UNIT 5

Cognitive Psychology

13–17% AP EXAM WEIGHTING

~17–18 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 5
Multiple-choice: ~30 questions
Free-response: 1 question
- Concept Application
Cognitive Psychology

Developing Understanding

In this unit, knowledge surrounding sensation, perception, and learning provides the foundation for an understanding of cognition. Cognitive psychologists focus their research on the complex nature of the brain, particularly the areas of memory processes and intelligence and the influence of mental processes on behavior. Understanding how this information is gathered and processed gives insight into how we make sense of and perceive the world. Some cognitive psychologists attempt to answer how and why cognitive processes fail despite (or because of) the complexity of our biological structures. Teachers can offer students opportunities to provide their own explanations for these phenomena. Other psychologists study intelligence and the reasons for individual differences. This cognitive perspective offers one way to understand how our thinking impacts our behavior, which can in turn provide insight into psychological disorders and their treatment.

Building Course Skills

Cognition, which covers both memory processes and individual differences in intelligence, plays a major role in the field of psychology today. Building on the anatomical structures and biological processes learned in Units 2 and 3, this unit emphasizes the memory processes of encoding, storing, and retrieving information from the brain. Students are moving beyond definitional understanding of psychological concepts and perspectives and are now reasoning systematically.

Students should be able to connect the in-depth presentation of the cognitive perspective to other psychological perspectives introduced in Units 1 and 2. They will also continue their analysis and interpretation of quantitative data in relation to cognitive research, building understanding of why particular research methods are used for specific types of data collection.

Preparing for the AP Exam

Students tend to have difficulty articulating ideas about thinking and problem solving. They will often state an accurate idea about cognition but fail to expand on the idea enough to earn full credit for the answer. Students should be able to demonstrate knowledge of the similarities and differences in short-term and procedural memory and the factors that affect each to achieve success on the AP Exam. Students should also be able to explain how the elements of memory contribute to a person’s behavior. The ability to demonstrate an understanding of how information is encoded, stored, and retrieved in memory is also crucial. Students should be able to describe the acquisition of language, the factors that facilitate it, and its use in communicating ideas. Additionally, they may have to answer questions about normal curves as well as about positive and negative correlation.
# UNIT AT A GLANCE

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<thead>
<tr>
<th>Topic</th>
<th>Suggested Skill</th>
<th>Class Periods</th>
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<tbody>
<tr>
<td>5.1 Introduction to Memory</td>
<td>1.A Define and/or apply concepts.</td>
<td>~17–18 CLASS PERIODS</td>
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<tr>
<td>5.2 Encoding</td>
<td>1.B Explain behavior in authentic context.</td>
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<tr>
<td>5.3 Storing</td>
<td>1.B Explain behavior in authentic context.</td>
<td></td>
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<tr>
<td>5.4 Retrieving</td>
<td>1.B Explain behavior in authentic context.</td>
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<tr>
<td>5.5 Forgetting and Memory Distortion</td>
<td>1.B Explain behavior in authentic context.</td>
<td></td>
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<tr>
<td>5.6 Biological Bases of Memory</td>
<td>1.A Define and/or apply concepts.</td>
<td></td>
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<tr>
<td>5.7 Introduction to Thinking and Problem Solving</td>
<td>1.A Define and/or apply concepts.</td>
<td></td>
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<tr>
<td>5.8 Biases and Errors in Thinking</td>
<td>1.B Explain behavior in authentic context.</td>
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<tr>
<td>5.9 Introduction to Intelligence</td>
<td>1.C Apply theories and perspectives in authentic contexts.</td>
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<tr>
<td>5.10 Psychometric Principles and Intelligence Testing</td>
<td>3 Analyze psychological research studies.</td>
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<tr>
<td>5.11 Components of Language and Language Acquisition</td>
<td>1.C Apply theories and perspectives in authentic contexts.</td>
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Go to [AP Classroom](#) to assign the Personal Progress Check for Unit 5. 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.

<table>
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<tr>
<th>Activity</th>
<th>Topic</th>
<th>Sample Activity</th>
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</table>
| 1        | 5.1   | Ask the Expert (or Students as Experts)  
Assign students as “experts” on types of memory. Students should then rotate through stations in groups, with the experts ensuring that all other students understand the type of memory that they are responsible for teaching. Then have students repeat the experiment on the Sperling effect. |
| 2        | 5.2   | Quickwrite  
Read a series of five numbers aloud and then have students recall the set of numbers from memory. Repeat the exercise, increasing the amount of numbers each time until you reach 12. |
| 3        | 5.3   | Think-Pair-Share  
Have students try to recall the names of the seven dwarfs in Snow White. Then show them a list that includes the dwarfs, among other similar names, and ask them to pick out the correct names. |
| 4        | 5.4   | Index Card Summaries/Questions  
Have students draw the face side of a penny from memory with as much detail as possible. Then have them read excerpts from the book Moonwalking with Einstein, by Joshua Foer. Ask students to summarize the methods Foer describes to help memory and then discuss the ways they remember information. |
| 5        | 5.5   | One-Minute Essay  
Review Loftus’s study on the misinformation effect as it pertains to car accidents. Have students reflect on the validity of eyewitness testimony and the misconception of how it is used in criminal justice trials. Review other related eyewitness studies, such as the weapons-focus effect and the other-race effect. Have them review studies that support the weapons-focus effect as well as others that don’t. Have students examine the problems associated with wrongful convictions based on eyewitness testimony. |

Unit Planning Notes

Use the space below to plan your approach to the unit.
## TOPIC 5.1
### Introduction to Memory

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<th>EXAMPLES</th>
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<td>5.A</td>
<td>5.A.1 Effortful versus automatic processing</td>
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<td>5.A.2 Deep versus shallow processing</td>
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<td>5.A.3 Selective versus divided attention</td>
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<td>5.A.4 Metacognition</td>
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<td>5.B</td>
<td>5.B.1 Short-term memory</td>
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<td>5.B.2 Implicit memory (procedural)</td>
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<td>5.B.3 Long-term memory</td>
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<td>5.B.4 Sensory memory (echoic, iconic)</td>
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<td>5.B.5 Prospective memory</td>
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<td></td>
<td>5.B.6 Explicit memory (semantic, episodic)</td>
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<td>5.B.7 Physiological systems</td>
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continued on next page
LEARNING TARGET

5.C
Identify the contributions of key researchers in cognitive psychology.

EXAMPLES

5.C.1
Contributions of Noam Chomsky

5.C.2
Contributions of Hermann Ebbinghaus

5.C.3
Contributions of Wolfgang Köhler

5.C.4
Contributions of Elizabeth Loftus

5.C.5
Contributions of George A. Miller
UNIT 5
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TOPIC 5.2

Encoding

LEARNING TARGET

5.D
Outline the principles that underlie construction and encoding of memories.

Topic Planning Notes

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

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LEARNING TARGET

5.D Outline the principles that underlie effective storage of memories.

SUGGESTED SKILL

Concept Understanding

1.B Explain behavior in authentic context.

Topic Planning Notes

Use the space below to plan your approach to the topic.
TOPIC 5.4
Retrieving

LEARNING TARGET
5.F
Describe strategies for retrieving memories.

Topic Planning Notes
Use the space below to plan your approach to the topic.
TOPIC 5.5
Forgetting and Memory Distortion

LEARNING TARGET
5.0
Describe strategies for memory improvement and typical memory errors.

AVAILABLE RESOURCE
• Classroom Resource > Cognition and Language

Topic Planning Notes
Use the space below to plan your approach to the topic.
TOPIC 5.6

Biological Bases for Memory

LEARNING TARGET

5.H
Describe and differentiate psychological and physiological systems of short- and long-term memory.

Topic Planning Notes

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

TOPIC 5.7
Introduction to Thinking and Problem Solving

LEARNING TARGET

5.I
Identify problem-solving strategies as well as factors that influence their effectiveness.

5.J
List the characteristics of creative thought and creative thinkers.

SUGGESTED SKILL

Concept Understanding
1.A
Define and/or apply concepts.

Topic Planning Notes

Use the space below to plan your approach to the topic.
TOPIC 5.8
Biases and Errors in Thinking

LEARNING TARGET

5.K
Identify problem-solving strategies as well as factors that create bias and errors in thinking.

Topic Planning Notes

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

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TOPIC 5.9
Introduction to Intelligence

LEARNING TARGET

5.L
Define intelligence and list characteristics of how psychologists measure intelligence.

5.M
Discuss how culture influences the definition of intelligence.

5.N
Compare and contrast historic and contemporary theories of intelligence.

EXAMPLES

5.L.1
Abstract versus verbal measures

5.L.2
Speed of processing

5.L.3
Fluid intelligence

5.L.4
Crystallized intelligence

5.L.5
Flynn effect

5.L.6
Stereotype threat

5.L.7
Savant syndrome

5.N.1
Charles Spearman, intelligence theorist

5.N.2
Howard Gardner, intelligence theorist

5.N.3
Robert Sternberg, intelligence theorist

continued on next page
LEARNING TARGET

5.0 Identify the contributions of key researchers in intelligence research and testing.

EXAMPLES

5.0.1 Contributions of Alfred Binet, key researcher in intelligence

5.0.2 Contributions of Francis Galton, key researcher in intelligence

5.0.3 Contributions of Howard Gardner, key researcher in intelligence

5.0.4 Contributions of Charles Spearman, key researcher in intelligence

5.0.5 Contributions of Robert Sternberg, key researcher in intelligence

5.0.6 Contributions of Lewis Terman, key researcher in intelligence

5.0.7 Contributions of David Wechsler, key researcher in intelligence

Topic Planning Notes

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

5.P Explain how psychologists design tests, including standardization strategies and other techniques to establish reliability and validity.

5.Q Interpret the meaning of scores in terms of the normal curve.

5.R Describe relevant labels related to intelligence testing.

EXAMPLES

5.R.1 Gifted

5.R.2 Intellectual disability

Topic Planning Notes

Use the space below to plan your approach to the topic.
TOPIC 5.11
Components of Language and Language Acquisition

LEARNING TARGET

5.S
Synthesize how biological, cognitive, and cultural factors converge to facilitate acquisition, development, and use of language.

5.T
Debate the appropriate testing practices, particularly in relation to culture-fair test uses.

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