UNIT 1

Scientific Foundations of Psychology

AP EXAM WEIGHTING

~13–14 CLASS PERIODS
Remember to go to AP Classroom to assign students the online Personal Progress Check for this unit.

Whether assigned as homework or completed in class, the Personal Progress Check provides each student with immediate feedback related to this unit’s topics and skills.

**Personal Progress Check 1**

**Multiple-choice: ~15 questions**

**Free-response: 2 questions**

- Research Design (partial)
- Research Design (partial)
Scientific Foundations of Psychology

Developing Understanding

Psychology is the scientific study of behavior and mental processes. This course examines the history of psychology and psychological theories, contemporary perspectives on psychology, and how psychological research is conducted. As scientists, psychologists collect data and make observations about the ways in which humans and animals behave and think in order to understand behavior and mental processes. Psychologists use a variety of research methods and designs to conduct their research. These tools help them develop psychological theories about behavior and mental processes. To ensure that their results are valid and reliable, psychologists’ research must adhere to strict ethical and procedural guidelines. Historical research is the foundation of the field of psychology and has become the basis for the many subfields within psychology that exist today.

Building Course Skills

Many theories, schools of thought, and perspectives exist in the field of psychology. This course surveys and applies those ideas, training students to identify the major theories and perspectives. Within the major fields of psychology, appropriate research methodology is crucial to produce reliable and valid results and avoid bias. In this unit, students are introduced to research methods and designs that will help them learn how to avoid ethical misconduct and design flaws. Students will learn to differentiate between research designs, identify the advantages and disadvantages of each, and determine why one research method should be used over another. Students will also learn which research methods and modes of questioning are appropriate for different fields of psychology as well as how to use appropriate descriptive statistics when presenting their data.

Preparing for the AP Exam

This course requires students to use their knowledge in a variety of real-world scenarios. Students should have opportunities to practice applying psychological concepts in their explanations. The AP Exam includes two seven-point free-response questions: one that relates to content understanding and application and another that relates to the understanding of research method and design and/or data and statistical analysis. Unit 1 provides foundational knowledge about the field of psychology and introduces students to the research methods associated with various theories, schools of thought, and perspectives. From the start, students can begin to answer research method questions. Students often struggle with knowing which types of research questions can be studied with which methods. Students also struggle with graphic representations of data, in part because they often confuse the independent with the dependent variable. Teachers can give students opportunities to practice constructing graphs, emphasizing the correct placement of the variables on the axes. Students also struggle with using statistics, particularly statistical significance—they might describe correlational research rather than statistical significance or use the term “confidence interval” without connecting it back to the data. Without further explanation, exam graders cannot confirm a student’s understanding of statistical significance.
## UNIT AT A GLANCE

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<th>Suggested Skill</th>
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<td>1.1 Introducing Psychology</td>
<td><strong>1.C</strong> Apply theories and perspectives in authentic contexts.</td>
<td>~13–14 CLASS PERIODS</td>
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<td>1.2 Research Methods in Psychology</td>
<td><strong>3</strong> Analyze psychological research studies.</td>
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<tr>
<td>1.3 The Experimental Method</td>
<td><strong>3</strong> Analyze psychological research studies.</td>
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<td>1.4 Selecting a Research Method</td>
<td><strong>3</strong> Analyze psychological research studies.</td>
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<td>1.5 Statistical Analysis in Psychology</td>
<td><strong>2</strong> Analyze and interpret quantitative data.</td>
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<td>1.6 Ethical Guidelines in Psychology</td>
<td><strong>1.A</strong> Define and/or apply concepts.</td>
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Go to AP Classroom to assign the Personal Progress Check for Unit 1. Review the results in class to identify and address any student misunderstandings.
SAMPLE INSTRUCTIONAL ACTIVITIES

The sample activities on this page are optional and are offered to provide possible ways to incorporate various instructional approaches into the classroom. Teachers do not need to use these activities or instructional approaches and are free to alter or edit them. The examples below were developed in partnership with teachers from the AP community to share ways that they approach teaching some of the topics in this unit. Please refer to the Instructional Approaches section beginning on p. 151 for more examples of activities and strategies.

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| 1        | 1.1   | **Quickwrite**  
On the first day of class, facilitate the “Slippery Snakes” activity, which can be found online. Give all students ratings sheets with instructions at the top. There should be two different sheets with different instructions. Give half of the students the sheet with one set of instructions and the other half the sheet with the other instructions; students must be unaware that there are different instructions. Then read a series of 20 sentences while the students process the information according to the instructions they are given. Students then mark their rating sheets, which are scored at the end of the activity. This provides an introduction to the difference between the levels of processing. |
| 2        | 1.2   | **Misconception Check**  
Give students a research problem and have them design a controlled experiment to answer the question. Students should include the hypothesis, methods, and data collection method. They should identify how they will analyze the results of the study. |
| 3        | 1.5   | **One-Minute Essay**  
Give students a data table or graph from a research study. Ask them to identify specific data points and then describe the data. They should then describe patterns and trends in the data. The students can calculate the mean and identify the median and mode. Students should then describe a psychological principle, process, concept, theory, or perspective illustrated by the data. |

Unit Planning Notes

*Use the space below to plan your approach to the unit.*
LEARNING TARGET

1.A Recognize how philosophical and physiological perspectives shaped the development of psychological thought.

EXAMPLES

1.B.1 Mary Whiton Calkins, major historical figure in psychology
1.B.2 Charles Darwin, major historical figure in psychology
1.B.3 Dorothea Dix, major historical figure in psychology
1.B.4 Sigmund Freud, major historical figure in psychology
1.B.5 G. Stanley Hall, major historical figure in psychology
1.B.6 William James, major historical figure in psychology
1.B.7 Ivan Pavlov, major historical figure in psychology
1.B.8 Jean Piaget, major historical figure in psychology
1.B.9 Carl Rogers, major historical figure in psychology
1.B.10 B. F. Skinner, major historical figure in psychology
LEARNING TARGET

1.B
Identify the research contributions of major historical figures in psychology.

EXAMPLES

1.B.11
Margaret Floy Washburn, major historical figure in psychology

1.B.12
John B. Watson, major historical figure in psychology

1.B.13
Wilhelm Wundt, major historical figure in psychology

1.C
Describe and compare different theoretical approaches in explaining behavior.

1.C.1
Structuralism

1.C.2
Functionalism

1.C.3
Early Behaviorism

1.C.4
Gestalt

1.C.5
Psychoanalytic/psychodynamic

1.C.6
Humanistic

1.C.7
Evolutionary approach

1.C.8
Biological approach

1.C.9
Cognitive approach

1.C.10
Biopsychosocial approaches

1.C.11
Sociocultural

1.D
Recognize the strengths and limitations of applying theories to explain behavior.

continued on next page
LEARNING TARGET

Distinguish the different domains of psychology.

EXAMPLES

- Biological domain
- Clinical domain
- Cognitive domain
- Counseling domain
- Developmental domain
- Educational domain
- Experimental domain
- Industrial–organizational domain
- Personality domain
- Psychometric domain
- Social domain
- Positive domain

Topic Planning Notes

Use the space below to plan your approach to the topic.
LEARNING TARGET

1.F
Differentiate types of research with regard to purpose, strengths, and weaknesses.

1.G
Discuss the value of reliance on operational definitions and measurement in behavioral research.

EXAMPLES

1.F.1
Research method: experiments

1.F.2
Research method: correlational studies

1.F.3
Research method: survey research

1.F.4
Research method: naturalistic observations

1.F.5
Research method: case studies

1.F.6
Research method: longitudinal studies

1.F.7
Research method: cross-sectional studies

Topic Planning Notes

Use the space below to plan your approach to the topic.
TOPIC 1.3
The Experimental Method

LEARNING TARGET

1.H
Identify independent, dependent, confounding, and control variables in experimental designs.

1.I
Describe how research design drives the reasonable conclusions that can be drawn.

1.J
Distinguish between random assignment of participants to conditions in experiments and random selection of participants, primarily in correlational studies and surveys.

EXAMPLES

1.I.1
Experiments are useful for determining cause and effect.

1.I.2
The use of experimental controls reduces alternative explanations.

1.I.3
Random assignment is needed to demonstrate cause and effect.

1.I.4
Correlational research can indicate if there is a relationship or association between two variables but cannot demonstrate cause and effect.
TOPIC 1.4
Selecting a Research Method

LEARNING TARGET

1.K
Predict the validity of behavioral explanations based on the quality of research design.

EXAMPLES

1.K.1
Confounding variables limit confidence in research conclusions.

Topic Planning Notes

Use the space below to plan your approach to the topic.

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# TOPIC 1.5
## Statistical Analysis in Psychology

### LEARNING TARGET
1. **L** Apply basic descriptive statistical concepts, including interpreting and constructing graphs and calculating simple descriptive statistics.

2. **M** Distinguish the purposes of descriptive statistics and inferential statistics.

### EXAMPLES
1. **L.1** Measures of central tendency
2. **L.2** Variation (range, standard deviation)
3. **L.3** Correlation coefficient
4. **L.4** Frequency distribution (normal, bimodal, positive skew, negative skew)

### Topic Planning Notes
*Use the space below to plan your approach to the topic.*
TOPIC 1.6
Ethical Guidelines in Psychology

LEARNING TARGET

1.N Identify how ethical issues inform and constrain research practices.

1.O Describe how ethical and legal guidelines protect research participants and promote sound ethical practice.

EXAMPLES

1.O.1 Those provided by the American Psychological Association
1.O.2 Federal regulations
1.O.3 Local Institutional Review Board (IRB)
1.O.4 Institutional Animal Care and Use Committee (IACUC)

Topic Planning Notes
Use the space below to plan your approach to the topic.