GENERAL INSTRUCTIONS

In this exercise, we will ask you to show where information is processed in the brain.
You will receive further instructions on the next page, but here are some general things to keep in mind.

1. If you make a mistake on any page, please do not cross out or write over any answers. Put an "X" on the top right corner of the page and ask for a new blank page to answer the questions on that page.

2. You will be given 7 colored pens to answer the questions.

Dark red	Light red	Black
Dark blue	Light blue	
Dark purple	Light purple	

   For some questions you will be told which colors to use to answer each part of the question.
   For other questions you will be asked to "use the appropriate colors", which are consistent with your answer to earlier questions. You can look back at your answers to earlier questions to help select colors for later questions.

VISUAL SYSTEM

In this exercise, we will ask you to show where **visual** information is processed in the brain. Do your best to answer the questions, given the knowledge that you have. Even if you feel you are guessing, still provide an answer.

Throughout these questions, please use the colors in the following way:

Reds: information processed from the left visual field
Blues: information processed from the right visual field
Black: Labeling structures

1. **Image 1** is of a person looking at a TV screen. Use the colored pens to color in the dotted lines to indicate the following parts of the visual field on the TV screen:

1.1 DARK RED pen: bottom left visual field
1.2 LIGHT RED pen: upper left visual field
1.3 DARK BLUE pen: bottom right visual field
1.4 LIGHT BLUE pen: upper right visual field

2. In **image 1,** you see the person's brain and eyes from above and slightly behind. Use the colored pens to color in the dotted quadrants on the eyes to show how the image from each part of the visual field is projected onto the eyes. Be sure to color in <u>both eyes</u>.

2.1 DARK RED pen: quadrant(s) of the eye(s) where the <u>bottom left visual field</u> projects
2.2 LIGHT RED pen: quadrant(s) of the eye(s) where the <u>top left visual field</u> projects
2.3 DARK BLUE pen: quadrant(s) of the eye(s) where the <u>bottom right visual field</u> projects
2.4 LIGHT BLUE pen: quadrant(s) of the eye(s) where the <u>top right visual field</u> projects

3. In **image 1**, the view of the brain contains structures labeled A through D. Using the BLACK pen, write the names of the following structures on the correct blank line(s) (currently in alphabetical order):

LGN, Optic Chiasm, Retina, V1

4. On **image 1**, draw the following pathways through the brain.

4.1 Use the appropriate colors to draw the path from the <u>right visual field</u> through all the relevant structures from Structure(s) A to Structure(s) D.

4.2 Use the appropriate colors to draw the path from the <u>left visual field</u> through all the relevant structures from Structure(s) A to Structure(s) D.

5. On **Image 2**, use the appropriate colors to indicate where the bottom visual field and top visual field project onto the structure marked with an arrow in the RIGHT hemisphere.

AUDITORY SYSTEM

In this exercise we will ask you to show where **auditory** information is processed in the brain. Do your best to answer the questions, given the knowledge that you have. Even if you feel you are guessing, still provide an answer.

Throughout these questions, please use the colors in the following way:

Reds: information processed by the ear seen on your right
Blues: information processed by the ear seen on your left
Purples: information processed by both ears
Black: Labeling structures

1. **Image 1** shows the brain and ears from the front. There are speakers on the left and right. Use the appropriate colors to color in sound waves within the dotted lines, traveling from the speakers to the ears:

1.1 Dark pen: low frequency sound waves, left speaker
1.2 Light pen: high frequency sound waves, left speaker
1.3 Dark pen: low frequency sound waves, right speaker
1.4 Light pen: high frequency sound waves, right speaker

2. In **image 1**, you see the inside of the brain. You can see spiral structures on each side. Use the colored pens to color in the dotted parts within each structure that respond to lower frequencies and those that respond to higher frequencies.

2.1 DARK RED pen: right structure, lower frequencies
2.2 LIGHT RED pen: right structure, higher frequencies
2.3 DARK BLUE pen: left structure, lower frequencies
2.4 LIGHT BLUE pen: left structure, higher frequencies

3. In **image 1**, the brain contains structures, labeled A through F. Using the BLACK pen, write the names of each of the following regions on the correct blank line (currently in alphabetical order):

A1, cochlea, cochlear nucleus, inferior colliculus, MGN, superior olive

4. On **image 1**, draw the following pathways through the brain.

4.1 Use the appropriate colors to draw the path of low frequency sounds from each ear through all relevant stations from Station(s) A to Station(s) F.

4.2 Use the appropriate colors to draw the path of high frequency sounds from each ear through all relevant stations from Station(s) A to Station(s) F.

5. On **image 2,** Use the appropriate colors to indicate where the low and high frequencies project onto the structure marked with an arrow in the LEFT hemisphere.