
Day 2

- finish filling in note sheet
 - put notes into sentences
 - offer an incentive to students who read their reports early (especially if you absolutely cannot go into a 4th day; announce this yesterday so they can prepare)
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Day 3

- read reports
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***homework** on days 1 & 2 would be catching up or working ahead

5. Take the time to read up on a few dog breeds yourself using the [Wikipedia](#). Notice the advantages each dog has, both in its build and temperament. And how every feature of it was “designed” to fulfill its purpose. By the end of this project you’ll know a dog’s purpose within a second of just seeing its picture.
6. If there’s a computer server that all students can access, set up a folder for each class to save their dog pictures to.
7. If you don’t have a multimedia projector to use on day 3 (to put dog pictures on the screen as students read their reports), ask around and see if you can borrow one. If you can’t, you can just pull up the dog pictures on your computer screen for the class to see. That’s better than nothing.

3-Day Procedure:**Day 1**

1. Give students the handout and a brief introduction:

“Students, this is a 3-day dog breeds project. By show of hands, how many of you have a dog at home? (*hands raise*). Ok. Tell me its name and breed. (*dogs are named*)

Today, most dogs, no matter what their original breeding purpose was, are companions; that’s all. We’ve forgotten their purpose. But they remain a product of that original purpose they were bred for, and they still have desires to perform those abilities. Think of dog breeds like cars, each having been designed for a specific purpose. The shape and length of the ears were designed. So was the bark, in most cases. Those traits and every other were selectively bred so the dog could do its job. Dogs have been bred to herd, hunt, smell, sight, provide protection and companionship, work, and to guard.

Take the Golden Retriever, for example. Its original purpose was to retrieve ducks and other water fowl. Does anyone have a Golden Retriever at home? (*hands raise*). Have you owners ever noticed something unusual about their paws? (*they’re webbed*). That’s right! The paws act like little paddles so they can push the water when they go in after the duck. Besides that and many other physical features, their

Day 1

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temperament was also carefully designed. They *love* to be in water, and they instinctively will bring back (retrieve) a duck gently so there are no teeth marks or bruises on it. That “gentle mouth”, or inability to bite, is also what makes it America’s most favorite dog, since they won’t bite children.”*²

2. Read the section from your book on selective breeding.
3. Before letting students draw dog breeds, go over the worksheet*³ - what each item means. For the most part, these sections follow how most of the Wikipedia pages are formatted:
 - *Breed*- The name of the dog breed they will be researching
 - *Country of Origin*- Where the dog was originally bred
 - *Year*- The year it was recognized by the AKC (American Kennel Club)
 - *Purpose it was bred*- Does it herd, sight, work, retrieve, provide companionship?
 - *Appearance*- General features
 - *Temperament*- General behavior, how it acts under certain situations
 - *History & Origins*- Anything historical; what other breeds were crossed to make it, how it originated
 - *Miscellaneous*- Anything else you find interesting that doesn’t fit anywhere else
4. Let students know that some information could be difficult to find on the website. A specific year it was recognized by the AKC may or may not be mentioned. If it’s not, look for a general time period reference, or even a century. The rule is this: *Do the best you can. If it’s not there, it’s not there, and that’s ok.*
5. Be clear about how much work you expect them to get done today. A reasonable expectation is to have most of the note sections filled in.
6. Now have students line up and draw a dog breed from the box and then head to a computer to get to work.
7. Send students to the computers and have them open up the PDF “Instructions-Dog Breeds Project” and follow them carefully.
8. When they first pull up their dog’s web page, give them a minute or two to react to their dog’s picture.*⁴
9. After they save a picture of their dog to the server (following their instructions), spend the rest of class filling in note sheets. If you taped a dog show, have that running on low volume while students work.
10. Two common questions and problems you’ll encounter today are:

Problem	Solution
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“I can’t find the year my dog was first recognized by the AKC.”	If there are any dates mentioned, put down the first you see. If there isn’t even a vague reference, leave it blank for now
“I can’t find what my dog’s purpose is.”	Press Ctrl + f on the keyboard and type “purpose” to do a text search

11. After students have read the entire Wikipedia page for their dog, if they still have gaps send them to the other 2 links on page 2 of the PDF. The External Links at the bottom of that page are also usually very good.
12. As the class period winds down, tell them exactly what they need to have done to be current. If they’re behind (or want to work ahead and present tomorrow for an incentive you’re offering), have them visit the website at home.

Day 2

1. Give a brief 3-minute overview- remind what we did yesterday, the purpose (selective breeding), how we’ll continue working today, and end by reading reports tomorrow. Don’t make your introduction too long- students are anxious to get working. You could stand to give another example of a dog that was bred for a specific purpose.*⁵
2. Set the work requirements for the day so everyone knows what’s expected. Basically, it’s to bring the paper to class tomorrow completed. But be concrete- go through the sections on the note sheet (again), and tell them (again) what to do when they can’t find information (skip it, go onto the next section, then ask you later if they can visit an “External Link”). When their notes area is filled, all those notes are to be written in sentence form in the lower half in the same order. And those sentences they’ll read aloud tomorrow in class.
3. Not long after students have been working, ask them to double-check the server to make sure their picture was saved in the correct format (last name-breed).
4. Having students put a small picture of their dog on the report sheet is a nice touch. If you want them to do this during class time (you can shave a few minutes off the schedule by making this optional at home). Sometime during the class period, print their dog pictures. The easiest way for you to print them all at once is to:
 - a. Open the file folder with all the pictures in it
 - b. Click “Edit” at the top → “Select All” , then
 - c. “File” → “Print”
 - d. When the Photo Printing Wizard launches select “Next” , then “Next” again (all pictures have been checked), and “Next” on Printing Options
 - e. When it comes to Layout Selection, select “Wallet” (the last one)
5. Students can use scissors and glue to cut and paste their dog pictures (the old fashioned way!) to their report sheet.

6. Make it absolutely clear near the end of the class period that anything not finished *must* be completed at home, because the entire class period tomorrow will be spent giving reports. There will be no work time allowed.

Day 3

1. Decide what method you'll use to call on students. You can take volunteers, call on them randomly, and any other method. Also decide beforehand what to do with students who don't have their sentences written.
2. Now for the dog reports. Let students know the format: when called, bring your paper to the front of the room, let you (the teacher) know the breed so its picture can be put on the screen*⁶, then read their sentences aloud.
3. Most reports will take 1-2 minutes to read. Factoring in getting class started, a few remarks in between reports, you may not get all the way done in one day. Halfway plan on running over at least a little into tomorrow (day 4).
4. During the student presentations, here are some examples of comments and ideas to keep everyone's focus on selective breeding. As students talk, jot down your own thoughts and reactions. A complete list of comments would be endless.
 - Challenge students to study each dog picture as soon as it's put on the screen. Guess what it was designed to do, based on what it looks like and then see if you're right as you listen. You can also turn that around- ask the student who is about to present what their dog was designed to do, then ask your class to imagine in their minds what that breed may look like, and show the picture to see if they were right.
 - When "designing" a dog, the rule seems to be that it can be either exceptionally good at doing one thing, or pretty good at a couple. For example, no dog can be very fast *and* very strong, because those are mutually-excluding features (the bulky muscle would slow it down).
 - Many retrievers have a musty smell because their skin excretes oil, which they need to repel the water they're swimming in.
 - Larger dogs tend to have about half the life span of smaller dogs. The Bloodhound has a life span of around 6-7 years.
 - A long snout indicates a rodent-chaser (so its snout can fit into the burrow).
 - Terriers are stout and aggressive. Most were bred to help control the rat and rabbit population. They're also adorable dogs, which make them a popular choice of people who visit dog adoption places. This would be a nice place to insert a word of caution to students the [next time they pick](#)

out a dog. Don't just choose the cutest thing. Factor in the temperament as much, if not more than, its appearance.

- Most pure-breds are known for diseases that run only through that breed. Golden Retrievers tend to have bad hips (hip dysplasia), Akitas get cancer, and Bedlington Terriers are predisposed to cataracts. Ask if anyone knows why certain problems are associated with dog breeds. Someone may say “inbreeding”. Bingo. Serious breeders would only mate a pure male Golden Retriever with a pure female. Since both have bad hips, junior will also. They all have it, and they're only bred with each other, so that trait will never leave. But there are advantages to having a pure-bred- you know exactly what you're getting.
- Keep an ear out for (and hope you hear) students who explain what other breeds were used to create their breed. For example, the Sealyham Terrier was bred by crossing all of the following: Basset Hounds, Bull Terriers, the Fox Terrier, the West Highland White Terrier, and the Dandie Dinmont Terrier. And the Toy Fox Hound was bred by crossing the Manchester Terrier and Chihuahua. Pull up those 3 pictures on the screen side-by-side and you'll see the similarity.

Accessories: Other sub-topics you can add for more length and depth.

- *¹ If the list is outdated or if you'd rather do a select few of your own, print a new list from [Wikipedia](#):
 - a. drag over the list of dog breeds (from A – Z)
 - b. then click “File” → “Print” and in the “Print range” box choose “Selection”, and “OK”
- *² Another example- “The Dachshund, which some of you affectionately call ‘wiener dogs’, look that way for a reason. Dachshunds are great at chasing..... anyone know? (badgers and other tunneling critters). Yes. Think about it- short legs and a long body allow them into the tunnels where the creatures live.”
- *³ Inform students that the note sheet is a place to throw facts on as they come across them. Neatness and sentences are almost forbidden. Later, when the note area is complete, they'll write those facts into short sentences on the lines below.

By the way, the reason there's so little space for notes and sentences is to keep everyone focused and to-the-point. A few facts are all that's needed to explain how special and unique each dog is. Brief reports also mean that on day 3 you could squeeze in 25 reports, if you wanted to.

- *⁴ On day 2 the dog pictures will be printed so students can cut and paste them onto the report sheet (more on that later). It will also be put on the screen as student read their dog report.
- *⁵ Or, better yet, suppose out loud that you decided to breed a dog that could climb trees, to finally catch those squirrels! An example like that will get students' thinking about how all this stuff really works. "Now, how in the world would I go about creating a dog that could do *that*? I would..."
- *⁶ Have the folders on the server pulled up and ready to go on your computer. Have the [Wikipedia dog breed page](#) running on standby, in case their picture disappears.

Come back and visit InteractiveScienceTeacher.com to upgrade this lesson with:

List Of Dog Breeds (5 pages)

Affenpinscher	Belgian Malinois
Afghan Hound	Belgian Sheepdog
Airedale Terrier	Belgian Tervuren
Akita	Bernese Mountain Dog
Alaskan Malamute	Bichon Frise
American Eskimo Dog	Black and Tan Coonhound
American Foxhound	Black Russian Terrier
American Staffordshire Terrier	Bloodhound
American Water Spaniel	Border Collie
Anatolian Shepherd Dog	Border Terrier
Australian Cattle Dog	Borzoi
Australian Shepherd	Boston Terrier
Australian Terrier	Bouvier des Flandres
Basenji	Boxer
Basset Hound	Briard
Beagle	Brittany
Bearded Collie	Brussels Griffon
Bedlington Terrier	Bull Terrier

