

- \_\_\_ PASCO Basic Optics System:
- \_\_\_ light source (out of bracket)
- \_\_\_ power supply (plug)
- \_\_\_ prism (trapezoidal, semicircular, etc.)
- \_\_\_ Snell's Law Sheet (one per group)



## • Set-Up •

1. Attach the power supply to the light source and plug it in.
2. Arrange the light source to be a ray box and adjust the moveable plastic shield so that a single beam is emitted.
3. Place the prism—**dull side down**—on Configuration 1 of the Snell's Law Sheet.

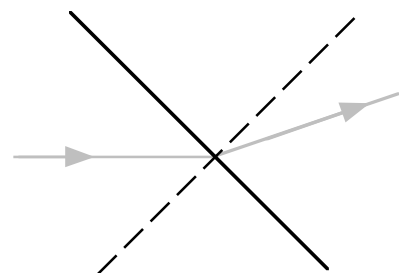


## • Procedure •

1. Aim the single beam of light along the gray line in Configuration 1 toward the prism as shown to the right.
2. Mark the **point** on the paper where the beam emerges from the prism. **If you are not using a semicircular prism, do not trace the path of the beam that emerges from the prism. If using a rectangular or trapezoidal prism, the exit beam must be parallel to the entrance beam in all configurations.**
3. Repeat this process on Configurations 2 and 3.

## • Analysis •

1. The diagram to the right shows a ray of light passing from air to acrylic. Label the **incident ray**, **refracted ray**, **surface**, **normal**, **angle of incidence  $\theta_1$** , and **angle of refraction  $\theta_2$** .



2. For each configuration on the Snell's Law Sheet, complete the diagram by drawing and labeling

a. **the refracted ray**: connect the point at which the incident ray strikes the front surface of the prism to the point at which the refracted ray emerges from the back surface of the prism. Extend the ray several centimeters.

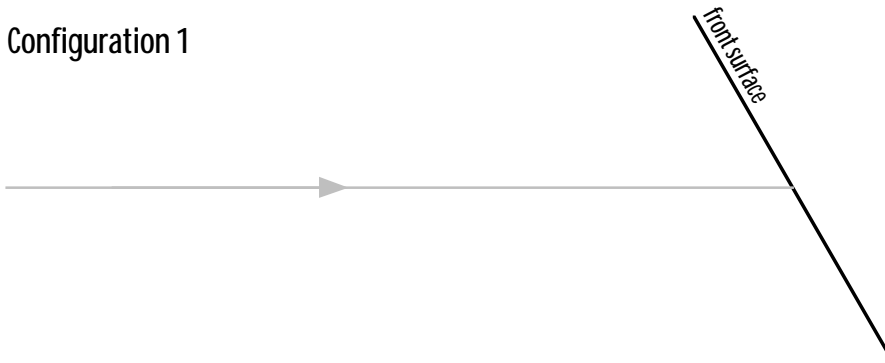
b. **the normal**. Extend it several centimeters on both sides of the surface line.



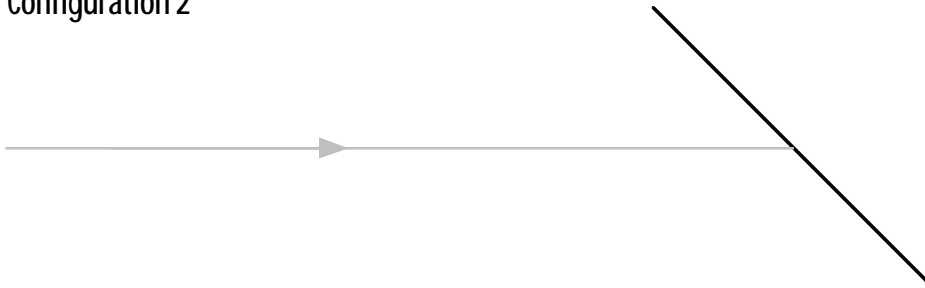
# PHYZLAB SPRINGBOARD: USING SNELL'S LAW

## Snell's Law Sheet

Configuration 1



Configuration 2



Configuration 3



**IMPORTANT:** Make sure the beam passes all the way through the prism as it did in Configurations 1 and 2. If using a rectangular or trapezoidal prism, the exit beam must be parallel to the entrance beam.