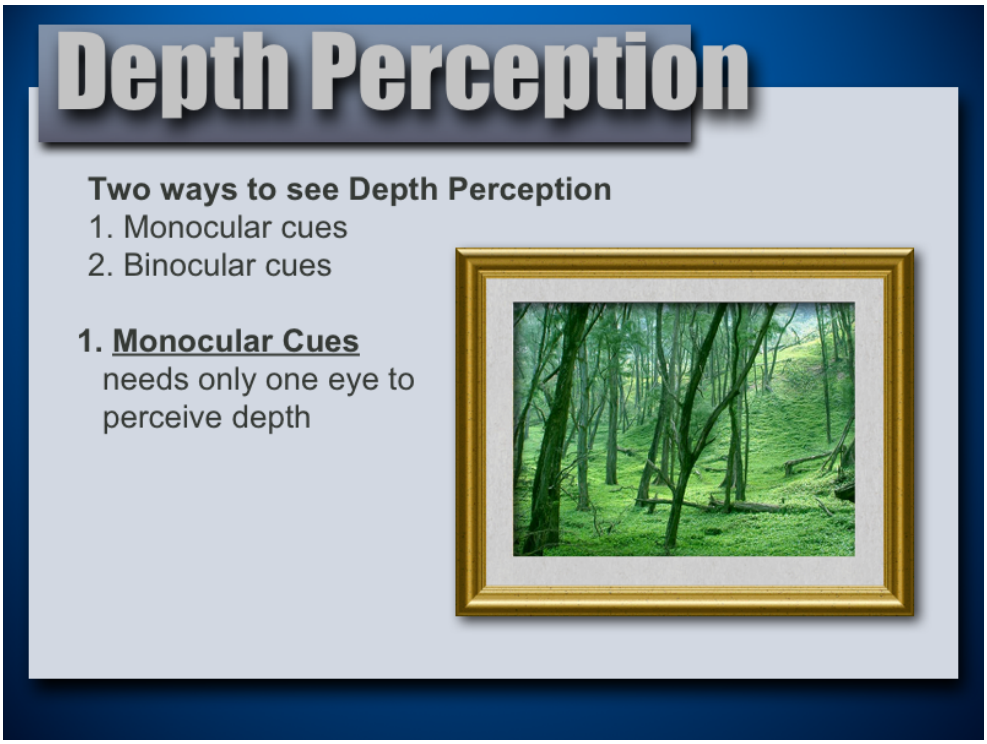
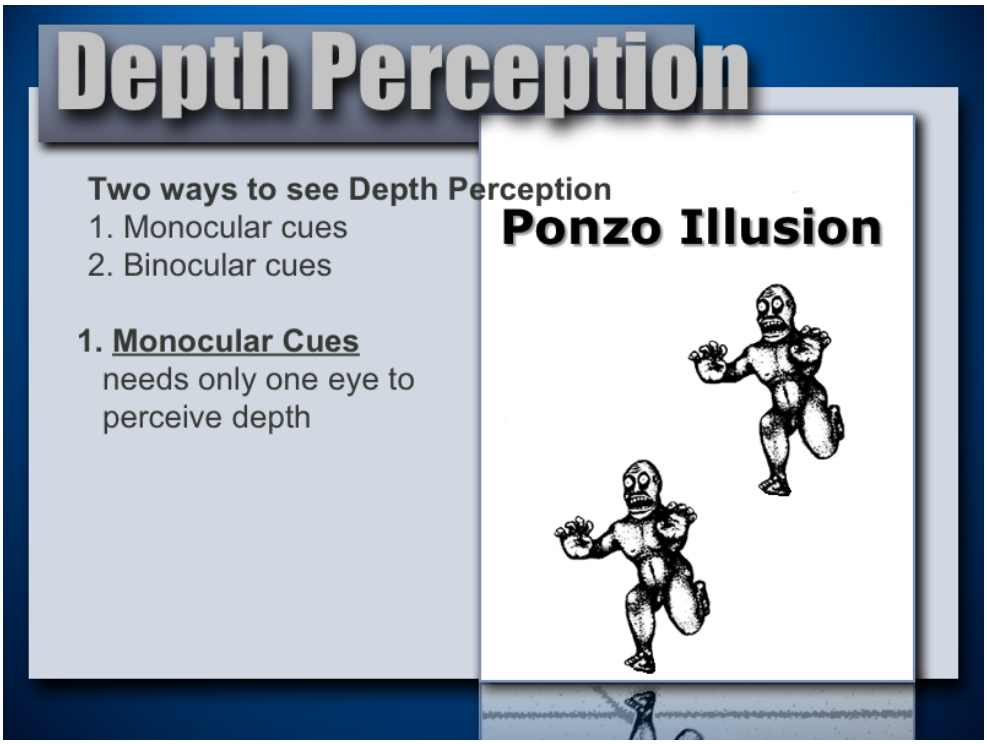

Perception



When I'm speaking about "Depth" Perception, we are speaking about how far away something is. Psychologist have asked the question, how can we as humans so easily figure out depth, but long before psychologist were trying to figure this out, artist were experimenting with the perception of depth hundreds of years before, because they have to create the illusion of depth on a flat surface.

1. perspective - If you take objects that are exactly the same size and place one of them far away from you and the other

nearby, the object that is farther away will stimulate a smaller area of your retina than the one that is near. Even though the objects are the same size, the amount of sensory input from the more distant object is smaller because it is farther away. This is perspective. It is the tendency to see parallel lines as coming closer together or converging as they move away from us.



Picture: Ask students which person or monster is larger. After guesses, show students that they are the same size by clicking animation.

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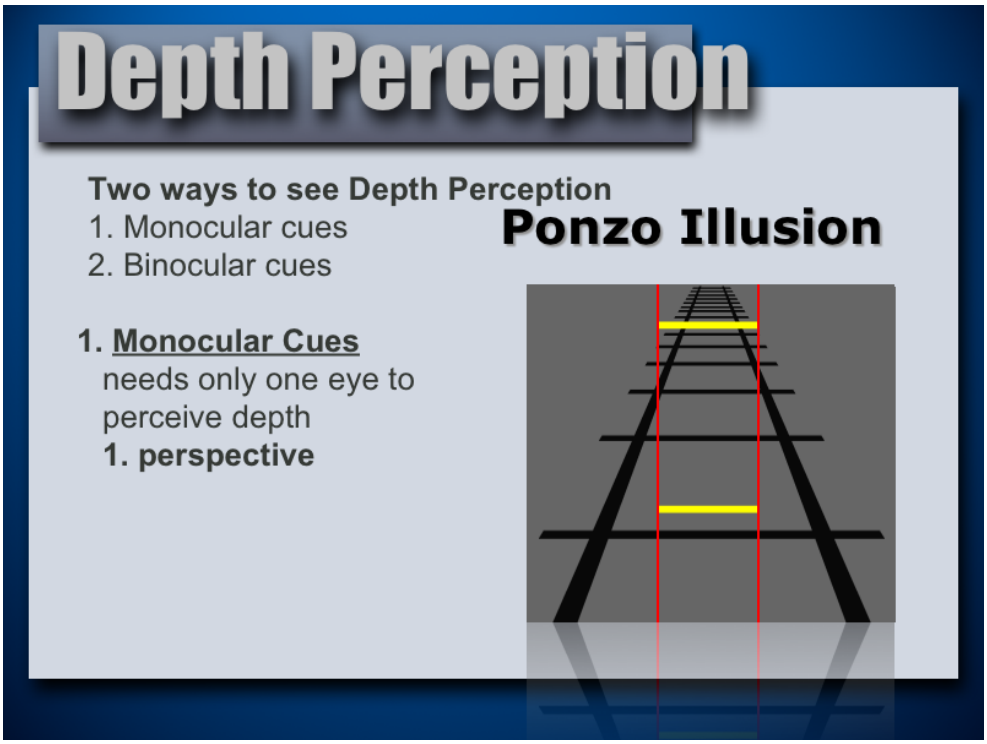
surface.

1. perspective - If you take objects that are exactly the same size and place one next to you and the other far, the object that is farther away will stimulate a smaller area of your retina than the one that is near, meaning it's smaller. Even though the objects are the same size, the amount of sensory input from the more distant object is smaller because it is farther away. This is perspective. It is the tendency to see parallel lines as coming closer together or converging as they move away from us.



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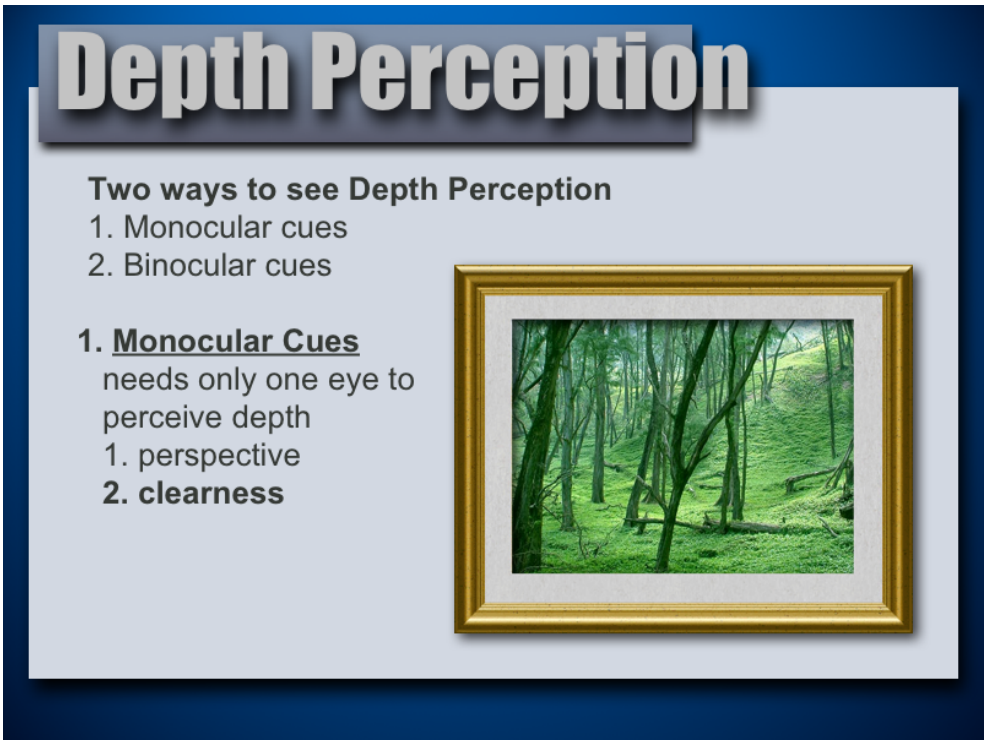
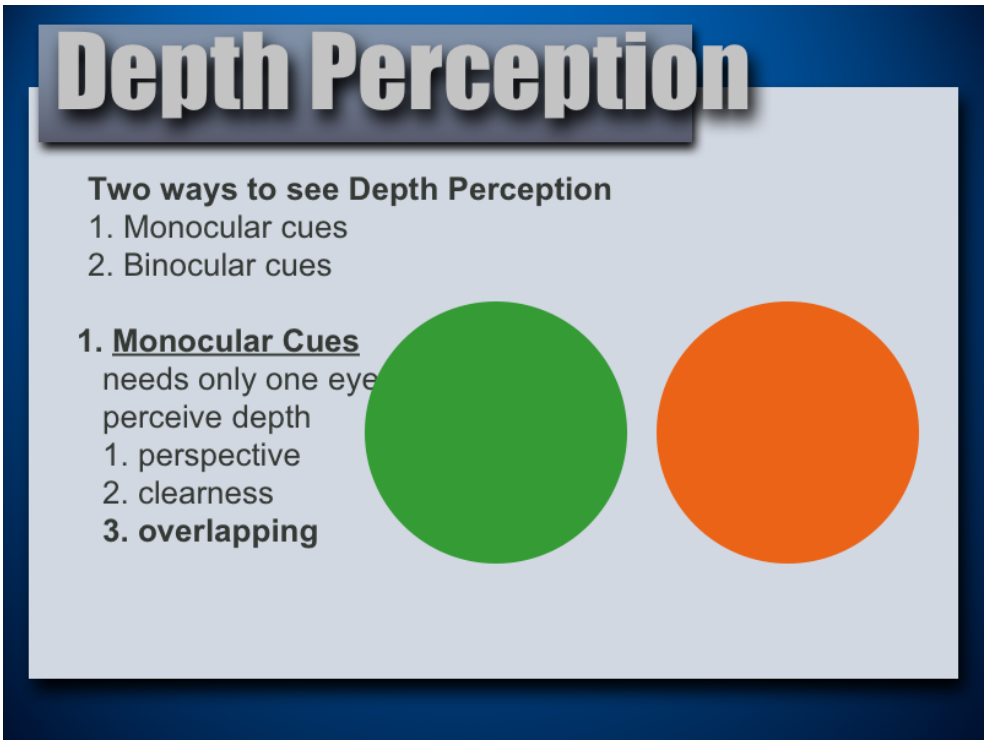


Clearness of an object also helps in telling us how far away it might be.

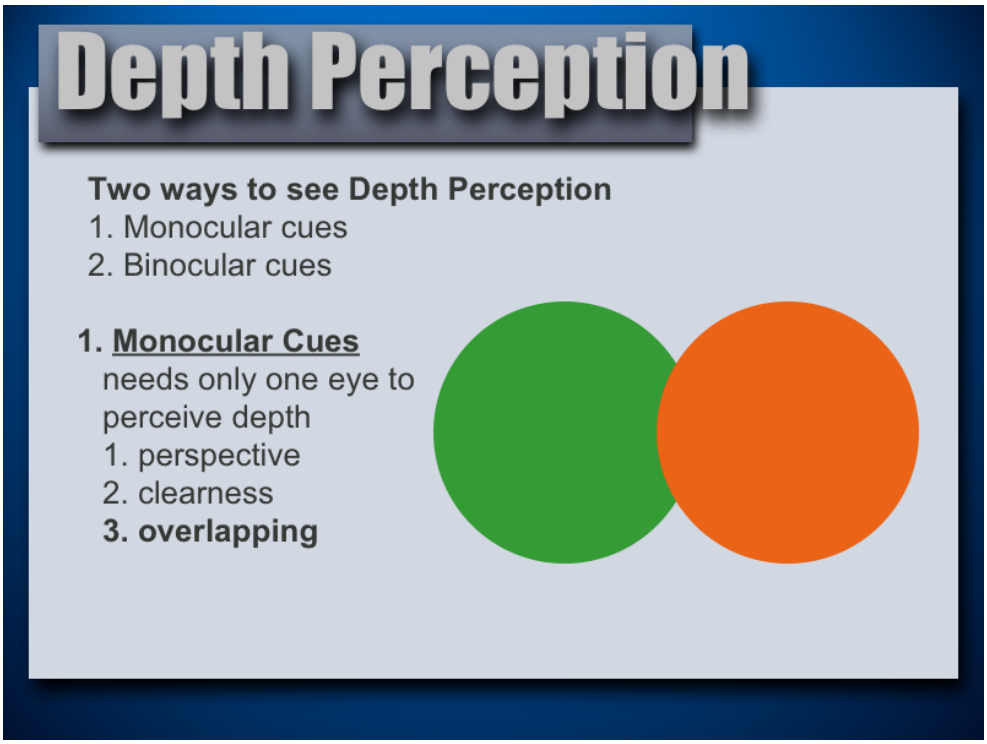
Nearby objects appear to be clearer and we see more details. faraway objects seem less clear and less detailed.

Look at the trees in this painting. The artist used less details where he/she wanted to show depth.

This is a picture of the grand canyon



Overlapping is another monocular cue. Overlapping is the placing of one object in front of another. Nearby objects can block our view of more distant objects. experience teaches us to perceive partly covered objects as being farther.



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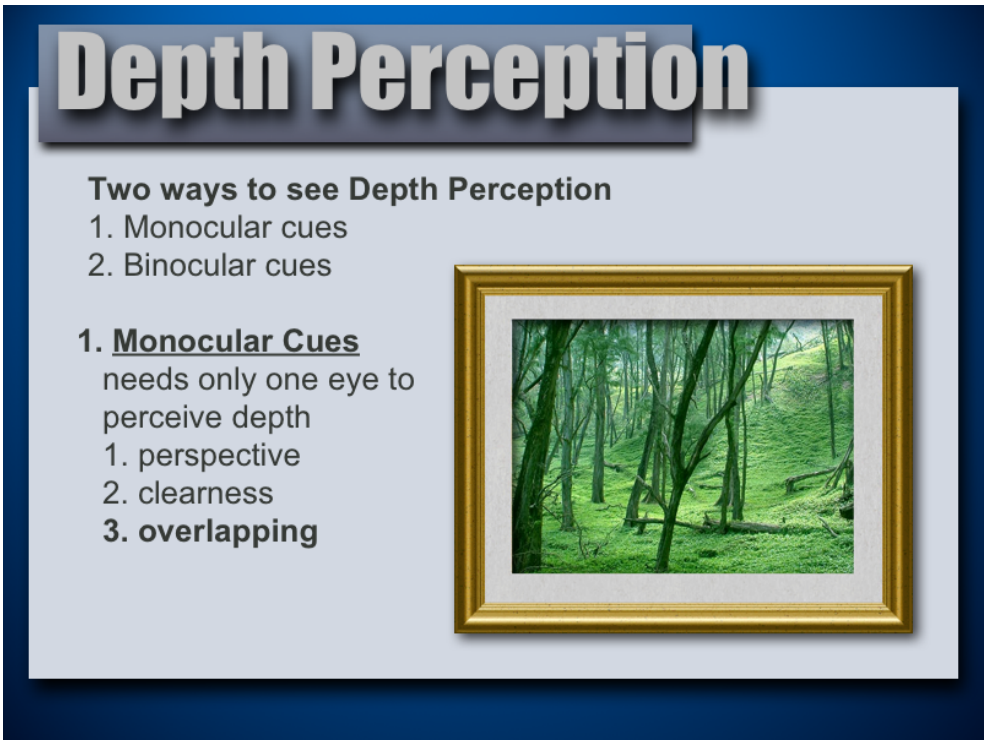
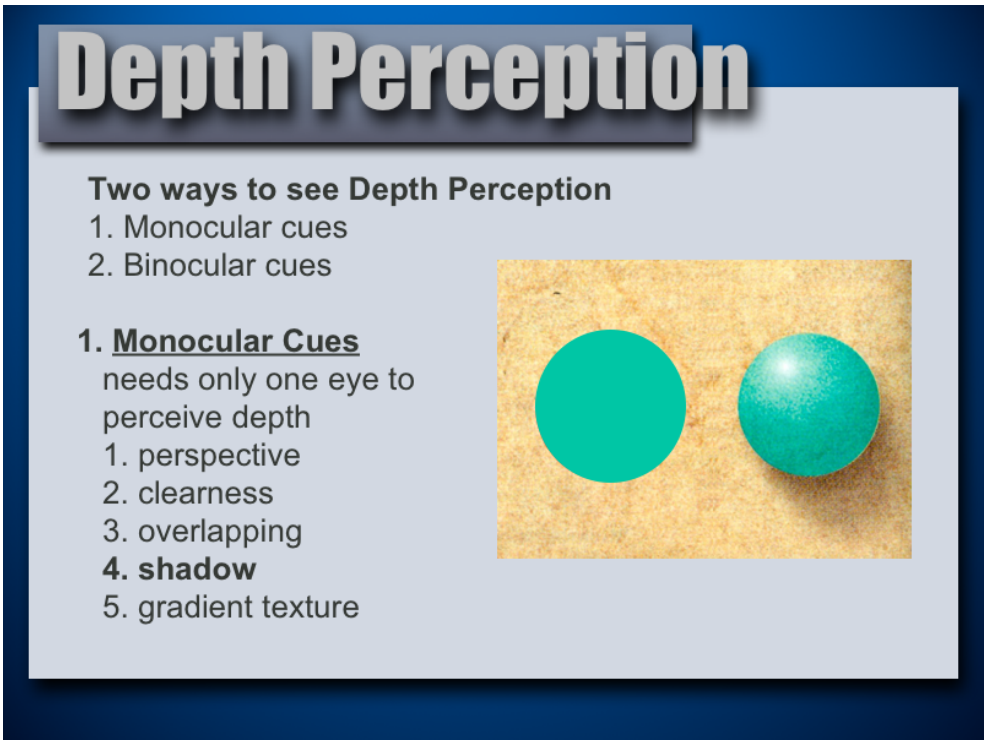


As we go back to our original painting, we see the artist also uses overlapping to trick the mind in believing we see depth. Again, we have learned from our past experiences that the overlapping of one object over another, shows us that one is closer to us than the other.

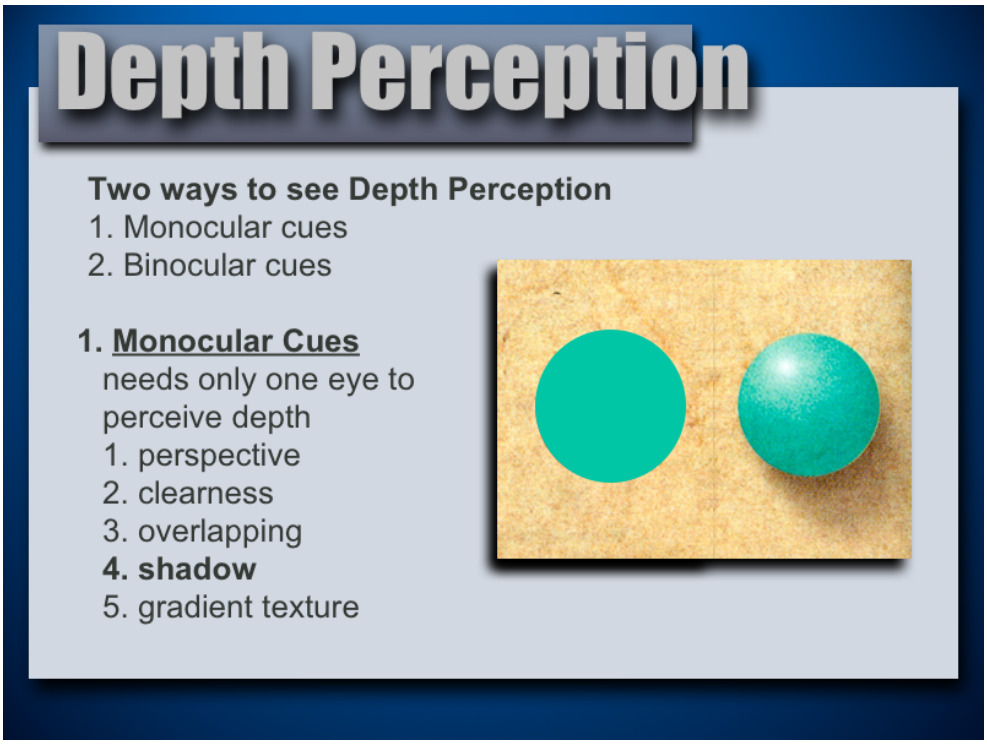


Shadows and highlights also give us information about objects' three dimensional shapes and where they are placed in relation to the source light.

Class Question: The object on the right, what do you see?
In this case we see a one dimensional circle, or just circle. (Click for animation)
The next image is the same circle, but what's different about it?

We have added a highlight, and a shadow. The circle no longer is a circle, but appears to be a sphere.

Both the shadow and the highlight give the illusion of depth. We view the highlight as a part of the object that is closer to us and the shadow represents part of the sphere that is farther away.
I can even add the illusion to the rectangle that surrounds the circles. (Click for animation) The shadow tells our brains it is an three dimensional object.



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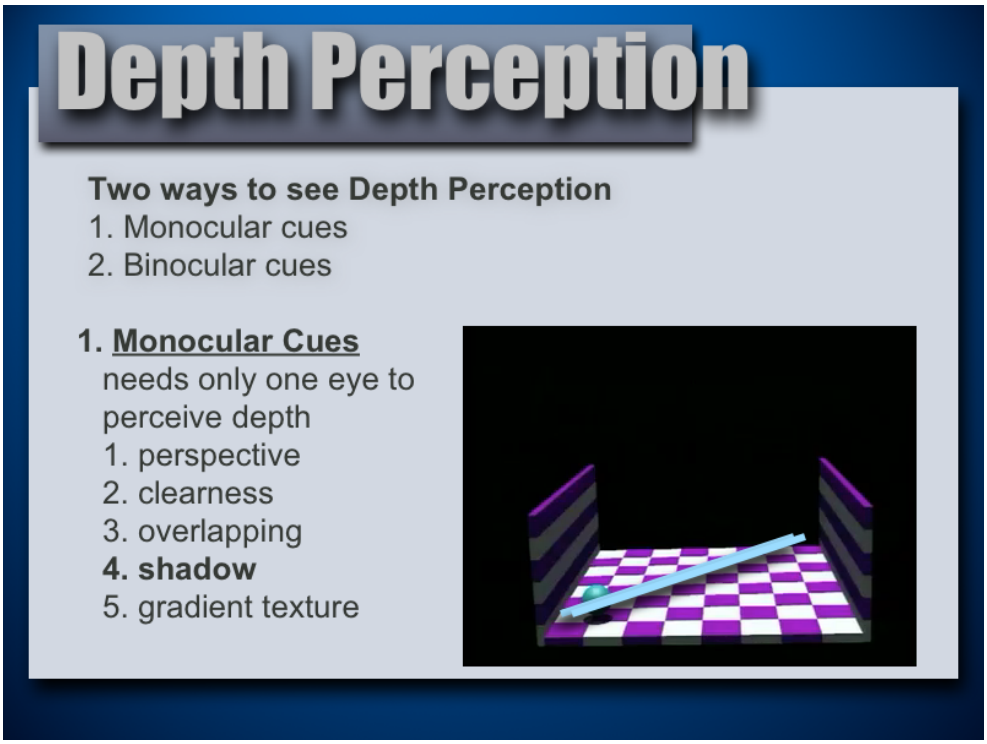
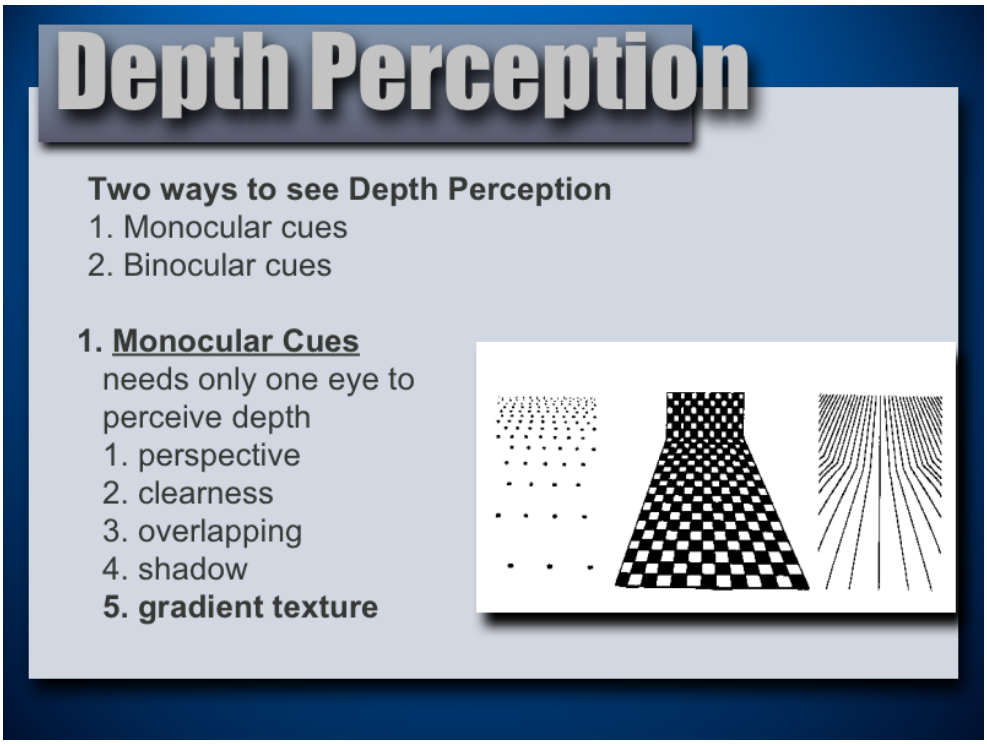
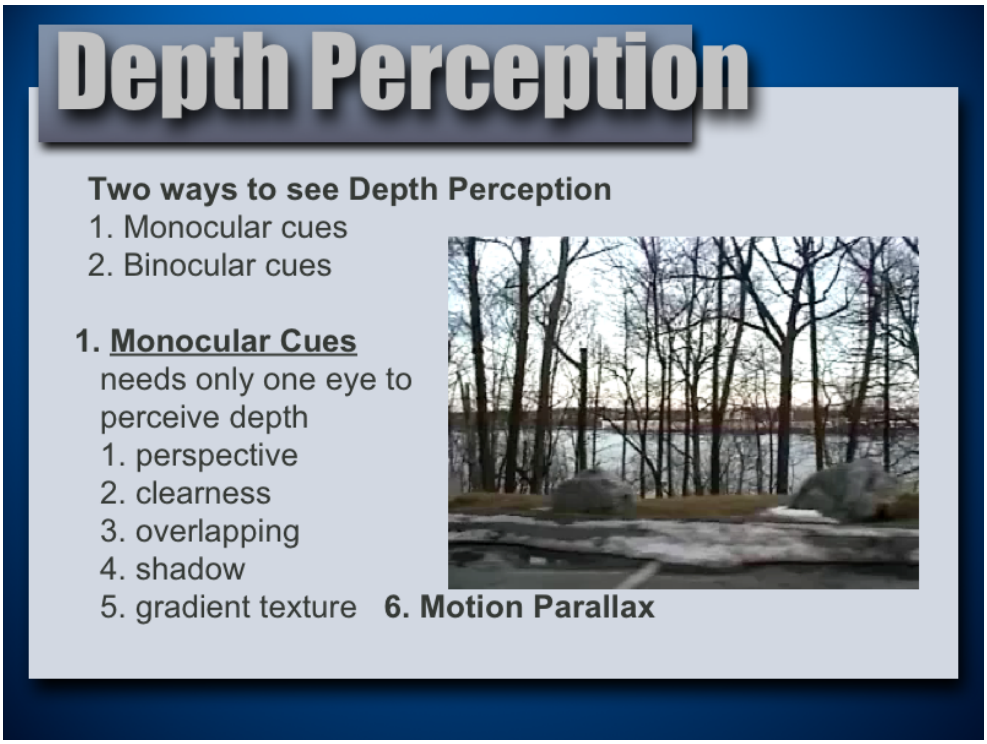


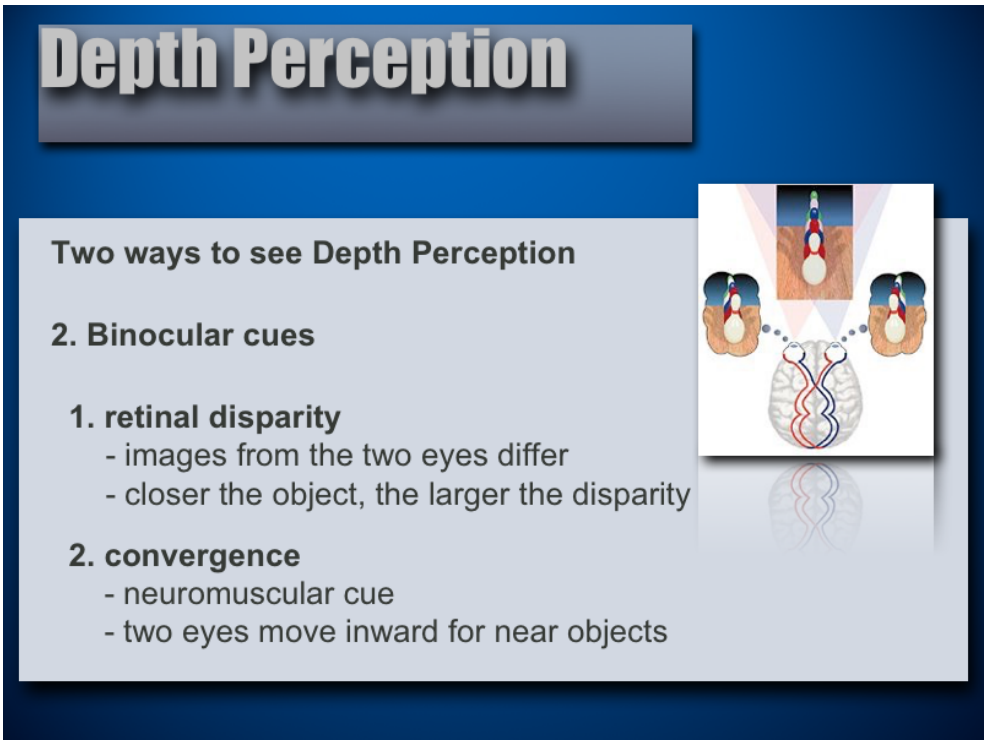
The change in shadow in this animation tells our brains that the ball is moving three different ways. The ball doesn't change direction, but the shadow does.



Texture is the surface quality and appearance of an object. A gradient is a progressive change. Texture that is farther away from us appears to be denser than texture that is closer and we see less detail.



Motion parallax is a depth cue that results from our motion. As we move, objects that are closer to us move farther across our field of view than do objects that are in the distance. The video demonstrates how motion parallax works for driving along the road.



Because our eyes are 2 1/5 inches apart, our retinas receive slightly different images of the world. When the brain compares these two images, the difference between them - retinal disparity - provides an important cue to the relative distance of different objects.

---The creators of 3-D movies simulated retinal disparity by photographing a scene with two cameras placed a few inches apart. When we view the movie through glasses that allow the left eye to see only the image from the left camera and the right eye only the image from the right camera, the 3-D effect mimics normal retinal disparity.

- People who have little to no vision in one eye cannot see the 3-D in 3-D movies. Also people with little to no vision in one eye don't see in 3-D. The go through life seeing like what we see in a regular movie. I flat screen of vision. They only recognize

perspective because of the monocular cues we have been learning about, overlapping, shadows, etc.

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