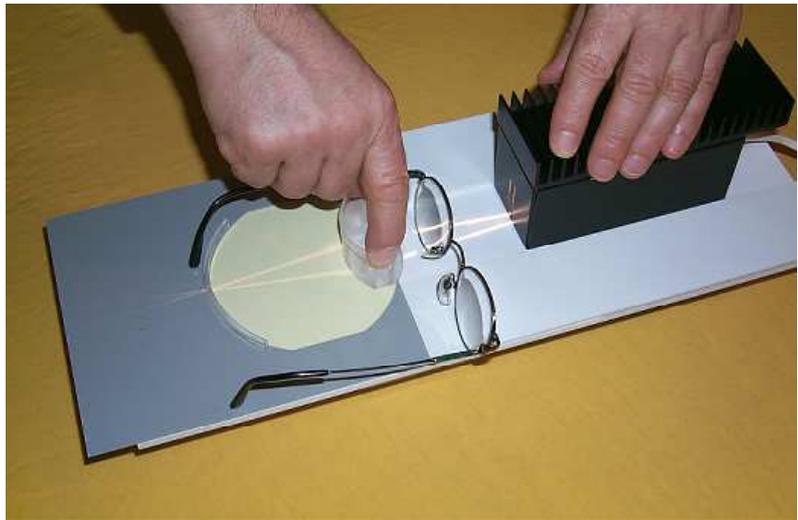


# A Model of how the Eye Functions



## Near-sighted, far-sighted – how do I explain it?

Laymen often have incredibly great difficulty in understanding these ideas (and also the wit of didactic aids for the subject) and remembering the explanations. For example, whoever wants to understand why he or she has difficulty in seeing things close up but can still see far-away things well as he or she gets older, has to understand adjustment (and its limitations). In order to do that one must know how the size of the image depends on the distance of the object on the one hand and on the lens curvature on the other hand (something which very few know), and one has to be able to imagine in one's mind the reciprocal differences of both of these influencing factors (which is difficult without any help in forming the idea).

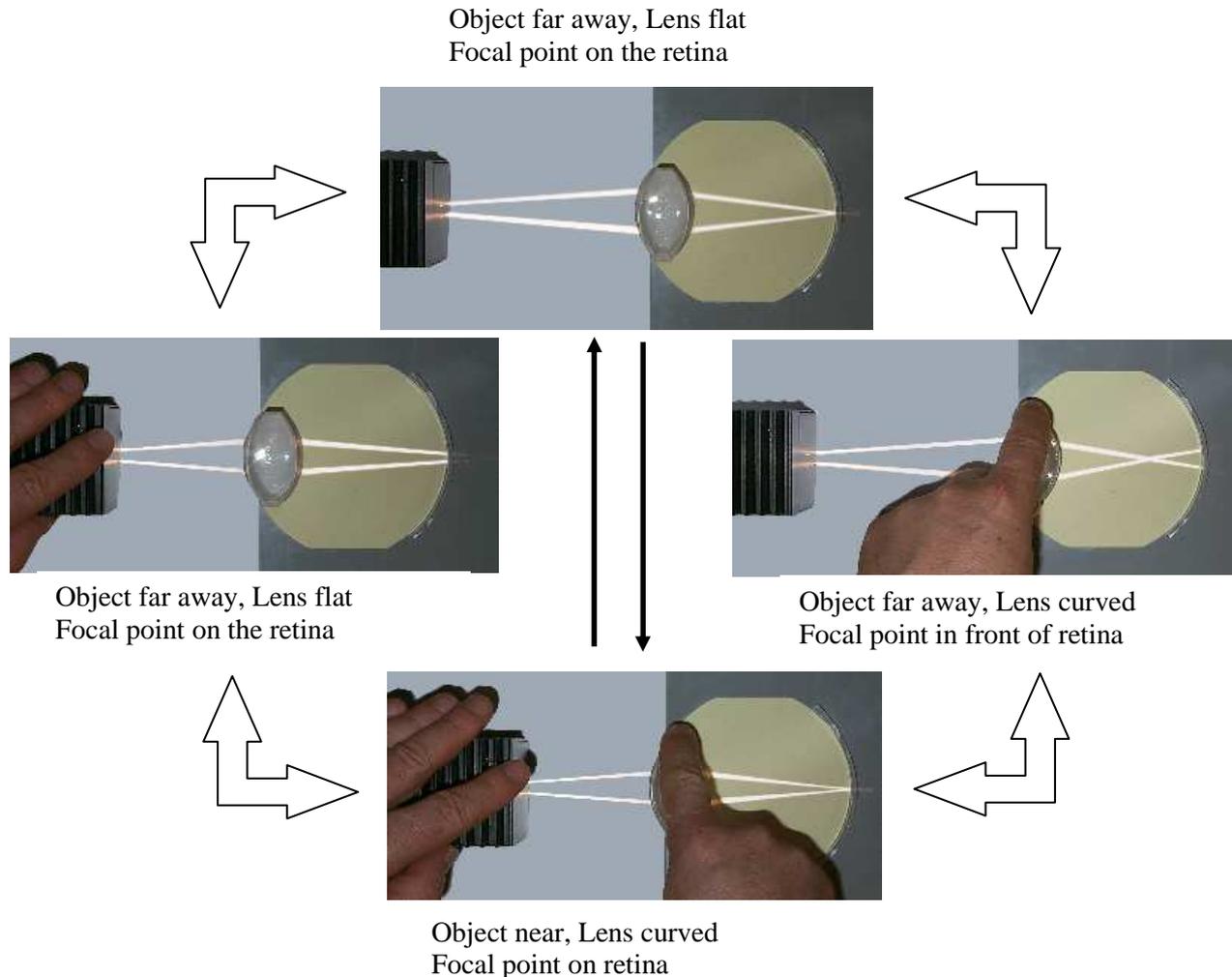
Our two-dimensional functional model, which is based on learning psychology, provides real proven help here. The relevant connections can be illustrated in a playful experimental way. It is, in other words, a moveable apparatus with a built-in surprise effect.

### What does the model do?

It illustrates how the position of the focal point in relation to the retina is influenced by the following factors, which can be combined as one wishes:

- **Eyeball size**  
(“Retina” can be continually shifted)
- **Distance of the object**  
(the light source can be continually shifted)
- **Lens curvature**  
(an elastic cylinder lens can be pressed with two fingers in a way that is analogous to the way how the eye muscles change the curvature of the eye lens)
- **Loss of elasticity in the lens**  
(by use of the blocking device that is furnished the lens curvature can be limited)
- **Optic aids**  
(the plus- and minus-lenses that are furnished can be employed or even usual glasses)

In the course of all the experimental variations the light rays remain visible for their entire length so that the change in the position of the focal point can be easily followed. In the demonstration of adjustment (accommodation) the reciprocal influences of the distance of the object and lens curvature can be shown one after the other or one can try to keep the focus point on the retina by changing both variables at the same time (as a sort of game at compensating for both factors with different roles).



Adjustment to near/far, in this case simulated with average eyeball size and without any limit to elasticity.

**Price: CHF 390.-**

### The DemoEx GmbH team

A physicist and a psychologist work together as an interdisciplinary team to produce experiments that combine scientific precision with great simplicity and effectiveness.

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