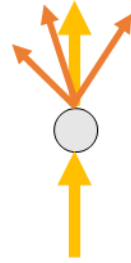
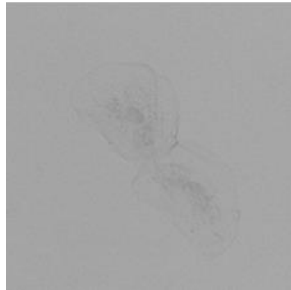


Phase Contrast Microscopy

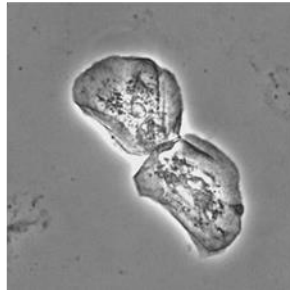
Phase contrast microscopy is a technique to visualize specimens that do not absorb light and are therefore not visible using standard brightfield microscopy. Even though many biological specimens do not absorb light, they do **diffract** (scatter) light: while most light travels through the object (yellow arrows), some light is scattered in all directions (orange arrows). Edges of objects and other features (organelles, flagella, etc.) are especially good at diffracting light. Coverslips, slides, dishes, etc. are essentially featureless and therefore do not scatter/diffract light.



Brightfield



Phase Contrast



Phase contrast microscopy enhances objects that diffract light. Features that diffract light appear dark, surrounded by a light halo, while everything else (the slide, etc.) appears light gray. The figure on the left shows two cheek cells imaged using brightfield and phase contrast microscopy. Note how the cells are nearly invisible using brightfield.

Phase contrast microscopy requires specialized microscope components: a phase ring located in a turret in the condenser and a phase plate inside the objective. Different objectives have different sized phase plates. The phase ring in the condenser needs to be matched to the phase plate in the objective. You will learn how to set-up the phase contrast microscope during your training.

