SWGDOG SC1abcdefghijk – TERMINOLOGY

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Term	Meaning	Annotations
Absolute Threshold	Operational usage: The minimum intensity of a stimulus that is detected by a particular dog. In the case of odor it is the minimum concentration of vapor. This threshold varies from dog to dog and is affected by climate and the internal and external environment. Scientific usage: AT is determined by a statistical average based on the point where a specific compound can be detected 50% of the time.	Note: This definition acknowledges that large and small amounts of the same compound don't necessarily smell the same to the dog. The "absolute" may not be as relevant as it was formerly because of recent developments in learning.
Acclimation / Environmental Conditioning	Operational usage: A period of time used for the dog to become adjusted to its environment. Scientific usage: Adaptation or adjustment to a new circumstance.	Acclimation is very important when moving animals from one facility and/or environment to another because this can be a time of increased morbidity / mortality.
Accreditation	The process by which an organization (or, in some cases, an individual or team) is formally recognized by an accreditation body as competent and able to plan, manage and operationally conduct their actions safely, effectively and efficiently. This is an ongoing process.	See Accreditation Body.
Accreditation body	An organization responsible for management and implementation of the system defined above to set standards within the relevant field.	
Accredited	The designation given to those who are able to demonstrate they meet or	

	exceed the standards set by the appropriate accreditation body.	
Accuracy	Scientific usage: A measure of the extent to which the process is unbiased so that the measured values reflect the true values; measurements are accurate if they lack *systematic* errors (precise measures lack *random* errors).	
Acquired Behaviors	Scientific usage: Behaviors that are earned and not innate.	
Active Adaptation (physiological term)	Scientific usage: A temporary change in the responsiveness of a sensory receptor or a sense organ. Example: If a light is repeatedly flashed in your eye, you eventually cease responding to it. This is because of fatigue of the receptor.	Active adaptation is very different from habituation in that this adaptation involves the sensors, only. Habituation involves learning, also. This may only be a factor at the extremes. For example, acute exposure to a very high concentration of a target odor. This ordinarily will not occur in a working dog scenario even in the situation where a very large amount of a target material is present. See also Saturation.
Active avoidance	Scientific usage: A non-reflexive response made in order to avoid an aversive event.	Active avoidance is usually contrasted with passive avoidance where the animal learns that it must refrain from making a response.
Activity Drive	Operational usage: The propensity to be active.	See Drive.
Adaptation	Scientific usage: In evolution a change in behavior or in form over time that helps the animal to survive.	The ability to learn to exhibit certain behaviors in certain contexts is likely an adaptation. For example, baying of hounds is likely an adaptation to the types of behaviors or jobs for which they were developed. A thick undercoat and heavily plumed tail are likely adaptations for a cold environment in Nordic breeds, e.g., Malamute.
Adipocere	Semi-solid / liquid (cheesy) decomposition product of human remains.	
Adolescent dog	Scientific usage: A dog that has not	

	yet reached social maturity.	
Adult dog	Scientific usage: A dog for whom physical growth is complete, and who has reached social maturity.	
Aged trail	A trail that has been present for some period of time.	
Aggression	Scientific usage: Description of an act that is an outcome of an agonistic interaction. It can be appropriate or inappropriate, and involve a threat, challenge or contest.	Note: The word "aggressive" is often used as a descriptive term for intense, enthusiastic, or forceful behavior of any kind, and these dogs may not be truly aggressive or possess aggression.
Aggressive/Active/ Response	Operational usage: A response by the dog that disturbs the environment, i.e., scratch, bark, bite, dig after the dog has alerted to the target odor.	
Aggressiveness	See aggression.	
Agility	Operational usage: A character trait which describes the natural (running) speed, surefootedness, and coordination, and the ability of the dog to correct and recover.	
Agility Course	Operational usage: Series of operationally relevant obstacles designed to acclimate the dog to various stressful environments and increase the dog's capability to successfully perform in those environments, or test the dog's capability to perform in a [pet] competition environment.	
Air Scent Dog	Operational usage: A dog using air scenting techniques to detect a trained odor.	
Air Scent Drive	Operational usage: The propensity to locate targets by using windborne odors.	See Drive.
Air Scenting	Operational usage: A technique used by a dog to locate a target odor. The dog searches for target odor on wind / air currents and attempts to identify / work on a scent cone to the source.	
Alert	A characteristic change in ongoing behavior in response to a trained odor, as interpreted by the handler.

The components of the alert may include: Change of behavior (COB), | Alert has been used / defined by various agencies as a range of responses from a change of behavior to a final response.

With the advent of SWGDOG |

	interest, and final response or indication.	guidelines an attempt has been made to standardize certification, and the tasks in which the dog must succeed have been more specifically defined across disciplines than has been done previously. Because of this, it may be useful to more narrowly define the various stages of canine detection behaviors that are clear to skilled handlers. Accordingly, we have defined 'interest', 'COB' and 'response'. Implicit in these recommended best practices concerning training, certification, and operational situations, is that handlers should move away from less specific descriptions to more specific ones. The resultant clarity will benefit dogs, handlers, trainers, and the judiciary in producing the clearest possible outcomes. It is the handler's responsibility to report when the dog has alerted and to identify what behavior the dog uses to do so.
Allele	Scientific usage: One of the possible forms of a given gene; alleles of a particular gene occupy the same position on locus on the homologous chromosomes (e.g., each chromosome set comes as a pair - each parent contributes1 set of info to complete the pair).	
Anthropocentrism	Assuming that the animal see things from a human viewpoint.	
Anthropomorphism	Attributing human values, emotions, and thought processes to an animal.	
Approach-approach conflict	Scientific usage: A conflict resulting from having the choice of two equally desirable but mutually incompatible, unobtainable goals or stimuli. The conflict is generally resolved when one gets behaviorally or physically closer to one of the two goals or stimuli since	Ex. If you have a male dog that is trained to detect target odor and is in the process of detecting the odor and you also have a bitch in heat at a distance, the male becomes more distracted as the bitch approaches.

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	desirability increases with closeness. This type of conflict is easily solved by approaching one of the sources of reinforcement, or by having one of the sources of reinforcement approach the individual making the decision.	
Approach-avoidance conflict	Scientific usage: A conflict resulting from being both drawn and repelled by the same stimulus. With distance the stimulus appears more desirable, and with closeness the stimulus seems less desirable, in contrast with approach-approach conflict. As the individual approaches, because the stimulus appears less desirable the individual withdraws, leading to an increase in the stimulus's perceived positive features relative to the negative ones. More information about relative value and outcomes can resolve these situations, but if they are unresolved, displacement behavior may occur**.**	Ex. This can be seen in Human Remains Detection (HRD) dogs that tend to shy away from overpowering amounts of odor (whole bodies) when they have been trained using smaller amounts of odor (body parts and/or fluids).
Approximation / Shaping by successive approximation	(Scientific usage) The reinforcement of successive stages towards the direction of the final behavior. Breaking a complex behavior down into small behaviors (baby steps) to train one step at a time reinforcing the animal each time it accomplishes a step towards the final behavior.	
Area search	The act of using a dog to search a designated area for a target odor.	
Articles	Operational usage: Objects left on the track or in a search area at various intervals to which the dog is expected to indicate.	
Avalanche Search Dog	A dog trained to search for, detect and/or locate people trapped in snow as a result of an avalanche.	
Aversive Conditioning	Scientific usage: Training procedure relying on the use of unpleasant stimuli. For example, when a dog receives a pop on the leash as it is lunging for food on the floor in the work environment. Dog learns that lunging	

	for food is an unpleasant experience.	
Aversive Stimulus	Scientific usage: A stimulus that an animal will work to terminate or avoid.	
Avoidance Learning / Avoidance Conditioning	Scientific usage: The process in which an animal responds to a signal to avoid unpleasant consequences (aversive stimulus).	Ex. A dog sits on command to avoid a correction.
Avoidance Training	Scientific usage: See Avoidance Learning.	
Avoidance-avoidance conflict	Scientific usage: A conflict resulting from being repelled by two undesirable goals or stimuli when there are strong pressures to choose one or the other. Often when the conflict is intense the individual will refuse to choose between the alternatives.	Ex. If the handler has made an error and corrects the dog inappropriately while the dog is working the target odor then the dog associates the odor with the correction and therefore avoids the odor.
Backup Handler Dog / Second Handler Dog / Multi Handler Dog / Pooled Dog	A dog that is trained and certified with more than one handler.	This is not a best practice for most disciplines but can be acceptable in some limited circumstances.
Backward Chaining	Scientific definition: Process in which an animal learns to emit a series of responses. A chain is trained backwards, beginning with the last behavior, then the second to last behavior, et cetera.	An example for people would be memorizing a poem starting with the last stanza instead of the first. Then learn the second to last and combine it with the last. When you recite them, you are always working towards parts of the poem you know better so you should be more successful than if working first to last.
Baseline (or base rate)	Scientific usage: The normal frequency of occurrence of any response per unit of time for that individual or group of individuals.	The purpose of all training is to either increase or decrease the frequency of a behavior from its baseline level. Baseline usually refers to the frequency of a behavior before training starts. For example, all dogs will sit at some individual rate (a baseline). Once trained, a dog that sits on target odor is increasing the frequency of the behavior above baseline. If the frequency reliably increases or decreases from the baseline, then training was effective.

Behavioral Chain	A series of independent behaviors that are linked together.	Detection dog example for chaining: A dog is taught a sit command. The dog is now introduced to a box with a target odor inside and staring is elicited in anticipation of a reward. Once the behavior of staring into the box is learned, the sit behavior is added, chaining the stare and the sit.

See Chaining. |
Best practices	A system of processes, checks and testing that will deliver an outcome that has fewer problems and fewer unforeseen complications, and that combines the attributes of the most efficient and most effective ways of accomplishing a task based on proven and provable methods.	Best practices require documentation and must be distributed before they can be used, cited, and improved upon, thus encouraging continuous improvement. There are 5 components of any "best practice", regardless of field: 1. best skills, 2. best processes, 3. best solutions, 4. identifying and provisioning of appropriate resources, and 5. continual improvement.
Blank Search	Operational usage: A training or certification exercise in which the target odor is not present.	
Blind experiments	Scientific usage: Experiments are considered blind if the person obtaining the measurements does not know what the treatments were.	
Blood line	Operational usage: The direct ancestors in the dog's pedigree.	Note: Pedigrees are routinely printed showing 4-5 generations, including that of the dog in question.
Boldness	Scientific usage: A characteristic of a dog that is resilient in novel or stressful situations, exhibits minimal fear, and recovers quickly.	
Bond	Positive relationship, rapport between dogs or a human(s) and a dog.	
Bone **"Dry" bone**	Skeletal remains that have no soft tissue or fluid.	
Bone	Skeletal remains that have soft tissue	

"Wet" bone	or fluid.	
Breeds of dogs	Operational usage: Groups of dogs based on canalized or restrictive gene pools derived by selective breeding by humans for behavior or function and / or conformation. When sire and dam come from the same breed, puppies are expected to fall within the broad outlines of the breed standard, which outlines physical and behavioral attributes said to be typical of the breed.	Note: Recent (2004, 2005) genetic information indicates that members of breeds are genetically more similar to each other than they are to members of other breeds, and breed groups developed for more similar purposes (e.g., herding) are more similar to each other than are breed groups developed for different purposes.
Bridge or bridging stimulus	A signal (conditioned reinforcer) that marks (reinforces) a desired behavior. Often called a "bridge" because it bridges the gap in time from when the animal performs the desired behavior to when it receives the reward. An example would be the use of a clicker.	Functionally, the bridge is used to specifically reinforce a behavior performed at a distance where it is impossible to provide a primary reinforcement at the correct time. If used correctly, the bridge reinforces at the exact instant when an animal successfully completes a desired behavior, or the exact time when an ongoing behavior should be stopped. Also see Conditioned reinforcer.
Cadaver	Scientific usage: A dead body or the remains of a dead body.	
Canine	Scientific definition: A dog, *Canis familiaris*, more commonly used to denote a working dog and sometimes abbreviated as K-9.	
Canine Team	Operational usage: A human and working dog who train and work together as an operational unit.	
Casting	Operational usage: 1. A description of the dog's movement as the dog searches for and/or follows the concentration of target odor. 2. A directional command to the dog.	
Certification	A process that attests to the successful completion of an examination of relevant skills for the canine team.	
Certifying Official / Assessor	Individual authorized by an organization or agency to administer and assess an examination of relevant skills of the canine team.	

Chaining	The process of linking behaviors together in order to form a chain.	In most cases, each component of the chain is individually learned and the "chaining" consists of linking them together, usually starting with the final behavior and then adding the next-to-final behavior and so on. This is often called backward chaining or linking in reverse order. See Behavior Chaining; Chain-of-behaviors
Chain-of-behaviors	Two or more behaviors that occur in a fixed order. The termination of the first behavior is the signal to start the second behavior.	See Behavior Chaining, Chaining
Change of behavior (COB)	Operational usage: A characteristic pattern of behaviors, as interpreted by the handler, that occurs when the dog detects a trained odor. This differs from other olfactory interest that otherwise are exhibited by the dog in response to the daily environment.	The initial change of behavior typically leads to following the odor to its source and then giving the trained response. The pattern of behavior may be unique to each dog. See Alert.
Character / Personality Traits / Dimensions	Scientific usage: Behavioral qualities that are relatively constant and reliable, and frame or affect the dog's response in all contexts. The best scientific evidence for these patterns is for what has been called shyness / nervousness and boldness in dogs.	
Chimney effect	The effect of heat on odor/scent such that the odor/scent rises and travels through the air in a manner affected by air movement and temperature through convection. The end effect is that odor/scent is detected in a place that is different from the source. This can happen indoors or outdoors.	
Chromosome	Scientific usage: Threadlike structure of DNA and RNA that carries genes and that resides in the nucleus of each cell; chromosomes are paired in body or somatic cells (= diploid or 2N) and occur in single copies or ½ the pair in sex cells (= haploid or 1 N); the number of chromosomes found in each	

	nucleus - the diploid # - is characteristic of each species (humans have 23 pair of chromosomes or a diploid # of 46; 1 pair of chromosomes determine sex, and the others are called autosomes; dogs have 39 chromosome pairs, 38 of which are autosomes).	
Classical Conditioning	Scientific usage: Classical or Pavlovian conditioning is a form of learning by making associations. In the true sense it involves a neutral stimulus, an unconscious response, and a conditioned response that links the first two. Classical conditioning is a simple form of behavior modification where a neutral stimulus elicits the behavior for which there was formerly no association. Once established, classical conditioning leads to anticipation.	
Coercion Training See Positive Reinforcement; motivation	Scientific usage: Coercion deals with compliance induced by physical or mental pleasure.	
Cognition	Scientific usage: The mental process by which an animal solves problems.	
Competent	Having suitable or sufficient skill, knowledge, experience, etc., for some purpose; properly qualified.	
Comprehensive Assessment	Operational usage: An extended single-blind exercise.	
Compulsion Training	Scientific usage: Training by the use of threat or force.	
Concentration	Operational usage: The dog's focus on the area of search (further specification will be discipline specific).	
Conditioned Aversive Stimulus	As a result of classical conditioning, an event that is initially neutral will acquire aversive properties because it is paired with other aversive events. This is exactly like the bridge, but it happens with aversive events.	Ex. A "leave it" command is associated with a physical/verbal correction.
Conditioned Fear	Scientific usage: Fear in response to a previously neutral stimulus caused by aversive conditioning and/or event. See Fear.	
Conditioned	Scientific usage:	Example: A previously neutral

Reinforcer	A previously neutral stimulus that has become reinforcing because of its association with a primary reinforcer. A stimulus that becomes a reinforcer because it is paired with another reinforcer, usually a primary reinforcer. If conditioned reinforcers are not maintained by periodically pairing them with primary reinforcers, they will lose their reinforcing value.	clicker comes to have reinforcing properties because of its pairing with the delivery of food. See Bridge. Also referred to as secondary reinforcer.
Conditioned Response (CR)	Scientific usage: See classical conditioning. In classical or Pavlovian conditioning, a conditioned response (CR) is produced by pairing a conditioned stimulus (CS) with an unconditioned stimulus (UCS).	In Pavlov's famous experiment, salivation became the conditioned response to the ringing bell.
Conditioned Stimulus (CS)	Scientific usage: See classical conditioning. In classical or Pavlovian conditioning a previously neutral stimulus (NS) becomes the conditioned stimulus (CS) and evokes the conditioned response (CR) after it is repeatedly paired with an unconditioned stimulus (UCS).	In Pavlov's experiment, the ringing bell was a neutral stimulus that became a conditioned stimulus after repeating pairings with food.
Conditioning	A general term that explains how animals learn the connection between stimuli, events, and actions.	See Classical conditioning and operant conditioning.
Confirmed Alert	Operational usage: An alert for which the presence of a trained odor can be verified or corroborated.	Also referred to as a "hit", "find" and/or "positive response".
Conflict	A condition in which two or more events cause incompatible responses.	
Confounding factors	Scientific usage: These are the other things that change in the course of an experiment that should be controlled.	Note: If you don't control these aspects you are at risk for not measuring what you think you are measuring.
Consistency / reliability	Scientific usage: See Reliability / consistency; consistent measures are those where repeated measurements of the same thing produce the same results.	
Contaminating odor	Operational usage: Of target: any odor not ordinarily part of a target odor signature. Of area: any odor not normally part of the context of that area.	
Continuous	A schedule of reinforcement where	

reinforcement (CRF)	every occurrence of the behavior is reinforced.	
Control	Scientific usage: The variable that does not change in an experiment.	
Co-ordination/ Timing	Operational usage: The handler's ability to correctly recognize and reward a desired behavior of the dog, or redirect or stop an undesired behavior.	
Correction	Operational usage: An aversive stimulus intended to prompt the dog to respond appropriately to a handler using a device such as a verbal reprimand, choke collar (slip) / check chain, prong collar, remote trainer, etc.	
Correlation	Scientific usage: A correlation is an association between 2 variables, when the variables are linearly related. Correlation does not imply cause.	Note: There are 3 reasons for correlations: A can cause B, B can cause A, or A and B are independently related to another variable, C.
Courage	Operational usage: The absence of fearful behavior towards real or imagined danger; such as the ability to rebound from unnerving situations.	
Cremains	Cremated human remains.	
Crittering (also see Distractability)	Operational usage / colloquial: A change in the dog's behavior where the dog becomes distracted by animal odor or some other animal distracter. Crittering is usually evident as there is a change in body language (head and tail position).	
Cross-trained Dog	A dog that is trained to react differently to different scent detection applications.	This is not the same as a dual-purpose dog, however it has historically been referred to as one in law enforcement. Ex. Cross-trained dogs may have different responses to different target odors. A dog detecting a live person may bark whereas the same dog detecting human remains may sit.
Decision Making	Operational usage: The handler's ability to recognize the dog's reactions and then translate and communicate to other officers whether or not the detector dog alerted to the presence of	Note: See "Alert " re: the ability to distinguish the components of an alert.

	a trained odor.	
Defense / defensive behavior	Operational usage: Behavior exhibited by canines to protect themselves and, or their handler when faced with a perceived or real threat.	
Delay of reinforcement	The interval between the performance of a behavior and the delivery of reinforcement.	
Dependent variable	Scientific usage: In the most simple experiment this is the item whose response you measure.	
Deployment	Operational usage: After initial assessment of the search environment, the handler conducts an efficient, effective and thorough search.	
Deployment Log / Record **or** **Utilization Log / Record**	A record of the use of a trained canine team in an operational environment, as opposed to training records.	
Deprivation	Operational usage: The restriction of access to something desired by the dog such as food, social companions, or toys.	
Desensitization (DS)	A behavior modification technique that decreases a response or the reactivity or sensitivity to a stimulus.	For example, a dog barks and lunges whenever he sees a stranger. In this case this is an undesirable response. The dog is then exposed to strangers at a distance at which he does not react and is rewarded for not reacting. Gradually, the distance between the dog and the stranger decreases, always at a pace that ensures the dog does not react, and he is continually rewarded for not reacting. Reactions are ignored. The end point is reached when the dog no longer reacts to strangers by lunging and barking at them. DS is often used with counter-conditioning (CC). This may involve elements of active and passive desensitization.
Detector/Detection Dog	Operational usage: A dog trained to detect and alert to the presence of	May be referred to as a law enforcement or search and rescue

	certain scents or odors for which it has been trained.	service dog, which is not to be confused with dogs covered by the Americans with Disabilities Act (ADA).
Differential Reinforcement	This is a training and behavior modification technique where only one response to a particular stimulus is rewarded. All other responses are not reinforced.	For trainers, "differential reinforcement" usually refers to the technique of establishing discriminations and establishing stimulus control.
Differential reinforcement of incompatible behavior (DRI)	A technique used in behavior therapy and training designed to reduce the frequency of a target behavior by reinforcing a specific behavior that is incompatible with a target behavior. DRI combines extinction of the target behavior with reinforcement for performing a specific behavior that is incompatible with the target behavior.	Ex. A dog cannot stand up and sit down at the same time and it has to choose, the correct action is rewarded. For example, if a dog runs after cats, you train the dog to sit whenever it sees a cat. It is impossible for a sitting dog to run.
Differential reinforcement of other behavior (DRO)	A technique used in behavior therapy and training designed to reduce the frequency of a target behavior by giving the subject reinforcement as long as the target behavior does not occur. If the target behavior occurs, the reinforcement is stopped. Actually, DRO is a combination of extinction of the target behavior while providing the subject with reinforcement for doing anything else.	Ex. The dog is rewarded for anything other than the undesirable behavior. A dog that jumps up is rewarded for anything other than jumping up (sitting, walking, standing, etc.)
Differential Response	The pattern of exhibiting one behavior in one set of circumstances and not exhibiting it in another.	
Diploid	Scientific usage: A cell or organism with twice the haploid # (2N) of chromosomes - produced by mating (N = haploid # of chromosomes).	
Disaster Search Dog	Operational usage: A dog trained to detect and indicate live or deceased victims in debris resulting from manmade or natural catastrophic events.	
Discrimination	The ability to recognize differences between two or more stimuli. Operational usage: The ability to recognize differences between two or more odors.	In training, "discrimination" refers to a procedure of differential reinforcement which results in the dog being reinforced for responding only when a specific stimulus is

		presented. Ex. The dog will recognize trained odors and differentiate them from all others.
Discriminative Stimulus	Scientific usage: A stimulus that signals when a particular response produces specific consequences. For example, sitting in the presence of a particular odor leads to a reward. The odor in this case is the discriminative stimulus.	
Displacement behavior	A behavior that is exhibited when the individual does not have access to a goal or to solving the problem; the behaviors exhibited may become common ones for that individual to exhibit when in such a circumstance but may not have anything to do with the behaviors that would be used to solve the problem.	Example: The dog cannot get to the bone that is outside his run, so he runs in circles. Displacement behavior is not to be confused with redirected behavior when the target of the behavior becomes unavailable either through absence, restraint, or prohibition, and the individual exhibits the behavior that would have occurred to another – but out of context – individual. Example: You yell at the dog for chasing the cat, so the dog chases the child instead of the cat. Redirected behaviors are replacement 'in kind' using similar behaviors; displacement behaviors are not 'in kind' behaviors and have nothing to do with the original goal and action.
Distemper	Scientific usage: A highly contagious viral disease of canids, including domestic dogs, that is caused by a paramyxovirus genus *Morbillivirus*) and is marked by fever, leukopenia, and respiratory, gastrointestinal, and neurological symptoms, especially in young dogs. In older dogs symptomology may be less severe, but neurological impairment is common.	Note: Routine vaccine protocols include a vaccination against distemper.
Distractibility	Operational usage: The tendency to be easily diverted from task.	
Distractor	Non-target stimuli placed within a search area. These can include: toys,	

	food, animal odor, etc.	
Disturbed area	Operational usage: A change in the normal scent picture of the area.	
DNA- deoxyribonucleic acid	Scientific usage: The building structure of heritable material which is formed into a code. The code has only 4 components, called base pairs. The 4 DNA base pairs are: adenine, guanine, thymine, and cytosine. It's the order of these codes that specifies which proteins are made in conjunction with RNA (ribonucleic acid), which help read the code and follow its instructions within the cell. The material that makes the heritable genetic code. This is the material that provides the instructions for the cell.	
Dog	Scientific usage: A domestic canid (*Canis familiaris*) used in various work or companionship tasks.	Note: Although the most recent common ancestor to dogs is wolves, it is important to remember that there were multiple speciation events over the past 135,000 years that lead to the dog as a separate species.
Dog Handler	Operational usage: The trained person who works the dog.	
Double-blind/Double-blind testing	Scientific usage: This condition occurs when neither the experimenter/handler, nor the observer/evaluator, knows which treatments / manipulations are given to which subjects. Operational usage: See SC2 document. In the evaluation of a dog neither the assessor nor the handler knows the location of the target odor or whether target odor is present (i.e., a blank /null search).	This means that neither party knows what outcome is expected. A double-blind evaluation is the most powerful of the designs to remove bias (like cuing) on both sides, and it is one of the best techniques known to minimize false positives and false negatives, but it requires careful thought and, sometimes, a coded design. Operational examples include the following: 1. True deployment situation: Every time a team deploys the team is participating in a double-blind trial: They do not know if they will find a target odor or not. If no target

		odor is found, it is equivalent to a blank search. In addition, if there is target odor present, the handler does not know where it is, and no one who evaluates the team's performance has that knowledge. In fact, the handler calls the dispatcher and reports the outcome of the evaluation that they conducted in response to a suspicious situation.
		2. Operational environment situation: The supervising officer leaves a car in a parking lot that has had target odor placed in it. He or she calls to report a suspicious situation and asks the dispatcher to request that a canine team investigate the car. The canine team arrives, performs the search and calls the dispatcher to report the findings. This is a double-blind "operational" experiment: neither the handler nor the assessor (i.e., the dispatcher) knows the location of the target odor, or whether any was present.
		3. Training example: The assessor sets up a course (indoors or out) that has distractors or target odor or both. The assessor leaves. The following 3 examples show ways the team's findings can be reported in a double-blind manner:
		a. The assessor leaves and the performance of the team is videotaped. The video is reviewed by the assessor or someone else to see how well the team performed.

		b. The assessor leaves the course and a person not involved in setting the course evaluates the team's performance. c. The assessor leaves the course with instructions that the handler place a tag, flag, or cone at every location where the dog alerted. The handler and dog then leave the course, and either the assessor or another person notes whether the presence of the tags or flags match the pattern of target odor on the course. These double-blind assessments are examples of best practices, the goal being to enhance the performance and reliability of the detection team. When done properly a double-blind assessment is inarguable, and it is the only assessment that replicates the real world in which the team is expected to operate. Please note: Teams experiencing deficiencies should not undergo double-blind training until basic deficiencies are resolved.
Drive	Scientific usage / concerns: There are problems with this definition in both the behavioral and genetics communities, see Notes. Operational usage: Drive is the propensity of a dog to exhibit a particular pattern of behaviors when faced with particular stimuli. Drives are triggered by these particular stimuli and expressed in a typical and predictable way that is associated with the particular stimulus. Drives can be enhanced or diminished through	Note: There are problems with this definition in both the behavioral and genetics communities because we cannot measure or even accurately define one of the key parts of the operational definition: "instinctual"/ "instinctive". Also, if dogs can be considered "low drive" the response cannot be exaggerated, and the ability to enhance or diminish a response is a key part of the operational definition of drive. Finally, while

	experience (e.g., training, environment, et cetera), but they cannot be created or eliminated. Traditionally defined in the working dog literature as an exaggerated, instinctual response to certain stimuli and situations. Drive is most narrowly and clearly defined as a willingness, vigor, or enthusiasm to engage in certain behavior, contexts, or situations.	you may easily compare 2 dogs in front of you where one has relatively "higher drive" than the other, this type of relativistic comparison cannot be quantitatively tested and validated within or between observers, and does not provide a phenotype that can be used in genetic analyses, or behavioral tests to improve technique.
Dual-purpose Dog	A dog trained in two disciplines.	Ex. A dog trained for patrol and detection work. Combining narcotics and explosives detection in the same dog is not an acceptable practice and should not be done.
Emergency stop	Operational usage: A situation where the handler instructs a dog to stop its movement.	FEMA term
Environmental Enrichment	The process of improving the mental and physical welfare of animals by providing behavioral choices through enhancements to their environment. Techniques can include introduction of new stimuli (e.g., food, toys), operant contingencies, social partners or training sessions. Behavioral enrichment is intended, in part, to reduce the frequency of problematic behaviors, including stereotypical ones. It is important to ascertain that this type of intervention is functioning as intended by testing it to see if there is a change in the intended direction of the behaviors in question (e.g., the dog sits and stares at the kennel door all day before the intervention; with a kennel-mate he stares at the door less and grooms his kennel-mate and is groomed by him).	Also referred to as Behavioral enrichment.
Environmental Training/Testing:	Operational usage: Instruction and evaluation procedures used to teach a dog to work, and determine whether a dog can work, in a variety of operational environments with	

	increasing biological and physical complexity, which may distract or inhibit the dog from work. The training and testing, respectively, are designed to teach the dog to work, and assure that the dog can work, in a variety of operational environments, some of which may be extreme.	
Evaluator	An individual with relevant training and experience in the discipline being evaluated, who assesses the performance of canine, handler, or team while showing no bias or partiality. See Certifying Official.	Note for SC2: The outstanding question is whether an evaluator is held to specific and defined standards. The sub-disciplines need to decide what is relevant and what qualifications are needed. SC2 should list general qualifications (ethics, sources of evaluators and the need to avoid potential biases, et cetera) and the individual sub-disciplines need to list the specific technical concerns. One of the concerns is who gets to "license" the handlers and evaluators. In some cases the evaluators may be determined by the initiating authority. This issue needs to be addressed by the sub-disciplines.
Evidence Search Dog	Operational usage: A dog trained to locate and indicate items in question by means of detecting human scent.	
Evidence/ Article Search	The process of locating and indicating items that contain non-specific or targeted human scent.	See Evidence Search Dog.
Examination	A physical, written or oral test.	
Experimental bias	Scientific usage: Anyone testing any idea has a strong expectation about the outcome, and an interest in not being mistaken. This is the *experimental bias*. The only way to control for this is by ensuring the person making the measurements does not know what treatment each subject received until the experiment is completed.	
Extinction Burst	A short period of an increase in the occurrence of a previously reinforced response that is brought about by the withdrawal of reinforcement.	
Extinction Training	A procedure where the reinforcement	

	of a previously reinforced behavior is discontinued with the intention to reduce the occurrence of that behavior.	
Fading	A term used to describe a procedure for gradually changing a stimulus controlling an individual's performance to another stimulus. The gradual removal of reinforcement, as in the progressive reduction of a reinforcement schedule.	
False negative	Operational usage: A response indicating that something is not true or not present when it is true or present. See miss. Scientific usage: Type II error.	
Fear	Scientific usage: A behavioral response involving the autonomic nervous system (e.g., "fight or flight") in the presence of real or imagined danger involving avoidance and, or withdrawal under circumstances where the dog is distressed.	
Final Response	Operational usage: A behavior that a dog has been trained to exhibit in the presence of a target odor source. This behavior may be either passive (sit, stare, down, point, etc.) or active (bite, bark, scratch, etc.).	An absence of a final response does not necessarily negate any behavioral responses given earlier in the alert sequence. Therefore, absence of a final response does not mean a target odor is not present. See specific SC documents and definitions for what is an acceptable response given the relevant operational needs. See Alert.
Firearm Detection Dog	Operational usage: A dog that is specifically trained to locate and respond to the presence of firearms by associated odor.	
Fixed Interval Schedule of Reinforcement	A schedule of reinforcement in which rewards for a correct response occur after a fixed period of time.	Ex. A canine is trained to respond to a target odor by sitting and, holding the sit for three seconds at which time he receives his reward. The amount of time between the response and the reward can be changed in subsequent training or working

		sessions but must stay consistent (i.e., be "fixed") within that session.
Fixed Ratio Schedule of Reinforcement	A schedule of reinforcement in which the subject is rewarded after a set number of unrewarded correct responses.	Ex. 1:1 response/reward ratio: when training a new behavior the dog is rewarded each time the behavior is performed correctly. One correct response gets one reward. 1:2 response/reward ratio: when a behavior has been learned by the dog the trainer requires that the dog perform the task correctly two times before receiving a primary reward. Two correct responses earn the dog one reward.

Fixed Reinforcement	See
	  Fixed ratio
	  Fixed interval
	  Fixed duration	

Gene	Scientific usage: A gene is the unit of inheritance. This term is now commonly used to represent a unique sequence of genetic information associated with a heritable trait.	Example: The genes that we now know are associated with an increased risk for hip dysplasia are found on multiple chromosomes. This means that they may not be inherited together. Most genes are not expressed in an obvious manner. For example, you cannot identify either the genes involved in olfaction or their actual roles by looking at the dog.
Generalization	The tendency to respond to a class of stimuli that share some common characteristics (e.g., the presence of some compound) and that may vary across some other dimension (e.g., a concentration gradient) rather than only to the one which was originally conditioned.	This has also been called the failure of discrimination.
Green Dog / Novice Dog	Operational usage: Ranges from an untrained dog up to but not including a titled dog.	
Grid Search	A systematic search pattern used to	

	ensure thorough coverage of the defined area.	
Habit	A recurrent pattern of behavior acquired through experience and made more or less permanent by various reinforcing events.	
Habituation	The lessening or disappearance of a response that was once elicited by the stimulus with repeated presentation of the same or closely related stimulus.	
Handler	A person who has successfully completed a recognized course of canine handling, as outlined in SC5, in a specific discipline and maintains those abilities through field. application, maintenance training, scheduled recertification, and continuing canine education.	
Handler error	Any action or cue that causes the canine team to perform incorrectly.	
Haploid	Scientific usage: A cell like a sperm cell or egg that contain the haploid # (1N) of chromosomes; each chromosome is ½ of each parental pair of homologous chromosomes; when brought together via fertilization a complete set of chromosome pairs is generated. Operational usage: A cell like a sperm or egg that contains one half of the total number of chromosomes that are in each body cell is called a haploid (abbreviated 1N).	Note: This pattern allows mating to produce offspring that have 1 set of chromosomes from mom and one from dad.
Hardness / Confidence / Boldness	Operational usage: A mental and/or physical resiliency to unpleasant experiences. Hard dogs are highly "recoverable".	Note: This does not mean that the dog requires harsh or physical corrections.
Hasty Search	A quick search of the defined area.	
Headspace of target substance	Operational usage: The vapor surrounding a target substance.	
Heel position, at	A position where the dog is trained to move with the handler, facing in the same direction as the handler. There is a more restrictive definition of "heel" in competitive obedience. It's at the handler's discretion exactly	

	where to position the dog and in a certification the handler tells the evaluator the position to which the dog has been trained.	
Heterozygote	Scientific usage: A situation where alleles are different at the 2 loci on homologous chromosomes (the contribution from each parent was different).	Note: Whether a dog is heterozygous or homozygous for a trait becomes important if that trait is heritable and either highly desirable or highly undesirable. For some heritable disease states, a dog that is heterozygous may not be affected, but a homozygous dog is affected. This is extremely important for anyone involved in breeding or interested in risk of heritable of disease.
Homemade Explosives (HME)	A combination of commercially available ingredients combined to create an explosive substance.	
Homozygote	Scientific usage: A situation where alleles are the same at the 2 loci on homologous chromosomes (the contribution from each parent was the same). A homozygote is the condition where alleles are the same at the same location on each chromosome in the pair. See "*Note*" for heterozygote.	
Human Detection Dog	Operational usage: A dog trained to detect and locate live human beings.	
Husbandry	Operational usage: The science of providing for the needs of an animal including housing, daily care, feeding, exercise, and meeting the behavioral / mental / "emotional" needs of the animal.	
Immediacy of Consequences (Reinforcement / Punishment)	The timing involved in delivering consequences for a response directly following the response in time. This reduces the likelihood of inadvertently reinforcing/punishing some other behavior.	Research has repeatedly shown that consequences have their greatest effect on behavior they most closely follow. This is especially true for consequences in the context of dog training procedures.
Imprinting	A phenomenon by which an animal during a formative stage of life forms a lasting attachment to, and preference for, some object or activity through exposure to the same independent of	Often used by trainers to describe initial target odor discrimination training however, this is not the scientific definition of imprinting. This operational

	consequences.	definition describes a form of early associational training.
Improvised Explosive Device (IED)	A device placed or fabricated in an improvised manner incorporating destructive, lethal, noxious, pyrotechnic, or incendiary chemicals and designed to destroy, incapacitate, harass, or distract. It may incorporate military stores, but is normally devised from nonmilitary components.	
Inadvertent reinforcement	Reinforcement delivered despite the appropriateness of any response on the part of the subject.	*Inadvertent reinforcement / reward* is a much more common phenomenon with pet dogs. If clients are growled at they often try to 'bribe' the dog to stop growling with a treat. The dog learns to use the growl to get the treat. This is a classic example of inadvertently rewarding the wrong behavior, not of accidental reinforcement.
Incremental Learning	See Approximation.	
Independence	Operational usage: The dog's capability to perform without assistance or being influenced by the handler.	
Independent / independence	Scientific usage: Statistical studies assume a property called independence - a situation where the data collected are not related to each other because they come from a random sample from the population examined; independence is often assumed but seldom tested. Good statistical testing tests for independence when its presence is unclear.	Note: You may want to know if your detection dog's performance is affected by environmental temperature. You can test for this using statistics. If there is an association between performance and temperature (e.g., the hotter the temperature the worse the dog's performance) these are not independent. If there is no association between temperature and performance these are independent, and you need not consider temperature in any of your performance evaluations.
Independent variable	Scientific usage: In the most simple experiment this is the item that you vary or that varies as a function of the way the experiment is designed.	Note: Operational Application: If you want to know if age of the trail affects how long it takes the dog to follow a 300 m trail, your independent variable is the age

| | | of the trail.

Independent variables can also include temperature, humidity, wind strength and direction, et cetera. |
|---|---|---|
| **Indication** | Operational usage: The dog's response to the odor in the manner in which it has been trained, independently and without distraction. | |
| **Instinct** | Operational usage: The innate tendency to react in specific ways in specific circumstances. Behaviors that are not taught, and are stereotypical in action and similar in all members of a species. Instinctual behaviors are provoked by relatively simple stimuli. | |
| **Instrumental Conditioning** | More often referred to as Operant Conditioning
See Operant Conditioning. | |
| **Interest** | Operational usage:
Any reaction to an odor which may include:

1. A noticeable, readable, physical change in behavior in a detector dog during the search when the dog reacts to (i.e., is interested in) an odor.
2. Pattern of behavior following the dog's initial reaction to a trained odor when the dog displays enthusiasm and desire to remain and trace the trained odor to its source. | See Alert. |
| **Inter-observer reliability** | Scientific usage: The extent to which different observers obtain the same results when measuring the same behavior; this is often also called *repeatability;* this can be a function of the humans, but it is more a function of the scoring system. | Note on Operational Application: Many handlers evaluate dogs on a scale of 1-5. If you wish your test to be repeatable and you have multiple handlers it is essential that everyone agrees on what a 4 is, compared with a 3 or 5. |
| **Interstimulus Interval (ISI)** | Scientific usage: In classical conditioning, the time elapsed between the conditioned stimulus and the unconditioned stimulus. In habituation, the time between exposures to a stimulus. | Ex. The interval between the request and the response. |
| **Interval Schedule of** | A schedule in which reinforcement is | See variable interval. |

Reinforcement	delivered on the basis of the amount of time before a response can be reinforced. The interval may be fixed or variable.	
Intra-observer reliability	Scientific usage: see Reliability / consistency.	
Kennel Assistant	Operational usage: The trained person who undertakes husbandry duties in the absence of the handler.	
Latent Learning	Learning that takes place casually, and does not manifest in overt behavior at that time, but may become evident at a later stage.	Ex. The dog that unintentionally learns additional behaviors from exposure to inadvertent reward associations. Hides placed too often in similar areas will lead to an association with either the area or the area and the target odor.
Learning Plateau	A period in which early progress in learning appears to have stopped and improvement is at a standstill. The plateau is followed by a new period of progress.	
Least Reinforcing Scenario/Stimulus (LRS)	All interaction or reinforcement, positive or negative, is withheld for a period of time (generally a few seconds) so as not to reinforce an undesirable behavior or lack of response. Used to help reduce frustration that might result from a lack of reinforcement.	In a training scenario where known aids are placed for an exercise, the canine completes the exercise without a positive response the canine is ignored for a brief period of time (given no attention, negative or positive) and then redeployed to find the target. Also considered another form of negative punishment; "timeout"
Locus (plural loci)	Scientific usage: The position of a gene on a chromosome; alleles (or forms of the gene) occupy the same locus on each of the homologous chromosomes.	
Magnitude of Reinforcement	The size, strength, or duration of a reward following a behavior.	
Maintenance Training	Operational usage: Continuing training conducted beyond the initial training of a discipline, designed to maintain a level of proficiency by ensuring the team's capability to perform desired tasks.	

Masking odors	An odor intentionally designed to mask, disguise, or conceal the target odor.	
Matching-to-Sample (MTS)	A procedure in which the choice of a stimulus that matches a sample stimulus is followed by the delivery of a reinforcer.	Ex: This is the process that is involved in scent identification line-ups where the sample odor is matched with the target odor.
Methodology	The particular training practices and operational tactics that are implemented.	
Minimum standard	Written standards established to define the least level of performance considered acceptable.	
Mining terms	See IMAS definitions.	
Miss	Certification/Training use: When the dog fails to alert in the known presence of the target odor; a situation in which the dog fails to exhibit the trained behaviors in the presence of the target odor on which he or she was trained.	Also referred to as a "false negative" or "non-alert".
Motivation	Operational usage: Mindset and physical behaviors associated with interest, willingness, and keenness to work.	
Multi-purpose Dog	A dog trained in more than two disciplines.	Historically this has been referred to as "dual purpose" dog in law enforcement.
Non-indication	Operational usage: A "miss" by the dog in the known presence of the substance that is there; a situation in which the dog fails to exhibit the trained behaviors in the presence of the substance on which he or she was trained.	
Non-productive response	Operational usage: A change of behavior followed by a positive indication which can't be confirmed by the handler. This may be the result of residual odor that the dog can detect but which cannot be confirmed by technology or direct observation. A non-productive response may also be an error – a false positive - but these outcomes cannot be distinguished in an operational environment.	In a certification procedure you will know whether you have a false positive. You cannot know whether you have a false positive in most operational situations.
Null hypothesis	Scientific usage: The beginning assumption in any experiment or test is that there is no effect of the procedure;	

	this is the hypothesis against which you test your idea.	
Odor plume	Dispersion of odor in a given environment.	Factors that influence the dispersion of odor may include wind, temperature, air currents, and topography. An example would be a plume of odor that a dog has been trained to follow to its source. Also referred to as scent cone.
Odor recognition assessment	A test of the dog's ability to alert to target odor(s).	
Odor Signature	Scientific usage: the profile of the odor.	See Odor.
Off-lead	Operational usage: Any work or interactions with the dog where the dog is not attached to a lead.	
On-lead	Operational usage: Any work or interactions with the dog where the dog is attached to a lead.	
Operant Conditioning	Scientific usage: When used in training, operant conditioning involves teaching an animal to perform a response in order to obtain a reward. Operant conditioning links two behaviors (chaining) that might not have been previously linked by using the concept that when you are reinforced or rewarded for a behavior you will offer that behavior again. Also known as instrumental conditioning.	Example: A voluntary response such as sitting is more likely to be repeated if the end result is pleasurable - thus the outcome determines the response.
Passive Response	Operational usage: A type of response that the dog displays/ indicates in a manner that doesn't disturb the environment (i.e., sit, stand, or lie quietly after the detector dog has detected a trained odor).	
Pedigree	Scientific usage: A record of all of the dog's direct ancestors, or genealogy, in sequence for 3+ generations. Pedigrees can be forward reading or backward reading.	
Personal Protective Equipment (PPE)	Operational usage: Equipment worn for protection from environmental hazards, e.g., biological, radiological,	

	chemical.	
Physical Fitness	Cardiovascular and musculoskeletal conditioning of the dog or handler for the work undertaken.	
Point-to-point	Operational usage: An open area search method in which the canine team moves in a straight line from one designated location (point) to another.	
Positive Punishment	Scientific usage: Application of a stimulus that **decreases** the probability of the preceding response occurring again. It is applied as the behavior is occurring or immediately after the behavior has occurred. Positive punishment is the addition of an aversive stimulus or event.	Example: yelling at the dog or smacking would be considered a punishment if it lead to a decrease in the behavior. To be most effective the reprimand needs to be: 1. Immediate, 2. Consistent, 3. Sufficiently aversive, but no more so than is needed (or you can inadvertently reinforce fear).
Positive Reinforcement	Scientific usage: A pleasurable reward given immediately after a response or as the response occurs that **increases** the probability of a behavioral response. For example if a dog is rewarded for sitting by being given a treat the dog is more likely to sit again. To be most effective the reward has to be: 1. Immediate, 2. Consistent, 3. Desirable.	
Possession	Operational usage: Upon presentation of the reward article, the dog takes the article without hesitation, and maintains a firm grip.	
Post-pubescent dog	Scientific usage: A sexually mature dog. Male dogs are generally sexually mature by 6-9 months, and females by 8-10 months. Physical growth still continues in the post-pubescent dog	
Power of a test	Scientific usage: This is the probability of rejecting a null hypothesis when it is false; the probability of finding a true effect.	Note: Power is calculated by 1-∃ where ∃ is the probability that you accept a hypothesis of no effect when it is false. When ∃ - the probability of missing the effect - is tiny, the power of the test is huge. Almost everyone evaluates ∀, but few people evaluate ∃. Yet the greater the

		power of a test the more likely that the effect will be detected. Generally, the larger the sample size (n), the smaller the $\exists$, the higher the power of the test. Statistical power can also be increased by an improved, more discrete, cleaner, et cetera research design.
Praise off	Operational usage: Physically removing the dog, after he has shown a response, from the area or item without causing any physical discomfort to the dog, while verbally praising the dog.	It is important to note that this can be done incorrectly. The head of the dog or the dog must be physically removed from the target odor prior to beginning the physical/verbal praise (must be done in a positive manner) or the dog will become aggressive/active to the target odor.
Pre-aversive Stimulus	A stimulus which has been conditioned through generalization as a predecessor to an aversive stimulus.	Ex: An invisible/electronic fence has a perimeter that if crossed activates a sound coming from the dog's collar. If the dog continues the dog will be shocked. In this example, the sound made prior to the shock is the pre-aversive stimulus.
Precision	Scientific usage: A measure of how free the measured value is of random errors; precise measures need not be accurate....your computer may have a very precise clock, but if you don't change it for daylight savings time it's still inaccurate (wrong) for some times of the year; measurements are precise if they lack *random* errors (accurate measures lack *systematic* errors).	
Pre-scenting	A sample target odor that is presented to the dog prior to deployment. The dog's objective is to match the pre-scented odor to the target odor.	Operational use: This is commonly used in tracking/trailing and/or scent discrimination line ups.
Primary Reinforcement	The delivery of a naturally occurring stimulus that requires no previous experience or learning to be reinforcing. It satisfies some biological need (i.e., food, water, air).	
Primary Reinforcer	An unconditioned reinforcer that is related to biology. Anything of	Ex. Anything the dog needs to survive such as food and water.

	intrinsic value to the particular individual.	
Probable Cause	Probable cause exists when the facts and circumstances known to the officer would warrant a prudent person to believe a crime had been committed and the accused had committed it or that the evidence will be found in the place to be searched.	
Productive response	Operational usage: A change of behavior followed by a positive indication which can be confirmed by the handler.	
Proficiency assessment(s)	An evaluation during training; a tool to assess team ability.	
Proof off/Proofing	A training technique to ensure that the dog ignores all odors except the target odors.	Ex. The dog is not rewarded for and is discouraged from reacting to things such as, packaging materials that are associated with the target odor. See Extinction training.
Prospective study	Scientific usage: A study that identifies all the individuals who had a particular experience and follows them through time to see what happens as a result of that experience.	Note: The drawback here is that this takes a long time; retrospective studies generally provide hypotheses of mechanism or cause that can be tested in prospective studies.
Protection	Operational usage: Behaviors associated with defense of self and / or other group members including humans when threatened or when a potential threat is perceived.	
Punishment	Scientific usage: A procedure that is used to decrease the strength of a response by presenting an aversive stimulus after the response occurs.	Note: Punishment is most likely to be successful if it is applied 100% of the time the undesirable behavior occurs, if it is applied immediately after the behavior occurs, and if it is sufficiently aversive.
Quartering	Operational usage: A systematic search of an area in a series of point-to-point patterns utilizing the wind to the dog's best advantage.	
Rabies	Scientific usage: A viral disease of the nervous system of warm-blooded animals that is caused by a rhabdovirus and is communicable from animal to	Note: Dogs, some non-domestic carnivores, and some humans who work with dogs are routinely, and should be

	humans primarily through salivary transmission. There are also reports of contagion through aerosolized secretions. Almost without exception, this disease is fatal once the animal begins to show signs.	vaccinated against rabies. The vaccine is viewed as universally protective.
Random / randomized	Scientific usage: When the choice of something or the placement of something is random the substance placed is equally likely to be either substance.	
Recall	The dog's response to return to the handler on command.	
Refusal	A lack of response, or a declination to accept instruction or direction.	
Reinforcement	Scientific usage: This refers to any event that increases the probability of a response. Reinforcement can be positive or negative.	
Reinforcement Contingency	Scientific usage: The relationship between the reinforcement and the exact properties of the performance which it follows. The occurrence of the reinforcer depends on the occurrence of the response. This is a term about learning and maintaining a behavior.	Ex. In training, the dog is asked to look at the location of the target odor and sit. The dog is only rewarded when it sits not crouches. Sitting is the response that is rewarded.
Reinforcement/Reward Schedules	The rule denoting the number of responses, the interval of time, and the duration of the response that will be reinforced.	See Intermittent and Variable Reinforcement/Reward.
Reliability	Operational use: Low probability of alerting to anything other than a target odor and a high probability of alerting to a target odor. Legal Usage: Evidence that establishes a fair probability that a target odor is present. Scientific usage: The extent to which a measurement is repeatable and consistent and free from random errors.	Note: This term is often used in science when assessing how well an observer has measured behaviors. There are 2 categories of observer reliability: 1) *intra-observer reliability* (or observer consistency) - how consistent the observer is at evaluating the same behavior at different times or in similar dogs. 2) *inter-observer reliability* - how consistent different observers are when evaluating the same dog.
Remote Training	Training to work at a distance from the handler. A training situation in which	

	an attempt is made to remove the human element from the picture.	
Remote Training Collar	A manually operated training device that produces an electrical stimulation at varying degrees of intensity and duration via a small transmitter incorporated into a dog collar. Some collar models also include a tone or vibration setting, as an alternative to or as a warning the behavior will result in the electrical stimulation.	Also called Remote Trainer or Electronic (E) Collar. This is not the same as a bark, or invisible fence collar. There are remote training collars that deliver a citronella spray when activated by the handler, in lieu of the electric "stimulation" or shock.
Repeatability	Scientific usage: See inter-observer reliability.	
Replication	Scientific usage: Repetition of the experiment by others, or in other circumstances, that obtains the same results.	Note: It's important to realize that findings can still be myth unless someone else can repeat the experiment and obtain the same results.
Repression of Behavior	Operational usage: The failure to perform an operant behavior due to previous aversive consequences.	
Rescue Search Dog / Search and rescue (SAR) dog	Operational usage: A dog trained to locate or indicate live victims of accidents or disasters.	
Residual Odor	Operational usage: Odor that originated from a target substance that may or may not be physically recoverable or detectable by other means.	Has been referred to as lingering odor.
Residue	Remnants of a target substance that can be recovered and quantified.	
Response / Indication	Operational usage: A behavior that a dog has been trained to exhibit upon locating the source of a target odor. This behavior may be either passive (sit, stare, down, point) or active (bite, bark, scratch).	There are non-indications (where the dog does not give the trained response) and non-productive responses (where the dog gives the response but the presence of the material cannot be confirmed by man or machine).
Retrieve	Operational usage: Behaviors associated with finding and returning prey or objects back to the handler or social group.	
Retrospective study	Scientific usage: A study that examines patterns in all individuals with available data from the past.	Note: The drawback here is that you may not be able to find data for all the questions or associations in which you are interested because these data were not collected. Here, any

		controls must be statistical rather than experimental. For example, a model simulation is often used as a control.
Reward	Operational usage: The presentation of an article, toy, or praise given to the dog once the detector dog has alerted and responded to the odor(s) for which the dog is trained to detect. CF reinforcement	
Runaway	Operational usage: An exercise in which the target visually stimulates the dog by running away from the dog, inciting a chase.	
Satiation	When a reinforcer loses its effectiveness as a result of being overused.	
Scent	See odor.	"Scent" has traditionally referred to human detection. "Odor" has traditionally referred to substance detection.
Scent Article	An item that has been exposed to the target odor which is used to put the dog on task.	
Scent association	Operational usage: When a dog learns to identify a trained odor with a specific reward.	
Scent cone	See Odor plume.	
Scent Discrimination	The ability to differentiate one odor from another.	
Scent Pad	A collection of target odor whether it's on an object, on material, or in an area, i.e., on the ground.	
Scent picture	Operational usage: The combination of odors that is present when a detector dog responds to a trained odor.	
Search Intent	Operation usage: The interest, attitude, and enthusiasm the dog shows while searching.	
Sense of smell	Scientific usage: The ability to perceive odor or scent using olfactory neurons. Detection of odor relies on the olfactory neurons. Processing of the olfactory information obtained from the neurons occurs in the frontal cortex of the brain.	
Sensitive periods	Periods during early development when an animal is notably sensitive to	For dogs, the sensitive period of learning to respond to other dogs

	learning a specific association that remains relatively stable over time.	starts at about 3 weeks of age and this is the dog's main focus until about 5 weeks of age. The sensitive period during which dogs begin to response to humans and other species – and recognize and treat them as different from dogs – starts at about 5 weeks and is a main focus through about 8-10 weeks of age.
Sensitivity	Scientific usage: A measure of how much small changes in the true value lead to changes in the measured value; this term is commonly used in diagnostic tests.	Note: Sensitive tests detect even very low levels of infection; sensitivity is a measure of what you could miss; the ideal diagnostic test has both high *specificity* and *sensitivity*; temperament evaluations using predictive values could use the same terminology.
Set time	The length of time between the target placement and when the dog is deployed to detect the target odor.	
Sexual maturity	Scientific usage: An animal is said to be sexually mature when male dogs produce viable sperm and female dogs (intact female dog = bitch) undergo estrus cycles; only sexually mature dogs can reproduce.	
Shaping	The process of selectively rewarding responses that approximate the desired behavior to an increasingly greater degree. This is one method for teaching a new behavior and can be used as a method of modifying additional behaviors.	
Sharpness	Operational usage: A character trait which is the tendency to react to stimuli with aggressive behavior.	
SI units	Scientific usage: Système International d'Unités - This is the international system of measurement. It uses meters, kilograms, et cetera and has a standardized set of abbreviations.	Note: If you wish to publish, you will have to use this system, not one involving feet and pounds.
Single/Sole-purpose Dog	A dog trained in only one discipline.	
Single-blind Testing	Operational usage: An evaluation of	

	the canine team's ability to complete an exercise where the evaluator knows the outcome and the hander does not.	
Sociability with humans	Operational usage: The dog's age and situational appropriate comfort level and interaction with people.	
Sociability with other dogs	Operational usage: The dog's age and situational appropriate comfort and interaction with other dogs.	
Social maturity	Scientific usage: The period of behavioral maturation that appears to be correlated, in species in which it has been studied, with changes in brain chemistry. Dogs' "temperaments" can be considered relatively stable after this period, although learning continues. The broad range cited for social maturity is 12-36 months, and the narrow range cited is 18-24 months.	Note: Patterns of behaviors become consistent only after the dog undergoes social maturity, hence the finding that dogs can consistently pass or fail evaluations associated with task-specific performance only after this stage. The range of social maturity is considerable, but the neurochemical changes remain unmeasured. We do not know the exact ages that map on to specific changes in patterns of brain chemistry.
Socialization	The exposure of dogs to other dogs and animals of different species during the "sensitive period" when they are best able to begin to learn about such stimuli.	
Softness	Operational usage: A character trait which is a mental and/or physical sensitivity to unpleasant experiences.	
Species Preservation	Operational usage: The genetically based blueprint for behaviors which deal with the past, present and future life of the canine species.	
Specificity	Scientific usage: The extent to which the measure describes what it is intended to describe and nothing else; this term is commonly used in diagnostic tests....specific tests detect ONLY that disease, not all diseases that cause a similar reaction; the ideal diagnostic test has both high *specificity* and *sensitivity*.	Note: Temperament evaluations using predictive values could use the same terminology.
Spontaneous Recovery	The tendency of a behavior to reappear after it has undergone extinction.	
Standard	An established or widely recognized model of authority or excellence as a	

	reference point against which other things can be evaluated or the ideal in terms of which something can be judged.	
Statistical significance	Scientific usage: The level of statistical significance is the probability of obtaining the observed result – or a more exaggerated one - if the null hypothesis of no effect was true. The statistical significance is usually represented as alpha / $\forall$. This is really the probability the result was due to chance alone and that there was no effect of whatever you did. The arbitrary level at which $\forall$ is usually set is 0.05. This means that there are 5 chances in 100 that the pattern you have established is due to chance, alone.	Note: Something is either significant or it is not. Statisticians are driven crazy by people who say their result "approaches significance". More robust tests do not assume a level of significance and tell you what the likelihood that you are wrong actually is.
Stimulus Control	A behavior is under "stimulus control" when it occurs as a result of a specific signal.	There are four rules for determining if you have control over a behavior: 1. If the behavior occurs when the signal is given. 2. If the behavior does not occur when the signal is not given. 3. If no other behavior occurs in response to that signal. 4. If the behavior does not occur in response to any other signal (proofing).
Stimulus Generalization	See Generalization.	
Subordinate	Operational usage: A lower ranking member of the canine social group.	
Survival	Operational usage: Behaviors associated with avoiding, negotiating, or overcoming dangers.	
Systematic Desensitization	A procedure used to modify behavior whereby a subject gradually becomes comfortable with an unusual or frightening stimulus. It involves exposure to the stimulus at a distance or rate that does not evoke a fearful response and gradually increasing the	

	proximity or rate.	
Systematic Search Pattern	Operational usage: A method which employs a specific search sequence to increase accuracy and minimize omissions, while maximizing coverage. Such patterns usually have set start and stop points.	
Tactile Reinforcement	Any reward perceptible by touch.	
Taggant	Nitro compounds which vaporize rapidly and are added to enhance the detection of plastic explosives by instrumental analysis.	
Target odor	Operational usage: Odors which detector dogs are trained to detect.	
Target training	The process of conditioning an animal to touch a particular object.	
Temperament	Operational usage: The general consistence with which the animal behaves. Broad classes of temperament appear to be heritable.	Note: New molecular techniques should flesh out this definition in the next decade.
Threshold	Operational usage: The working threshold for a dog may be defined by its training history and this may include a minimum and maximum amount to which a dog may respond. Scientific usage: The lowest concentration of a chemical vapor that a dog can be trained to detect. In animal psychophysics this has traditionally been defined as the point at which the animal detects a stimulus above the level of chance.	
Time-Out	A non-reinforcement training strategy whereby a training session is temporarily paused and attention is removed from the dog for a short period of time in order to elicit desirable behavior when the session is restarted.	
Titration	Operational usage: This is an operational, not a scientific, definition, please see notes. 1. A gradient of correction needed to control a dog's behavior. 2. The range of scaled correction or reward, going from lowest to highest, which will achieve the	Note: There is a scientific definition of this term that differs considerably from what is discussed here.

	desired response from the dog.	
Track / Trail	The odor pathway left by a target.	
Tracking (Human)	The propensity or learned ability of a dog to methodically follow odor on the ground (human/ground disturbance) by working the dog close to the pathway.	Dogs are not typically pre-scented on an object.
Tracking Line	Operational usage: A length of cord attached to the harness and held loosely by the handler, allowing the handler to follow and, or control the dog, if needed.	
Tracking/Trailing Harness	Operational usage: An arrangement of straps fitted around the dog's body, leaving the head and neck free, allowing attachment of a line that permits the handler to follow and, or control the dog while tracking or trailing.	
Trailing (Human)	The propensity or learned ability of a dog to either follow ground disturbance odor and/or target odor plumes. The dog will use whichever technique will get them to the target odor the most efficiently.	Dogs are typically pre-scented on an object.
Trainability	Operational usage: A 'character trait' which is both psychological or cognitive, and physical. It includes spontaneous attempts to perform the desired behaviors and the dog's cognitive abilities.	Dogs are individuals with individualized learning styles and preferences based on their histories. It is up to the trainer to find what motivates the dog.
Trainer/Instructor	Operational usage: Any member of a specific discipline who is in a situation of instructing any part of the canine handler team using established methods and validated training guidelines.	Refer to SC 5 for further differentiation.
Training	Goal oriented task designed to teach, fix, expand, improve, and maintain detection capabilities.	See also Reinforcement Training.
Training Log	A record used to document the training of a dog, handler or dog team.	
Type I error	Scientific usage: This is the mistake you make when you reject the null hypothesis (you say there is an effect) and it is true (there is really NO effect). This is also called a false positive - detecting an effect where none exist.	Example: You are tested for Lyme disease using the first-pass diagnostic assay. It is positive and so you are treated for joint pain. Unfortunately, the pain is due to a ligament tear which is

		apparent as you fail to improve. Further testing reveals no Lyme organisms. The first pass test was subject to Type I error.
Type II error	Scientific usage: This is the mistake you make when you accept the null hypothesis (there is no effect) when it is false (there really IS an effect). This is also called a false negative - failure to detect a real effect.	Example: You are tested for Lyme disease using the first-pass diagnostic assay. It is negative. Further testing reveals the Lyme organism. The first pass test was subject to Type II error.
Unconfirmed Alert	Operational usage: An alert for which the presence of a trained odor cannot be confirmed. This may be the result of residual or lingering odor that the dog can detect but which has not been confirmed by technology or direct observation.	Also referred to as an "unconfirmed hit and/or unconfirmed find". In a certification procedure you should know whether you have a false positive. You may not know whether you have a false positive in most operational situations. An unconfirmed alert may also be an error – a false positive - but these outcomes cannot be distinguished in an operational environment. False positives can often be ruled out by interview or investigation. Technology is reaching a state of maturity that may corroborate confirmed or unconfirmed alerts. This technology may also validate a non-productive response.
Vaccine	Scientific usage: A preparation of live, modified-live, killed micro- organisms, or the relevant subunit, that is administered to produce or artificially increase immunity to a particular disease.	Note: Vaccines can be administered IM (intramuscularly), SC (subcutaneously), orally, or IN (intra-nasally).
Validity	Scientific usage: The extent to which a measurement actually measures what you want to measure, and, in doing so, provides information relevant to the questions asked; valid measures provide a good, close relationship between a variable.	Example: (e.g., a measure of behavior) and that which the measure is intended to predict about the world.

	Validity has 2 aspects: accuracy and specificity.	
Variable	Scientific usage: An identifiable facet (e.g., size, outcome of a test, et cetera) that can be measured.	
Variable Interval Schedule of Reinforcement	A reward schedule in operant conditioning in which the subject is rewarded after a period of time that varies from one reinforcement period to the next; there is variable time after one reinforcer or reward before the next reinforcer or reward becomes available.	Ex. The dog is rewarded for maintaining the sit position after random intervals of time.
Variable Ratio Schedule of Reinforcement	A reward schedule in which the dog is rewarded after a number of correct but unrewarded responses; the number varies from reinforcement to reinforcement. A reward schedule in which the reward occurs irregularly after a number of correct responses.	Ex. The dog is rewarded with primary reward after the 5th correct response, the 3rd, 10th, 7th et cetera. The dog never knows when the reward will occur. The reward occurs randomly for correct responses.
Variable Reinforcement	Reinforcement schedule in which the timing (interval) or rate (ratio) of delivery of the reinforcer varies.	A form of intermittent reinforcement.
Voice Inflection	Operational usage: Correct use of the voice employing tone, pitch and volume appropriately to the situation as required.	
Zoonosis	Scientific usage: Diseases communicable from animals to humans.	