

Name: _____

Period: _____ Date: _____

How Well Can We See Astronomy

The Blind Spot

Using the blind spot diagram, hold it approximately eighteen inches from your eyes. Close your left eye and focus your right eye on the plus sign, which should be positioned so that it is directly lined-up with your right eye. Move the diagram very slowly towards your face, always keeping your right eye focused on the plus sign. When the dot focuses on the blind spot, the region without photoreceptors, it will disappear from your view. Have your lab partner record the metric distance at which this occurs. Repeat with the other eye.



Right eye: _____ Left eye: _____

Adaptation of the Retina

If your retinas are exposed to strong light over a period of time, your eyes become sensitive to light. Fix your eyes on the white dot in the center of the peace symbol for at least thirty seconds. Then look at the black dot to the right. What happens when you stare at the black dot?



Explain what is happening.

Visual Acuity

Have your partner stand 20 feet away with the Snellen eye chart and cover one eye. As you read the lines, have your partner check for their accuracy. Record the line with the smallest-sized letters read. If it is 20/20 then the subject vision is normal. If the vision is recorded as anything with a ratio less than one, 20/40 for example, then the vision acuity is recorded as less than normal. If the visual acuity ration is greater than one, then the subject has better than normal vision. Record your observations.

Right eye: _____ Left eye: _____

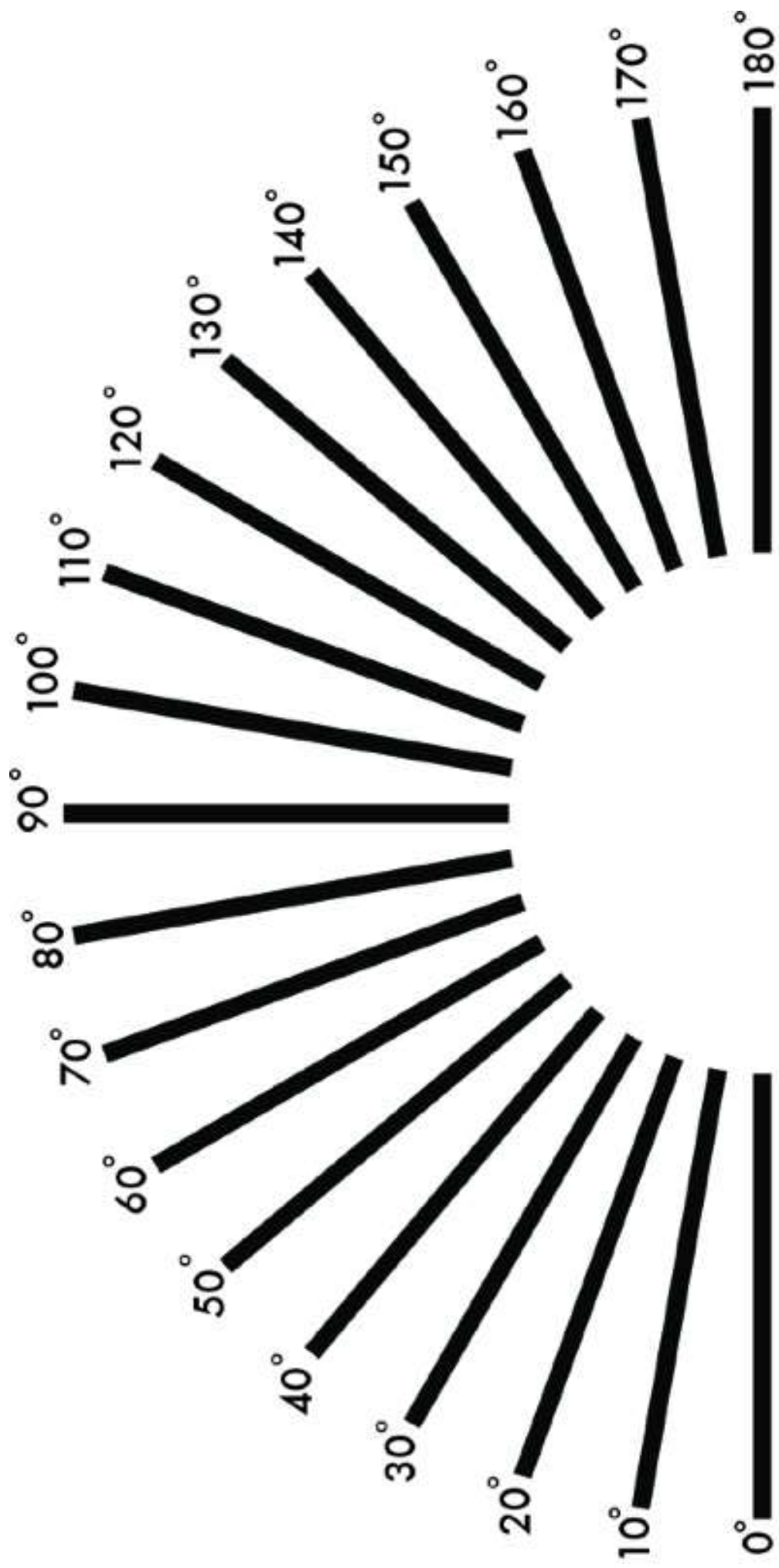
Astigmatism

The astigmatism chart tests for defects in the refracting surfaces of the lens and/or cornea. View the chart directly in front of you, first with one eye, then the other. Focus on the center of the chart. If all the radiating lines appear equally dark and distinct, your refracting surface surfaces are not distorted. If some of the lines are blurred and appear less dark than others, then some degree of astigmatism is present. Record your observations.

Right eye: _____ Left eye: _____

Analysis:

1. Give an overall analysis of your eyesight ability. Is it what you expected? Explain.
2. How are we able to see? (Explain in detail.)
3. Why is it important for astronomers to know the limitations of the human eye? Explain.
4. In what ways do telescopes help us with our visual limitations?



70 ft - 21 m

G

60 ft - 18 m

WV

50 ft - 15 m

G S B E

40 ft - 12 m

N O I H W

30 ft - 9 m

J H E R L C

20 ft - 6 m

N O S Z L E P H

15 ft - 4.5 m

U L Y T H B X P G O

10 ft - 3 m

S W M B W G C P T T

7 ft - 2.1 m

O H D C W N Y Z W A V

4 ft - 1.2 m

H N U O C I C R T W W D Q M V B F