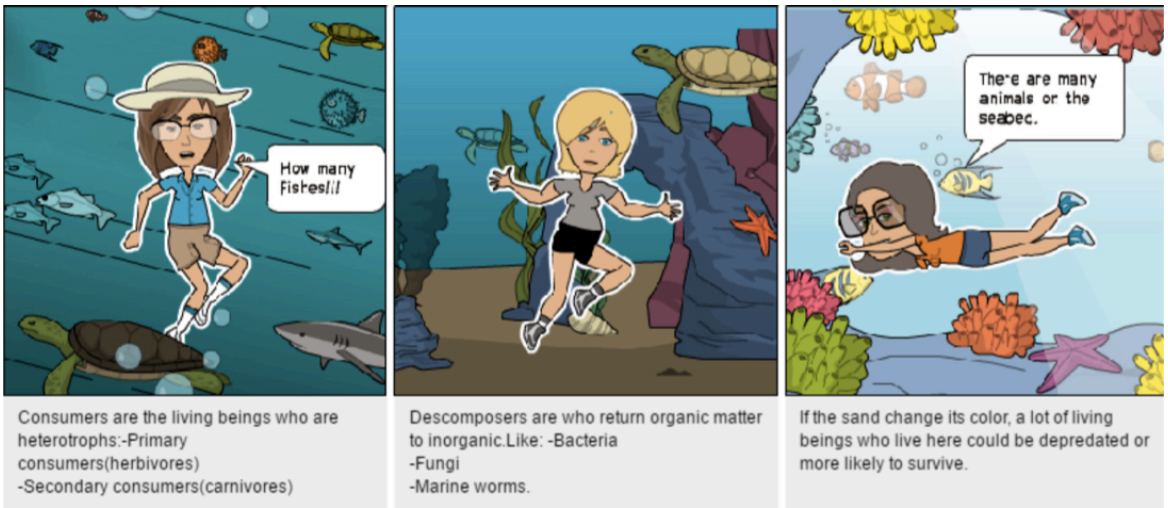
GRUP D'EXPERIMENTACIÓ PER AL PLURILINGÜISME

ECOSYSTEMS

Àrea: Biologia i Geologia

Autoria: Pilar Rodríguez Forn



Generalitat de Catalunya
Departament d'Ensenyament

MARC PER AL PLURILINGÜISME
A FAVOR DE L'ÈXIT ESCOLAR
PLURILINGÜISME

ECOSYSTEMS

Material elaborat durant la realització de la formació adreçada als docents que implementen el pilotatge del GEP (Grup d'Experimentació per al Plurilingüisme) durant el curs 2016-2017, realitzada amb el formador de l'Internacional House Barcelona.

SG de Llengua i Plurilingüisme
Servei de Llengües Estrangeres

Febrer, 2017

Ten tips for learning success

- Make connections between your subject with real life; you'll make the subject more credible
- Look for appealing resources that can increase interest in students, instead of boring academic material
- If possible, let students work in pairs or small groups, collaboratively; it's better for them than always having to face the tasks alone
- Tempt students to discuss and share their opinions; it will let you know how much they know about the proposed issues
- Encourage students to use proper scientific language
- Propose the creation of a glossary for a better understanding of the meaning of specific words
- Urge students not to focus on every word they read but on the whole meaning of the text or activity
- Make students assess their own work and that of other classmates, particularly if they are working in groups
- Ask students about their interests once you've given them an issue to deal with
- Do everything possible to give feedback of your assessment to your students

Fabulous food chains

The video shows the way energy flows through an ecosystem and how food chains are formed.
Go to video: Fabulous food chains or click the image below

https://www.youtube.com/watch?v=MuKs9o1s8h8

Activities

Explicit

- Explain why humans are considered to be at the top of the food chain.
- What makes the energy from the Sun enter a food chain and turn it into chemical energy?

Implicit

- Create a food chain that you are part of, and see how the energy flows from the sun through different organisms until you get it to live.
- How it is possible that most living things are in more than one food chain?

Referential

- Try to imagine what would happen to ecosystems if the sun disappeared.
- How could the girl in the video be part of a food chain that starts in an aquatic ecosystem?

Revision

1. Label the photographs

decomposer	producer	primary consumer
secondary consumer	tertiary consumer	

a 

_____

b 

_____

c 

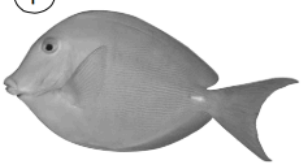
_____

d 

_____

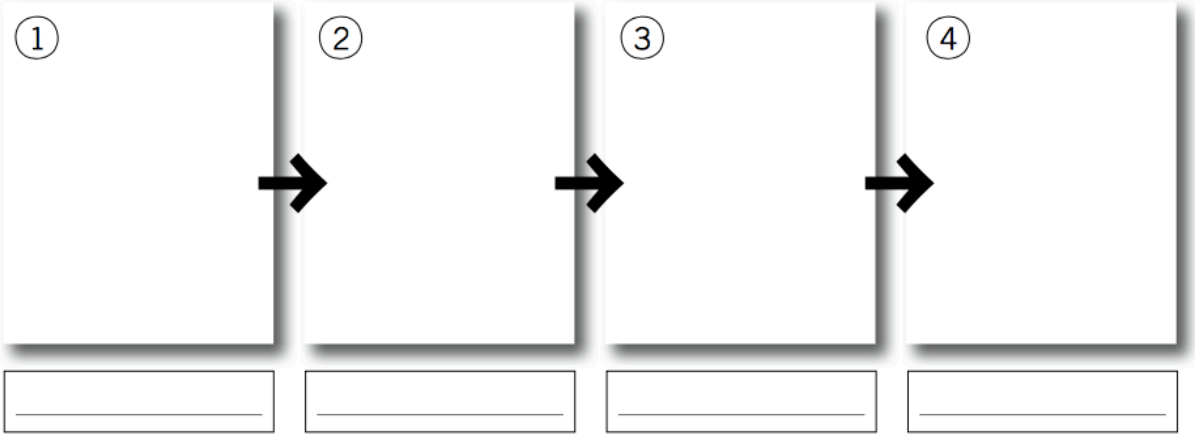
e 

_____

f 

_____

2. Draw and label a food chain



Extension

Biodomes


A biodome is a form of controlled, self-sufficient eco-system that closely replicates the natural outdoor environment. It is a scientific-based form of a greenhouse that can be made up of various geodesic spheres, although it's not always the case.
It creates its own water, nutrients and survives without any help from the outside. The most famous example is that of the Montreal Biodome, which houses 4 different eco-systems.
Another famous example called the Eden Project can be found in Cornwall, United Kingdom, and consists of numerous biodomes that span a large area.
A biodome creates a perfect environment for plants, animals and insects. You can build a mini biodome greenhouse at home with just a few items just to see how it all works.

1. Research the following ecosystems and write in the table the types of plants, animals and soil you might expect to find in those environments.

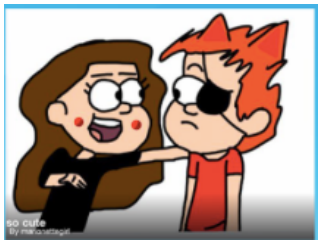
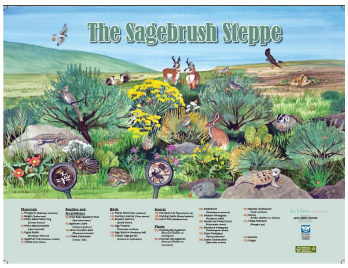
Ecosystem	Plants	Animals	Soil
Rainforest			
Arctic tundra			
Temperate			
Desert			

2. In which ecosystem would you prefer to live? _____
3. Describe how an engineer might design a house in your preferred environment, taking into consideration the types of weather that exist in that ecosystem.

Project: collaborative problem solving

1. Work in small groups to make your project work about Ecosystems and follow the next steps:
    a. Describe a known ecosystem in a biome on Earth and all the biotic/abiotic factors that affect it.
    b. Identify and explain the producers, consumers, and decomposers within the ecosystem and how they get their energy.
    c. Identify one way an abiotic component could change the population size in that ecosystem.
    d. Identify and describe three unique examples of competition / symbiosis / predator-prey relationships.
    e. Invent and introduce one student-imagined organism into the ecosystem and describe how it would affect it over a long time period.

2. Choose the way you are going to present it in front of the class

Scratch program 	Powerpoint/Keynote 	Diorama 
Collage 	Video skit or cartoon 	Poster board 

Assessment

Rubric

CRITERIA	**4**	**3**	**2**	**1**
Preparation	The group has carried out a thorough preparation and has rehearsed the presentation well.	The group has carried out a good preparation but a couple more rehearsals might have been needed.	The group has carried out a fair preparation but lack of rehearsal is clear.	The group has carried out very little preparation and a lack of rehearsal is clear.
Speaks Clearly	Students speak clearly all the time and the pronunciation of words is very good.	Students speak clearly most of the time and the pronunciation of words is good.	Students speak clearly most of the time and words are sometimes pronounced correctly.	Students don't speak clearly and what they say is not understandable or the words are seldom pronounced correctly.
Final product	The final product is exceptional in regards to meeting the project instructions and expectations.	The final product is very good in regards to meeting the project instructions and expectations.	The final product is good in regards to meeting the project instructions and expectations.	The final product does not reflect in regards to meeting the project instructions or expectations.
Originality	Project reflects an exceptional degree of student creativity.	Project reflects strong student creativity.	Project reflects some creativity by the student but may be based on the designs / ideas of others.	Project lacks overall student creativity.

Self evaluation

Quick Peer Evaluation Form

Name_____Class Period_____Date_____

Write the names of your group members in the numbered boxes. Then, assign yourself a value for each listed attribute. Finally, do the same for each of your group members and total all of the values.

Values: 5=Superior 4=Above Average 3=Average 2=Below Average 1=Weak

Attribute	Myself	1.	2.	3.	4.
Participated in group discussions.					
Helped keep the group on task.					
Contributed useful ideas.					
How much work was done.					
Quality of completed work					
Totals					

Group Self Evaluation Checklist

Name_____Class Period_____Date_____

Topic of Study_____Group Members' Names_____

As a team, decide which answer best suits the way your team worked together. Then, complete the remaining sentences.

We finished our task on time, and we did a good job!	☐ YES	☐ NO
We encouraged each other and we cooperated with each other.	☐ YES	☐ NO
We used quiet voices in our communications.	☐ YES	☐ NO
We each shared our ideas, then listened and valued each other's ideas.	☐ YES	☐ NO
We did best at		
Next time we could improve at		

Checklist

In this unit you have…

- Worked independently and agreed to be responsible for your own learning.
- Worked collaboratively in pairs or groups.
- Used different strategies to help you understand scientific information.
- Shared information to help you and others understand scientific knowledge better.
- Used appropriate language and vocabulary to explain and define ecosystems.
- Explored a variety of authentic texts and multimedia.
- Carried out activities that are challenging and require thinking.
- Applied your knowledge of science to a specific situation.
- Provided solutions to problems related to ecosystems.
- Taken greater responsibility for learning by assessing your own work and that of others.