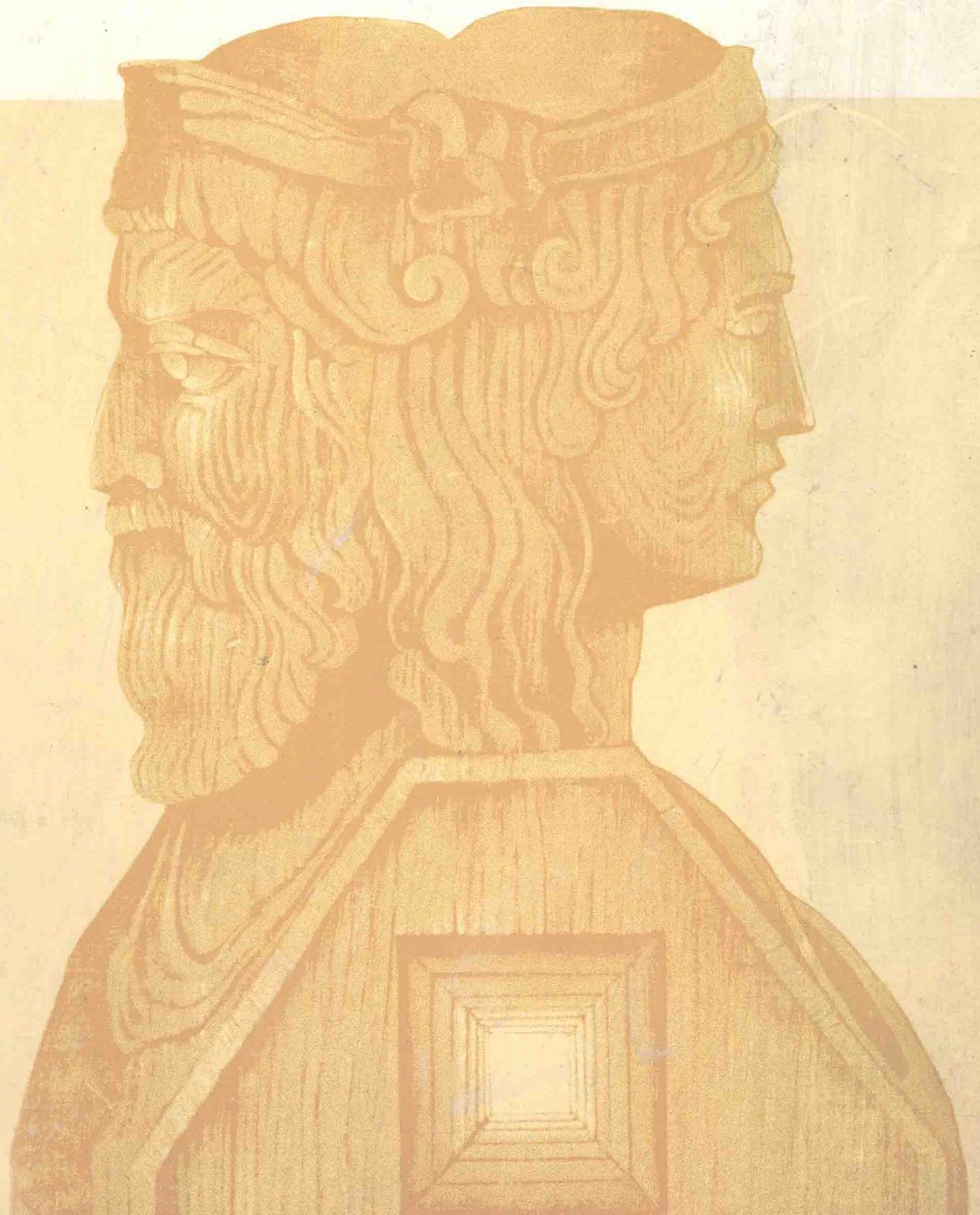


STUDENT HANDBOOK  
EXPERIMENTS AND QUIZZES

# Psychology

EXPLORING  
BEHAVIOR



Student Handbook  
Experiments and Quizzes

to accompany

# Psychology

## EXPLORING BEHAVIOR

Richard A. Kasschau, editor

Materials prepared by

**Janet Block**, formerly Hewlett High School, Hewlett, New York

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**Prentice-Hall, Inc.**, Englewood Cliffs, New Jersey

**Student Handbook: Experiments and Quizzes**  
to accompany  
**Psychology**  
EXPLORING BEHAVIOR

Designed by Nancy Earle, The Book Department

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# Experiments

## 1 Psychology: Its Nature and Nurture

### 1.1 An Experience in Introspection

As you have learned, the structuralists relied heavily on introspection as a technique in analyzing an experience. The subject was given an experience and was required to report his or her thoughts about it. Most of the experiences analyzed in this way were either perceptual or sensory. In the following experiment you will analyze a sensory experience.

For this experiment you will need a piece of hard candy. Place the candy in your mouth and keep it there until it fully dissolves. While enjoying the candy, record your thoughts about the experience by answering the following questions.

1. How does the texture of the candy change as its size diminishes? \_\_\_\_\_  
\_\_\_\_\_
2. How does the flavor of the candy affect your taste buds? \_\_\_\_\_  
\_\_\_\_\_
3. What alters in the flavor when you bite into the candy? \_\_\_\_\_  
\_\_\_\_\_
4. What happens to the texture of the candy when you chew it? \_\_\_\_\_  
\_\_\_\_\_
5. What happens to your teeth as you chew the candy? \_\_\_\_\_  
\_\_\_\_\_

After you have recorded your analysis of the candy experience, reread what you have written and answer the following questions.

1. Which parts of your analysis were subjective? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. Which parts of your analysis were objective? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. Is introspection a valid technique for modern psychology? Explain. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## 1.2 Analyzing the Experimental Method

The following experiment contains several flaws. Read the experiment carefully.

Psychologist Sally Hartley wished to determine what effect, if any, a reinforcement of food would have on an individual's performance of a fine motor skill involving eye-hand coordination. To accomplish this, she had her subjects thread as many needles as possible in a five-minute period. She divided the subjects into two groups.

|         | Males | Females | Total |
|---------|-------|---------|-------|
| Group A | 20    | 30      | 50    |
| Group B | 28    | 22      | 50    |

Dr. Hartley explained the tasks to each group in the same way. However, she offered Group A a voucher for a free lunch for every twenty needles threaded. After the five-minute time period had expired, Dr. Hartley counted the number of needles threaded by each group. The results were as follows:

|         | Total Number of<br>Needles Threaded | Average Number of<br>Needles Threaded per Person |
|---------|-------------------------------------|--|
| Group A | 80                                  | 1.6  |
| Group B | 45                                  | .9   |

From these results, Dr. Hartley concluded that the reward of food caused Group A to thread more needles than Group B.

Answer the following questions.

1. What was the independent variable in this experiment? \_\_\_\_\_  
\_\_\_\_\_
2. What was the dependent variable in this experiment? \_\_\_\_\_  
\_\_\_\_\_
3. Which of the two groups was the control group? Why? \_\_\_\_\_  
\_\_\_\_\_
4. Which of the two groups was the experimental group? Why? \_\_\_\_\_  
\_\_\_\_\_
5. How could the following variables negate the psychologist's conclusions?
  - a. age of the subjects \_\_\_\_\_  
\_\_\_\_\_
  - b. sex of the subjects \_\_\_\_\_  
\_\_\_\_\_
6. What other questions could you raise that would cast doubt on Dr. Hartley's conclusions? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## 1.3 A Naturalistic Observation Study

Do female high school students obey school rules more strictly than male high school students do? For example, do they return trays in the cafeteria more often than their male counterparts? This question presents the opportunity to employ the technique of naturalistic observation.

To find out whether female students return their trays more often than male students, you will need to observe and record the number of males and females who enter the cafeteria in the same forty-minute period each day for a week. You will also need to observe and record daily for a week the number of males and the number of females who return their trays to the kitchen in the same forty-minute time slot. To record your observations, use the accompanying Data Recording Sheet and then answer the questions that follow.

### DATA RECORDING SHEET 1.3

#### Observations

| DAY       | NUMBER ENTERING |         | TRAY RETURN |         |
|-----------|-----------------|---------|-------------|---------|
|           | Males           | Females | Males       | Females |
| Monday    |                 |         |             |         |
| Tuesday   |                 |         |             |         |
| Wednesday |                 |         |             |         |
| Thursday  |                 |         |             |         |
| Friday    |                 |         |             |         |

#### Results

| STUDENTS | AVERAGE<br>NUMBER<br>ENTERING | TRAY RETURN       |   |
|----------|-------------------------------|-------------------|---|
|          |                               | Average<br>number | % |
| Males    |                               |                   |   |
| Females  |                               |                   |   |

1. Do your observations indicate a significant difference between the behavior of male high school students and the behavior of female high school students? Explain. \_\_\_\_\_

---

---

---

---

---

2. What were your independent and dependent variables? \_\_\_\_\_

---

3. What are the advantages of this method of data collection? \_\_\_\_\_

---

---

4. What are the disadvantages of this method of data collection? \_\_\_\_\_

---

---

## 2 Early Development

### 2.1 Exploring Your Family Tree

Although most research on the relationship between heredity, environment, and behavior is too complex for introductory students of psychology to pursue, it is worthwhile for you to explore your own family background to gain insight into this important realm of psychological research. In this activity you will be tracing your family tree for five variables: eye color, hair color, singing ability, athletic ability, and artistic ability.

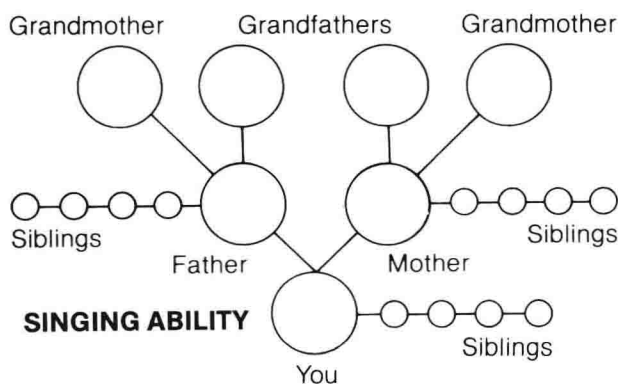
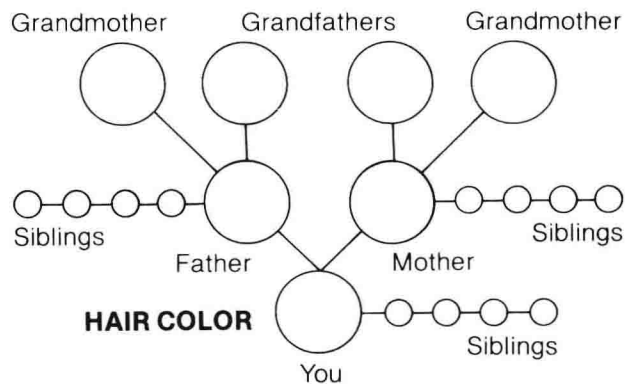
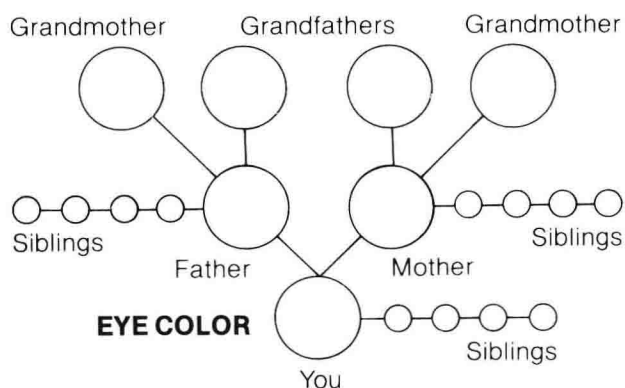
Use the charts provided to record your data. For the eye and hair color charts, fill in the appropriate abbreviation for each designated individual.

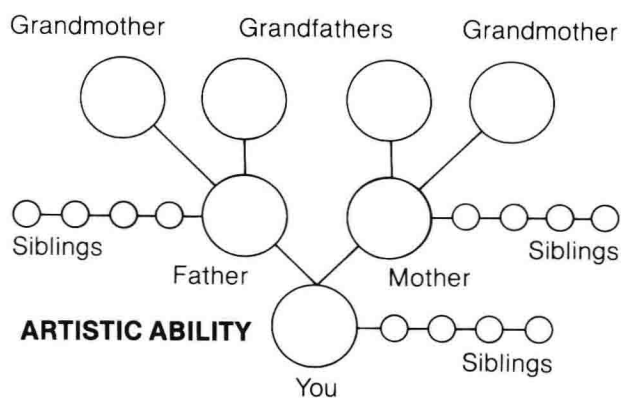
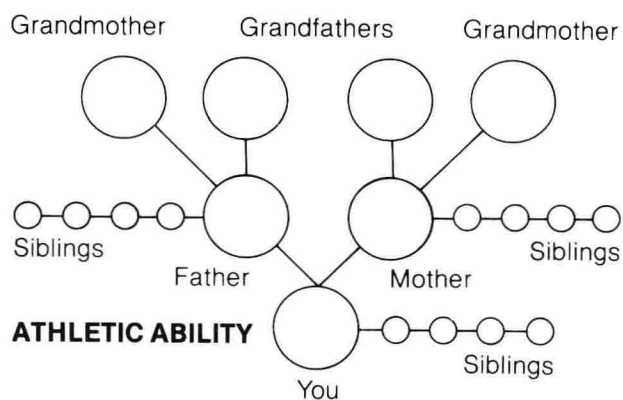
| Eyes       | Hair       |
|------------|------------|
| brown — br | black — b  |
| blue — bl  | brown — br |
| green — gn | blond — bl |
| hazel — h  | red — r    |
| gray — g   |            |

For the other charts, you will have to rely on your own personal judgments and the judgments of your family members. Although these charts will be less objective, you can use the following framework as a guide.

1. no ability
2. below average ability
3. average ability
4. above average ability
5. superior ability

Place the numbers that represent your judgments of yourself and your relatives in the appropriate spaces on each of the three charts.





After you have completed all the charts, answer the following questions.

1. Is there any evidence that a particular eye or hair color is dominant in your family? Explain. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
2. Does an eye or hair color appear in you or any of your relatives that was not present in the parents of that individual? If so, how do you account for that fact? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
3. Is there any evidence of singing ability in your family? Explain. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
4. Athletic ability? Artistic ability? Explain. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
5. Which of the five variables do you attribute to hereditary factors? Explain. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
6. Which of the five variables do you attribute to environmental factors? Explain. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
7. Are there any variables that you attribute to both hereditary and environmental factors? Explain. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



## 2.2 Age and Ability

You already have learned that age and ability are positively correlated. Often an individual's ability to recall verbal material increases as his or her other verbal skills increase. This experiment will explore the relationship between age and recall ability. Specifically, you will be asking: How does age affect an individual's ability to repeat word lists? For this experiment you will need to enlist the cooperation of four people. Younger brothers or sisters and one adult would make fine subjects.

Subject I should be between six and eight years old.

Subject II should be between nine and twelve years old.

Subject III should be between thirteen and seventeen years old.

Subject IV should be an adult.

If you have access to greater numbers of subjects, you should conduct this experiment with them also. For all subjects, use the following procedure.

1. Find a place that has few, if any, distractions.
2. With your subject seated opposite you, tell him or her, "I will be saying a series of words that I want you to repeat after me. The series will get longer until you reach the point where you are unable to repeat all the words in the list. Do the best you can."
3. Using the accompanying list of word series, recite the first word series at a rate of about one word per second. If the subject repeats the series correctly, move on to the next longer series. If the subject errs, recite a second series of the same length.
4. If the subject repeats the second series correctly, go on to the next longer series. If the subject errs a second time, recite a third series of the same length.
5. If the subject answers correctly, go on to the next longer series. If the subject errs a third time, discontinue the procedure and record on the Data Recording Sheet on the following page the highest number of words in the series that the subject answered correctly.

### Word Series

three-word series: hat, car, house

hope, mark, lip

pull, key, fig

four-word series: kiss, key, push, work

ice, cope, live, try

give, word, dive, sit

five-word series: make, toe, vow, when, cook

book, rip, pair, show, cloth

read, shoe, bus, trap, dig

six-word series: coat, speak, tip, lace, desk, meet

write, ship, bake, trace, beat, skip

boat, shirt, cake, case, treat, grip

seven-word series: rote, shop, wake, trip, calm, sock, gush

halt, guy, cat, palm, duke, leak, gas

drive, dog, seam, gab, joke, keen, part

eight-word series: dodge, guest, dome, fish, thick, bulk, hulk, leaf

door, wish, thin, smile, bump, lean, main, sew

dock, wide, truck, speak, brain, leap, name, send

nine-word series: dish, train, laugh, leave, mind, jump, gulf, jive, kick

strike, rain, bunt, left, mark, scout, game, jilt, kill

dense, pain, drop, loose, map, scare, gain, join, king

Answer the following questions.

1. Was there any evidence that the length of the word series the subjects could repeat correctly increased with age? Explain. \_\_\_\_\_  
\_\_\_\_\_
2. Was there any evidence to suggest that the length of the word series the subjects could repeat correctly levels off during adolescence, so that adults and adolescents score similarly? Explain. \_\_\_\_\_  
\_\_\_\_\_
3. What conclusions can you draw regarding age and the ability to repeat word series? \_\_\_\_\_  
\_\_\_\_\_

In class your teacher may wish to tally the results of each student's subjects. If this is done, your class can compute the average number of words repeated correctly for each age subject. Record the results on the Data Recording Sheet. Answer questions 1–3 again based on the class sample.

#### DATA RECORDING SHEET 2.2

| CHRONOLOGICAL AGE | HIGHEST NUMBER OF WORDS COMPLETED BY SUBJECT (TO BE COMPLETED BY STUDENT) | AVERAGE HIGHEST NUMBER OF WORDS COMPLETED BY SUBJECT (TO BE COMPLETED BY CLASS) |
|-------------------|---|---|
| 6                 |   |   |
| 7                 |   |   |
| 8                 |   |   |
| 9                 |   |   |
| 10                |   |   |
| 11                |   |   |
| 12                |   |   |
| 13                |   |   |
| 14                |   |   |
| 15                |   |   |
| 16                |   |   |
| 17                |   |   |
| ADULT             |   |   |