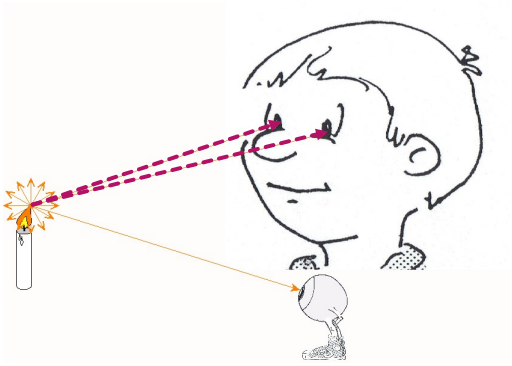
Size, Distance & Depth

Object Location

- The distance of an object from our eyes
- We need 2 eyes to estimate distance (depth perception)
- Light rays from the candle enters both eyes
  - Both rays can be triangulated back to the point of origin

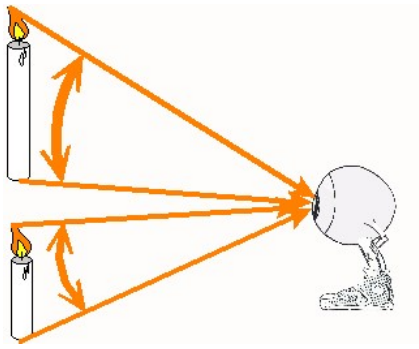


Depth Perception

- Pencil Activity:
  - Turn to face your seat buddy
  - Each of you will hold a pencil with one hand
  - Cover one eye with the other hand
  - Try touching the points of your pencils together
  - Repeat with both eyes open

Object Size

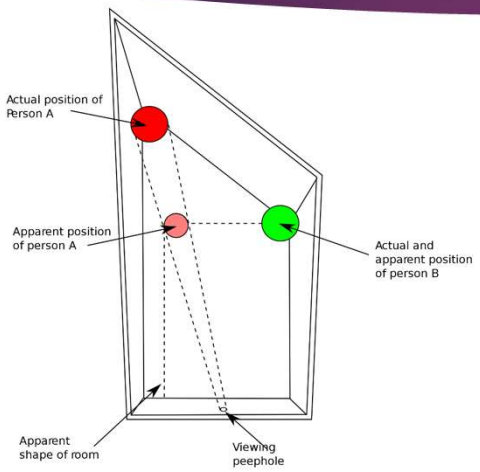
- The Size of the object depends on the angle between rays coming from the top and bottom of the object.
- Large objects have a large angle between the rays.
- Both rays go into the SAME EYE



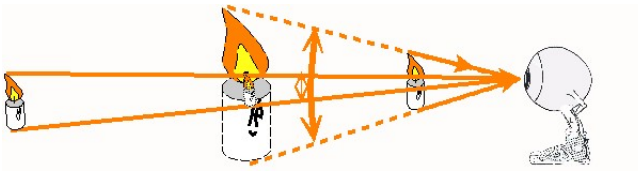
Tricking the Brain

- What the brain sees:
  - Square Room
  - Equal Distance
  - One person larger than the other

What really happens



- Your brain is tricked into thinking one object is larger than the other



Types of Eyes

- Eyes at the front of the head
  - Can use depth perception

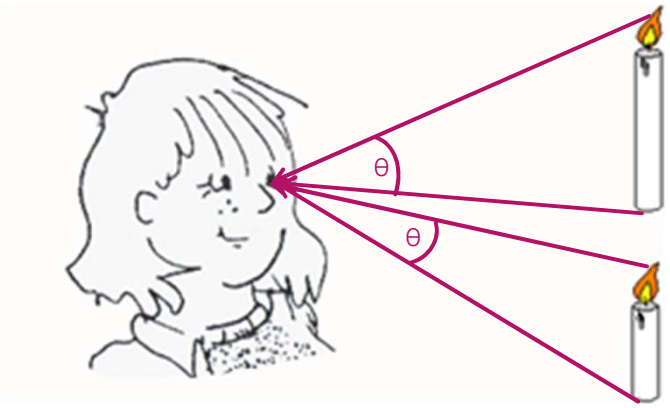
- Eyes at the side of the head
  - Cannot use depth perception
  - Uses the size as an estimation of how far away an object is

Questions

- **Show the rays that help Wendy know how tall the objects are**

Questions

- The angle between the top and bottom of the object helps us perceive size!
  - only 1 eye is needed



Questions

- Show the rays that help Wendy's eyes determine location (distance) of the candles

Questions

- Our eyes use triangulation of the two rays from the same point to help us find the location!

you need 2 eyes for location