# **BIODIVERSITY Amaze** yourself with biodiversity TERCER CICLO DE **EDUCACIÓN PRIMARIA**

#### **JUSTIFICATION**

The aim is to demonstrate the relation between biodiversity and the essential services it provides.

In other words, to identify the direct or indirect contributions of ecosystems and biodiversity to human welfare; without losing sight of the ethical vision (we share the planet with other species) and the values related to this issue.

#### **CONTENTS**

- What does biodiversity mean? (reviewreinforcement)
- Different types of biodiversity (genetic, species, community)
- Benefits of biodiversity:
- Services of supply
- Services of regulation
- Cultural services

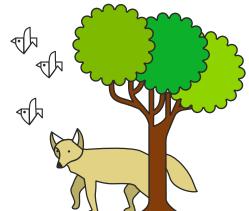


#### **MATERIALS**

- Presentation: Computer and Power point
- Activity: benefits of biodiversity (laminated cards)
- Activity: our diversity (coloured chalk)

#### **OBJECTIVES**

- To explore the concept and meaning of biodiversity
- · To identify the meaning of ecological services and their important to our lives
- Relate biodiversity with human welfare



#### **CONDUCT OF** THE ACTIVITY

As if it was a television programme, the teachers will provide a theatrical element, entering the classroom announcing that the group has been selected to participate in a TV contest Amaze yourself with biodiversity.

With this pretext, and after reviewing and/or reinforcing the concepts related to Biodiversity (diversity of diversities), a lively presentation will be made using Power point, introducing the importance of biological diversity and its principal benefits:

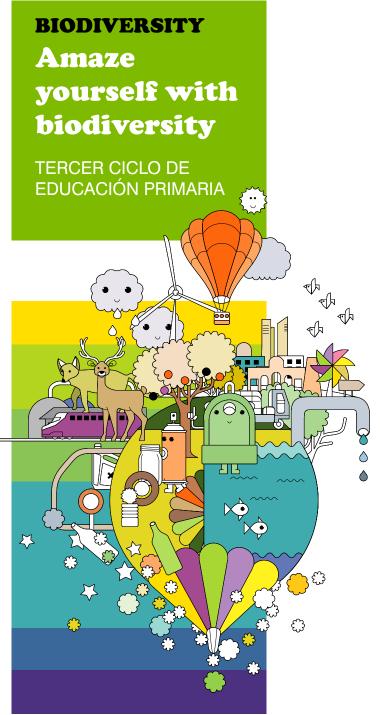
- -Regulation
- -Supply
- Cultural services











After this introduction, the class will be divided into 4-5 groups (according to the size of the class) to work on an activity related to these benefits.

The identifying signs will be posted in the classroom:

- -Services of regulation
- -Services of Supply and
- -Cultural Services,

creating 3 different areas within the classroom.

Each group will receive "at random" a set of cards which symbolise specific examples of these services, for example: pollination as a service of regulation, wood as a service of supply, etc. Each card will have a TITLE, description and image.

The group must decide in which area the card belongs, that is, which type of benefit it corresponds to.

To provide more dynamism to the activity, the teachers, out loud and in a theatrical manner, will present **ENIGMAS** related to biodiversity (these enigmas will be related to the content already seen and also with simple logic games and/or group reflection).

The group which solves the ENIGMA will win "WILD CARDS" that can be exchanged for the resolution (and an explanation by the teacher) of the cards they find most difficult.

The game will continue for as long as the teacher considers necessary, leaving the last 15 minutes for group reflection and the conclusion of the activity.

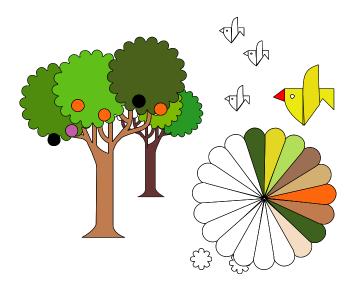
For the conclusion of the activity: "Our diversity" aims to leave students with a vivid memory of that learned in the classroom.

After collecting all the concepts worked on during the activity, with motivating questions such as:

- What didn't they know before and what have they learned?
- What did they find most striking or surprising? (facts and figures, relations, easy things, difficult things...

These will be gathered on the board or on paper, indicating the benefits derived from biodiversity in a free and integral manner.

The teacher will orient the students in creating a collective image, helping to choose pictures and assisting in creating the necessary interrelation on a creative conceptual map.



#### Note for the teacher

Once the activity is concluded with a closing message and the conclusions of the participants, it will be suggested to the teacher to continue the activity, recovering the information posted on the board or proposing the class "constructs" an environment of **maximum biodiversity** (a type of ecosystem or an ecosystem typical of the Community of Madrid) in a lasting format (plasticine model, collage, drawings, etc.) which will form part of the common space of the classroom.

# 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

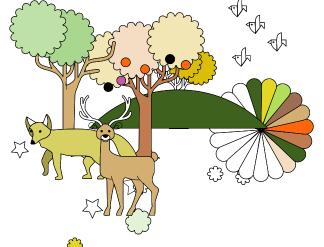
http://educambientalmadrid.com/



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.

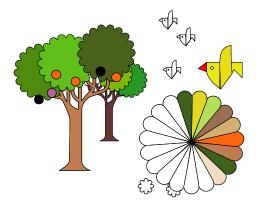
To close the activity, the results will be collected and each participant will be asked to write down what they found most interesting about the TRIVIA game and the videos. These post-it notes will be placed in a visible location in the classroom and will serve to allow the environmental teacher to evaluate 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 as 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=rmmCZY8vO7l 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 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=6llPaqnAHYk
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

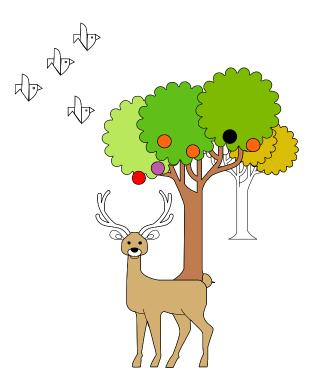
45-60 minutos

#### **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"**.

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 interrelationships (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.

