

Psychology

December 8-12 VQ Work

Day 1

Read 11-1

Create Two Column Notes on the section

Day 2

Complete 11-1 Study Guide handout

Complete 11-1 Section Review at the end of the Section pg. 302 # 1-5

Day 3

Read 11-2

Create Two-Column Notes on the Section

Day 4

Complete 11-2 Study Guide

Complete 11-2 Section Review pg. 308, questions 1-5

Day 5

Complete Chapter 11 Review at the end of the Chapter. Pg. 310 All Questions

Study Guide 11-1*For use with textbook pages 295–302***Thinking and Problem Solving****Key Terms**

thinking changing and reorganizing the information stored in memory to create new information (page 296)

image a visual, mental representation of an event or object (page 296)

symbol an abstract unit of thought that represents an object or quality (page 296)

concept a label for a class of objects or events that share at least one common attribute (page 296)

prototype a representative example of a concept (page 296)

rule a statement of relation between concepts (page 297)

metacognition the awareness of one's own cognitive processes (page 297)

algorithm a step-by-step procedure for solving a problem (page 299)

heuristic a rule-of-thumb problem-solving strategy (page 299)

mental set a habitual strategy or pattern of problem solving (page 299)

functional fixedness the inability to imagine new uses for familiar objects (page 300)

creativity the capacity to use information and/or abilities in a new and original way (page 300)

flexibility the ability to overcome rigidity (page 301)

recombination rearranging the elements of a problem to arrive at an original solution (page 301)

insight the apparent sudden realization of the solution to a problem (page 301)

Drawing From Experience

Have you ever tried to solve a problem the same way you always solve such problems, only this time it didn't work? Have you ever quit working on a problem in frustration, only to have the solution suddenly pop into your head?

In this section, you will learn about different kinds of thinking. You will also learn about problem-solving strategies and the nature of creativity.

Organizing Your Thoughts

Use the diagram on the next page to help you take notes as you read the summaries that follow. List the five units of thought and give an example of each.

Units of Thought	Example
1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

Read to Learn

Introduction (page 295)

The human mind can do more than just store and retrieve information. We can use information to think and solve problems. With these abilities, we can create new ideas.

11. Give an example from history of a new idea that someone invented to solve a problem.

Thinking (page 296)

Thinking is changing and reorganizing information stored in memory to create new information. For example, you can put together any combination of words from memory to create new sentences.

Images, symbols, concepts, prototypes, and rules are the building blocks of mental activity. An **image** is a visual, mental representation of something. A representation is not an exact copy. Rather, it contains only the highlights of the original. For example, if an adult tried to visualize an image of a grandmother who died when he was seven years old, he would probably remember only a few details, such as hair color or a piece of jewelry she wore.

A **symbol** is an abstract representation of something. The most common symbols in thinking are words. Words are symbols that stand for something. For example, the word “cat” is a symbol for the animal. Symbols make it possible to think about things that are not present and imagine things that never were or will be.

A **concept** is a label for a class of objects or events that have at least one thing in common. Animals, music, and liquid are examples of concepts. They represent groups of things that are alike. So the concept animal separates a group of things from other things such as cars and carrots. Concepts allow us to chunk large amounts of information. We don't have to treat each new piece of information as unique.

When we think of a concept, we often think of an example, or **prototype**, of it. For example, when you think of a vehicle, you might picture a truck. A more complex unit of thought is a **rule**. This is a statement of a relation between concepts. For example, one rule is that a person cannot be in two places at once. Images, symbols, concepts, prototypes, and rules give us the ability to think, reorganize, and create.

People think in different ways. *Directed thinking* is step-by-step thinking aimed at a goal such as solving a problem. *Nondirected thinking* is a free flow of thoughts with no particular plan. It often uses images and feelings such as day-dreams and fantasies. This kind of thinking can produce creative ideas. A third type of thinking is **metacognition**. This is thinking about thinking. For example, when you have trouble solving a math problem, thinking about your approach to the problem can help you change to a new strategy that works better.

12. You are trying to put together a new desk from written instructions. What kind of thinking would this involve?

Problem Solving (page 297)

Problem solving is trying to bridge the gap between a present situation and a desired goal. The gap may be between hunger (the present situation) and food (the goal); or the gap may be between a column of numbers and a total. Getting from a problem to a solution requires directed thinking.

Problem solving requires you to use strategies, or methods for approaching problems. One strategy is to break down complex problems into smaller subgoals that are easier to solve. For example, you have a number of assignments to finish in the next few days. You solve the problem by breaking it into subgoals. First, you study for the exam. Next, you finish the paper. Then you do the project. Another problem might require you to examine different ways of reaching the goal. For example, suppose you want to get to the mall. You could walk, ride your bike, or ask your parents for a ride. Since you want to get there fast, you decide to ask for a ride.

To decide which strategy to use, we analyze the problem to see if it is like one we experienced in the past. A strategy that worked before will likely work again. An **algorithm** is a step-by-step procedure that will lead to a solution. Math formulas are algorithms. If you follow the rules of multiplication, 3×2 will yield the correct solution, 6. To play checkers, you follow algorithms, a set of rules.

People often take shortcuts to solving problems. We use **heuristics**, which are rules-of-thumb that simplify problems. For example, if a friend comes to

you for advice, you may offer something that worked for you before. But short-cuts may lead to poor decisions. You may not have considered important facts about your friend's situation.

When a problem-solving strategy becomes a habit, it is called a **mental set**. You might try to solve problems the same way every time, even when the strategy doesn't work very well. This is called **rigidity**. **Functional fixedness** is a form of mental set that can interfere with problem solving. It is the inability to imagine new ways of using familiar objects. You can overcome rigidity by looking for new approaches to problems.

13. To start a car, you put the key in the ignition, then you turn the key, and then you let it go. What kind of problem-solving strategy is this?

Creativity (page 300)

Creativity is the ability to use information in new and meaningful ways. All problem solving requires some creativity, but some approaches are more creative than others. Creative thinking requires **flexibility**. This is the ability to overcome rigidity. For example, think of all the ways you can use a paper clip. The more you can think of, the more creative you are. Creativity also requires **recombination**. This is the ability to rearrange elements of a problem to arrive at an original solution. For example, creative people can discover new truths by looking at current knowledge in a field in new ways.

Insight occurs when a solution suddenly emerges in the process of recombining elements. For example, as you are trying to look at a frustrating problem in new ways or even when you are doing something else, the solution may suddenly pop into your head. This sudden insight is sometimes called the "aha" experience.

14. Why do you need to be able to think creatively to be a good problem solver?

**Study
Guide****11-2****Language***For use with textbook pages 304–308***Key Terms****language** the expression of ideas through symbols and sounds that are arranged according to rules (page 304)**phoneme** an individual sound that is a basic structural element of language (page 305)**morpheme** the smallest unit of meaning in a given language (page 305)**syntax** language rules that govern how words can be combined to form meaningful phrases and sentences (page 305)**semantics** the study of meaning in language (page 305)**Drawing From Experience**

Have you observed an infant's language develop from simple sounds, to words, and finally to sentences? How do you think the infant learned to do this? Have you watched two pets communicate with each other? Do you think they were using language?

The last section described the nature of thinking, problem solving, and creativity. In this section, you will learn what language is and how it develops.

Organizing Your Thoughts

Use the diagram below to help you take notes as you read the summaries that follow. Think about the four rules or parts in the structure of language. List them next to the appropriate example below.

Example	Language Rule
<i>th</i> in <i>there</i>	1.
A sentence must have a subject and a verb.	2.
The word <i>can</i> has different meanings, depending on the context.	3.
<i>ed</i> in <i>talked</i>	4.

Read to Learn**Introduction (page 304)**

Understanding and speaking language is one of the most complex and important things we do. We must learn thousands of words and grammar rules to communicate.

5. If there were no grammatical rules for how to combine words into sentences, what would communication be like?
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The Structure of Language (page 304)

Language is a communication system that combines symbols and sounds into words and sentences by arranging them according to rules. Language has four rules, or parts: phonemes, morphemes, syntax, and semantics. A **phoneme** is the smallest unit of sound in a language. Phonemes can be a single letter, such as *t*, or a combination of letters that form a single sound, such as *sh*. We can produce about 100 different sounds, but not every language uses every sound.

A **morpheme** is the smallest unit of meaning in a language. It is made up of one or more phonemes. Morphemes can be a word, a letter, a prefix (*un* in *uncertain*), or a suffix (*ly* in *slowly*). For example, the word *love* has a single morpheme. *Loves* has two morphemes (*love* and *s*).

Syntax is a set of rules for combining words to form meaningful phrases and sentences. For example, this sentence does not make sense: *Boy small bike small rode*. In English we follow grammatical rules, such as placing adjectives in front of nouns. If you apply grammatical rules, the sentence makes sense: *The small boy rode a small bike*.

Semantics is the understanding of the meaning in language. Words can mean different things in different contexts. The word “mind” has different meanings in these two sentences. *A mind is a terrible thing to waste*. *Do you mind if I sit next to you?* From your knowledge of semantics, you knew that “mind” is a noun in the first sentence and a verb in the second.

6. List the phonemes in the word *fearlessness*.
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Language Development (page 306)

B.F. Skinner believed that children learn language through conditioning. When children say something similar to adult speech, adults reward them with smiles and attention. Eventually, children learn speech. But there is evidence that children understand language before they speak and before they receive rewards. Social learning theories propose that children learn language by observing, exploring, and imitating. Children use language to get attention or ask for help. Noam Chomsky theorized that the ability to learn grammar is innate.

7. How might an infant learn to say “mama”?
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How Language Develops (page 307)

Infants go through four stages of language development.

Stage 1: At around 4 months, infants progress from making sounds and cooing noises to babbling. Babbling, such as *dadada*, includes sounds found in

all languages. When babbling, infants learn to control their vocal cords and imitate sounds their parents make. At around 9 months, their babbling begins to sound more like their native language.

Stage 2: At around 12 months, infants begin to say single words to describe familiar things, such as *doggie*, or to express longer thoughts. For example, *da* may mean “Where is my father?”

Stage 3: Near the end of their second year, children can put two words together to express an idea. They may say “Me play” to mean “I want to play.” The child is beginning to learn the rules of grammar.

Stage 4: At around age 4, children begin to form sentences. The first sentences are *telegraphic speech*. This is a pattern of leaving out articles (the), prepositions (with), and parts of verbs. For example, “I go to park.”

8. If a child says “Cat go” to mean the cat left the room, what stage of language development is she in?
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Do Animals Learn Language? (page 308)

Animals communicate with one another. But do animals learn language? Language is more than just communicating. It involves combining words or phrases into meaningful sentences, using grammatical rules. Animals do not have the ability to use grammatical rules.

9. Give an example of animal communication that you observed. What makes you think that the animals understood each other?
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Gender and Cultural Differences (page 308)

Do people who speak different languages actually think differently from one another? Benjamin Whorf argued that language affects our basic perceptions of the world. He used the term *linguistic relativity* to refer to the idea that a person’s language influences his or her thoughts. For example, the Inuit people who live in the far north have many words for *snow*. Whorf believed that they need these words because their survival depends on traveling and living in snow. The different terms help Inuits see the different types of snow as different. Others argue that Americans, too, have different words for *snow* (flurry, blizzard, powder).

Certain words in language may create gender stereotypes. For example, the word *chairman* can mean a man or a woman. But the use of “man” at the end of the word suggests that the chairman is a man. Pronouns also affect our thinking. Secretaries and teachers are often referred to as *she*. Doctors and engineers are often referred to as *he*. Many organizations now have guidelines for using nonsexist language.

10. Suppose that everything a girl read or heard while growing up used the pronoun *he* with doctor and *she* with nurse. How might this affect the girl’s view of what she can be when she grows up?
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