



Name: _____ Date: _____ Group: _____

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The Key to Identification

Lexile 910L

1 What's in a name? What does your name say about you? Do you have a nickname? Do you share the same name as a family member or friend? Names are really important for the identification of plants and animals, too. For example, you are probably familiar with a common backyard bird known as the blue jay. But, have you ever heard anyone call it a *Cyanocitta cristata*? Some people may even call it a blue bird, even though there is another bird called the blue bird, whose scientific name is *Sialia sialis*. These birds are quite different from each other, but sometimes people get them confused because their common names are so similar. You might not know which bird someone meant if they said blue bird. You would know exactly which bird if they said *Cyanocitta cristata*.



- 2 There would be even more confusion with bird identification without the scientific naming scheme that defines each species. Binomial nomenclature gives each bird a unique scientific identification by naming that particular species based on defining characteristics. *Binomial* means “two names.” The two-word species name is often called the organism's scientific name. The first word of the organism's scientific name is the genus. The second is the species name. A genus is a group of different organisms that share similar characteristics. Together, the two names make up the scientific name of a particular species. A species is the smallest exact classification category.
- 3 The science of classifying and naming organisms is known as taxonomy. More than 2,000 years ago, Aristotle, a Greek philosopher, developed a unique system of taxonomy. He classified living things into two large kingdoms, the plant and animal kingdoms. He then divided these two kingdoms into smaller groups based on where they live. Scientists do not use Aristotle's system now because it is too limited. It served, however, as the basis for taxonomy today.

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- 4 There are four basic functions for the scientific naming scheme:
 1. Scientific names aid scientists in avoiding confusion when communicating information.
 2. Binomial nomenclature categorically groups together organisms with the same evolutionary histories.
 3. Scientific names give information about a species. For example, when you look at the name of the bird *Eopsaltria australis*, you can see it is from Australia.
 4. Binomial nomenclature allows for group identification of species.
- 5 A dichotomous key is a scientific classification tool. It helps scientists place objects into groups. It uses a scientific naming scheme for the objects using observations of their characteristics. There are dichotomous keys for many things, including wildflowers, fish, rocks, and trees. “Dichotomous” means “divided into two parts”, so the keys always have two choices in each step of identification. Dichotomous keys remain works in progress. We are always discovering new species and defining characteristics. The keys must keep changing to improve how we classify Earth's diversity.
- 6 Classification is a tool that scientists use to make sense of and create order in the world. This order helps us better understand the relationships between living things, especially those that share common traits. Science often involves classifying organisms by physical characteristics. These may include color, shape, size, number of parts, and other characteristics determined by the observer. A more accurate and complete description will give more specific details when making comparisons. You can more easily determine what is similar and what is different. You may find this type of analysis evaluating many different types of items, such as pets, automobiles, outstanding athletes, or even a great place to eat. The only difference is that evaluation of these items will not be completed in a scientific manner.
- 7 Today, scientists look at a variety of traits to classify organisms and their ancestors. They search for relationships among the organisms by observing their genes and body structure. Studying fossils and observing the embryo of an organism as it grows are other techniques used. Upon thorough observation, the scientist is then able to identify its phylogeny, an organism's evolutionary history. To aid in identification, scientists usually begin by classifying organisms into one of the six kingdoms of living things. These are Archaea, Eubacteria, Protista, Fungi, Plantae, and Animalia.
- 8 Dichotomous keys are important tools for a field study. In order to study biodiversity, we must be able to identify and classify individual organisms. The use of these keys bring a new dimension to the world we live in.

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1 Complete the following analogy:

_____ : *Cyanocitta cristata* as blue bird : *Sialia sialis*

- A Swallow
- B Blue jay
- C Cardinal
- D Parakeet

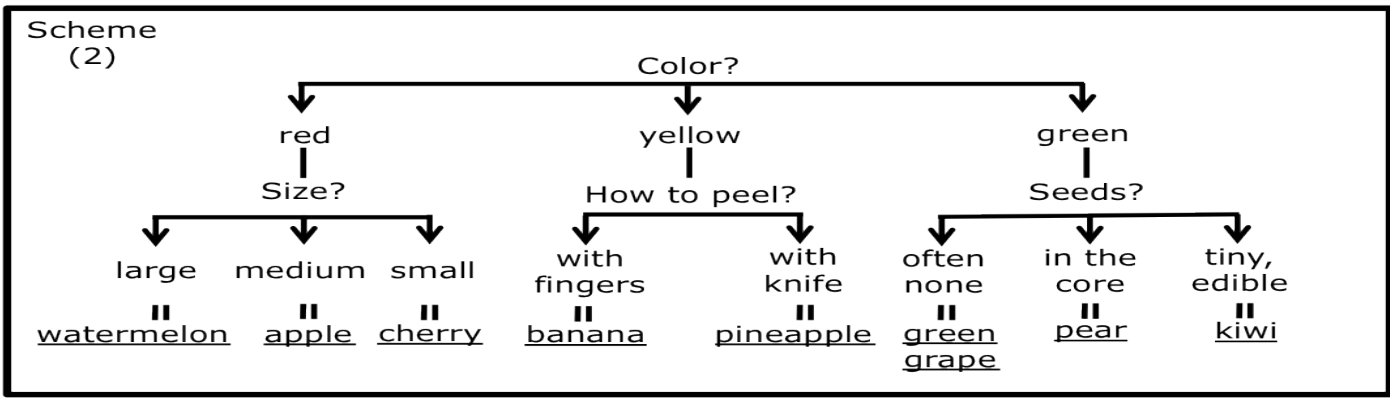
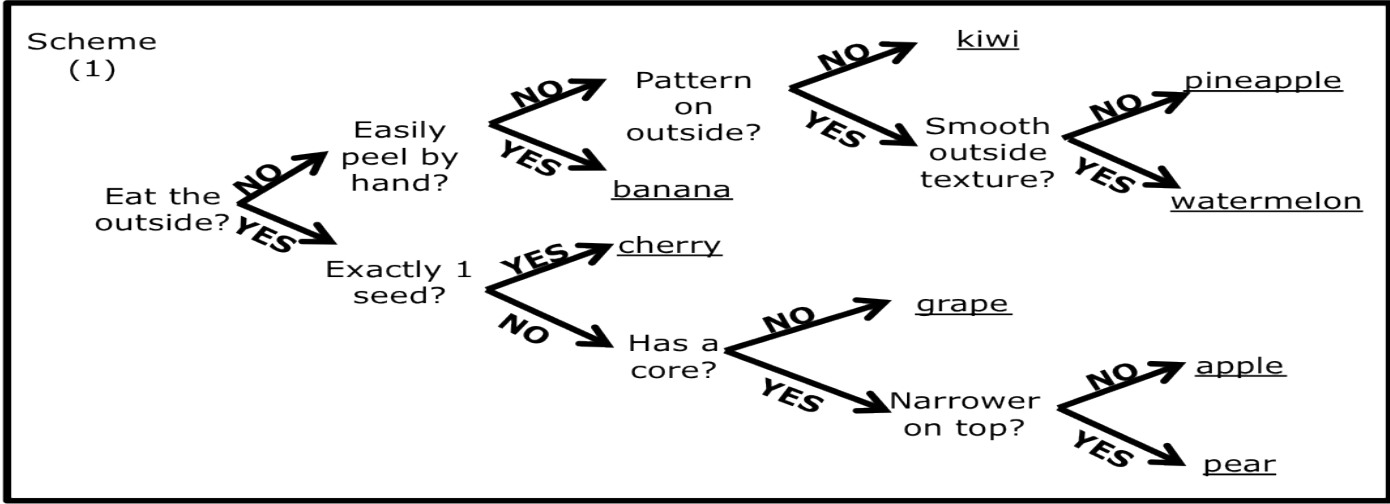
2 What is binomial nomenclature?

- A A group of different organisms that share similar characteristics
- B The first word of an organism's scientific name
- C The second word of an organism's scientific name
- D A scientific identification scheme that includes two-part naming of a particular species

3 According to the context of the passage, biodiversity refers to _____.

- A the naming of species
- B variety of species
- C binomial nomenclature
- D taxonomy

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- 4 In the diagram shown, which of the classification schemes for fruit is a dichotomous key?
- A Scheme (1) is a dichotomous key.
 - B Scheme (2) is a dichotomous key.
 - C Both are dichotomous keys.
 - D Neither are dichotomous keys.

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- 5** Which of the following is one of the four basic functions for applying scientific names to individual species?
- A** To figure out its evolutionary history
 - B** To classify the named organisms into kingdoms
 - C** To study individual organisms during field studies in the wild
 - D** To aid scientist in avoiding errors when communicating information