

## MASTER CLASS SAMPLE

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# Breeds and the Genetics of Behavior

(FROM PHASE 1)

## How Modern Breeds Came to Be and The Behavioral Implications



Let's take a look at the wide variety of breeds that came from early domesticated dogs.

← Here we have (from left to right) a Siberian Husky, a Standard Poodle, a Chihuahua, a Shih Tzu, a Tibetan Mastiff and an English Bulldog.

How did these members of the same species come to look so amazingly different?

The staggering variation we see in dog breeds today is largely a result of artificial selection: *humans intentionally, selectively, breeding for specific traits they found in the dogs around them.*

To understand how this works, let's start with the creation of breed *types* that are not as refined as what you would see at a dog show.

Have you ever travelled to a region of the world where there are many stray dogs and noticed that they all have similar traits, like a breed, but they don't fit any standardized or formal description like a purebred?

These can informally be called breed *types*, and this happens when local people (e.g., in tribes, villages, or even resorts) influence the survival rate of some dogs by supporting one type of dog over another.

This may not be intentional, but it still produces results. For example, there are "hotel dogs" in the Caribbean islands that have taken on a uniform look and set of behaviors. This is because those dogs have been given a survival advantage by getting food handouts from resort staff and guests that favor that type. They may get favored for appearance or behavioral reasons, or both (e.g., the bolder or "cuter" behavior of those dogs puts them in position to get food).



Can you notice similarities in the physical appearance of these village dogs?

Look at the tails, shape of the muzzle, eyes, and ears.

Over time, the favored type becomes the commonly seen “breed” of the area because they are the ones passing on their genes to their pups. “Whatever distinguishes the chosen dog, that characteristic increases in the population” (Coppinger, 2002).

One Caribbean dog type even has an unofficial name for their “breed”, which is *potcake*. Another example of this, though more intentional, would be the Maasai tribes of Africa favoring red dogs to match their clothing. Or, from a behavioral standpoint, Maasai people favoring those dogs who warn them of lions coming on the property. The survival advantages that these dogs gain could be food handouts, access to edible garbage, or access to territory. Any of these advantages will empower these dog types to pass on their genes and become the uniformly seen “breed” in the region.

Culling is a harsh and different form of artificial selection that is not seen as common today, but is still practiced in some places. This is when breeders keep only the preferred pups from a litter and put the others to death (or allow them to die on their own in nature). For example, a sheep herdsman who is breeding dogs to protect his flock might only keep the puppies whose lighter coat coloring will make the dogs easy to distinguish from wolves if they are in a fight and the herdsman must shoot (think of a white Great Pyrenees or a fawn-colored Anatolian Shepherd).

A uniform breed type would take shape because only those dogs with the breeder’s desire traits will be allowed to survive and pass on their genes to the next generation (Coppinger, 2002). This practice can be seen as cruel selective slaughter as opposed to selective breeding, but it is one of the ways that the variety we see in today’s breeds was initially created.



**Pretty cute for a rat hunter, don’t you think?**

In most cases, the driving force behind the creation of so many different breeds was that humans desired *specific types of dogs* to help them carry out specific tasks. The traits they selected for were 1) physical traits, and 2) behavioral traits.

For a simple example, imagine you were a farmer who wanted a few dogs to help rid your hay storage building of rats. You ask each of your neighbors which one of their dogs kills the most rats, and then you “select” the most accomplished male and female rat-killers to breed to one another. This mating will

produce a litter of puppies that are instinctively very good rat hunters. *They have the natural traits without being taught.* All of these puppies will be good rat killers, some will be very good, but one will be *the best*. Maybe the best one is an even better rat hunter than his parents. That means he is likely the very best in the area. This is the dog that sets a new standard for excellence in rat hunting, due to his exceptional physical and behavioral traits for the task. That means he is the dog that will be picked to father (sire) the next generation. Who will he be selectively bred to? He will be mated to the best female rat hunter, of course.

Now, project this scenario out for several generations. Generation after generation, the best rat hunting dogs are being selected by farmers to breed with other farmers' best rat hunters. The best physical and behavioral traits for rat-hunting continue to be selected for. These specific traits have now become intensified and common in what is now much like a uniform "breed."

**What traits might the *best* rat hunters have?** Small, quick, alert, focused, tireless, strong chase instinct, fast digger, kills what it catches with a quick shake and/or bite. Sound like any terriers you know? You can see how dog breeds become very specialized in 1) physical traits, and 2) behavioral traits, when you continually breed the best performers for a specific function. As a result of repeatedly selecting for specific traits for hundreds (or in some primitive breeds, thousands) of years, these traits are embedded in the genetic programming (hard-wiring) of the breeds we have today.

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## Eyes – A Window to the Soul

(FROM PHASE 2)

Just like with humans, eyes can be a "window into the dog's soul." That's not scientific, but it rings true! What is scientific is that eyes, and especially the facial expression around them, can tell you a lot. Remember to evaluate what you observe in the eyes *in context* with the rest of the face and overall body language to get all the communication clues.

For our purposes, you need to recognize four basic eye states:

### 1. SOFT EYES: Can be seen as "the love look" or "a sweet face"



← What a sweet moment! Look at those squinty eyes. The relaxed ears and absence of facial tension confirm this dog is *feelin' the luv*.

- Relaxed, partially closed, or even squinty – not wide
  - Usually seen with relaxed facial features, no tension around eyes.
  - Signifies a relaxed dog in a non-threatening state, or appeasement (communicating "I am peaceful").

**2. Hard Eyes: Can look like a frozen, lifeless stare.**



← Hard eyes. Furrowed brow and facial tension. Ears forward. Puckered muzzle. This dog is saying “do not approach.” You can almost hear the short “woofs” that often accompany an expression like this.

Trainers agree they often “feel it” when the eyes “go cold”. Hard eyes are *always* accompanied by tension in the body.

The dog is often “frozen” or moving very deliberately and slowly. Usually seen with tension in the facial muscles around the eyes, and the appearance of a wrinkled or furrowed brow. (Think about what a “glare” looks like in humans, and it seems very similar.) Eyes may look “dialed in” with eyebrows lowered and lower eyelid puffed.

Hard eyes signifies threat and is a distance increasing behavior. Essentially, the look says, “back off!”

**3. Dilated Pupils: The dark circles inside the eyes (pupils) are open wide.**



← This dog is SUPER excited about that treat! Excitement can happen in fun and not-so-fun situations. Anytime pupils go wide like this, remember to look at the whole body language for other signals and read them in context.

Dilated pupils may signify low light, or stress, or excitement (wide range here). If the lighting conditions are the same and you notice a dog’s pupils suddenly enlarging, take a moment to assess your safety.

**4. White in Eye: Also called crescent moon eye because the white in the eyes can have a crescent shape or “whale eye.”**



← Note the wide eyes showing white, ears pinned back, closed mouth, and facial tension lines. This dog is worried.

White in the eye often signifies stress or threat but it can appear for any or all of the following reasons: The facial muscles and skin are tense, pulling the eyelids open more than normal is one. The dog may be holding his

head firmly in one position (such as over a food resource he was chewing) while orienting only his eyes in the direction of a competitive threat that is coming from an angle not directly in front of him. This white in the eye is often called “whale eye,” when the head is held firm, but the eye follows a threat.

Finally, white may also appear in a dog’s eye during excitement, such as during high arousal play or when stretching forward to grab a treat or toy. It’s important to note the context before making an interpretation.

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## Start with SIT

(FROM PHASE 4)

Having a dog SIT is useful in many contexts. It’s a nice position for a dog to be in when greeting people. It makes putting on your dog’s collar and leash simple. SIT can be a prerequisite behavior for wiping paws, brushing and other grooming activities, or it can serve as a “puppy please” when the dog wants something. Having a great SIT also means you will rock photo opportunities with your dog.

At CATCH, we believe that teaching a dog to sit using a lure-reinforcement method is far better than physical prompting (pushing down on his rear) for several reasons: When you push on a dog’s rear to make him lower it, you are teaching that “SIT” means: “Let me shove your rear,” not anything the dog is doing on his own. When we push dogs into position, they can resist, and push back, or feel uncomfortable or threatened. Teaching a dog to trust and enjoy working with you versus being forced to work with you makes them happier and eager to learn. In addition, any method where you need to push on a dog’s body is going to slow down the training process and teach the dog you are not fun.

Let’s explore a few of the best options for teaching SIT. Notice below there are two options for step 1, then both options move into steps 2 and 3.

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### Steps For Teaching Sit

The first step in any training plan is getting the behavior to happen. Luring or luring with shaping are the easiest and work for most dogs. Option 3 is capturing the behavior.

#### Step 1: Acquisition, Adding a Cue, Fading Prompts

##### Option 1: Luring the SIT behavior

- Start in a non-distracting environment with treats at the ready. Choose tiny treats tasty enough to catch and maintain the dog’s attention.
  - Choose a flooring surface that is not slippery and is comfortable for the dog. Some dogs (especially short-haired dogs) resist sitting in grass as it is uncomfortable, so observe your dog’s body language and change your location if he seems reluctant.

- Hold a treat between your thumb and forefingers in such a way the dog can't grab it. Put your treat hand right in front of the dog's nose and move your hand slightly up and pause. When you lure the dog's nose skyward, his rump will typically drop to the floor because that feels more comfortable.
- The instant the dog moves into SIT, mark "Yes" and then give him the treat. Be sure to give the treat to the dog while his rump is on the ground. In other words, feed for the position, and in the position.
- After eating the treat, if the dog doesn't get up on his own, give your release cue so he knows he's allowed to move. You can also give the release cue and then toss a treat or hand-deliver it a few feet away.

### Option 2: Luring with Shaping

It is very common that the dog doesn't drop completely into SIT position right away. No problem, this is where we get to use *shaping* – breaking the task into smaller goals. For example, Mark and Reward (M/R) just for the dog's nose following the lure, lifting skyward just a little bit at first. You're teaching the dog the very first motions that will lead to a sitting position.



**Lure with the treat under your thumb, not pinched between your fingers, to help your dog be less "snatchy."**

Next, watch for a small drop in the rump (which is accompanied by a bend of the back knees). M/R. Gradually select for more downward movement of the rump, until it finally makes its way to the floor.

For each of these steps, remember to get 5 successful reps before you PUSH to the next step.

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