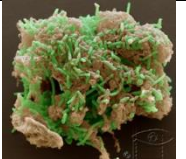
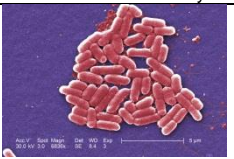


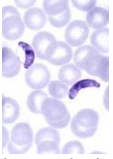

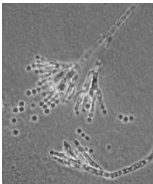

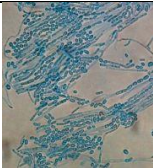








1. Look for examples of the following groups:

Monera (p. ej. *Geobacter metallireducens*, *Helicobacter pylori*, *Escherichia coli*)  
 Protista (p. ej. *Entamoeba histolytica*, *Plasmodium falciparum*, *Trypanosoma cruzi*)  
 Fungi (p. ej. *Penicillium chrysogenum*, *Ganoderma applanatum*, *Trichosporon ovoides*)  
 Plantae (p. ej. *Zea mays*, *Darlingtonia californica*, *Amorphophallus titanum*)  
 Animalia (p. ej. *Bos Taurus*, *Hypsibius dujardini*, *Pharomachrus mocinno*)

2. Once you have found the characteristics of the groups, make a table with the following information:

| Kingdom  | Example with scientific name                           | Unicellular or multicellular | Importance  | Habitat   | Type of reproduction | Type of nutrition | Image   |
|----------|--|------------------------------|---|---|----------------------|-------------------|---|
| Monera   | <i>Geobacter metallireducens</i> (Lovley et al., 1993) | unicellular                  | They are bacteria that produce electricity.   | In the basins of rivers where water and wind are the agents of erosion. | Asexual              | heterotroph       | <br>Image obtained from <a href="https://www.geobacter.org/">https://www.geobacter.org/</a><br>For educational use only.   |
|          | <i>Escherichia coli</i> (Migula 1895)                  | unicellular                  | Most strains are harmless and live in the human gut, but occasionally they can cause serious intestinal infections. | In the human intestine and the intestines of healthy animals.           | Asexual              | heterotroph       | <br>Image obtained from <a href="http://www.britannica.com/blogs/2011/06/evil-coli/">http://www.britannica.com/blogs/2011/06/evil-coli/</a> For educational use only.  |
|          | <i>Helicobacter pylori</i> (Marshall et al. 1985)      | unicellular                  | It is a bacterial pathogen that causes chronic gastritis and ulcers in the human digestive tract.                   | In the digestive tract of humans, monkeys, cats and flies.              | Asexual              | heterotroph       | <br>Image obtained from <a href="http://www.sabequelohay.com/2013/05/helicobacter-pylori.html">http://www.sabequelohay.com/2013/05/helicobacter-pylori.html</a><br>For educational use only.               |
| Protista | <i>Entamoeba histolytica</i> (Schaudinn, 1903)         | unicellular                  | This is a parasite that causes diarrhea in humans and dogs, but can also cause colitis and hepatic abscesses.       | In the colon of humans and dogs.  | Asexual              | heterotroph       | <br>Image obtained from <a href="http://www.k-state.edu/parasitology/625/tutorials/Ehistolytica.html">http://www.k-state.edu/parasitology/625/tutorials/Ehistolytica.html</a><br>For educational use only. |
|          | <i>Plasmodium falciparum</i> (William H. Welch, 1897)  | unicellular                  | This parasite causes malaria in humans.   | In the blood of humans  | Asexual              | heterotroph       | <br>Image obtained from <a href="http://www.k-state.edu/parasitology/625/tutorials/Plasmodium01.html">http://www.k-state.edu/parasitology/625/tutorials/Plasmodium01.html</a>                              |

|         |   |               |   |  |         |             |  |
|---------|---|---------------|---|--|---------|-------------|--|
|         |   |               |   |  |         |             | For educational use only.  |
|         | <i>Trypanosoma cruzi</i><br>(Chagas, 1909)        | unicellular   | It is an intracellular parasite in vertebrate and invertebrate animals.               | They have been found in the intestines of some bugs.   | Asexual | heterotroph |  <p>Image obtained from <a href="http://biodiversityserene.wikispaces.com/Protista-Trypanosoma+cruzi">http://biodiversityserene.wikispaces.com/Protista-Trypanosoma+cruzi</a><br/>For educational use only.</p> |
| Fungi   | <i>Penicillium chrysogenum</i><br>(Thom 1910)     | unicellular   | It is the fungi from which penicillin was obtained.                                   | They can be found in dark, damp places, they have been found in patients with respiratory and skin infections. | Asexual | heterotroph |  <p>Image obtained from <a href="http://botit.botany.wisc.edu/toms_fungi/nov2003.html">http://botit.botany.wisc.edu/toms_fungi/nov2003.html</a><br/>For educational use only.</p>                               |
|         | <i>Ganoderma applanatum</i><br>(Pers. Pat)        | multicellular | It has medicinal properties, producing antimicrobials.                                | They grow on tree trunks.  | Asexual | heterotroph |  <p>Image obtained from <a href="http://micologica.mex.tl/1010685_el-hongo-Ganoderma-applanatum.html">http://micologica.mex.tl/1010685_el-hongo-Ganoderma-applanatum.html</a><br/>For educational use only.</p> |
|         | <i>Trichosporon ovoides</i><br>(Küchenm y Rabenh) | unicellular   | This is a fungus that produces superficial diseases in humans.                        | They are found in the ground, in water, plants, skin and nails.  | Asexual | heterotroph |  <p>Image obtained from <a href="http://vetbook.org/wiki/cat/index.php/Trichosporon_sp">http://vetbook.org/wiki/cat/index.php/Trichosporon_sp</a><br/>For educational use only.</p>                            |
| Plantae | <i>Zea mays</i><br>(Linneo, 1970)                 | multicellular | This is a food with lots of vitamins and minerals.                                    | They exist in both wild and man made forms.  | Sexual  | Autotroph   |  <p>Image obtained from <a href="http://mormonmatters.org/2008/09/09/ritual-the-husk-of-true-faith/">http://mormonmatters.org/2008/09/09/ritual-the-husk-of-true-faith/</a><br/>For educational use only.</p> |
|         | <i>Darlingtonia californica</i><br>(Torr, 1853)   | multicellular | This is known as the cobra plant due to its shape. It is used as an ornamental plant. | They exist in wild and man made forms in greenhouses.  | Sexual  | Autotroph   |  <p>Image obtained from <a href="http://laguz.jimdo.com/fichas-de-especies/sarraceniaceae/">http://laguz.jimdo.com/fichas-de-especies/sarraceniaceae/</a><br/>For educational use only.</p>                   |

|          |   |               |   |  |                    |             |  |
|----------|---|---------------|---|--|--------------------|-------------|--|
|          | <i>Amorphophallus titanum</i><br>(Becc)         | multicellular | This is known as the cadaver flower for its peculiar aroma that attracts the flies that are its food. They are ornamental plants.   | Indonesia  | Sexual             | Autotroph   |  <p>Image obtained from <a href="http://botany.si.edu/events/amorphophallus/">http://botany.si.edu/events/amorphophallus/</a><br/>For educational use only.</p>   |
| Animalia | <i>Bos Taurus</i><br>(Bojanus, 1827)            | multicellular | The cow is the female, and it is bred for food, obtaining milk and meat.  | In farms around the world.   | Sexual             | heterotroph |  <p>Image obtained from <a href="http://animal.memozee.com/view.php?tid=2&amp;did=14000">http://animal.memozee.com/view.php?tid=2&amp;did=14000</a><br/>For educational use only.</p>   |
|          | <i>Hypsibius dujardini</i> ,<br>(Doyère, 1840)  | multicellular | Due to their appearance, they are known as water bears. They are invertebrate animals, and scientists are very interested in them since they possess exclusive characteristics in the animal kingdom like being able to survive in the vacuum of space. | In damp places and on some plants such as mosses, lichens and ferns. | Sexual and asexual | heterotroph |  <p>Image obtained from <a href="http://articulosletrasamonto.nadas.wordpress.com/2010/09/28/series-extraordinarios-los-tardigrados/">http://articulosletrasamonto.nadas.wordpress.com/2010/09/28/series-extraordinarios-los-tardigrados/</a><br/>For educational use only.</p> |
|          | <i>Pharomachrus mocinno</i><br>(La Llave. 1832) | multicellular | It is also known as Quetzal, a bird in danger of extinction.  | Central America and México.  | Sexual             | heterotroph |  <p>Image obtained from <a href="http://www.eltoucanet.com/protectedareas.php?lang=ES">http://www.eltoucanet.com/protectedareas.php?lang=ES</a><br/>For educational use only.</p>   |

### 3. If you were a biologist, how would you organize the kingdoms and what logic would you use?

The characteristics that were considered to join organisms within the same kingdom is that they share the same cell type, its complexity; i. e. must be unicellular or multicellular, and in most cases they share the same type of nutrition.

### 4. What contributions has the Fungi kingdom given to humanity?

Many mushrooms are foods, they are important decomposers of organic matter, returning nutrients to the soil, and some microscopic fungi produce penicillin, an important antibiotic that change the life of humanity by decreasing the number of deaths due to bacterial infections.

## Bibliography:

Audesirk, T., Audesirk, G. y Byers, B. (2008). Biología. La vida en la tierra (8ª ed.). México: Pearson Educación de México.

De Erice, E., y González, A. (2012). Biología: la ciencia de la vida (2ª ed.) México: McGraw-Hill

Pérez, P. y Molina, M. (2007). Biología. México: Santillana.

Bacterias fuente de energía para el futuro. Disponible en: <file:///C:/Users/user/Downloads/Dialnet-BacteriasFuenteDeEnergiaParaElFuturo-3957131.pdf>.

Consultada el 29 de mayo de 2014.

*Escherichia coli* mecanismos de patogenicidad. Disponible en: <http://www.fmvz.unam.mx/fmvz/cienciavet/revistas/CVvol1/CV1v1c01.pdf>. Consultada el 29 de mayo de 2014.

*Helicobacter pylori*: Clínica, Diagnóstico y Tratamiento. Disponible en: [http://med.unne.edu.ar/revista/revista158/3\\_158.pdf](http://med.unne.edu.ar/revista/revista158/3_158.pdf). Consultada el 29 de mayo de 2014.

Entamoeba histolytica y su relación huésped-parásito. Disponible en: [http://www.amimc.org.mx/revista/2011/31\\_2/entamoeba.pdf](http://www.amimc.org.mx/revista/2011/31_2/entamoeba.pdf). Consultada el 29 de mayo de 2014.

Fact sheet: Plasmodium falciparum malaria. Disponible en: [http://www.malariavaccine.org/files/FS\\_Pfalciparum-Sept-2004\\_FINAL.pdf](http://www.malariavaccine.org/files/FS_Pfalciparum-Sept-2004_FINAL.pdf). Consultada el 29 de mayo de 2014.

American Trypanosomiasis. Disponible en: [http://www.cfsph.iastate.edu/Factsheets/pdfs/trypanosomiasis\\_american.pdf](http://www.cfsph.iastate.edu/Factsheets/pdfs/trypanosomiasis_american.pdf). Consultada el 29 de mayo de 2014.

Penicillin Production by High-yielding Strains of *Penicillium chrysogenum*. Disponible en: <http://aem.asm.org/content/4/5/277.full.pdf>. Consultada el 29 de mayo de 2014.

*Ganoderma applanatum*: A Promising Mushroom for Antitumor and Immunomodulating Activity.

Disponible en: <file:///C:/Users/user/Downloads/i-48.pdf>. Consultada el 29 de mayo de 2014.

Género *Trichosporon*. Disponible en: <http://www.scielo.cl/pdf/rci/v26n3/art10.pdf>. Consultada el 29 de mayo de 2014.

The biology of *Zea mays* L. spp. *Mayz* (maize or corn). Disponible en:

[http://www.ogtr.gov.au/internet/ogtr/publishing.nsf/content/maize-3/\\$FILE/biologymaize08\\_2.pdf](http://www.ogtr.gov.au/internet/ogtr/publishing.nsf/content/maize-3/$FILE/biologymaize08_2.pdf).

Consultada el 29 de mayo de 2014.

The Genus *Darlingtonia*. Disponible en:

<http://www.carnivorousplants.org/cp/Genera/Darlingtonia.php>. Consultada el 29 de mayo de 2014.

*Titan Arum*. Disponible en: <http://bhort.bh.cornell.edu/Atitanum/titan.pdf>. Consultada el 29 de mayo de 2014.

Bovinos. Disponible en: [http://www.ediciona.com/portafolio/document/4/6/1/5/bovinos\\_5164.pdf](http://www.ediciona.com/portafolio/document/4/6/1/5/bovinos_5164.pdf). Consultada el 29 de mayo de 2014.

The tardigrade *Hypsibius dujardini*, a new model for studying the evolution of development.

Disponible en: <http://www.sciencedirect.com/science/article/pii/S001216060701408X>.

Consultada el 29 de mayo de 2014.

El Quetzal una especie en peligro. Disponible en:

<http://www.biodiversidad.gob.mx/Biodiversitas/Articulos/biodiv45art1.pdf>. Consultada el 29 de mayo de 2014.

