

STUDY GUIDE – ANSWERS

6: Learning

Introduction and How Do We Learn?

1. learning
2. associate; associations; associative learning; habituates
3. classical
4. operant
5. observing

Classical Conditioning

1. Ivan Pavlov; John Watson; behaviorism
 2. conditioned stimulus; unconditioned stimulus
 3. unconditioned response
 4. conditioned response
 5. acquisition; one-half second
 6. does not
- Learning theorists consider classical conditioning to be adaptive because conditioned responses help organisms to *prepare* for good or bad events (unconditioned stimuli).
7. survive; reproduce
 8. neutral; conditioned; higher-order conditioning; can
 9. extinction
 10. spontaneous recovery
 11. generalization
 12. similar; discrimination; adaptive
 13. cognition
 14. predict; cognitive; expect
 15. helplessness; did not; learned helplessness
 16. alcohol dependency
 17. response; stimulus
 18. sickness; would; ecologically
 19. biological; adapt; levels of analysis
 20. adapt
 21. objectively

Classical conditioning led to the discovery of general principles of learning that are the same for all species tested, including humans. Classical conditioning also provided an example to the young field of psychology of how complex, internal processes could be studied objectively. In addition, classical conditioning has proven to have many helpful applications to human health and well-being.

22. craving; context
23. can

In Watson and Rayner's experiment, classical conditioning was used to condition fear of a rat in Albert, an 11-month-old infant. When Albert touched the white rat (neutral stimulus), a loud noise (unconditioned stimulus) was sounded. After several pairings of the rat with the noise, Albert began crying at the mere sight of the rat. The rat had become a conditioned stimulus.

Operant Conditioning

1. neutral; automatic; does not
2. respondent
3. operant
4. law of effect; rewarded; recur
5. Skinner box (operant chamber)
6. shaping; approximations
7. concepts; discriminating
8. discriminative stimulus
9. reinforcer
10. positive reinforcer
11. negative reinforcer
12. primary reinforcers; conditioned (secondary) reinforcers
13. more
14. is; delayed
15. continuous reinforcement; rapid; rapid
16. partial (intermittent); slower; very
17. fixed-ratio
18. variable-ratio
19. fixed-interval; checking the mail as delivery time approaches
20. variable-interval

Following reinforcement on a fixed-interval schedule, there is a pause in responding and then an increasing rate of response as time for the next reinforcement draws near. On a fixed-ratio schedule there also is a post-reinforcement pause, followed, however, by a return to a consistent, high rate of response. Both kinds of variable schedules produce steadier rates of response, without the pauses associated with fixed schedules. In general, schedules linked to responses produce higher response rates and variable schedules produce more consistent responding than the related fixed schedules.

21. punishment; positive punishment; negative punishment
22. suppressed; discrimination
23. fear; the person who administered it
24. aggressiveness
25. cognitive
26. cognitive map; latent learning
27. insight
28. intrinsic motivation; extrinsic motivation
29. is
30. reinforcer; shape; food
31. adaptive; instinctive drift
32. external; internal thoughts; feelings
33. operant; behavior
34. dehumanized; freedom; control
35. shaping; testing; interactive; Web; athletic

37. a. State your goal.
b. Monitor the behavior (when and where it occurs).
c. Reinforce the desired behavior.
d. Reduce the rewards gradually.
38. biofeedback; controlling; tension headaches
39. associative learning
40. acquisition; extinction; spontaneous recovery;
generalization; discrimination
41. cognitive; biological
42. stimuli; control; automatically
43. operant behaviors; consequences

Learning by Observation

1. modeling; observational learning; occurs
2. mirror; frontal; observational; observe other monkeys
performing the same task; has
3. 8 to 16 months; 14 months; empathy; theory of
mind
4. Albert Bandura
5. more
6. rewards; punishments
7. similar; successful; admirable
8. prosocial; consistent
9. antisocial; abusive; aggressive; genetic
10. watching television
11. violent
12. link
13. causation; does
14. imitation; desensitize

Progress Test 1

Multiple-Choice Questions

1. c. is the answer. (p. 215)
a. This answer is incorrect because it simply describes
any behavior that is automatic rather than being
triggered by a specific stimulus.
b. This answer is too general, since behaviors can
change for reasons other than learning.
d. Respondently conditioned behavior also satisfies
the criteria of our definition of learning.
2. b. is the answer. (p. 229)
a. & c. Classical conditioning is associated with
Pavlov; respondent conditioning is another name for
classical conditioning.
- d. Observational learning is most closely associated with
Bandura.
3. c. is the answer. Meat automatically triggers the
response of salivation and is therefore an
unconditioned stimulus. (p. 219)
a. A conditioned stimulus acquires its response-
triggering powers through learning. A dog does not
learn to salivate to meat.
b. & d. Responses are behaviors triggered in the
organism, in this case the dog's salivation. The meat

4. b. is the answer. Prior to its pairing with meat (the
US), the tone did not trigger salivation and was
therefore a neutral stimulus. Afterward, the tone
triggered salivation (the CR) and was therefore a
conditioned stimulus (CS). (p. 219)
c. & d. Unconditioned stimuli, such as meat,
innately trigger responding. Pavlov's dogs had to
learn to associate the tone with the food.
5. d. is the answer. In learning to distinguish between
the conditioned stimulus and another, similar
stimulus, the monkey has received training in
discrimination. (p. 222)
a. In extinction training, a stimulus and/or response
is allowed to go unreinforced.
b. Generalization training involves responding to
stimuli similar to the conditioned stimulus; here the
monkey is being trained not to respond to a similar
stimulus.
c. This cannot be classical conditioning since the
monkey is acting in order to obtain a reward. Thus,
this is an example of operant conditioning.
6. b. is the answer. A continuous association will
naturally be easier to learn than one that occurs on
only some occasions, so learning is most rapid with
continuous reinforcement. Yet, once the continuous
association is no longer there, as in extinction
training, extinction will occur more rapidly than it
would have had the organism not always experienced
reinforcement. (p. 232)_
7. c. is the answer. (p. 223)
8. b. is the answer. (p. 233)
a. With fixed-ratio schedules, there is a pause
following each reinforcement.
c. & d. Because reinforcement is not contingent on
the rate of response, interval schedules, especially
fixed-interval schedules, produce lower response rates
than ratio schedules.
9. b. is the answer. (p. 231)
a. Positive reinforcement involves presenting a
favorable stimulus following a response.
c. Punishment involves presenting an unpleasant
stimulus following a response.
d. In extinction, a previously reinforced response is
no longer followed by reinforcement. In this
situation, a response causes a stimulus to be
terminated or removed.
10. c. is the answer. In this situation, the CR will decline,
a phenomenon known as extinction. (p.221)
a. Generalization occurs when the subject makes a
CR to stimuli similar to the original CS.
b. Discrimination is when the subject does not make
a CR to stimuli other than the original CS.
d. An aversion is a CR to a CS that has been
associated with an unpleasant US. such as shock or a

11. c. is the answer. (p. 228)
 - a. In operant conditioning, the responses operate on the environment.
 - b. In classical conditioning, responses are triggered by preceding stimuli.
 - d. In classical conditioning, responses are reflexive.
12. c. is the answer. (p. 224)
 - a. & d. These studies also indicated that rats are biologically predisposed to associate visual and auditory stimuli, but not taste, with shock.
 - b. Rats are biologically predisposed to associate taste with sickness.
13. d. is the answer. A dog does not have to learn to salivate to food; therefore, this response is unconditioned. (p. 219)
 - a. & c. Salivation is a response, not a stimulus.
14. b. is the answer. (pp. 242, 244-245)
 - a. Skinner is best known for studies of operant learning. Moreover, there is no such thing as secondary learning.
 - c. Pavlov is best known for classical conditioning.
 - d. Watson is best known as an early proponent of behaviorism.
15. b. is the answer. (p. 234)
16. c. is the answer. (p. 223)
 - a., b., & d. Rescorla and Wagner's research did not address the importance of these factors in classical conditioning.
17. d. is the answer.
 - a. is an example of positive reinforcement, b. is an example of negative reinforcement, and c. is an example of conditioned reinforcement. (p. 231)
18. c. is the answer. (p. 216)
 - a. Discrimination is the ability to distinguish between a conditioned stimulus and other irrelevant stimuli.
 - b. Spontaneous recovery is the return of an extinguished response that may occur after a period.
 - d. Shaping is an operant conditioning technique_ involving rewarding behavior as it more closely approximates the desired behavior.
19. b. is the answer. (p. 220)
 - a. Backward conditioning, in which the US precedes the CS, is ineffective.
 - c. This interval is longer than is optimum for the most rapid acquisition of a CS-US association.
 - d. Simultaneous presentation of CS and US is ineffective because it does not permit the subject to anticipate the US.
20. a. is the answer. (p. 243)

Matching Items

- | | | |
|---------------|----------------|----------------|
| 1. e (p. 231) | 6. k (p. 233) | 11. b (p. 234) |
| 2. h (p. 222) | 7. m (p. 237) | 12. d (p. 236) |
| 3. f (p. 231) | 8. a (p. 229) | 13. j (p. 232) |
| 4. g (p. 231) | 9. c (p. 221) | 14. l (p. 237) |
| 5. i (p. 231) | 10. n (p. 236) | |

Progress Test 2

Multiple-Choice Questions

1. c. is the answer. (p. 221)
2. b. is the answer. The loud noise automatically triggered Albert's fear and therefore functioned as a US. After being associated with the US, the white rat acquired the power to trigger fear and thus became a CS. (p. 227)
3. d. is the answer. (pp. 226-227)
4. a. is the answer. Shaping works on operant behaviors by reinforcing successive approximations to a desired goal. (p. 229)
5. c. is the answer. (p. 221) a., b., & d. Spontaneous recovery occurs after a CR has been extinguished, and in the absence of the US. The situations described here all involve the continued presentation of the US and, therefore, the further strengthening of the CR.
6. b. is the answer. (p. 231) a., c., & d. Reinforcement that is delayed, presented before a response, or at the same time as a response does not always increase the response's frequency of occurrence.
7. d. is the answer. (p. 234)
 - a. Both involve an aversive stimulus.
 - b. All reinforcers, including negative reinforcers, increase the likelihood of a response.
 - c. In negative reinforcement, an aversive stimulus is withdrawn following a desirable response.
8. c. is the answer. Payment is given after a fixed number of pieces have been completed. (p. 232)
 - a. & b. Interval schedules reinforce according to the passage of time, not the amount of work accomplished.
 - d. Fortunately for those working on commission, the work ratio is fixed and therefore predictable.
9. c. is the answer. By learning to put on your coat before going outside, you have learned to reduce the aversive stimulus of the cold. (p. 231)
 - a. Discrimination learning involves learning to make a response in the presence of the appropriate stimulus and not other stimuli.
 - b. Punishment is the suppression of an undesirable response by the presentation of an aversive stimulus.
 - d. Putting on a coat is a response that operates on the environment. Therefore, this is an example of operant, not classical, conditioning.

10. d. is the answer. (p. 232)
- Intermittent reinforcement refers to the ratio of responses to reinforcers, not the overall quantity of reinforcement delivered.
 - Unlike intermittent reinforcement, in which the delivery of reinforcement is contingent on responding, random reinforcement is delivered independently of the subject's behavior.
 - This defines the technique of shaping, not intermittent reinforcement.
11. a. is the answer. You are teaching your dog by rewarding him when he produces the desired behavior. (p. 229)
- This is not classical conditioning because the cookie is a primary reinforcer presented after the operant behavior of the dog fetching the paper.
 - Food is a primary reinforcer; it satisfies an innate need.
 - Rewarding your dog each time he fetches the paper is continuous reinforcement.
12. a. is the answer. (p. 245)
13. a. is the answer. (p. 236)
14. d. is the answer. The rat had learned the maze but did not display this learning until reinforcement became available. (p. 236)
- Negotiating a maze is clearly operant behavior.
 - This example does not involve learning to distinguish between stimuli.
 - This is not observational learning because the rat has no one to observe!
15. c. is the answer. Because reinforcement (earning a good grade on the test) is available according to the passage of time, studying is reinforced on an interval schedule. Because the interval between tests is constant, this is an example of a fixed-interval schedule. (p. 233)
16. d. is the answer. (pp. 218,229)
- Pavlov and Watson are both associated with classical conditioning.
 - Skinner is associated with operant conditioning, and Bandura is associated with observational learning.
17. a. is the answer. Online testing systems apply operant principles such as reinforcement, immediate feedback, and shaping to the teaching of new skills. (p. 238)
- & d. Online testing systems provide immediate, and continuous, reinforcement for correct responses, but do not use aversive control procedures such as punishment.
 - Online testing systems are based on feedback for correct responses; this feedback constitutes conditioned, rather than primary, reinforcement.
18. d. is the answer. An approving nod from the boss is a

innate need but has become linked with desirable consequences. Cessation of cold, cessation of pain, and a drink are all primary reinforcers, which meet innate needs. (p. 231)

19. a. is the answer. Taste-aversion experiments demonstrate conditioning even with CS-US intervals as long as several hours. (p. 224)
- Despite being perceivable, a visual or auditory stimulus cannot become a CS for illness in some animals, such as rats.
 - Some animals, such as birds, are biologically primed to associate the appearance of food with illness.
 - The US should always follow the CS.
20. c. is the answer. (p. 248)

True-False Items

- | | | |
|---------------|---------------------|----------------|
| 1. F (p. 228) | 6. F (pp. 223, 235) | 10. T (p. 221) |
| 2. F (p. 220) | 7. T (p. 234) | 11. T (p. 243) |
| 3. F (p. 231) | 8. F (p. 224) | 12. F (p. 216) |
| 4. T (p. 232) | 9. F (p. 220) | 13. T (p. 230) |
| 5. T (p. 233) | | |

Psychology Applied

Multiple-Choice Questions

- a. is the answer. Your dog had to learn to associate the rattling sound with the food. Rattling is therefore a conditioned, or learned, stimulus, and salivation in response to this rattling is a learned, or conditioned, response. (p. 219)
- c. is the answer. Reinforcement (the letter) comes after a fixed interval, and as the likely end of the interval approaches, your behavior (glancing out the window) becomes more frequent. (p. 233)
 - & b. These answers are incorrect because with ratio schedules, reinforcement is contingent upon the number of responses rather than on the passage of time.
 - Assuming that the mail is delivered at about the same time each day, the interval is fixed rather than variable. Your behavior reflects this, since you glance out the window more often as the delivery time approaches.
- b. is the answer. By taking out the garbage, Jack terminates an aversive stimulus-his father's nagging. (p. 231)
 - Positive reinforcement would involve a desirable stimulus that increases the likelihood of the response that preceded it.
 - This answer would have been correct if Jack's father had rewarded Jack for taking out the garbage by providing his favorite food.
 - Punishment suppresses behavior; Jack is behaving in order to obtain reinforcement.

4. c. is the answer. Studies indicate that when a model says one thing but does another, subjects do the same and learn not to practice what they preach. (p. 246)
5. a. is the answer. As in this example, conditioning must be consistent with the particular organism's biological predispositions. (p. 224)
 - b. Some behaviors, but certainly not all, are acquired more rapidly than others when shock is used as negative reinforcement.
 - c. Pigeons are able to acquire many new behaviors when food is used as reinforcement.
6. a. is the answer. Ratio schedules maintain higher rates of responding-gambling in this example than do interval schedules. Furthermore, variable schedules are not associated with the pause in responding following reinforcement that is typical of fixed schedules. The slot machine would therefore be used more often, and more consistently, if jackpots were scheduled according to a variable-ratio schedule. (p. 233)
7. d. is the answer. Sharetta is guided by her mental representation of the city, or cognitive map. (p.236)
 - a. Latent learning, or learning in the absence of reinforcement that is demonstrated when reinforcement becomes available, has no direct relevance to the example.
 - b. Observational learning refers to learning from watching others.
 - c. Shaping is the technique of reinforcing successive approximations of a desired behavior.
8. c. is the answer. Because the cat was associated with your mother's scream, it triggered a fear response, and is thus the CS. (p. 219)
9. a. is the answer. Your mother's scream and evident fear, which naturally caused you to cry, was the US. (p. 219)
10. d. is the answer. Your fear of cats is the CR. An acquired fear is always a conditioned response. (p.219)
11. b. is the answer. Your crying, automatically triggered by your mother's scream and fear, was the UR. (p. 219)
12. c. is the answer. (p. 239)
 - a. Positive reinforcement is most effective in boosting productivity in the workplace when specific behavior, rather than vaguely defined general merit, is rewarded. Also, immediate reinforcement is much more effective than the delayed reinforcement described in a.
 - b. Positive reinforcement is most effective in boosting productivity when performance goals are achievable, rather than unrealistic.
 - d. The text does not specifically discuss the use of punishment in the workplace. However, it makes the general point that although punishment may guide one toward more desirable behavior. Therefore, workers who receive pay cuts for poor performance may learn nothing about how to improve their productivity.
13. b. is the answer. Not only is Bill extending a learned aversion to a specific blue car to all blue cars but also to cars that are green. (p. 222)
 - a. Whereas discrimination involves responding only to a particular stimulus, Bill is extending his aversive response to other stimuli (green cars) as well.
 - c. Latent learning is learning that becomes apparent only after reinforcement becomes available.
 - d. Extinction is the weakening of the CR when the CS is no longer followed by the US.
14. b. is the answer. The girls are imitating behavior they have observed and admired. (p. 242)
 - a. Because these behaviors are clearly willful rather than involuntary, classical conditioning plays no role.
 - c. Latent learning plays no role in this example.
 - d. Shaping is a procedure for teaching the acquisition of a new response by reinforcing successive approximations of the behavior.
15. a. is the answer. Classical conditioning proceeds most effectively when the CS and US are reliably paired and therefore appear predictably associated. Only for Group 1 is this likely to be true. (p.220)
16. b. is the answer. (p. 223) a., c., &
 - d. Taste-aversion research demonstrates that humans and some other animals, such as rats, are biologically primed to associate illness with the taste of tainted food, rather than with other cues, such as the food's appearance. Moreover, taste aversions can be acquired even when the interval between the CS and the illness is several hours.
17. d. is the answer. By making a more preferred activity (watching TV) contingent on a less preferred activity (room cleaning), Reggie's mother is employing the operant conditioning technique of positive reinforcement. (pp. 229,231)
18. c. is the answer. The parrot is reinforced for making successive approximations of a goal behavior. This defines shaping. (p. 229)
 - a. Shaping is an operant conditioning procedure; salivation at the sight of dog biscuits is a classically conditioned response.
 - b. Shaping involves the systematic reinforcement of successive approximations of a more complex behavior. In this example there is no indication that the response of stopping at the intersection involved the gradual acquisition of simpler behaviors.
 - d. This is an example of the partial reinforcement of an established response, rather than the shaping of a new response.
19. c. is the answer. Whereas Lars is paid (reinforced)

reinforced for each sale (fixed-ratio) he makes. (pp. 232, 233)

20. b. is the answer. Wanting to do something for its own sake is intrinsic motivation; wanting to do something for a reward (in this case, presumably, a high grade) is extrinsic motivation. (p. 237)
- a. The opposite is true. Nancy was motivated to take the course for its own sake, whereas Jack was evidently motivated by the likelihood of a reward in the form of a good grade.
- c. & d. A good grade, such as the one Jack is expecting, is an incentive. Drives, however, are aroused states that result from physical deprivation; they are not involved in this example.

Essay Question

The first step in shaping an operant response, such as rolling over, is to find an effective reinforcer. Some sort of biscuit or dog treat is favored by animal trainers. This primary reinforcement should be accompanied by effusive praise (secondary reinforcement) whenever the dog makes a successful response.

Rolling over (the goal response) should be divided into a series of simple approximations, the first of which is a response, such as lying down on command, that is already in the dog's repertoire. This response should be reinforced several times. The next step is to issue a command, such as "Roll over," and withhold reinforcement until the dog (usually out of frustration) makes a closer approximation (such as rotating slightly in one direction). Following this example, the trainer should gradually require closer and closer approximations until the goal response is attained. When the new response has been established, the trainer should switch from continuous to partial reinforcement, in order to strengthen the skill.

Key Terms

1. Learning is any relatively permanent change in an organism's behavior due to experience. (p.215)
2. Habituation is an organism's decreasing response to a stimulus with repeated exposure to it. (p. 216)
3. In associative learning, organisms learn that certain events occur together. Two variations of associative learning are classical conditioning and operant conditioning. (p. 216)
4. Also known as Pavlovian conditioning, classical conditioning is a type of learning in which a neutral stimulus becomes capable of triggering a conditioned response after having become associated with an unconditioned stimulus. (p. 218)
5. Behaviorism is the view that psychology should be an objective science that studies only observable behaviors without reference to mental processes. (p. 218)
Example: Because he was an early advocate of the study of observable behavior, John Watson is often called the father of behaviorism.
6. In classical conditioning, the unconditioned response (UR) is the unlearned, involuntary response to the unconditioned stimulus. (p. 219)
7. In classical conditioning, the unconditioned stimulus (US) is the stimulus that naturally and automatically triggers the reflexive unconditioned response. (p. 219)
8. In classical conditioning, the conditioned response (CR) is the learned response to a previously neutral conditioned stimulus, which results from the acquired association between the CS and US. (p. 219)
9. In classical conditioning, the conditioned stimulus (CS) is an originally neutral stimulus that comes to trigger a CR after association with an unconditioned stimulus. (p. 219)
10. In a learning experiment, acquisition refers to the initial stage of conditioning in which the new response is established and gradually strengthened. In operant conditioning, it is the strengthening of a reinforced response. (p. 220)
11. In higher-order conditioning, pairing an established conditioned stimulus (CS) with a neutral stimulus may cause the latter to become a weak CS itself. (p. 220)
12. Extinction refers to the weakening of a CR when the CS is no longer followed by the US; in operant conditioning extinction occurs when a response is no longer reinforced. (p. 221)
13. Spontaneous recovery is the reappearance of an extinguished CR after a rest period. (p. 221)
14. Generalization refers to the tendency, once a response has been conditioned, for stimuli similar to the original CS to evoke a CR. (p. 222)
15. Discrimination in classical conditioning refers to the ability to distinguish the CS from similar stimuli that do not signal a US. In operant conditioning, it refers to responding differently to stimuli that signal a behavior will be reinforced or will not be reinforced. (p. 222)
16. Learned helplessness is the passive resignation an animal or human learns when unable to avoid repeated aversive events. (p. 223)
17. Respondent behavior is that which occurs as an automatic response to some stimulus. (p. 228)
Example: In classical conditioning, conditioned and unconditioned responses are examples of respondent behavior in that they are automatic responses triggered by specific stimuli.

18. Operant conditioning is a type of learning in which behavior is strengthened if followed by a reinforcer or diminished if followed by a punisher. (p. 228)

Example: Unlike classical conditioning, which works on automatic behaviors, operant conditioning works on behaviors that operate on the environment.

19. Operant behavior is behavior that operates on the environment, producing consequences. (p.228)

20. E. L. Thorndike proposed the law of effect, which states that behaviors followed by favorable consequences are likely to recur, and that behaviors followed by unfavorable consequences become less likely. (p. 229)

21. An operant chamber (Skinner box) is an experimental chamber for the operant conditioning of an animal such as a pigeon or rat. The controlled environment enables the investigator to present visual or auditory stimuli, deliver reinforcement or punishment, and precisely measure simple responses such as bar presses or key pecking. (p.229)

22. Shaping is the operant conditioning procedure for establishing a new response by reinforcing successive approximations of the desired behavior. (p. 229)

23. In operant conditioning, a discriminative stimulus is a stimulus that elicits a response after association with reinforcement. (p. 230)

24. In operant conditioning, a reinforcer is any event that strengthens the behavior it follows. (p. 230)

25. In operant conditioning, positive reinforcement strengthens a response by presenting a typically pleasurable stimulus after that response. (p. 231)

26. In operant conditioning, negative reinforcement strengthens a response by removing an aversive stimulus after that response. (p. 231)

27. The powers of primary reinforcers are inborn and do not depend on learning. (p. 231)

28. Conditioned reinforcers are stimuli that acquire their reinforcing power through their association with primary reinforcers; also called secondary reinforcers. (p. 231)

29. Continuous reinforcement is the operant procedure of reinforcing the desired response every time it occurs. In promoting the acquisition of a new response it is best to use continuous reinforcement. (p. 232)

30. Partial (intermittent) reinforcement is the operant procedure of reinforcing a response intermittently. A response that has been partially reinforced is much more resistant to extinction than one that has been continuously reinforced. (p.232)

31. In operant conditioning, a fixed-ratio schedule is one in which reinforcement is presented after a set number of responses. (p. 232)

Example: Continuous reinforcement is a special kind of

each response, so the ratio of reinforcements to responses is one to one.

32. In operant conditioning, a variable-ratio schedule is one in which reinforcement is presented after a varying number of responses. (p. 233)

33. In operant conditioning, a fixed-interval schedule is one in which a response is reinforced after a specified time has elapsed. (p. 233)

34. In operant conditioning, a variable-interval schedule is one in which responses are reinforced after varying intervals of time. (p. 233)

35. In operant conditioning, punishment is the presentation of an aversive stimulus, such as shock, which decreases the behavior it follows. (p. 234)

Memory aid: People often confuse negative reinforcement and punishment. The former strengthens behavior, while the latter weakens it.

36. A cognitive map is a mental picture of one's environment. (p. 236)

37. Latent learning is learning that occurs in the absence of reinforcement but only becomes apparent when there is an incentive to demonstrate it. (p. 236)

38. Insight is a sudden and often novel realization of the solution to a problem. (p. 236)

39. Intrinsic motivation is the desire to perform a behavior for its own sake, rather than for some external reason, and to be effective. (p. 237)

Memory aid: Intrinsic means "internal": A person who is intrinsically motivated is motivated from within.

40. Extrinsic motivation is the desire to perform a behavior in order to obtain a reward or avoid a punishment. (p. 237)

Memory aid: Extrinsic means "external": A person who is extrinsically motivated is motivated by some outside factor.

41. Biofeedback is a system for recording, amplifying, and feeding back information regarding a subtle physiological state. (p. 241)

42. Observational learning is learning by watching and imitating the behavior of others. (p. 242)

43. Modeling is the process of watching and then imitating a specific behavior and is thus an important means through which observational learning occurs. (p. 242)

44. Found in the brain's frontal lobe, mirror neurons may be the neural basis for observational learning. These neurons generate impulses when certain actions are performed or when another individual who performs those actions is observed. (p.243)

45. The opposite of antisocial behavior, prosocial behavior is positive, helpful, and constructive and is subject to the same principles of observational learning as is undesirable behavior, such as