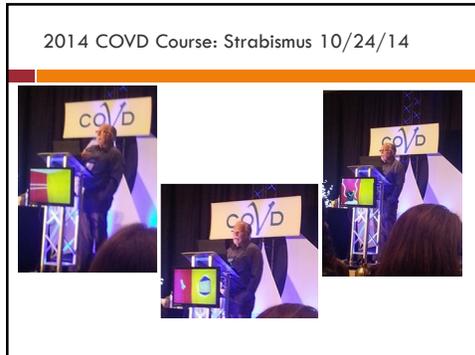


### Course Objectives:

1. Build sensory fusion using the mirror superimposition technique.
2. Build motor alignment control of eye position using the mirror overlap procedures.
3. Advanced techniques using mirror superimposition.
4. Mirror septum techniques.



### General Instructions:

- Place a hand mirror at your nose.
- Tilt it to a 45 degree angle in front of one eye.
- One eye should look straight ahead, the other should look in the image of the mirror.
- Become aware of both images.

### Mirror Superimposition

From: <http://drboulet.com/mirror-superimposition/> Purpose: To stimulate simultaneous binocular response

**Method:**

1. Patient stands to the side of some bright, highly visible target like a flashlight, a window, a picture on the wall or a TV picture.
2. Hold hand mirror at a 45 degree angle before the eye on the side nearest the bright target. Lightly rest the mirror against the side of the nose.
3. Adjust the angle of the mirror so that the bright target to the side is seen in the mirror.
4. The reflection in the mirror should be seen as though it were out in front, superimposed on objects in the room directly in front of the patient.
5. Patient should become aware that two things are now seen in the same place—the bright target reflected in the mirror seen by one eye and the objects straight ahead in the room seen by the other eye.
6. He is to try to keep seeing both targets simultaneously.
7. He rotates the mirror slowly and places the projected target on different objects in front of him. He learns to move it right and left, up and down.



### Luster

- For variation, tack a sheet of red and a sheet of green construction paper at eye level on adjacent walls at a corner of a room.
- Each sheet should be about one foot from the corner.
- While patient stands facing one of the sheets and directly opposite the other sheet, he places the colored paper seen in the mirror partially, and then wholly, upon the sheet directly in front and observing the color mixing of the red and green.



### Luster

- <http://squintyjosh.blogspot.com/2011/03/what-is-fusion.html>
- What you should see is one grid in the middle, with the red square and the yellow square magically transmuted into a new color. This new color was not perceived by either eye, it was created in the brain.

	1
2	3

	1
2	3

	1
2	3

### Luster

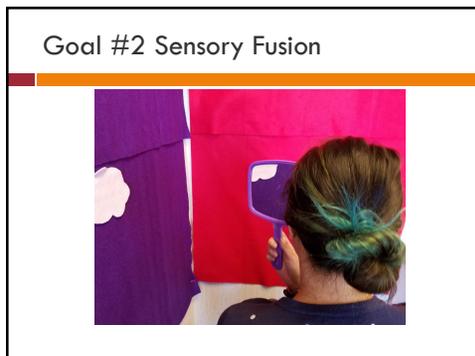
The state of shining by reflecting light; sheen or gloss.

Perceiving an image from each eye and combining them into a single perception.

### Luster

The state of shining by reflecting light; sheen or gloss.

Perceiving an image from each eye and combining them into a single perception.



### Anti-suppression

1. If mirrored image tends to disappear, try jiggling the mirror.
2. Make image that is disappearing brighter.
  - Increase awareness of mirrored image as being out in front.

### Anti-Suppression Technique: Start with "clouds"

- Amorphous shape
- Peripheral
- Contrast

Increase Number



A young child with blonde hair is looking into a hand mirror. The background consists of a purple cloth on the left and a red cloth on the right. Three white cloud-shaped cutouts are attached to the purple cloth: one in the center and two on the left side.

Peripheral to Central location



A child is looking into a hand mirror. The background is purple and red. Three white cloud-shaped cutouts are visible: one in the center of the purple area and two in the peripheral areas.

Add to direct and reflected views



A child is looking into a hand mirror. The background is purple and red. Three white cloud-shaped cutouts are visible: one in the center of the purple area and two in the peripheral areas.

Start with shapes on only one side, then add to both sides.



A child is looking into a hand mirror. The background is purple and red. Four white cloud-shaped cutouts are visible, two on each side of the purple cloth.

Adding more detailed targets:



A child is looking into a hand mirror. The background is purple and red. Two cartoon girl cutouts are visible, one on each side of the purple cloth.

Combine target types.



A child is looking into a hand mirror. The background is purple and red. Four white cloud-shaped cutouts and two cartoon girl cutouts are visible.

Detailed shapes throughout periphery



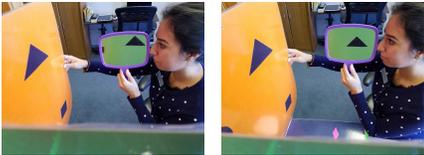
A woman is looking into a hand mirror. The background is a large yellow sheet with various colored shapes (triangles, squares, circles) attached to it.

Vertical to Horizontal presentation



A woman is looking into a hand mirror. The background is a large yellow sheet with various colored shapes (triangles, squares, circles) attached to it.

Add detailed visual information to both sides



A woman is looking into a hand mirror. The background is a large yellow sheet with various colored shapes (triangles, squares, circles) attached to it.

## Simultaneous Perception

- The Car and Road
  - ▣ Car along a vertical road
  - ▣ Car along a wide horizontal road
  - ▣ Car along a narrow horizontal road
  - ▣ Car along a winding road
  - ▣ Car along an angular road

## Vertical approach to Fusion



## Open Horizontal "road"



## Simultaneous Perception



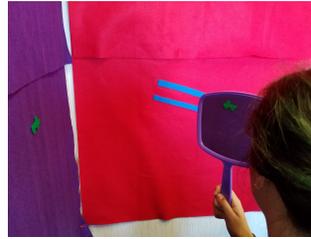
## Large central target to small central target.

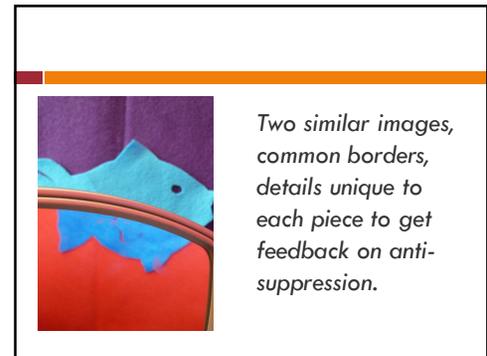
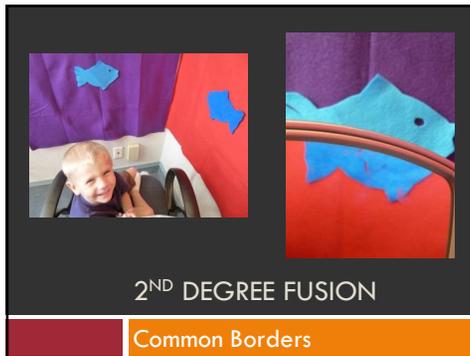
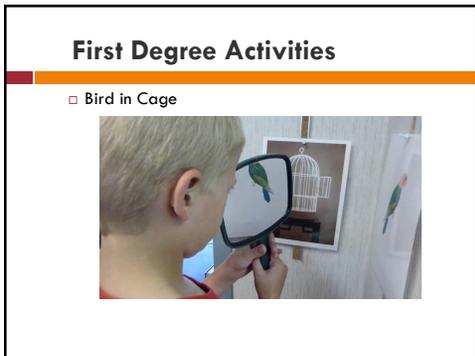
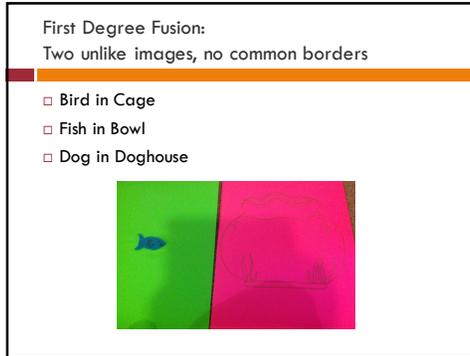
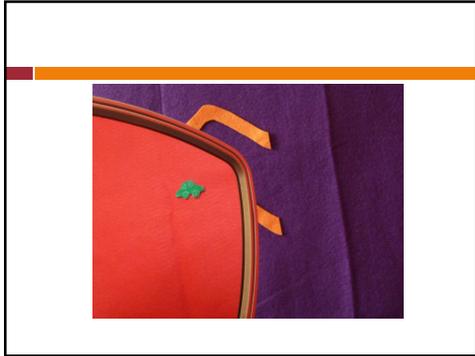


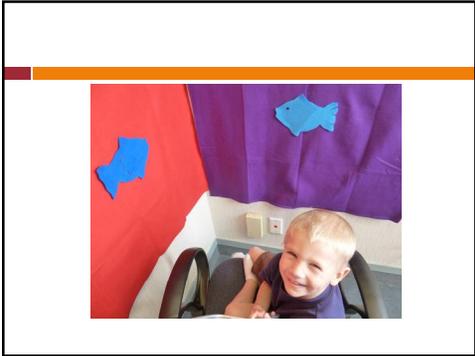
## Change angle of road



## Narrow Road



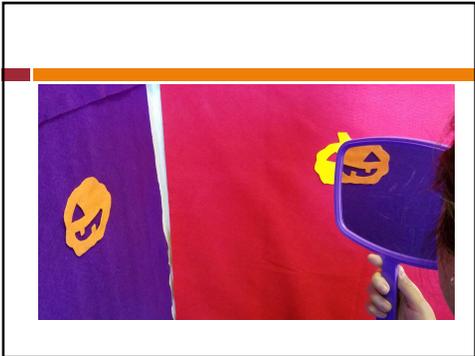




Two similar images with common borders.

 Two yellow fish cutouts are shown on purple and red walls.

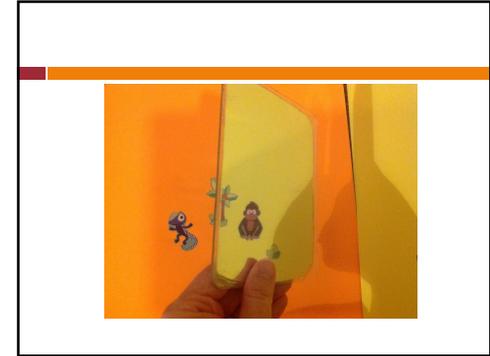
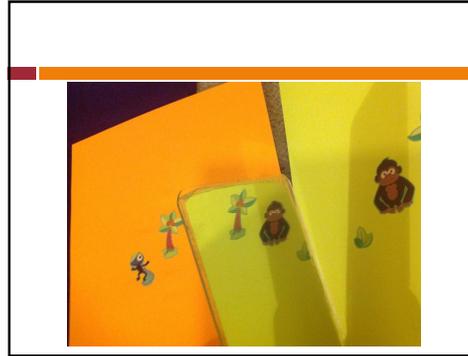
Details unique to each piece for biofeedback

 A hand holds a mirror, reflecting a yellow fish cutout on a purple wall.


**Second Degree Activities**

- Mirror Superimposition

 Two images show mirror superimposition with small figures on a yellow wall.



Similar images with common borders

**THIRD DEGREE FUSION/  
STEREOPSIS**

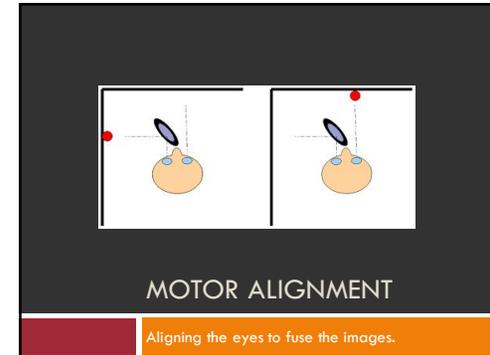
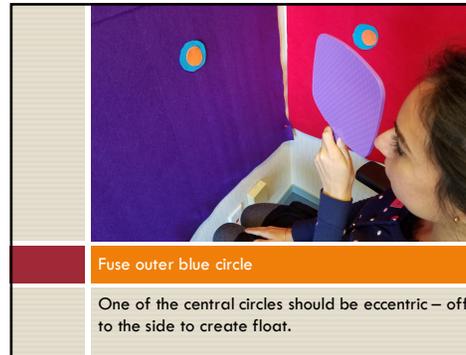
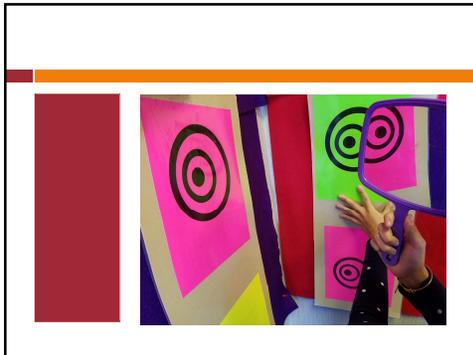
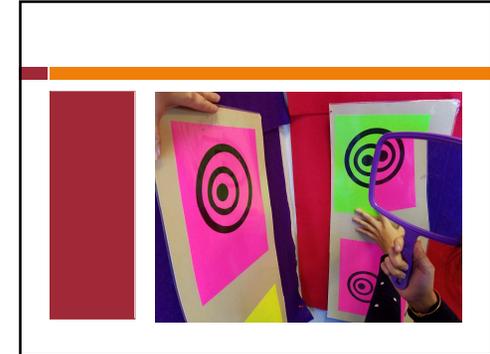
Common Borders, Disparity in target

Two similar images with common borders, the details need to have disparity to create depth perception



**STEREOPSIS**

Building 3-D Fusion



### Mirror Super-imposition

- Face one chart while holding a hand mirror at a 45 degree angle on the side of your nose reflecting the other chart.
- Try to keep seeing the combined image by viewing both charts simultaneously

### Visually-guided Motor

Where is it?  
Where am I?  
How do I line up the images from both eyes into the same visual direction?

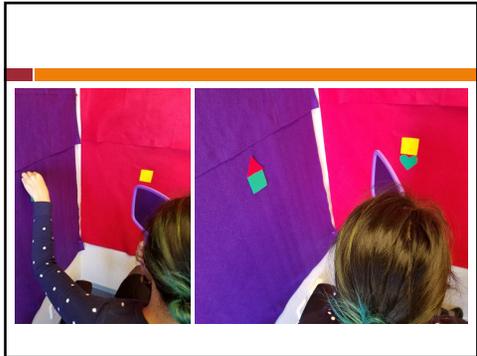
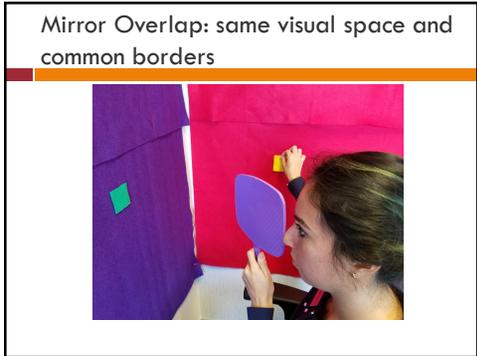
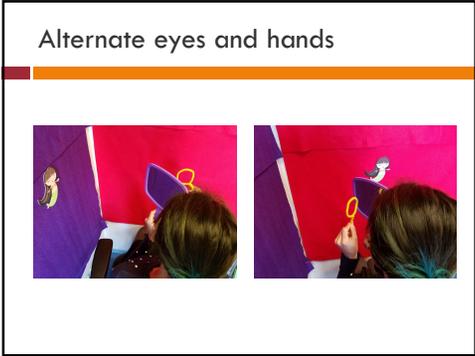
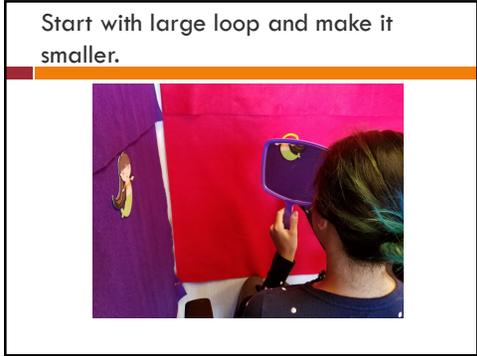
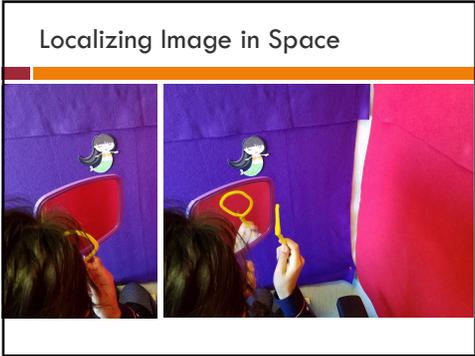
- Looping – Loop the Goop procedure
- Target placement – Felt shapes placed in correct locations
- Voluntary alignment – convergence/divergence to align images

### Loop and Goop

**Purpose:** To encourage the eyes to use normal retinal correspondence and work together as a team.

**Materials:** Hand mirror, pipe-cleaner loop, goop-sticky tac, a red and a green chart.

While moving the loop towards and away from the chart, be sure the goop stays in the center of the loop.





### Motor Alignment

- Bird in Cage or out of Cage?

 A photograph of a target for motor alignment. It features a green and red bird on a white background, positioned next to a white birdcage on a dark background.

### Remediating Sensory Adaptations

Begin with peripheral vision

- Large, clutter-free targets
- Motion
- Dim Illumination
- Blurred Targets

Develop a SENSORY DRIVE to elicit a MOTOR RESPONSE to maintain fusion.

 A photograph of a young child and an adult woman standing in front of a red wall. The child is pointing at a colorful target on the wall. The adult is looking on.
 

### MIRROR SUPERIMPOSITION

Advanced Techniques

### Ring Targets

Target Practice:  
Place target inside rings on the wall.

 A photograph of a white wall with two large, red dashed circles. A small target is visible on the wall between the two circles.

<http://squintyjosh.blogspot.com/2011/01/vision-therapy-week-5.html>

 A diagram showing a red maze on the left wall and a target (a blue and red shape) hanging from a red dot on the ceiling. A dashed line indicates the path from the target to the maze.
 

- When I got home, I got the idea, "What if I could make the object move through a maze on the wall?" Then it would be a fun game and give my brain a task to accomplish.

<http://squintyjosh.blogspot.com/2011/01/vision-therapy-week-5.html>

 A photograph of a maze made of red dashed lines on a white wall.
 

- So I went out and bought some red paper plates from the dollar store, cut them up, and made a maze on my wall.

just got an even better idea for making wall mazes, though: Red party streamers. You know, the crepe paper kind

### Mirror Septum Techniques

- Place locker mirror (rectangular) on a piece of paper.
- The mirror will act as a septum, so that one eye will see the paper directly, but will not be able to see the image on the other half of the paper.
- The other eye will look in the mirror to see the image is projected to the opposite side of the page.

### Mirror Superimposition

Cheirosopic tracing

 A photograph of a person sitting at a table, tracing a shape on a piece of paper. A mirror is placed on the table to create a cheirosopic effect.
 
 A second photograph of the same person tracing the shape, showing the mirror's reflection.