Name _____

Laboratory for Shape Perception

1. **Gestalt Principles of Organization**

In the space below, indicate your experience of the four examples of uniform connectedness. How do you organize each of the arrays (what goes together)?

a.
b.
c.
d.

Can you identify how other Gestalt principles would operate to yield a different organization? Which ones? What does that tell you about the Gestalt principles?

For each of the nine stimuli, first indicate the sort of organization that you perceive (e.g., rows, columns, either, or something else entirely). Next, describe why you arrived at that perception, given your knowledge of Gestalt principles. Some of the displays are similar, yet the perceptual experience may differ. Your descriptions should reflect on differences and similarities with some of the other displays.

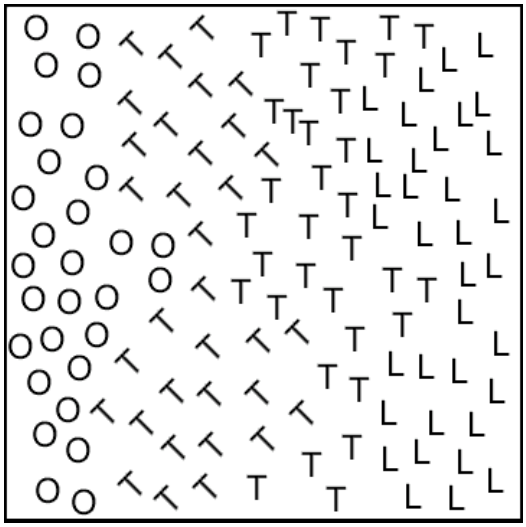
	Organization	**Commentary**
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		

What Gestalt principles would give rise to seeing the face/vase illusion as either a face or a vase?

How does motion break down camouflage? Consider the Hidden Dog demonstration to address this question.

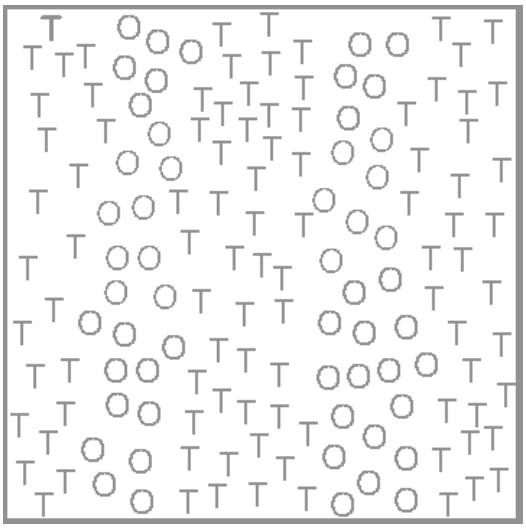
2.**Early Stages of Visual Perception**

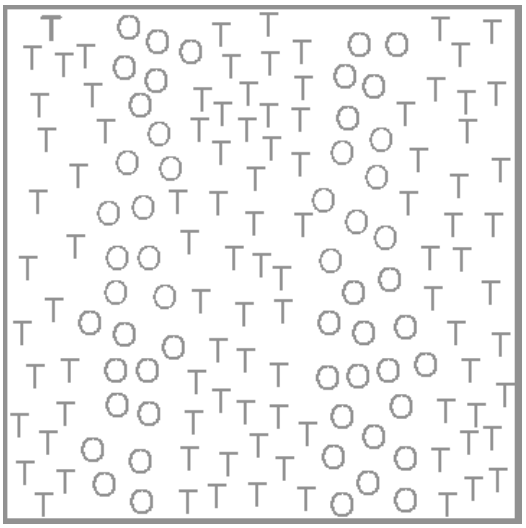
2a. Draw lines to indicate boundaries between the various parts of the display.



Use the three boundaries in this figure to illustrate the differences in one's ability to determine boundaries. In the space below, briefly describe the principles that you think are illustrated by this example. What do difficulties in determining boundaries tell us about shape perception?

2b. In the figures below, first (on the left) sketch the boundaries as they appeared on the web page. Then (on the right), sketch the boundaries as they appear on this page with the color information absent. Finally, in the space below, describe what you think this sort of example illustrates about the features that give rise to boundary information.





2c. When searching for similarities (or differences) among very similar stimuli, we typically resort to serial search techniques. That is, we have to compare each of the stimuli with the other stimuli (often many times!). What are the six differences between the two pictures? What does this example tell you about shape comparison procedures?

Order Found	Difference	Order Found	Difference
1		4	
2		5	
3		6	

Under which situations would a stimulus be more likely to "pop out"? What could you do to make the differences between the two pictures more obvious?

2d. Which of the two displays is more like the “Six Differences” example? What do these two displays tell you about visual search? What makes a search task more difficult?

2e. What aspects of this array make detecting the red circle more difficult? How would you create arrays in which a red circle popped out?

2f. Which of the preattentive features illustrated on Healy’s site are more effective in creating a visible difference for you? Which are less effective?

Less Effective	More Effective

2g. Briefly describe Anne Treisman’s *Feature Integration Theory*. How might you use the theory to explain illusory conjunctions that occur?

3. **Perceiving Objects**

a. How might spatial frequency analysis explain aspects of object perception? That is, what sort of information about an object might you obtain by way of spatial frequency analysis?

b. How would you define/describe bottom-up (data driven) processing?

How would you define/describe top-down (conceptually driven) processing?

What processes do you think were involved as you perceived the butterfly? What sort of bottom-up processes were likely involved? Were top-down processes involved? If so, what might they have been?

c. How would you explain impossible objects?

d. Were you susceptible to change blindness? What principles would you suggest to explain change blindness? To what extent is the effect similar to the difficulty you might have experienced in seeing the “Six Differences” in Weber’s cartoon?

4. **Contextual Effects in Shape Perception**

a. *Orientation*

Upright Faces

Letter	Name
a.	
b.	
c.	
d.	
e.	
f.	

Upside Down Faces

Letter	Name
a.	
b.	
c.	
d.	
e.	
f.	

How would you compare the two tasks? What do you think that the differences imply about the process of face perception?

b. *Subjective Contours*

What do these three pairs of stimuli tell you about the construction of illusory contours? For each of the pairs of figures, do the following:

1. Describe which of the two figures leads to a more “concrete” illusory figure.
2. Describe the differences between the two figures.
3. What do you think this difference tells you about object perception?

First Set:

Second Set:

Third Set:

5. Scene Perception

As best you can (rough is fine) in the window below replicate the picture that you saw at the beginning of the lab:

When finished, check out the link on the lab web page. Did your drawing above illustrate boundary extension? How might you explain the phenomenon of boundary extension? To what extent is it similar to the Gestalt principle of closure?
