

**Activity 2.3.1 Student Response Sheet**

ACTIVITY 1: Visual Acuity

1. Visual Acuity, right eye: 20/ \_\_\_\_\_\_\_
2. Visual Acuity, left eye: 20/ \_\_\_\_\_\_\_
3. Your friend swears that no one can possibly have better than 20/20 vision. Use what you have learned about the Snellen eye examination chart and your knowledge of what numbers such as 20/20 really mean to educate your friend.

ACTIVITY 2: Astigmatism and Blind Spot

1. Is astigmatism present in your right eye? \_\_\_\_\_\_\_
2. Is astigmatism present in your left eye? \_\_\_\_\_\_\_
3. If yes, were you aware of the astigmatism before today? \_\_\_\_\_\_\_
4. If yes, do you wear glasses to correct the astigmatism? \_\_\_\_\_\_\_
5. At what distance did the dot disappear during the blind spot test for the right eye? \_\_\_\_\_\_\_\_\_\_ cm
6. At what distance did the dot disappear during the blind spot test for the left eye? \_\_\_\_\_\_\_\_\_\_ cm
7. Explain what is happening in the eye to cause astigmatism. How does this impact your vision?
8. List at least two circumstances in which it would be important to be aware of your blind spots.

ACTIVITY 3: Visual Mapping

1. What is the diameter of the fovea centralis? \_\_\_\_\_\_\_ mm
2. How does the size of the fovea centralis of your eye compare to that of others in your group?

How would you explain the importance of the fovea centralis to your 9-year-old sister? Provide a detailed, straightforward explanation.

ACTIVITY 4: Color Vision

1. Were any of the strands of yarn difficult to match? \_\_\_\_\_\_\_\_ If yes, list the colors that were difficult to match.
2. To your knowledge is you color perception deficient? \_\_\_\_\_\_\_\_
3. Is anyone in your family color perception deficient? \_\_\_\_\_\_\_\_ If yes, who?
4. Given that the previous question asks about family members and color perception deficiency, what can you infer about the development of this condition?
5. Some cities hang their traffic lights from left to right, rather than from top to bottom. Explain why this might cause a problem for a driver with red-green perception deficiency.
6. Explain the specific roles of rods and cones in the eye.
7. If we have three different types of cones – red cones, blue cones, and green cones – how do we see such a wide range of colors?

ACTIVITY 5: Depth Perception

1. Record the distance between the arrows on the depth perception tester for each scenario given in the chart below.

|  |  |  |  |
| --- | --- | --- | --- |
|  | No Background | White Background | Black Background |
| Right Eye Open | cm | cm | cm |
| Left Eye Open | cm | cm | cm |
| Both Eyes Open | cm | cm | cm |

1. Which background provided you with the best depth perception? Why do you think this is the case?
2. List several careers or activities in which depth perception plays an important role.
3. Why might driving be dangerous for someone with poor depth perception?

ACTIVITY 6: Accommodation

1. When looking at the “E” on your finger, was the “E” on the chart blurry or in focus?
2. When looking at the “E” on the chart, was the “E” on your finger blurry or in focus?
3. What happened when you closed and opened your right eye?
4. What happened when you closed and opened your left eye?
5. Judging from your results, do you think you are emmetropic, myopic, or hyperopic? Explain.
6. What is accommodation in the eye? How are muscles involved in this process?

ACTIVITY 7: Near Point

1. When looking at the pencil with the left eye, at what distance did the pencil become blurry?
2. When looking at the pencil with the right eye, at what distance did the pencil become blurry?

ACTIVITY 8: Peripheral Vision

1. Out of 20, how many cards from the black/white set were identified correctly? \_\_\_\_\_\_\_\_
2. Out of 20, how many cards from the colored set were identified correctly? \_\_\_\_\_\_\_\_
3. Which did you see better using your peripheral vision: black and white or color?
4. Use the terms *rod* and *cone* to explain your answer to Question 3.
5. List some situations in which you would most likely rely on your peripheral vision.

ACTIVITY 9: Afterimage

1. What afterimage did you see after looking at the red vinyl? What afterimage did you see after looking at the green vinyl?
2. Explain what happens in the eye to cause an afterimage.
3. In the space below, draw in color the afterimage of one of the King cards from the deck of illusion cards. Why did you see the images in the colors that you saw?

ACTIVITY 10: Illusions

1. For each of the jacks, explain why the image that you see is impossible.

Hearts:

Diamonds:

Clubs:

Spades:

1. The diamonds cards 2-10 involve perception. Look at the 3 of diamonds card. All three figures are the same height. Explain how the illusion of varying heights is created.
2. The clubs cards 2-10 test your ability to judge sizes and shapes. Look at the 9 of clubs card. Although the two center circles are the same size, the one surrounded by smaller circles appears much larger. Why do you think this occurs?
3. The spades cards 2-10 illustrate illusions of movement and the perception of movement. Look at the spades cards 4 and 5. Place the cards side by side. Describe what you see.

Now move one of the cards while keeping the other card still. What do you see? Explain your findings.

Now move the cards in the opposite directions. What do you see?

\*Questions for Activity 1-10 are adapted from Carolina: Visual Perception Kit.