Lesson Plan Overview:
Grades 5-8
Animal Taxonomy

SOL’s Covered:
- Science: 5.5b & c, 6.1a, 6.5f, 6.9a, LS.4a-c, LS.8b-d
- English: 5.1a, 6.1a, 6.2a & c, 7.1a-d, 8.1a & b

Post Lesson Packet Available
SOL’S Covered in Packet:
- Science: 5.5b & c, 5.5d, 6.1a, 6.5f, 6.9a, LS.4a-c, LS.8b-d
- English: 5.1a & b, 5.3a-c & e, 5.8b-d & g, 6.1a, 6.2a & c, 6.3c & d, 6.5d & f-g, 6.6b & c, 7.1 a-c, 7.2a & b, 7.6a & f-g, 7.7a & c, 7.8b, 8.2a-f, 8.6a & d-e & g, 8.7b-c & e
- Visual Arts: 5.3, 5.22, 6.2, 6.4, 7.5, 7.11, 7.14, 8.2

Objectives:

The student will:
- List the 7 taxonomic categories of all living things;
- Identify the 6 kingdoms;
- List and describe the 9 phyla;
- Discuss the characteristics of animals in the taxonomic class of chordata;
- Investigate the identities and class of unknown animals;
- Discuss scientific information about the animal based on their class;
- Identify the requirements that all living things need to survive.

Lesson:
- This lesson involves an in-depth discussion of animal taxonomy as relates to kingdom, phylum and class, along with videos and online images to illustrate animal needs, commonalities and differences.
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Pre-Lesson Prep:

1. Have a computer ready to look up images of different types of animals and to watch videos.
2. Have hand-out of the taxonomic break down of a dog ready to hand out at the appropriate time during lesson.
3. Have something to write on.

The Lesson:

1. Tell the child(ren) that they are going to learn about the different groups that animals belong to and what those animals need to survive.
2. There are 7 different groups that all living things are broken down into—a term referred to as animal taxonomy. Have them watch the video on taxonomy. [https://www.youtube.com/watch?v=vqxomJIBGeY](https://www.youtube.com/watch?v=vqxomJIBGeY)
3. Ask the child(ren) if they can list the 7 taxonomic categories. Help them with the information as needed and then write down all 7 categories in order on the left side of a large piece of paper.
   - Kingdom
   - Phylum
   - Class
   - Order
   - Family
   - Genus
   - Species
4. Explain that each of these categories break living things down into smaller and smaller groups as we work down from kingdom to species. As such, there are only 6 kingdoms but many kinds of species.
5. This is a lot to learn, so this lesson is going to be limited to a discussion of the first three categories: kingdoms, phyla and classes.
6. Hand out a taxonomic break down of the domesticated dog so they can get an idea of how it’s done.
7. Write KINGDOM at the top of the middle of the same piece of paper.
8. Have them watch the video on kingdoms. [https://www.youtube.com/watch?v=u90WvBZe-tY](https://www.youtube.com/watch?v=u90WvBZe-tY)
9. There are 6 kingdoms, but we are going to simplify things and lump the 2 bacterial groups together.

10. Remind them that they are going to be categorizing all living things into their largest and broadest groups and ask them if they can remember the 5 groups from the video (hint: bacteria was given away above).

11. Give them hints as needed. Hints can be like those below.
   - What kind of living thing is your dog? —an animal
   - What kind of living thing is a pine tree? —a plant

12. After giving them ample time to discuss and answer, write all 5 under the heading of *KINGDOM*.
   - Animal
   - Plant
   - Protista
   - Fungi
   - Bacteria (Monera)

13. We are going to mainly discuss the animal kingdom but will give a quick description of the other kingdoms for clarification.

14. They should know what plants and animals are but have them list a few in each category.

15. Give them a brief explanation of the other 3.
   - Protista—single celled organisms that are so tiny we can’t see them without a microscope
   - Fungi—refers to organisms like mushrooms, mold and yeast
   - Monera—bacteria

16. Now it’s time to break the animal kingdom down into smaller groups called phyla. Phyla break animals down into more specific categories in order to classify them.
   Watch the phyla song video. [https://www.youtube.com/watch?v=511nVzP6xr0](https://www.youtube.com/watch?v=511nVzP6xr0)

17. At this time, write *ANIMAL* at the top of the right side of the paper and ask the child(ren) if they can remember any of the phyla listed in the video.

18. Remind them that they don’t want to get too specific yet. For example, “dog” would not be a phylum because it is too specific. They need to be more general.

19. After giving them some time to name phyla, write the major phyla under *ANIMAL*.
   - Porifera (sponges)
   - Cnidaria (jellyfish, sea anemones and coral)
   - Platyhelminthes (flatworms)
   - Nematoda (roundworms)
   - Annelids (segmented worms, like earthworms)
   - Mollusca or Mollusks (snails, squid, clams, etc.)
   - Arthropoda (insects, spiders, scorpions, lobster, crabs, etc.)
- Echinodermata (star fish, sea cucumbers, sea urchins, sand dollars, etc.)
- Chordata (fish, amphibians, birds, reptiles, mammals)

20. Go through each one, one at a time. Look up images of each type of phyla on the computer.

21. Echinoderms are marine animals such as starfish and sea urchins. Most echinoderms have arms or spines that radiate from their bodies with the central body containing their organs and mouth.

22. Mollusks all have soft bodies, some of which are protected by a shell and some that aren’t.

23. Annelids are limbless with segmented bodies. Certain worms and leeches fall into this phylum. Some worms are not even an inch long and some can grow over 100 feet in length!

24. Arthropods have exoskeletons (protective support structure that is on the outside of an animal instead of the inside) and make up an astounding 75% of the entire world’s animal species!

25. Arthropods also have limbs with joints that allow them to move.
   - Insects
   - Crustaceans—like lobster and crab
   - Arachnids—like spiders and ticks

26. Ask them if they know what chordata refers to.
   - Animals with backbones like us.

27. Try and remember it by thinking of the “chord” in chordata as the “cord” in spinal cord.

28. They are now going to break the phylum of chordata into 5 more specific groups called classes.

29. Write CHORDATA at the top of another piece of paper. See if they can list all or some of the classes and help with clues as needed until you have the full list.
   - Mammals
   - Birds
   - Fish
   - Reptiles
   - Amphibians

30. These terms should be very familiar to them, so they are going to use what they know about these animal classes to identify the type of animal from clues.

31. Start with birds and list one clue at a time until someone guesses bird, then look up pictures of birds online.
   - Very light weight bone
   - Beaks instead of teeth
   - Lays eggs
   - Wings
• Feathers

32. Start giving them clues for the next mystery animal until someone guesses amphibian, then look up pictures of amphibians online.
   • Name means two lives
   • Born in the water and have gills and tails, but later develop legs and lungs for a life on land
   • Cold blooded

33. Give them clues until they guess that the next class of animal is fish, then look up pictures of fish online.
   • Gills
   • Fins
   • Spend their whole lives in the water
   • Some have scales

34. Move on to the next mystery animal and continue to give them clues until they guess mammal, then look up pictures of mammals online.
   • Warm blooded
   • Produce milk
   • Have hair or fur
   • Give birth to fully formed babies (although there are exceptions like echidnas and the platypus—monotremes, which are egg laying mammals.)

35. Give clues about reptiles until they guess that this is the final mystery animal, then look up pictures of reptiles online.
   • Cold blooded
   • Scales/Scutes
   • Most lay eggs
   • Born on land, though many live in the water once hatched

36. What do all of the animals we talked about today have in common?

37. Let them try and come up with the answer and if they can’t, ask them what all animals need to survive. Whether that animal’s habitat is the ocean, the woods or a house, ask them what all animals need to be able to find in their habitats.
   • Food
   • Shelter
   • Air
   • Water

38. Now do the Post-Lesson Packet activities and help them as needed.
TAXONOMIC BREAKDOWN

DOMESTIC DOG

KINGDOM
 ANIMAL
 PHYLUM
 CHORDATA
 CLASS
 MAMMAL
 ORDER
 CARNIVORE
 FAMILY
 CANIDAE
 GENUS
 CANIS
 SPECIES
 CANIS FAMILIARIS

Note: The FAMILY CANIDAE consists of coyotes, dogs, foxes, jackals and wolves; whereas the GENUS CANIS consists only of dogs, foxes and jackals.