

SWGDOG SC1abcd – TERMINOLOGY

SC1a – Posted for public comment 12/28/05 – 2/28/06. Approved by the membership 4/2/06.

SC1b – Posted for public comment 4/22/06 – 6/22/06. Approved by the membership 10/2/06.

SC1c – Posted for public comment 1/3/07 – 3/3/07. Approved by the membership 3/12/07.

SC1d - Posted for public comment 5/10/07 – 7/8/07. Approved by the membership 8/15/07.

SC1e - Posted for public comment 12/10/07 - 2/7/08. Approved by the membership 3/12/08.

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 via machine 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.
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 <i>systematic</i> errors (precise measures lack <i>random</i> errors).	
Activity Drive	Operational usage: The propensity to be active.	See Drive.
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.
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	<p>A characteristic change in ongoing behavior in response to a trained odor, as interpreted by the handler.</p> <p>The components of the alert may include: COB, interest, and final response or indication.</p>	<p>Alert has been used / defined by various agencies as a range of responses from a change of behavior to a final response.</p> <p>With the advent of SWGDOG 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,</p>

		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 contributes 1 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.	
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.	
Articles	Operational usage: Objects left on the track or in a search area at various intervals to which the dog is expected to indicate.	
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 Training	Scientific usage: See Avoidance Learning.	
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.	
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.	
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.
Cadaver	Scientific usage: A dead body or the remains of a dead body.	
Canine	Scientific definition: A dog, <i>Canis familiaris</i> , more commonly used to denote a working dog and sometimes abbreviated as K-9.	
Canine Team	Operational usage: A human and working dog that train and work together as an operational unit.	
Certification	A process that attests to the successful completion of an examination of relevant skills for the canine team.	
Certifying Officials / Assessors	Suitably authorized individuals trained to administer and assess an examination of relevant skills for canine team.	
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	The initial change of behavior typically leads to following the odor to its source and then giving the trained response.

	other olfactory interest that otherwise are exhibited by the dog in response to the daily environment.	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.	
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.	
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	Scientific usage: A stimulus that is initially neutral but has acquired aversive properties by virtue of being paired with aversive events.	
Conditioned Fear	Scientific usage: Fear in response to a previously neutral stimulus caused by aversive conditioning and/or event. See Fear.	
Conditioned Response	Scientific usage: See classical conditioning (CR).	
Conditioned Stimulus	Scientific usage: See classical conditioning (CS).	
Confidence	Operational usage: When a dog is conditioned to know when it can act on its abilities. An environmentally conditioned acceptance of safety. The dog is conditioned in such a way that it anticipates that it can accomplish the behavior safely.	
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.	
Control	Scientific usage: The variable that does not change in an experiment.	
Co-ordination/	Operational usage: The handler's ability	

Timing	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.	
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).	
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 a trained odor.	Note: See "Alert" re: the ability to distinguish and a more specific definition
Defense / defensive behavior	Operational usage: Behavior exhibited by the dogs to protect him- or herself and, or their handler when faced with a perceived or real threat.	
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.	
Detector/Detection Dog	Operational usage: A dog trained to detect and alert / respond / indicate to the presence of certain scents / odors for which it has been trained.	
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 locate or indicate live victims or human remains of accidents or disasters.	
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.	
Distemper	Scientific usage: A highly contagious viral disease of canids, including domestic dogs, that is caused by a paramyxovirus genus (<i>Morbillivirus</i>) 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 always common.	Note: Routine vaccine protocols include a vaccination against distemper.
Distractibility	Operational usage: The tendency to be easily diverted from task.	
DNA-deoxyribonucleic acid	<p>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.</p> <p>The material that makes the heritable genetic code. This is the material that provides the instructions for the cell.</p>	
Dog	Scientific usage: A domestic canid (<i>Canis familiaris</i>) 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	<p>Scientific usage: This condition occurs when neither the experimenter/handler, nor the observer/evaluator, knows which treatments were given to which subjects.</p> <p>Operational usage: See SC2 document. In the evaluation of a dog neither the assessor nor the handler knows the location of the substance if present.</p>	<p>This means that neither party knows what outcome is expected. This is the most powerful of the designs to remove bias on both sides, but it requires careful thought and a coded design.</p>
Drive	<p>Scientific usage / concerns: There are problems with this definition in both the behavioral and genetics communities, see Notes.</p> <p>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 experience (e.g., training, environment, et cetera), but they cannot be created or eliminated.</p> <p>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.</p>	<p>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 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.</p>
Emergency stop	Operational usage: A situation where the handler instructs a dog to stop its movement.	FEMA term
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.	
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 <i>experimental bias</i> . 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.	
False response	Operational usage: In a controlled environment, the dog responds as if a trained substance was present when it is known that it is not. This is false response and a false positive.	
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.	
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.
Green Dog / Novice Dog	Operational usage: Ranges from an untrained dog up to but not including a titled dog.	
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 total number of chromosomes that are in each	Note: This pattern allows mating to produce offspring that have 1 set of chromosomes from mom and one from dad.

	body cell is called a haploid (abbreviated 1N).	
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.
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.
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 “ <i>Note</i> ” for heterozygote.	
Human Detection Dog	Operational usage: A dog trained to detect and locate live human beings.	
Husbandry	Operational usage: The daily care, feeding, exercise, and meeting of the behavioral / mental / “emotional” needs of the dog.	
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.	
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	See Alert.

	when the dog displays enthusiasm and desire to remain and trace the trained odor to its source.	
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 <i>repeatability</i> ; 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.
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.	
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.	
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.	
Methodology	The particular training practices and operational tactics that are implemented.	
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".
Multi Purpose Dog	Operational usage: A dog trained in more than one discipline. i.e., patrol/narcotic or patrol/explosive	
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	In a certification procedure you will know whether you have a false positive. You cannot know whether you have a false positive

	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 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	Operational usage: The chemical mixture of volatile compounds that stimulates the olfactory neurons.	
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	<p>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.</p> <p>Also known as instrumental conditioning.</p>	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	Operational usage: Equipment used for health and safety purposes.	

Physical Fitness	Cardiovascular and musculoskeletal conditioning of the dog or handler for the work undertaken.	
Positive Punishment	<p>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 already occurred.</p> <p>Positive punishment is the addition of an aversive stimulus or event.</p>	<p>Example: yelling at the dog or smacking would be considered a punishment if it lead to a decrease in the behavior.</p> <p>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).</p>
Positive Reinforcement	<p>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.</p> <p>To be most effective the reward has to be: 1. Immediate, 2. Consistent, 3. Desirable.</p>	
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.	<p>Note: Power is calculated by $1 - \beta$ where β is the probability that you accept a hypothesis of no effect when it is false. When β - the probability of missing the effect - is tiny, the power of the test is huge. Almost everyone evaluates α, but few people evaluate β. 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 β, the</p>

		higher the power of the test. Statistical power can also be increased by an improved, more discrete, cleaner, et cetera research design.
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 <i>random</i> errors (accurate measures lack <i>systematic</i> errors).	
Productive response	Operational usage: A change of behavior followed by a positive indication which can be confirmed by the handler.	
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 applied 100% of the time the undesirable behavior occurs, if it is applied immediately after the behavior occurs, and if it is sufficiently aversive.
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 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.	Note: Dogs, some non-domestic carnivores, and some humans who work with dogs are routinely, and should be vaccinated against rabies. The vaccine is viewed as universally protective.
Random /	Scientific usage: When the choice of	

randomized	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.	
Reinforcement	Scientific usage: This refers to any event that increases the probability of a response. Reinforcement can be positive or negative.	
Reliability	<p>Operational use: Low probability of alerting to anything other than a target odor and a high probability of alerting to a target odor.</p> <p>Legal Usage: Evidence that establishes a fair probability that a target odor is present.</p> <p>Scientific usage: The extent to which a measurement is repeatable and consistent and free from random errors; all measurements have random components because of imperfections in the measurement process, and the fact that when we measure something we usually change it a bit. Reliability is determined by precision, sensitivity, resolution, and consistency. It is the extent to which similar results are obtained when measuring the same behavior on different occasions.</p> <p>Engineering and technical definition: Mean time to failure of equipment. (MTTF)</p>	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) <i>intra-observer reliability</i> (or observer consistency) - how consistent the observer is at evaluating the same behavior at different times or in similar dogs. 2) <i>inter-observer reliability</i> - how consistent different observers are when evaluating the same dog.
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.
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 remains	

	from training aids or actual objects of focus once the aids or objects have been removed.	
Resolution	Scientific usage: The smallest change in the true value that can be detected.	Note: If you are using a scale with a lowest measure of a kg, it is not going to have a very good resolution for something weighing 3 grams.
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.	
Scent article	Operational usage: Also known as scent object or scent pad . The scent article refers to an object containing the odor to be detected.	Note: In human detection this is the odor that is used to start (or “scent”) the dog. In human scent work, the scent article may contain multiple human odors; this does not make the article unusable if proper protocols are followed.

Scent association	Operational usage: When a dog learns to identify a trained odor with a specific reward.	
Scent cone	Scientific usage: The path of dispersion that the odor follows in the given wind or air currents, and in a given thermal environment.	
Scent discrimination	Operational usage: A dog's olfactory ability to distinguish between various odors.	
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.	
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 <i>specificity</i> and <i>sensitivity</i> ; temperament evaluations using predictive values could use the same terminology.
Sensory Threshold	Operational usage: A character trait which describes the amount of stimuli which is necessary to elicit a response from the dog.	
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.	
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,	Note: If you wish to publish, you will have to use this system, not one involving feet and pounds.

	kilograms, et cetera and has a standardized set of abbreviations.	
Single Blind Testing	Operational usage: An evaluation of the canine / handler team's ability to complete an exercise where the evaluator knows the outcome and the handler 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.
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 <i>specificity</i> and <i>sensitivity</i> .	Note: Temperament evaluations using predictive values could use the same terminology.
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	Note: Something is either significant or it is not. Statisticians are driven crazy by people who say their result "approaches significance". More

	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.	robust tests do not assume a level of significance and tell you what the likelihood that you are wrong actually is.
Subordinate	Operational usage: A lower ranking member of the canine social group.	
Survival	Operational usage: Behaviors associated with avoiding, negotiating, or overcoming dangers.	
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.	
Target odor	Operational usage: Odors which detector dogs are trained to detect.	
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.
Titration	Operational usage: This is an operational, not a scientific, definition, please see notes. <ol style="list-style-type: none"> 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 desired response from the dog. 	Note: There is a scientific definition of this term that differs considerably from what is discussed here.
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.	
Trainability	Operational usage: A character trait which is psychological, yet the	

	<p>manifestation of trainability is physical. It is observed in two manifestations: (1) Spontaneous attempts to perform the will of the pack leader (handler), and (2) volume of behaviors, which can be learned.</p>	
Trainer/Instructor	<p>Operational usage: Any member of a specific discipline who is in a situation of instructing any part of the canine / handler team.</p>	
Type I error	<p>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.</p>	<p>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.</p>
Type II error	<p>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.</p>	<p>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.</p>
Unconditioned Response	<p>Scientific usage: See classical conditioning.</p>	
Unconditioned Stimulus	<p>Scientific usage: See classical conditioning. A stimulus that produces a response without previous experience or training.</p>	
Unconfirmed Alert	<p>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.</p>	<p>Also referred to as an “unconfirmed hit and/or unconfirmed find”.</p> <p>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.</p> <p>An unconfirmed alert may also be an error – a false positive - but these outcomes cannot be</p>

		<p>distinguished in an operational environment. False positives can often be ruled out by interview or investigation.</p> <p>Technology is reaching a state of maturity that may corroborate confirmed or unconfirmed alerts. This technology may also validate a non-productive response.</p>
Vaccine	<p>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.</p>	<p>Note: Vaccines can be administered IM (intramuscularly), SC (subcutaneously), orally, or IN (intra-nasally).</p>
Validity	<p>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.</p> <p>Validity has 2 aspects: accuracy and specificity.</p>	<p>Example: (e.g., a measure of behavior) and that which the measure is intended to predict about the world.</p>
Variable	<p>Scientific usage: An identifiable facet (e.g., size, outcome of a test, et cetera) that can be measured.</p>	
Voice Inflection	<p>Operational usage: Correct use of the voice employing tone, pitch and volume appropriately to the situation as required.</p>	
Zoonosis	<p>Scientific usage: Diseases communicable from animals to humans.</p>	