Constructing a cladogram

Cladograms are based on sequences of amino acids or DNA, however we can infer something about the divergence of species from their observable characteristics. Use these characteristics to construct a cladogram of the following vertebrates.

Organisms: Turtle, Horse, Wolf, Leopard, Domestic cat.

Step one: Discuss these animals briefly – which ones seem more similar / different. Which ones do you know come from a more ancient evolutionary line?

Step two: fill in the table, showing whether they have these characteristics. Simply use a 1 (present) or o (absent) for each trait.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Animal | Hair | Carnivore (meat-eating) teeth | Retractable claws | Ability to purr |
| Domestic cat |  |  |  |  |
| Wolf |  |  |  |  |
| Turtle |  |  |  |  |
| Horse |  |  |  |  |
| Leopard |  |  |  |  |

Step three: Re-order the animals with the ones which share the least characteristics at the top, and the ones which share the most characteristics at the bottom.

Step four: Construct a cladogram, using the order found in step three. Each time a new characteristic is introduced which a animal doesn’t have, create a node to show the divergence of that species before the trait is introduced.

