





# Diversity of diversities

## JUSTIFICATION

The proposal is to explore diversity as a broad concept that refers to the richness and variety of biological and human systems (cultural, ethnic, biological, etc.).

From here we will focus on biological diversity to explore and identify different terms that are increasingly common in our daily lives.

## CONTENTS

Definition of concepts:

- Biodiversity or biological diversity
  - Genetic diversity
  - Diversity of species
  - Diversity of communities

- Cultural biodiversity
- Hot spots
- Biosecurity and biopiracy
- Richness/abundance

Differences between the mentioned concepts

## MATERIALS

- IT equipment
- Internet connection and access to the programme  
<http://educambientalmadrid.com/>

### DURACIÓN



45-60 minutos

## OBJECTIVES

- To develop comprehension of the concept of biodiversity or biological diversity
- To establish as a group/class what we understand as biodiversity
- To identify the different types of biodiversity, and other associated concepts (see contents)
- To favour learning through games and individual and group reflection
- To favour reflection on the different qualities that make us unique and unrepeatable

## CONDUCT OF THE ACTIVITY

This activity can be conducted in the classroom or as an individual assignment for students at home.

### IN THE CLASSROOM

The teacher will work on an initial exploration of the ideas related to the meaning of diversity.

According to the RAE

- diversity.** (Del lat. diversitas, -itis).
1. f. Variety, dissimilarity, difference.
  2. f. Abundance, great quantity of various different things.

This is an immensely broad concept permitting work on prior knowledge and progressively extract themes such as human, cultural, gastronomic, athletic and linguistic diversity, etc. leading to a reflection on the "abundance of difference" in our world and what this means.

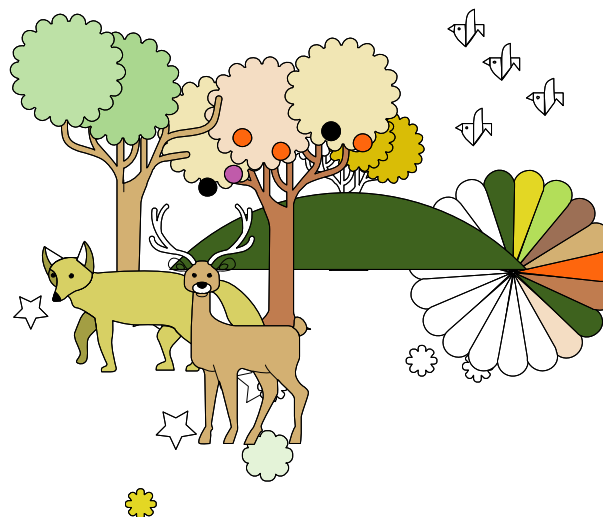
We propose a series of "motor" questions:

What would happen if there was only one type of food? A single sport? A single taste? Who is your equal?...and the conclusions drawn from the group are oriented towards exploring the benefits and advantages of diversity .

Working from the prior ideas about diversity, we focus in on biological diversity. For this we provide the support material "**What do you know about biodiversity?**" From the website of the programme that can be used with the smartboard or computers.

This material provides an itinerary using a question & answer format to approach key concepts:

- Richness and abundance
- Diversity (genetic, species, ecosystems)
- Hot spots
- Conservation and protected natural spaces
- Cultural biodiversity
- Environmental problems



Extinction of species/loss of biodiversity  
 Biosecurity  
 Biopiracy

The game is designed in the format "choose your adventure" and offers participants multiple choices to create their own learning itinerary. The answers permit the user to go forward or back according to the chosen answers. The questions are designed, using common sense, to reinforce and/or expand on the concept of biodiversity, its importance and relation to human life.

**(Optional)** Additionally, the support materials include explanatory videos (see Annex) with which the teacher can complement the activities, either at the start of the activity or as part of a closing reflection on the meaning of biological diversity.

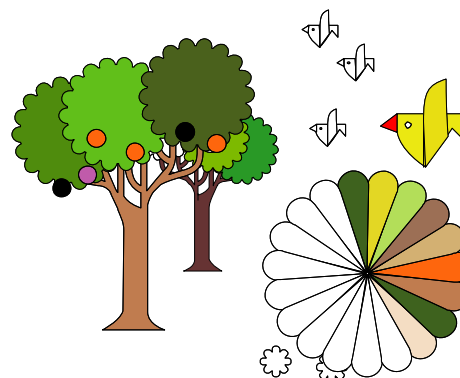
To close the activity, the results will be collected and each participant will be asked to write down what they found most interesting about the TRIVIA game and the videos. These post-it notes will be placed in a visible location in the classroom and will serve to allow the environmental teacher to evaluate the degree of development and ideas of the class, and to adapt the principal activity.

**AT HOME**

The teacher may present the prior activity as an individual task to be performed at home. For this, the teacher will ask the students to watch one of the videos (that considered most appropriate for the level) and to do the TRIVIA game: **"What do you know about biodiversity?"**

The exercise will conclude by collecting all the information learned, the most striking facts the students knew or did not know. The activity will close with the same post-it exercise described before.

**NOTE:** classroom work is recommended because the role of the teacher is very important to dynamise and motivate the students and to conduct the group reflection, generating different focusses and points of view.



**ANNEX**

**Biodiversity**

<https://www.youtube.com/watch?v=rmmCZY8vO7I>  
 3 minute video explaining the concept and different levels of biodiversity. Aimed at all types of viewers, the video provides an interesting approach to the concepts dealt with in the classroom.

**Biodiversity**

<https://www.youtube.com/watch?v=Rh4txXeKIME>  
 In less than 3 minutes, this video from the Humboldt Institute explains the concept of biodiversity, ecosystem and the interrelation of biodiversity with our lives.

**Learn to Protect Biodiversity**

<https://www.youtube.com/watch?v=RVnkKJaCuRo>  
 This is a recommended video by UNESCO, less than 4 minutes, which shows data about some of the principal concerns about the conservation of biodiversity. Aimed at teachers, the video provides concrete examples on how to address the subject of biological diversity in education.

**Video by Joel Sartore** (photographer of National Geographic)

<https://www.youtube.com/watch?v=Gsl3MS5eXR0>  
 In two minutes, without text or voice, Joel Sartore uses his graphic material to move us in a number of personal recordings about biodiversity.

**For further study**

**Biodiversity**

<https://www.youtube.com/watch?v=ryR5uLhUwNU>  
 This is an interesting video with associated materials available on the website [www.berde-berdea.net](http://www.berde-berdea.net) about biodiversity. Aimed at students of 1º and 2º ESO, this material has a certain degree of complexity.

**Ecosystem services, our vital connection with biodiversity**

<https://www.youtube.com/watch?v=2h6rOS8NvkQ>  
 The Humboldt Institute (Colombia) offers a short video, less than 3 minutes, explaining the interconnection we have with biodiversity on the planet. Recommended to go further and provide reinforcement after the classroom session and designed for all types of viewers.

**Biodiversity in your life**

<https://www.youtube.com/watch?v=6lIPaqnAHYk>  
 An initiative to raise awareness of biodiversity in everyday life, promoted by the Ministry of Agriculture, Food and the Environment and the Spanish Federation of Municipalities and Provinces. For further study after the classroom sessions.

**The 5 Kingdoms of Life on Planet Earth**

<https://www.youtube.com/watch?v=0jEB7TIQDUE>  
 An excellent mini-documentary observing a magical world recreated using graphics and 3D animation by Lynn Margul, on the different natural eras and the development a different kingdoms in nature.

# HIPPO

## and biodiversity

### BIO-ACTION

#### JUSTIFICATION

The third proposed activity is to close the circle relating biodiversity, its importance (environmental services) and environmental problems from a more global point of view, related to environmental sustainability. The aim is to show that environmental sustainability is created individually and collectively from the idea of shared responsibility to make changes in society and in our culture.

To achieve this we will explore the relation between our actions and habits of consumption and biodiversity. Obviously, children do not have the same responsibility as a government official nor is their personal contribution have an immediate impact on the conservation of biodiversity. However, it is the sum of small actions and above all a change in mentality and critical thought that will put us on the path to sustainability.

#### CONTENTS

- Biodiversity and environmental sustainability
- Threats to biodiversity:
  - Habitat loss
  - Invasive species
  - Pollution
  - Population growth
  - Overexploitation of resources

#### DURACIÓN



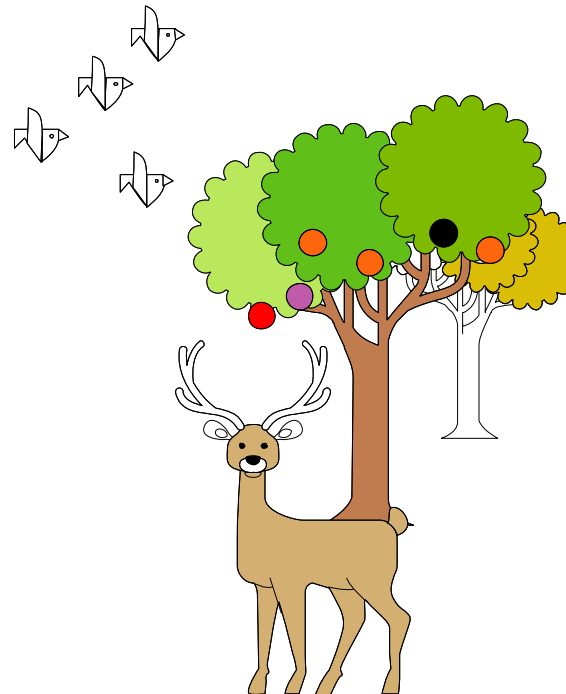
45-60 minutos

#### MATERIALS

- Relationships game: laminated cards
- Activity "Roles for sustainability": paper and coloured pens

#### OBJECTIVES

- Relate the importance of biodiversity with environmental sustainability
- Favour logical and critical thought to establish cause-effect relations
- Reflect on our direct and indirect relation to the conservation of biodiversity



#### CONDUCT OF THE ACTIVITY

In the third section of classroom work we will seek to integrate biodiversity into our daily lives and with direct actions we can take to conserve and or promote biodiversity and thus environmental sustainability.

We begin with the presentation of **HIPPO**, a mascot-symbol which indicates in its name the principal current threats to biodiversity:

- H** Habitat loss
- I** Invasive species
- P** Pollution (contamination)
- P** Population growth
- O** Overharvesting

The presentation of **HIPPO** is accompanied by specific and striking data on the loss of biodiversity, relating this to the environmental benefits and services being lost or under threat. These threats are related easily with environmental sustainability.

Subsequently, we will conduct a game of relationships using information cards to chain, with specific examples, these abstract environmental problems with concrete examples and results; encouraging students to discover the existing interrelationships.

For example:

- I prefer to walk or cycle to school \* less air pollution \* less fuel consumption \*
- I prefer not to have tropical fish or other exotic species \* avoiding the invasion of exotic species \* not altering the habitats of these species

A brief conclusion on these discovered sequences will lead us to the principal exercise "**roles for sustainability**".

## SUBSEQUENT ACTIVITY

In this exercise, the class will be divided into groups of 4 - 5 students, presenting each group with a daily action for debate

The group will have to determine the repercussions of this action on biodiversity.

The goal is to provide a period for reflection and debate in order to generate their own conclusions on inter relationships (cause-effect).

After the stipulated period, this will be identified using the latest "paper-point" technology (each group will be provided with paper and coloured pens) to present their conclusions graphically and to present them to the rest of the class.

Examples of actions:

- On my terrace I have plants that are native to the ecosystems of Madrid
- At home we always separate our garbage into the proper containers
- I will become a member of an environmental NGO
- I eat less meat and more vegetables, fruits and cereals
- I like to spend the day in the country
- I never use the toilet as a garbage disposal
- I am not going to change my videogame console at the moment
- I would never abandon my pet

The teacher, as the monitor of the group work, will orient and help the groups to identify interrelations.

To conclude the session, once the groups have presented their results, the whole class will reinforce the most creative, visionary or daring aspects occurring during the various presentation.

On this occasion it will not be the teacher who concludes the session with a closing message but will motivate the students to be the protagonists in creating this message.

The session will finish with a written message on the board and spoken aloud by the entire class.

