Operant Conditioning

Operant conditioning: A learning process in which an action's consequences determine how likely an action is to be performed in the future (page 234).

These consequences are called reinforcements and punishments.

	Behavior	Consequence	Effect on behavior
Reinforcements A consequence that follows a behavior that makes that behavior more likely to occur in the future. Behaviors that are reinforced are more likely to occur.			Response becomes more likely
Punishments A consequence that follows a behavior that makes that behavior less likely to occur in the future. Behaviors that are punished are less likely to occur.		"No!"	Response becomes less likely

Reinforcements and punishments are defined by the effect they produce.
- Money is not a reinforcement if it doesn't increase behavior.
- Spankings are not punishments if they don't modify behavior (in some cases they are reinforcements because they increase the likelihood of behavior).

Reinforcements and Punishments

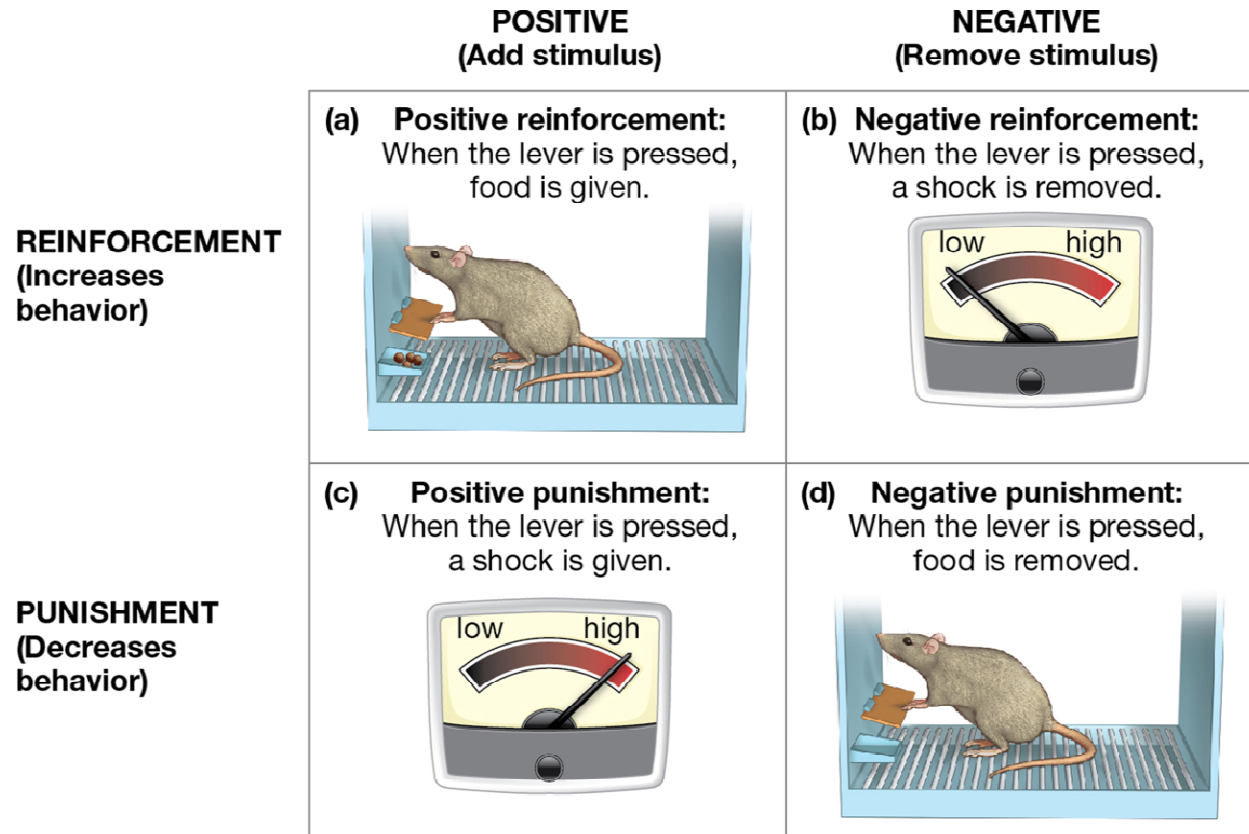|	**Positive** (Consequence is "added")	**Negative** (Consequence is "subtracted")
Behaviors are more likely to occur	**POSITIVE REINFORCEMENT** Behavior is followed by a desirable event or state. $10 for an A makes it more likely a student will earn more As.	**NEGATIVE REINFORCEMENT** Behavior ends an undesirable event or state. Taking aspirin relieves headaches and makes it more likely that aspirin will be taken in the future.
Behaviors are less likely to occur	**TWO FORMS OF PUNISHMENT** Behavior is followed by an undesirable event. A toddler burned by a hot stove will be less likely to touch the stove again.	Behavior ends a desirable event or state. A boy who loses his TV privileges for pulling his sister's hair will be less likely to pull her hair again.

Reinforcements and Punishments

	POSITIVE (Add stimulus)	**NEGATIVE** (Remove stimulus)
REINFORCEMENT (Increases behavior)	**(a) Positive reinforcement:** When the lever is pressed, food is given.	**(b) Negative reinforcement:** When the lever is pressed, a shock is removed.
PUNISHMENT (Decreases behavior)	**(c) Positive punishment:** When the lever is pressed, a shock is given.	**(d) Negative punishment:** When the lever is pressed, food is removed.

FIGURE 6.17

Positive and Negative Reinforcement

	Positive (Consequence is "added")	**Negative** (Consequence is "subtracted")
	POSITIVE REINFORCEMENT Behavior is followed by a desirable event or state. $10 for an A makes it more likely a student will earn more As.	**NEGATIVE REINFORCEMENT** Behavior ends an undesirable event or state. Taking aspirin relieves headaches and makes it more likely that aspirin will be taken in the future.
	Behavior = getting an "A" **Consequence** = gaining $10	**Behavior** = taking aspirin **Consequence** = removal of headache
Reinforcement	The consequence of gaining $10 makes it more likely to earn "As" in the future.	The consequence removing the headache makes it more likely to take aspirin in the future.

Positive and Negative Punishment

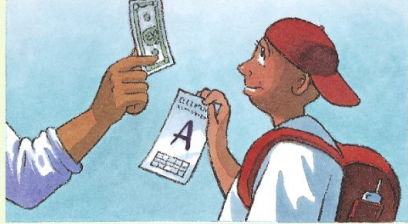|	**Positive** (Consequence is "added")	**Negative** (Consequence is "subtracted")
	TWO FORMS OF PUNISHMENT Behavior is followed by an undesirable event. A toddler burned by a hot stove will be less likely to touch the stove again.	Behavior ends a desirable event or state. A boy who loses his TV privileges for pulling his sister's hair will be less likely to pull her hair again.
	Behavior = touching a hot stove **Consequence =** gets burned	**Behavior =** pulling sister's hair **Consequence =** losing TV privileges
Punishment	The consequence of getting burned makes it less likely the toddler will touch the stove in the future.	The consequence of losing the TV privileges makes it less likely the boy will pull his sister's hair in the future.

Positive Reinforcement and Positive Punishment

	Positive (Consequence is "added")			
Behaviors are more likely to occur	POSITIVE REINFORCEMENT Behavior is followed by a desirable event or state. $10 for an A makes it more likely a student will earn more As.	**Consequence before behavior**	**Behavior**	**Consequence after behavior**
		No $$	Earned "A" 	$10 is gained
Behaviors are less likely to occur	TWO FORMS OF P Behavior is followed by an undesir-able event. A toddler burned by a hot stove will be less likely to touch the stove again.	**Consequence before behavior**	**Behavior**	**Consequence after behavior**
		no burn	Touched the stove 	Burned is added

Negative Reinforcement and Negative Punishment

	Negative (Consequence is "subtracted")			
Behaviors are more likely to occur	**Consequence before behavior**	**Behavior**	**Consequence after behavior**	**NEGATIVE REINFORCEMENT** Behavior ends an undesirable event or state.
	Has headache	Takes aspirin	Headache is gone	Taking aspirin relieves headaches and makes it more likely that aspirin will be taken in the future.
Behaviors are less likely to occur	**Consequence before behavior**	**Behavior**	**Consequence after behavior**	**PUNISHMENT** Behavior ends a desirable event or state.
	Has TV privileges	Pulls sister's hair	Lost TV privileges	A boy who loses his TV privileges for pulling his sister's hair will be less likely to pull her hair again.

Reinforcements and Punishments

	Positive (Consequence is "added")	**Negative** (Consequence is "subtracted")
Behaviors are more likely to occur	**POSITIVE REINFORCEMENT** Behavior is followed by a desirable event or state. $10 for an A makes it more likely a student will earn more As.	**NEGATIVE REINFORCEMENT** Behavior ends an undesirable event or state. Taking aspirin relieves headaches and makes it more likely that aspirin will be taken in the future.
Behaviors are less likely to occur	**TWO FORMS OF PUNISHMENT** Behavior is followed by an undesirable event. A toddler burned by a hot stove will be less likely to touch the stove again.	Behavior ends a desirable event or state. A boy who loses his TV privileges for pulling his sister's hair will be less likely to pull her hair again.

Reinforcement and Punishment

- Behaviors that are <u>reinforced</u> are more likely to be <u>repeated.</u>
- Behaviors that are <u>punished</u> are more likely to be <u>reduced</u>.

		the CONSEQUENCE	
		Adds (+)	Removes (-)
<u>BEHAVIOR</u> that	Increases	<u>Positive reinforcement</u> occurs when a behavior is strengthened by the subsequent addition of a (pleasant) consequence. <u>Examples:</u> • <u>Yelling at a clerk</u> gets them *to give you a refund* • Giving *dog biscuits* for <u>doing a trick</u>	<u>Negative reinforcement:</u> A behavior is strengthened by the subsequent removal (or avoidance) of a (unpleasant) consequence. <u>Example:</u> • <u>Smoking</u> to *relieve anxiety* • <u>Skipping</u> *class* to *avoid a bully*
	Decreases	<u>Positive punishment (aversive punishment):</u> A behavior is weakened by the subsequent addition of a (aversive) consequence. <u>Examples:</u> • *Spanking* a dog for <u>getting into the garbage</u> • *Scolding* a coworker for <u>making a mistake</u>	<u>Negative punishment (punishment by removal or response cost):</u> A behavior is weakened by the subsequent removal of a (desired) consequence. <u>Examples:</u> • *Time-out*, or the *loss of privileges* (driver's license, video game, sitting out a hockey game, etc.) for <u>misbehaving</u>

Examples of Negative Reinforcement

<u>Negative reinforcement:</u> A situation in which a response is followed by the *removal, avoidance, or escape* of a punishing stimulus, that increases the likelihood that the response will be *repeated* in similar situations.

1. Jane stops telling her husband how she feels to avoid getting yelled at by him.
2. Smoking to relieve anxiety.
3. Smoking helps a person avoid the withdrawal symptoms of nicotine.
4. Using caller ID or the answering machine to answer the phone and avoid telemarketers.
5. Giving into your dog that barks at the dinner table until fed.
6. Small doses of alcohol can initially make people feel good, relaxed and sociable. When alcohol is eliminated from the body, these feelings can be replaced with drowsiness. To avoid these withdrawal effects, people may be motivated to drink more to maintain this initial pleasant buzz.
7. Giving into an argument.
8. Saying "uncle" to stop being beaten.
9. Following prison rules to be released from confinement.
10. Feigning a stomachache to avoid school.
11. Skipping class because you don't like it.
12. Putting on a seatbelt to stop an irritating buzz.
13. Turning down the volume of a very loud radio.
14. I never call home to talk to my parents because mother always seems to have something bad to say to me.
15. Avoiding spiders or snakes because you don't like them.

Use Operant Conditioning to Explain Behavior

Use Operant Conditioning to Explain Behavior

Daughter	Mother
Behavior: Screaming tantrum	**Behavior:** Give candy
↓	↓
Consequence: Receiving a candy bar	**Consequence:** Screaming tantrum ends
↓	↓
Result: More tantrums in the future	**Result:** More candy buying in the future

Operant Conditioning

EVERYONE CONSIDERS HONESTY A VIRTUE,

BUT NO ONE WANTS TO HEAR THE TRUTH.

THE ONLY PEOPLE WHO ARE MAD AT YOU FOR SPEAKING THE TRUTH ARE THOSE PEOPLE WHO ARE LIVING A LIE.

KEEP SPEAKING THE TRUTH.

What is the behavior?
What is the consequence?

What is the effect of the consequence on behavior?

Tao Te Ching (81)

True words are not beautiful;
Beautiful words are not true.

A good man does not argue;
He who argues is not a good man.

A wise man has no extensive knowledge.
He who has extensive knowledge is not a wise man

The more he gives to others, the more he possess of his own

The Way of the sage is to act, but not compete

Tao Te Ching (81)

True words are not beautiful

Behavior	Consequence	Effect on Behavior	
Telling people things that are psychological threatening them or are unpleasant to hear	A person could yell at them, ignore them, fire them, withhold promotions, affection, etc.	It makes it less likely a person is going to tell someone unpleasant news or information	**Punishment**

Beautiful words are not true

Behavior	Consequence	Effect on Behavior	
Saying what people want to hear	People complement you	You are more likely to say what people want to hear	**Positive reinforcement**

Positive Punishment is Often Ineffective

A common argumentation fallacy called *false dilemma* would be the belief that if you don't spank a child, you let your children have their own way all the time. You can still set limits, have structure and discipline the family (see parenting styles).

The well-known behaviorist B.F. Skinner was strongly opposed to the use of punishments because of several drawbacks.

- Punishments do not promote appropriate or desired behavior to take the place of inappropriate behavior. What is learned is how to avoid punishments.
- Punishments can make the person who has been punished feel anxious, fearful, resentful and angry.
- The effects of punishments on behavior tend to be temporary.
- Physical punishments teaches children that violence is an appropriate behavior for adults.

Under situations where harm is imminent, punishment may be appropriate.

To effectively use punishments:
- they need to immediately follow the response and,
- they need to be applied consistently.

Positive Punishment is Often Ineffective

One form of positive punishments is spankings. Spankings were associated with aggression, antisocial behavior, more mental health problems, lower self-esteem and negative relationships with parents (page 244).

Alternative Strategies to Positive Punishment
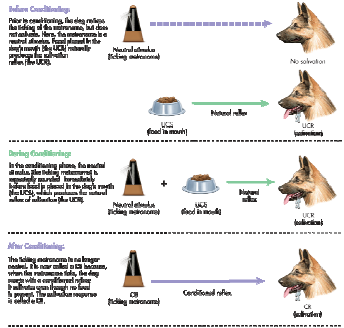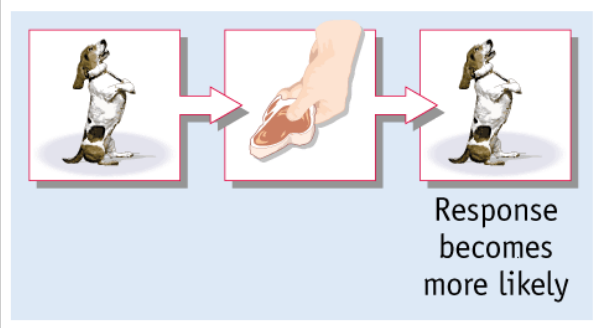
1. Reinforce an incompatible behavior.
    *   Reinforce an alternative behavior that is both constructive and incompatible with the problem behavior. For example, reinforce people for coming to class instead of skipping. Reinforce sharing, not selfishness. Reinforce wearing a seatbelt, not when a driver isn't wearing the seatbelt.
    *   The procedure works best when it is used <u>consistently</u> and when potent positive reinforcers are used.
2. Stop reinforcing the problem behavior to begin the process of <u>extinguishing</u> the problem behavior.
    *   It is important that when the extinction process is initiated, the problem often <u>temporarily increases</u>. Expect this.
    *   Once you begin, it is critical to be <u>consistent</u> in not reinforcing the problem behavior.
3. Reinforce the nonoccurrence of the problem behavior.
    *   This strategy requires <u>close monitoring</u> of the individual to ensure that a positive reinforcer is delivered only after the behavior has not occurred. For example, reinforce sales clerks for checking identification when people buy alcohol and cigarettes, instead of punishing them when they don't.
4. Remove the opportunity to obtain positive reinforcement (eg. negative punishments).
                The reinforcers might be difficult to identify and eliminate.

Enhancing the Effectiveness of
Positive Reinforcements

- Remember: positively reinforce the behaviors you want to increase.
- Make sure that the reinforcer is strongly reinforcing the individual whose behavior you are trying to modify.
- The positive reinforcement should be delivered immediately after the preferred behavior occurs.
- The positive reinforcer should initially be given every time the preferred behavior occurs. Once the behavior is well established, gradually reduce the frequency of reinforcement.
- Use a variety of positive reinforcements.
- Capitalize on the Premack principle—desired activities are allowed provided the less desired behavior is completed (you must eat your spinach before you can have dessert, or you must take a bath before you can play your game).

Differences Between Classical and Operant Conditioning

Classical Conditioning	Operant Conditioning
	Response becomes more likely
In classical conditioning, the organism learns an *association between two stimuli*—the CS and US (eg. food and tone)—that occurs before the behavior (eg. salivation).	In operant conditioning, the organism learns an association between *behavior and its consequences*. Behavior changes because of events that occur *after* it.
Classical conditioning usually deals with reflexive or involuntary responses such as physiological or emotional responses.	Operant conditioning usually deals with voluntary behaviors such as active behaviors that operate on the environment.

Although classical and operant conditioning are different processes, many learning situations involve both.