LASER CLASSROOM
Bringing STEM to light®

MODEL OF REFRACTION

BIG IDEAS

- Light slows down and bends when it travels from air into another medium, such as water or plastic.

WHAT YOU'LL NEED

- An outdoor sidewalk that runs along a grassy field

OR

- A large, flat area for marching students
- Masking Tape

This kinesthetic activity helps young scientists understand and remember how light bends and why.

1. Bring your whole classroom to your chosen spot:
   a. either an outdoor area with a sidewalk that lines a grassy field, in which case the sidewalk represents "air" and the grassy field represents another medium (water or plastic).
   b. OR, indoors, create a boundary on the floor with a long strip of masking tape.
2. First, get students to march in step with a uniform pace and then learn to change to steps half as long with the same frequency on your mark. It helps to count out "leftright, left-right" until they are able to march in both ways.
3. Line students up in fours, each tier with linked arms to imitate consecutive wavefronts. Then let them march on the sidewalk or on the "air" side of the tape - approaching the boundary at an angle (as in the drawing above).
4. As soon as each crosses the boundary s/he must change to steps half as long. This will slow down, as students crossing the boundary will cause the direction of the "light" to shift.
5. Once they have all crossed, have them travel in the other direction - taking half steps until they cross back out into air where they again resume full steps - causing the "light" to bend back to the angle that they began with!