Science-7 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_

Lab: A Survey of Student Physical Traits

**Problem Statement**:

Are traits controlled by dominant alleles more common than traits controlled by recessive alleles?

**Hypothesis**: \**Write your own prediction based upon your knowledge and experience*

**Procedure**:

**Part I – Dominant & Recessive Alleles**

1. For each of the traits listed in the data table below, determine which trait you have. Use the photos below as a guide. Circle that trait in the data table.
2. Count the total number of students in your class and record that number in your data table.
3. Count the number of students in your class who have each trait. Record that number in your data table.



**Student Traits Data**

**Total Number of Students in Class = \_\_\_\_\_\_\_\_\_\_**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Trait 1 | Number | Trait 2 | Number |
| A | Free ear lobes |  | Attached ear lobes |  |
| B | Hair on fingers |  | No hair on fingers |  |
| C | Widow’s peak |  | No widow’s peak |  |
| D | Curly hair |  | Straight hair |  |
| E | Cleft chin |  | Smooth chin |  |
| F | Smile dimples |  | No smile dimples |  |

**Part II – Are Your Traits Unique?**

1. Look at the circle of traits in the figure below. All of the traits in your data table appear in the circle. Place the eraser end of your pencil on the trait in the small central circle that applies to you: *either free ear lobes or attached ear lobes*.
2. Look at the two traits touching the space your eraser is on. Move your eraser onto the next description that applies to you. Continue using your eraser to trace your traits until you reach a number on the outside rim of the circle. Share that number with your class.



**Analysis & Conclusions**: \*\**Answer the following questions on (a) separate sheet(s) of paper and attach to lab packet.*

1. The traits listed under Trait 1 in the data table are controlled by dominant alleles. The traits listed under Trait 2 in the table are controlled by recessive alleles. (***a***) Which traits controlled by dominant alleles were shown by a majority of students? (***b***) Which traits shown by recessive alleles were shown by a majority of students?
2. (***a***) Which range(s) of eight numbers (#*1-8, 9-16, 17-24, etc*.) did most of the students end up? (***b***) Use the circle of traits to suggest an explanation for this result.
3. (***a***) How many students ended up on the same number on the circle of traits? (***b***) How many students were the only ones to have their number? (***c***) What do the results suggest about each individual’s combination of traits?
4. Do your data support the hypothesis? Support your answer with examples.

**Future Research**:

Suggest a related experiment that you might want to conduct