Unit 5: Cognitive Psychology

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Course(s): **AP Psychology**
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Title Section

Department of Curriculum and Instruction

Belleville Public Schools

Curriculum Guide

AP Psychology, Grades 11-12

Cognitive Psychology

Belleville Board of Education

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Unit Overview

In this unit, students will build on the anatomical structures and biological processes learned in Units 2 and 3 and examine the memory processes of encoding, storing, and retrieving information from the brain.

Students will learn the following:

- An introduction to Memory
- Encoding, storing, and retrieving information from the brain
- Forgetting and Memory Distortion
- The Biological Bases of Memory
- An introduction to Thinking and Problem Solving
- Biases and Errors in Thinking
- An introduction to Intelligence
- Psychometric Principles and Intelligence Testing
- Components of Language and Language Acquisition

Enduring Understanding

- Cognition, which covers both memory processes and individual differences in intelligence, plays a major role in the field of psychology today.
- 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.
- 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.

Essential Questions

- What roles do memory and thinking play in our behaviors?
- What is intelligence and how can we study it to understand it?

Exit Skills

By the end of Unit 5, the student should be able to:

- Move beyond a definitional understanding of psychological concepts and perspectives and are now reasoning systematically.
- Connect the in-depth presentation of the cognitive perspective to other psychological perspectives introduced in Units 1 and 2.
- Analyze and interpret quantitative data in relation to cognitive research
- Understand why particular research methods are used for specific types of data collection.
- Define and/or apply concepts related to the understanding of Memory, the biological bases of memory, and thinking and problem solving.
- Explain behavior in authentic context as it relates to encoding, storing, retrieving, forgetting and memory distortion, and biases and errors in thinking.
- Apply theories and perspectives in authentic contexts as it relates to intelligence and the components of language and language acquisition.
- Analyze psychological research studies in psychometric principles and intelligence testing.

New Jersey Student Learning Standards (NJSLS-S)

SOC.9-12.1	Concept Understanding
SOC.9-12.1.A	Define and/or apply concepts.
SOC.9-12.1.B	Explain behavior in authentic context.
SOC.9-12.1.C	Apply theories and perspectives in authentic contexts.
SOC.9-12.5	Cognitive Psychology
SOC.9-12.5.1	Introduction to Memory
SOC.9-12.5.A	Compare and contrast various cognitive processes.
SOC.9-12.5.B	Describe and differentiate psychological and physiological systems of memory.
SOC.9-12.5.C	Identify the contributions of key researchers in cognitive psychology.
SOC.9-12.5.2	Encoding
SOC.9-12.5.D	Outline the principles that underlie construction and encoding of memories.
SOC.9-12.5.3	Storing
SOC.9-12.5.D	Outline the principles that underlie effective storage of memories.
SOC.9-12.5.4	Retrieving
SOC.9-12.5.F	Describe strategies for retrieving memories.
SOC.9-12.5.5	Forgetting and Memory Distortion
SOC.9-12.5.G	Describe strategies for memory improvement and typical memory errors.
SOC.9-12.5.6	Biological Bases for Memory
SOC.9-12.5.H	Describe and differentiate psychological and physiological systems of short- and long-term memory.
SOC.9-12.5.7	Introduction to Thinking and Problem Solving
SOC.9-12.5.I	Identify problem-solving strategies as well as factors that influence their effectiveness.
SOC.9-12.5.J	List the characteristics of creative thought and creative thinkers.
SOC.9-12.5.8	Biases and Errors in Thinking
SOC.9-12.5.K	Identify problem-solving strategies as well as factors that create bias and errors in thinking.
SOC.9-12.5.9	Introduction to Intelligence
SOC.9-12.5.L	Define intelligence and list characteristics of how psychologists measure intelligence.
SOC.9-12.5.M	Discuss how culture influences the definition of intelligence.
SOC.9-12.5.N	Compare and contrast historic and contemporary theories of intelligence.
SOC.9-12.5.O	Identify the contributions of key researchers in intelligence research and testing.
SOC.9-12.5.10	Psychometric Principles and Intelligence Testing
SOC.9-12.5.P	Explain how psychologists design tests, including standardization strategies and other techniques to establish reliability and validity.
SOC.9-12.5.Q	Interpret the meaning of scores in terms of the normal curve.

SOC.9-12.5.R	Describe relevant labels related to intelligence testing.
SOC.9-12.5.11	Components of Language and Language Acquisition
SOC.9-12.5.S	Synthesize how biological, cognitive, and cultural factors converge to facilitate acquisition, development, and use of language.
SOC.9-12.5.T	Debate the appropriate testing practices, particularly in relation to culture-fair test uses.

Interdisciplinary Connections

LA.RH.11-12.1	Accurately cite strong and thorough textual evidence, (e.g., via discussion, written response, etc.), to support analysis of primary and secondary sources, connecting insights gained from specific details to develop an understanding of the text as a whole.
LA.RH.11-12.4	Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10).
LA.RH.11-12.7	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, qualitatively, as well as in words) in order to address a question or solve a problem.
LA.RH.11-12.10	By the end of grade 12, read and comprehend history/social studies texts in the grades 11-CCR text complexity band independently and proficiently.
LA.WHST.11-12.1	Write arguments focused on discipline-specific content.
LA.WHST.11-12.1.D	Establish and maintain a style and tone appropriate to the audience and purpose (e.g., formal and objective for academic writing) while attending to the norms and conventions of the discipline in which they are writing.
LA.WHST.11-12.2.D	Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.
LA.WHST.11-12.10	Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Learning Objectives

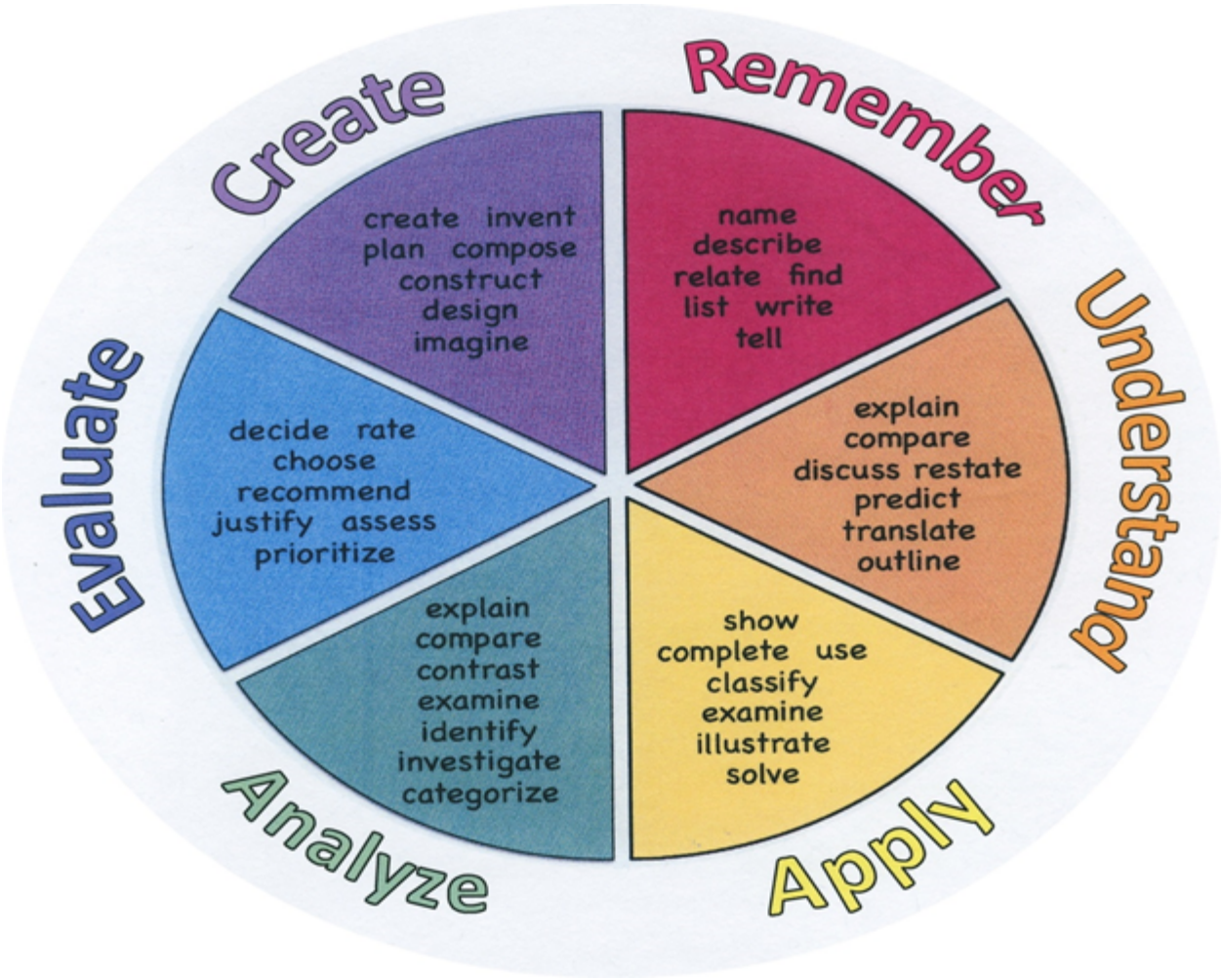
- Compare and contrast various cognitive processes (Examples: Effortful versus automatic processing, Deep versus shallow processing, Selective versus divided attention, Metacognition).
- Describe and differentiate psychological and physiological systems of memory (Examples: Short-term memory, Implicit memory (procedural), Long-term memory, Sensory memory (echoic, iconic), Prospective memory, Explicit memory (semantic, episodic), Physiological systems).
- Identify the contributions of key researchers in cognitive psychology (Examples: Noam Chomsky, Hermann Ebbinghaus, Wolfgang Köhler, Elizabeth Loftus, George A. Miller).
- Outline the principles that underlie construction and encoding of memories.
- Outline the principles that underlie effective storage of memories.
- Describe strategies for retrieving memories.
- Describe strategies for memory improvement and typical memory errors.
- Describe and differentiate psychological and physiological systems of short and long-term memory.
- Identify problem-solving strategies as well as factors that influence their effectiveness.
- List the characteristics of creative thought and creative thinkers.
- Identify problem-solving strategies as well as factors that create bias and errors in thinking.
- Define intelligence and list characteristics of how psychologists measure intelligence (Examples: Abstract versus verbal

measures, Speed of processing, Fluid intelligence, Crystallized intelligence, Flynn effect, Stereotype threat, Savant syndrome).

- Discuss how culture influences the definition of intelligence.
- Compare and contrast historic and contemporary theories of intelligence (Examples: Charles Spearman, Howard Gardner, Robert Sternberg).
- Identify the contributions of key researchers in intelligence research and testing (Examples: Alfred Binet, Francis Galton, Howard Gardner, Charles Spearman, Robert Sternberg, Lewis Terman, David Wechsler).
- Explain how psychologists design tests, including standardization strategies and other techniques to establish reliability and validity.
- Interpret the meaning of scores in terms of the normal curve.
- Describe relevant labels related to intelligence testing, such as the term gifted and intellectual disability.
- Synthesize how biological, cognitive, and cultural factors converge to facilitate acquisition, development, and use of language.
- Debate the appropriate testing practices, particularly in relation to culture-fair test uses.

Action Verbs: Below are examples of action verbs associated with each level of the Revised Bloom's Taxonomy.

Remember	Understand	Apply	Analyze	Evaluate	Create
Choose	Classify	Choose	Categorize	Appraise	Combine
Describe	Defend	Dramatize	Classify	Judge	Compose
Define	Demonstrate	Explain	Compare	Criticize	Construct
Label	Distinguish	Generalize	Differentiate	Defend	Design
List	Explain	Judge	Distinguish	Compare	Develop
Locate	Express	Organize	Identify	Assess	Formulate
Match	Extend	Paint	Infer	Conclude	Hypothesize
Memorize	Give Examples	Prepare	Point out	Contrast	Invent
Name	Illustrate	Produce	Select	Critique	Make
Omit	Indicate	Select	Subdivide	Determine	Originate
Recite	Interrelate	Show	Survey	Grade	Organize
Select	Interpret	Sketch	Arrange	Justify	Plan
State	Infer	Solve	Breakdown	Measure	Produce
Count	Match	Use	Combine	Rank	Role Play
Draw	Paraphrase	Add	Detect	Rate	Drive
Outline	Represent	Calculate	Diagram	Support	Devise
Point	Restate	Change	Discriminate	Test	Generate
Quote	Rewrite	Classify	Illustrate		Integrate
Recall	Select	Complete	Outline		Prescribe
Recognize	Show	Compute	Point out		Propose
Repeat	Summarize	Discover	Separate		Reconstruct
Reproduce	Tell	Divide			Revise
	Translate	Examine			Rewrite
	Associate	Graph			Transform
	Compute	Interpolate			
	Convert	Manipulate			
	Discuss	Modify			
	Estimate	Operate			
	Extrapolate	Subtract			
	Generalize				
	Predict				



Suggested Activities & Best Practices

- Ask the Expert (or Students as Experts): For example, 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.
- Quickwrite: For example, 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.
- Think-Pair-Share: For example, 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.
- Index Card Summaries/Questions: For example, 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.

- One-Minute Essay: For example, 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.
- Review and reference the short story *Flowers for Algernon* by Daniel Keyes to identify one of several controversial strategies and techniques related to intelligence, science or psychology that is present in the novel. Take a position on that topic and write a persuasive essay.
- Read case studies and psychological experiments related to Unit 5 (For example: "What Makes a Creative Genius"; "Witness for the Defense") and respond to related writing tasks using a personal response journal.
- Conduct experiments related to Unit 5 (For example: "What Can You Remember" Quick Lab; "Children, Thinking, and Language" Lab) and analyze the results using a personal response journal.
- Create cartoons or other illustrations based on human behavior/psychology topics discussed in Unit 5.
- Student or teacher created rubrics for each project.
- Building a portfolio throughout the course; contains experiments and independent projects.
- Complete study guides for Assessment on "Cognitive Psychology"
- Use Commonlit.org to reinforce standardized tests strategies.
- Interview a parents or other family member regarding where they were and what they were doing when 9/11 occurred. Based on their initial response, create 10 questions for the interview and record their responses. Questions/responses can be submitted as a script, audio, or video.
- Practice Quizzes (Multiple Choice Questions)
- Personal Progress Check 5(Multiple-choice Questions; Free-response Questions)

Assessment Evidence - Checking for Understanding (CFU)

- Unit Test on Cognitive Psychology-summative assessement
- Lab on Children, Thinking and Language-alternate assessment
- Think Pair Share on Recalling Information (Snow White and the Seven Dwarfs)-formative assessment
- Personal Progress Check 5-self-assessment
- Written Report - Benchmark assessment

- Admit Tickets
- Anticipation Guide
- Common Benchmarks
- Compare & Contrast
- Create a Multimedia Poster

- DBQ's
- Define
- Describe
- Evaluate
- Evaluation rubrics
- Exit Tickets
- Explaining
- Fist- to-Five or Thumb-Ometer
- Illustration
- Journals
- KWL Chart
- Learning Center Activities
- Multimedia Reports
- Newspaper Headline
- Outline
- Question Stems
- Quickwrite
- Quizzes
- Red Light, Green Light
- Self- assessments
- Socratic Seminar
- Study Guide
- Surveys
- Teacher Observation Checklist
- Think, Pair, Share
- Think, Write, Pair, Share
- Top 10 List
- Unit review/Test prep
- Unit tests
- Web-Based Assessments
- Written Reports

Primary Resources & Materials

Pearson Psychology AP Edition (Fourth Edition) by Saundra K. Ciccarelli & J. Noland White:

- *Student Edition Textbook*
- *Teacher Edition & Resources (online)*
- *Ebook with interactive component (MyPsychLab)*

Ancillary Resources

- *HMH Psychology Text Set: Ebook and Textbook* (Readings: Case Study, Current Research in Psychology, Cultural Diversity in Psychology, Psychology in Today's World, Careers in Psychology; Statistically Speaking; Lab Experiments: Quick Labs, Labs, Experiments, Simulations)
- *Psychology Principles in Practice* Power Point Presentations
- *Psychology* Student Edition by Educational Impressions
- *Psychology* Teacher Supplement by Educational Impressions
- *Famous Psychology Experiments* (Social Studies School Service)
- *Great Thinkers in Psychology* (Social Studies School Service)

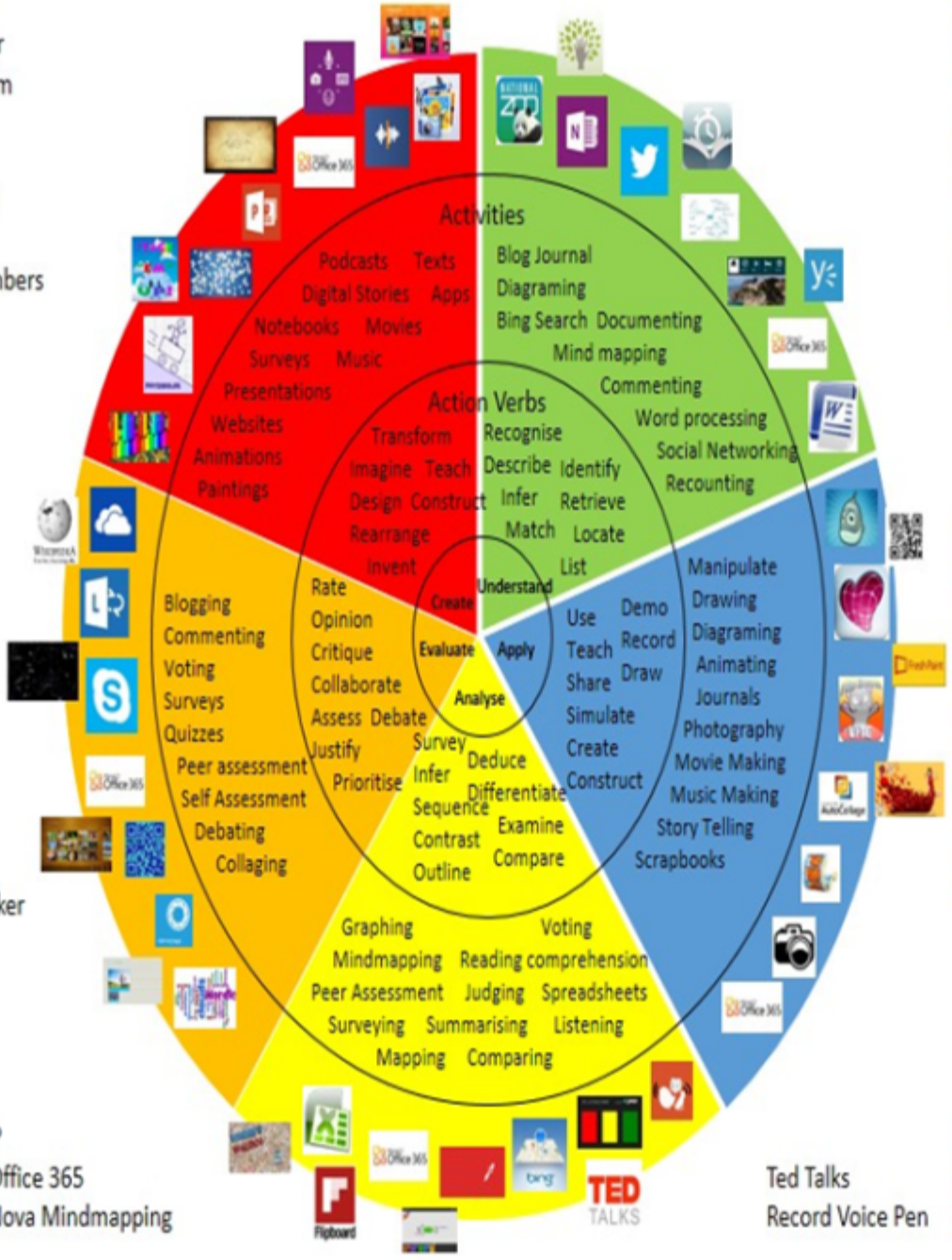
Technology Infusion

- *MyPsychLab/*HMH online/Youtube videos: "Genetics and Intelligence"; "The Big Picture: The Woman Who Cannot Forget"
- *MyPsychLab* Simulation "What Do You Remember?"
- Use of Google Classroom/Slides for Presentation on Unit 5

Win 8.1 Apps/Tools Pedagogy Wheel

Podcasts
Photostory 3
Kid Story Builder
Music Maker Jam
Paint A Story
Office 365
MS PowerPoint
Stack 'Em Up
NqSquared Numbers
Physamajig
Xylophone 8

Wikipedia
Skydrive
Lync
SkyMap
Skype
Office 365
Puzzle Touch
Easy QR
Memorylage
Life Moments
Word Cloud Maker



Where's Waldo?
MS Excel Office 365
Flipboard Nova Mindmapping

Ted Talks
Record Voice Pen

Originally taken from http://www.coetail.com/vzimmer/files/2013/02/iPadagogy-Wheel.001.jpg
And adapted for Windows 8.1 devices by Charlotte Beckhurst @CharBeckhurst

Alignment to 21st Century Skills & Technology

CRP.K-12.CRP5.1	Career-ready individuals understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organization, and the environment. They are aware of and utilize new technologies, understandings, procedures, materials, and regulations affecting the nature of their work as it relates to the impact on the social condition, the environment and the profitability of the organization.
CAEP.9.2.12.C.5	Research career opportunities in the United States and abroad that require knowledge of world languages and diverse cultures.
TECH.8.1.12.D.1	Demonstrate appropriate application of copyright, fair use and/or Creative Commons to an original work.
TECH.8.1.12.D.4	Research and understand the positive and negative impact of one's digital footprint.
TECH.8.1.12.D.CS1	Advocate and practice safe, legal, and responsible use of information and technology.
TECH.8.1.12.D.CS3	Exhibit leadership for digital citizenship.

21st Century Skills/Interdisciplinary Themes

The **21st Century/Interdisciplinary Themes** that will be incorporated into this unit include:

- Communication and Collaboration
- Information Literacy
- Media Literacy
- ICT(Information, Communications and Technology) Literacy
- Life and Career Skills
- Creativity and Innovation
- Critical Thinking and Problem Solving

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- Life and Career Skills
- Media Literacy

21st Century Skills

The **21st Century Skills** that will be incorporated into this unit include:

- Global Awareness
- Civic Literacy
- Health Literacy

- Civic Literacy
- Environmental Literacy
- Financial, Economic, Business and Entrepreneurial Literacy
- Global Awareness
- Health Literacy

Differentiation

- Preview vocabulary for the textbook sections "What is Memory" and "Intelligence" .
- Small group instruction for guided notes on "Cognitive Psychology".
- Small group assignment for One-Minute Essay on Loftus's study.
- Study guides for "Cognitive Psychology" Assessments.
- Project-based learning for "Children, Thinking, and Language" Lab.

Differentiations:

- Small group instruction
- Small group assignments
- Extra time to complete assignments
- Pairing oral instruction with visuals
- Repeat directions
- Use manipulatives
- Center-based instruction
- Token economy
- Study guides
- Teacher reads assessments allowed
- Scheduled breaks
- Rephrase written directions
- Multisensory approaches
- Additional time
- Preview vocabulary
- Preview content & concepts
- Story guides
- Behavior management plan
- Highlight text
- Student(s) work with assigned partner
- Visual presentation
- Assistive technology

- Auditory presentations
- Large print edition
- Dictation to scribe
- Small group setting

Hi-Prep Differentiations:

- Alternative formative and summative assessments
- Choice boards
- Games and tournaments
- Group investigations
- Guided Reading
- Independent research and projects
- Interest groups
- Learning contracts
- Leveled rubrics
- Literature circles
- Multiple intelligence options
- Multiple texts
- Personal agendas
- Project-based learning
- Problem-based learning
- Stations/centers
- Think-Tac-Toes
- Tiered activities/assignments
- Tiered products
- Varying organizers for instructions

Lo-Prep Differentiations

- Choice of books or activities
- Cubing activities
- Exploration by interest
- Flexible grouping
- Goal setting with students
- Jigsaw
- Mini workshops to re-teach or extend skills
- Open-ended activities
- Think-Pair-Share
- Reading buddies
- Varied journal prompts
- Varied supplemental materials

Special Education Learning (IEP's & 504's)

- Provide a copy of teacher's notes for Unit 5.

- Decrease the number of slides for Unit 5 student presentation.
- Modify Experiments/Labs for Unit 5.
- Provide modifications as dictated in the student's IEP/504 plan.

- printed copy of board work/notes provided
- additional time for skill mastery
- assistive technology
- behavior management plan
- Center-Based Instruction
- check work frequently for understanding
- computer or electronic device utilizes
- extended time on tests/ quizzes
- have student repeat directions to check for understanding
- highlighted text visual presentation
- modified assignment format
- modified test content
- modified test format
- modified test length
- multi-sensory presentation
- multiple test sessions
- preferential seating
- preview of content, concepts, and vocabulary
- Provide modifications as dictated in the student's IEP/504 plan
- reduced/shortened reading assignments
- Reduced/shortened written assignments
- secure attention before giving instruction/directions
- shortened assignments
- student working with an assigned partner
- teacher initiated weekly assignment sheet
- Use open book, study guides, test prototypes

English Language Learning (ELL)

- Provide a copy of teacher's notes for Unit 5.
- Decrease the number of slides for Unit 5 student presentation.
- Modify Experiments/Labs for Unit 5.

- teaching key aspects of a topic. Eliminate nonessential information
- using videos, illustrations, pictures, and drawings to explain or clarif
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning;
- allowing students to correct errors (looking for understanding)
- allowing the use of note cards or open-book during testing
- decreasing the amount of workpresented or required
- having peers take notes or providing a copy of the teacher's notes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers
- using computer word processing spell check and grammar check features
- using true/false, matching, or fill in the blank tests in lieu of essay tests

At Risk

- Allow the use of notecards on the Unit Test on "Cognitive Psychology".
- Decrease the number of slides for the Unit 5 student presentation.
- Modify Labs/Experiments for Unit 5.

- allowing students to correct errors (looking for understanding)
- teaching key aspects of a topic. Eliminate nonessential information
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning
- allowing students to select from given choices
- allowing the use of note cards or open-book during testing
- collaborating (general education teacher and specialist) to modify vocabulary, omit or modify items to reflect objectives for the student, eliminate sections of the test, and determine how the grade will be determined prior to giving the test.
- decreasing the amount of workpresented or required
- having peers take notes or providing a copy of the teacher's notes
- marking students' correct and acceptable work, not the mistakes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers
- using authentic assessments with real-life problem-solving
- using true/false, matching, or fill in the blank tests in lieu of essay tests

- using videos, illustrations, pictures, and drawings to explain or clarify

Talented and Gifted Learning (T&G)

- Project-based learning for in-depth research on Unit 5 topics.
- Use research to complete a short project on memory.
- Used advanced problem solving skills to complete a "quick lab" on how people remember.

- Above grade level placement option for qualified students
- Advanced problem-solving
- Allow students to work at a faster pace
- Cluster grouping
- Complete activities aligned with above grade level text using Benchmark results
- Create a blog or social media page about their unit
- Create a plan to solve an issue presented in the class or in a text
- Debate issues with research to support arguments
- Flexible skill grouping within a class or across grade level for rigor
- Higher order, critical & creative thinking skills, and discovery
- Multi-disciplinary unit and/or project
- Teacher-selected instructional strategies that are focused to provide challenge, engagement, and growth opportunities
- Utilize exploratory connections to higher-grade concepts
- Utilize project-based learning for greater depth of knowledge

Sample Lesson