|  |  |
| --- | --- |
| Partner A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Partner B \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

**Part 1 – Examining Human Traits**

Step 1. After the introduction, record you and your lab partner traits below, with a checkmark:

Detached earlobes: Earlobes are detached if the lobe hangs free. Earlobes are attached if the bottom lobe is attached directly to the head.

Straight thumb: Try to bend your thumbs backwards at the joints. Some people have straight thumbs which do not bend in this way. Other people can form at least a 45 degree angle, which is called a hitchhiker’s thumb.

Tongue Rolling: The ability to roll your tongue upwards to form a closed tube. The sides of your tongue will meet at the top of the tube if you can roll your tongue.

Dimples: These are indentations in the cheeks, especially noticeable when smiling. Score as “yes” only if a dimple on each side is present. Score a dimple on only one side as “no.”

Freckles: Dark spots of pigment in the skin. Score as “yes” if any freckles are present.

Cleft Chin: A dimple or cleft in the center of the chin.

Hand clasping: Close your eyes and clasp your fingers together without thinking. Look and see whether it is your left thumb on top of the right thumb, or the reverse.

Straight hairline: Lift up the hair of your forehead to score this trait. People with a straight hairline have a smooth hairline with no dip. If you have a Widow's Peak, your forehead hairline will have a downward dip in it.

Data Table 1. Lab Partner Results for Human Traits.

|  |  |  |
| --- | --- | --- |
|  | **Partner A** | **Partner B** |
| **Trait** | **Yes** | **No** | **Yes** | **No** |
| Detached Earlobes |  |  |  |  |
| Straight Thumb |  |  |  |  |
| Tongue Rolling |  |  |  |  |
| Dimples |  |  |  |  |
| Freckles |  |  |  |  |
| Cleft Chin |  |  |  |  |
| Hand Clasping Left Thumb Over Right |  |  |  |  |
| Straight Hairline |  |  |  |  |

Step 2. A table will be shared on the board for you to record both partner’s results for the traits studied. Once you have recorded your own data, wait to fill in the table below with the total counts from the other groups:

Step 3. Add up the total number of students in the class. Use this total to calculate the percentage of students in the class that scored “Yes” and “No” for each trait.

Data Table 2. Class Data for Human Traits.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Trait** | **Total Yes** | **Total No** | **Percentage Yes** | **Percentage No** |
| Detached Earlobes |  |  |  |  |
| Straight Thumb |  |  |  |  |
| Tongue Rolling |  |  |  |  |
| Dimples |  |  |  |  |
| Freckles |  |  |  |  |
| Cleft Chin |  |  |  |  |
| Hand Clasping Left Thumb Over Right |  |  |  |  |
| Straight Hairline |  |  |  |  |
| ***Total number of students in class*** |  |  |  |  |



**Part 2 – Analyzing and Evaluating Results**

Step 1. Use the class data set in Data Table 2 to create a bar graph in the space provided. ***Please work in pencil so that you can correct mistakes!*** Begin by setting up the axes of the graph: the **horizontal x-axis should be divided evenly into eight categories** for each of the traits, and the **vertical y-axis should be divided evenly from 0-100 percent**. **Each axis should be labelled** with the appropriate category or percentage.

Step 2. Within each category, create two bars representing “Yes” and “No”. Each bar should be drawn carefully **with a ruler**, and they should both be roughly the same width (they can be drawn touching or separate). Each bar should extend from the x-axis up to the height corresponding to its percentage of the class population.

Step 3. Once you have drawn all of the bars, you should **color** all of the “Yes” bars one colour and “No” bars another colour. **Fill in the Legend** with the colours that you have used.

Step 4. Finally, indicate with an asterisk (star) above the corresponding bar, whether **you** are “Yes” or “No” for each of the traits examined.

Graph 1. Bar Graph of Class Data for a Variety of Human Traits.

**Legend**

□ Yes

□ No

\* my trait



Step 5. Which traits are the most common in our classroom population? Which traits are the least common in our classroom population?

**Model 1. Human Dominant and Recessive Traits**

|  |  |  |
| --- | --- | --- |
| **Trait** | **Dominant** | **Recessive** |
| Earlobes | Detached | Attached |
| Thumb | Straight | Bent |
| Tongue | Rolled | Not Rolled |
| Dimples | Yes | No |
| Freckles | Yes | No |
| Chin | Not Cleft | Cleft |
| Hand Clasping | Left over Right | Right over Left |
| Hairline | Widow’s Peak | Straight |

1. Refer to Model 1. Which of the traits that you identified as being **most** common in the classroom are dominant?
2. Which of the traits that you identified as being **least** common in the classroom are dominant?
3. Is there any pattern you can identify between the abundance of traits measured in our classroom and whether they are dominant or recessive? Explain your answer.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Lab Activity Effort****(Teacher)** | All questions were answered thoroughly and thoughtfully using complete sentences.6-7 marks | A few questions were not answered thoroughly and thoughtfully, a few sentences were not complete.4-5 marks | Most questions were not answered thoroughly and thoughtfully, or most sentences were not complete.2-3 marks | Few questions were answered thoroughly and thoughtfully using complete sentences.0-1 marks |
| **Partner Participation and Cooperation****(Students)** | Both partners participated all or most of the time, understood all or most of the concepts, and worked effectively.3 marks | Partners participated at about half the time, understood most of the concepts, and worked somewhat effectively.2 marks | Partners participated sparingly, did not understand most of the concepts, and worked ineffectively.1 mark | Partners were completely or mostly ineffective in working together and understanding the lab activity.0 marks |
| Total mark = /10 |