



Faculty Of Urban & Regional Planning

Course: Planning Of Environmentally Especial Regions

Understanding Natural Ecosystems

Lecture 2

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الهدف العام للمحاضرة

تعريف الطالب كيفية فهم وتحديد خصوصية النظم البيئية

الاهداف التعليمية التي تسهم في تحقيقها المحاضرة

يفهم ويستوعب النظم البيئية والايكولوجية والتأثيرات المتبادلة بينها وبين الانشطة العمرانية على جميع المستويات	KU5b
يدير الوقت ويكتسب قيمة الدقة والإتقان	GS8

المحتويات

- مفهوم النظم البيئية
- أنواع النظم البيئية
- تحديد خصائص المكونات الرئيسية المميزة للنظام البيئي
- وضع تصور لهيكل النظام البيئي
- تحديد أهم التفاعلات البيئية المميزة
- تحديد التغيرات المختلفة لهذا النظام
- أمثلة لنظم بيئية مختلفة
- تمرين تطبيقي أثناء المحاضرة

Natural Ecosystem

is a dynamic complex of living communities (e.g. plants, animals, microorganisms, etc.) and non-living natural components (e.g. Water, soil, geography, etc.) interacting as a functional unit.

To understand an ecosystem...

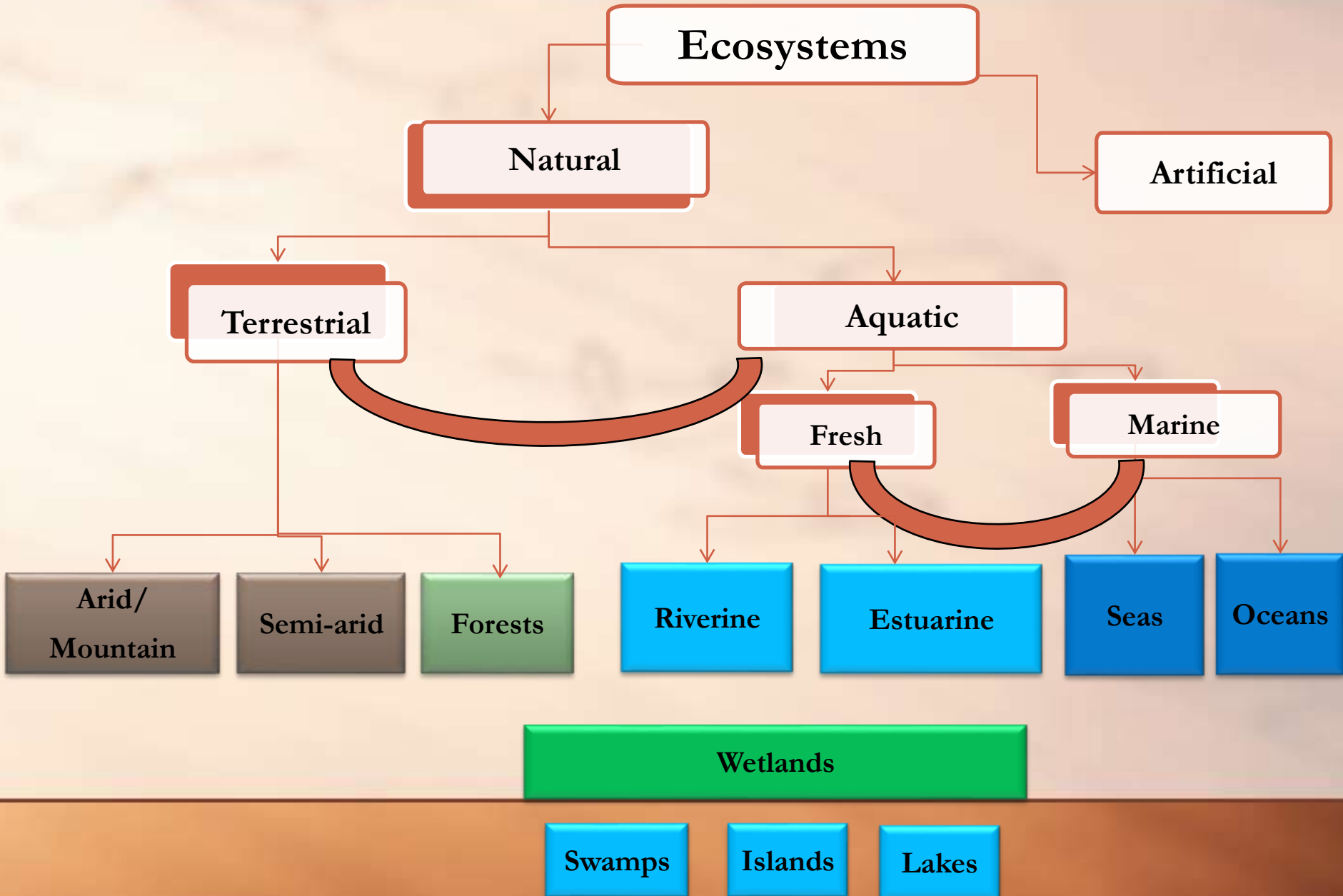
What do we need to know
about it????

To understand an Ecosystem

Identify:

1. Type;
2. Main components (physical & living);
3. Ecosystem Structure
4. Interactions (functions & processes);
5. Boundaries (as a functional UNIT);
6. Dynamics (daily, seasonal, annual, longer changes)

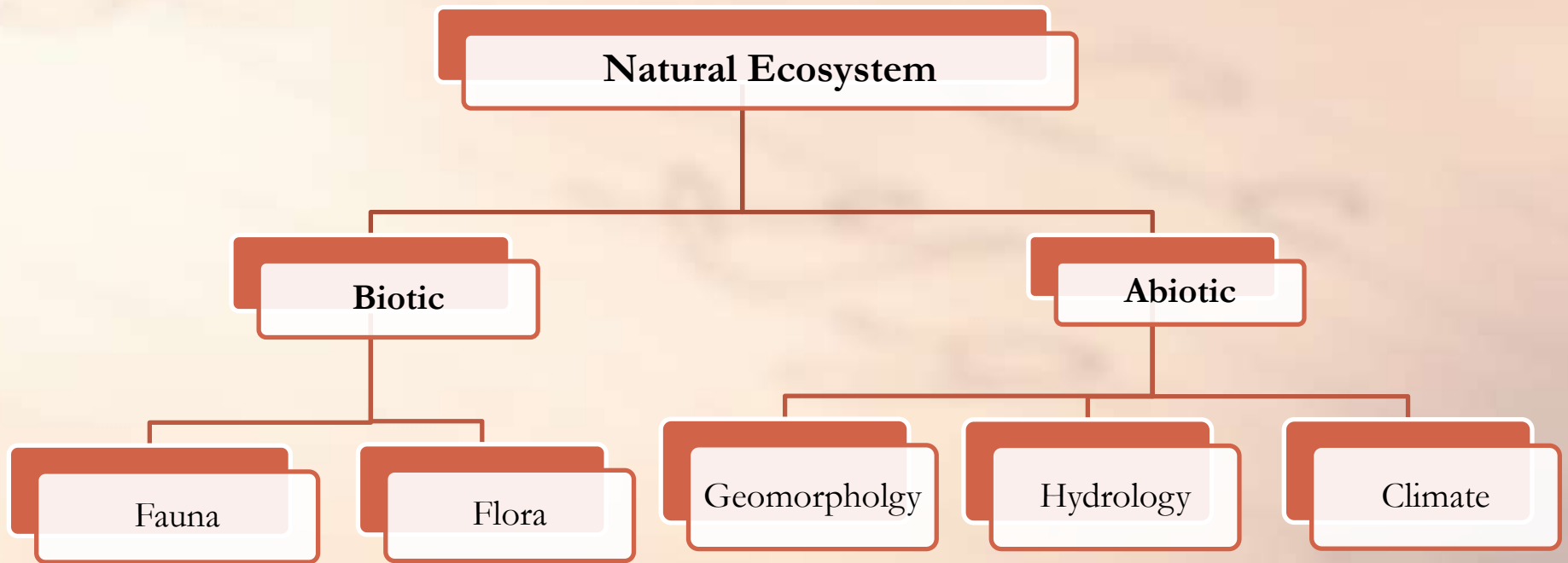
1. Main Types of Ecosystems



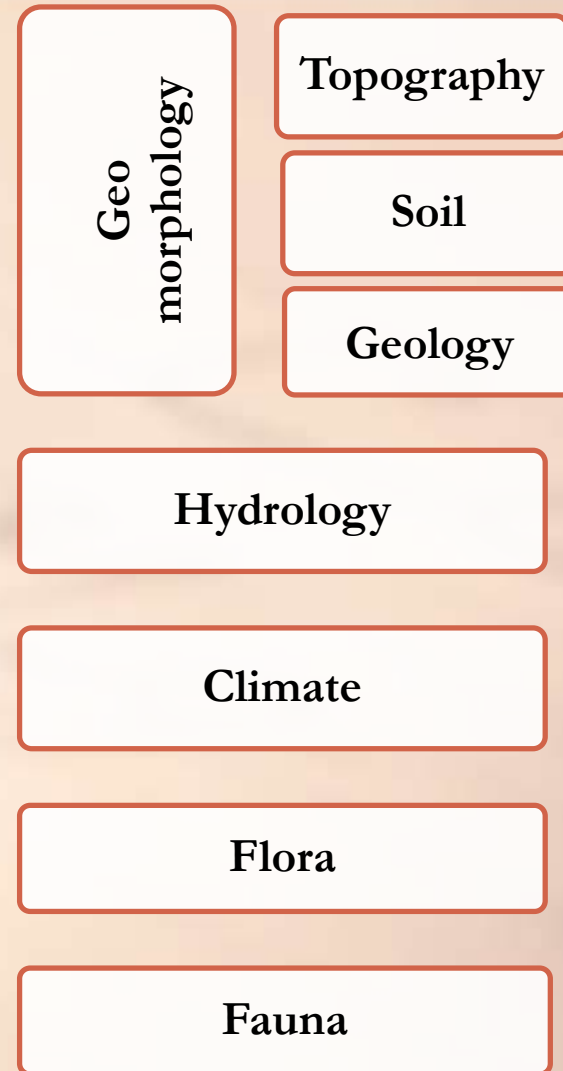


Choose one type &
Give an example

2. Main components



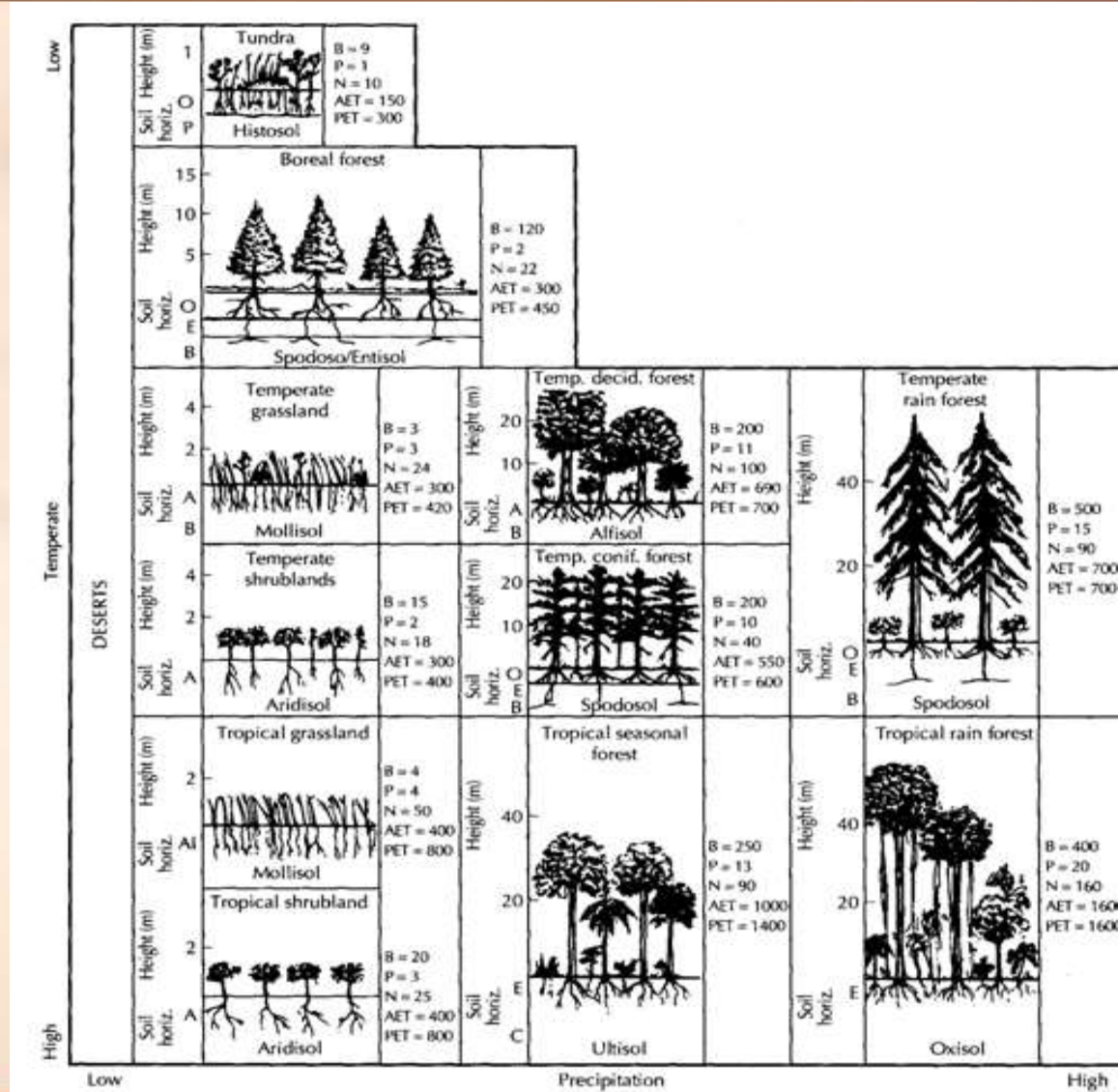
List of components



3. Ecosystem Structure

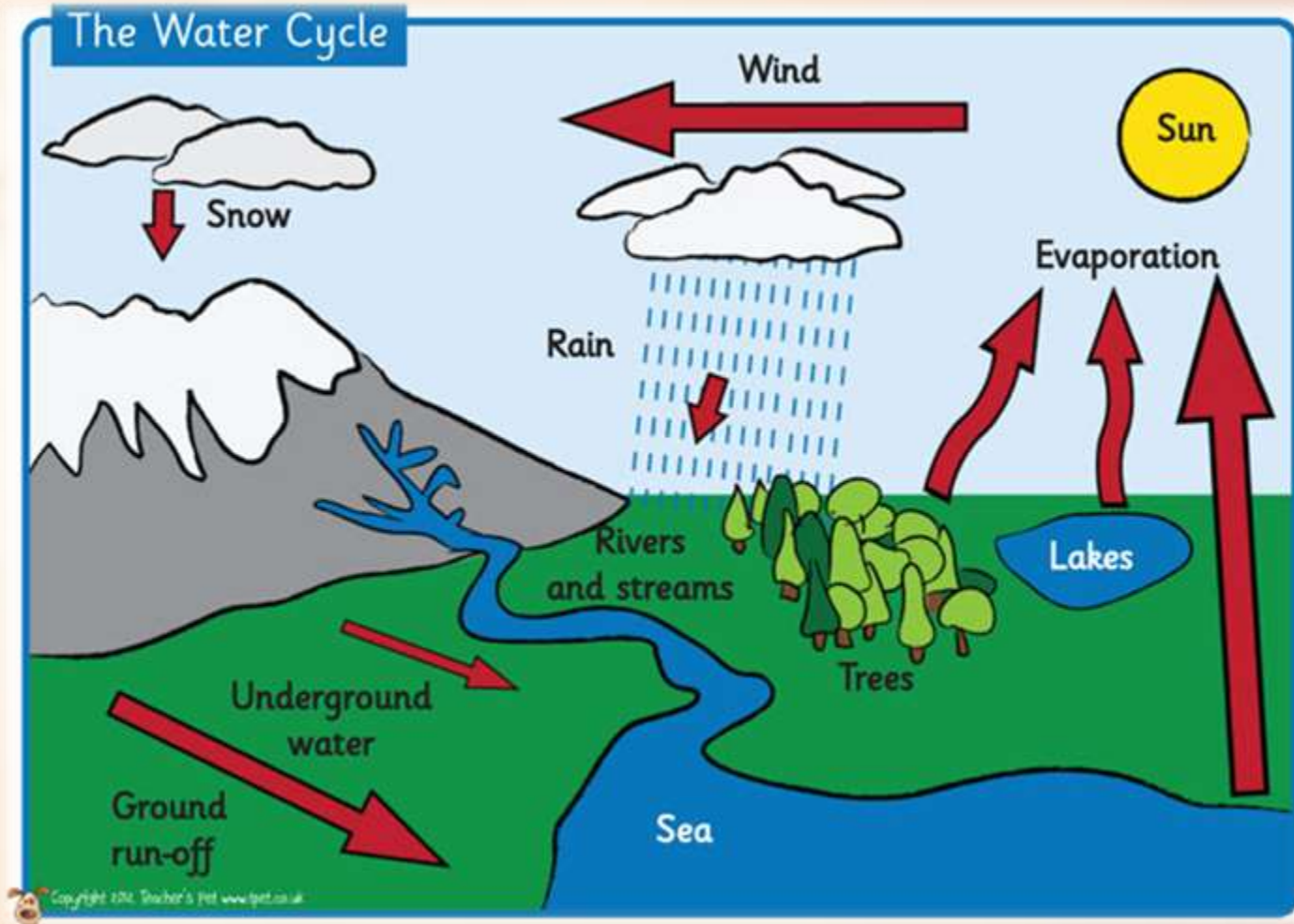
Vertical & Horizontal
distribution of ecosystem
components

(e.g., vegetation ht.,
distribution of plant biomass
above and below ground,
etc.)



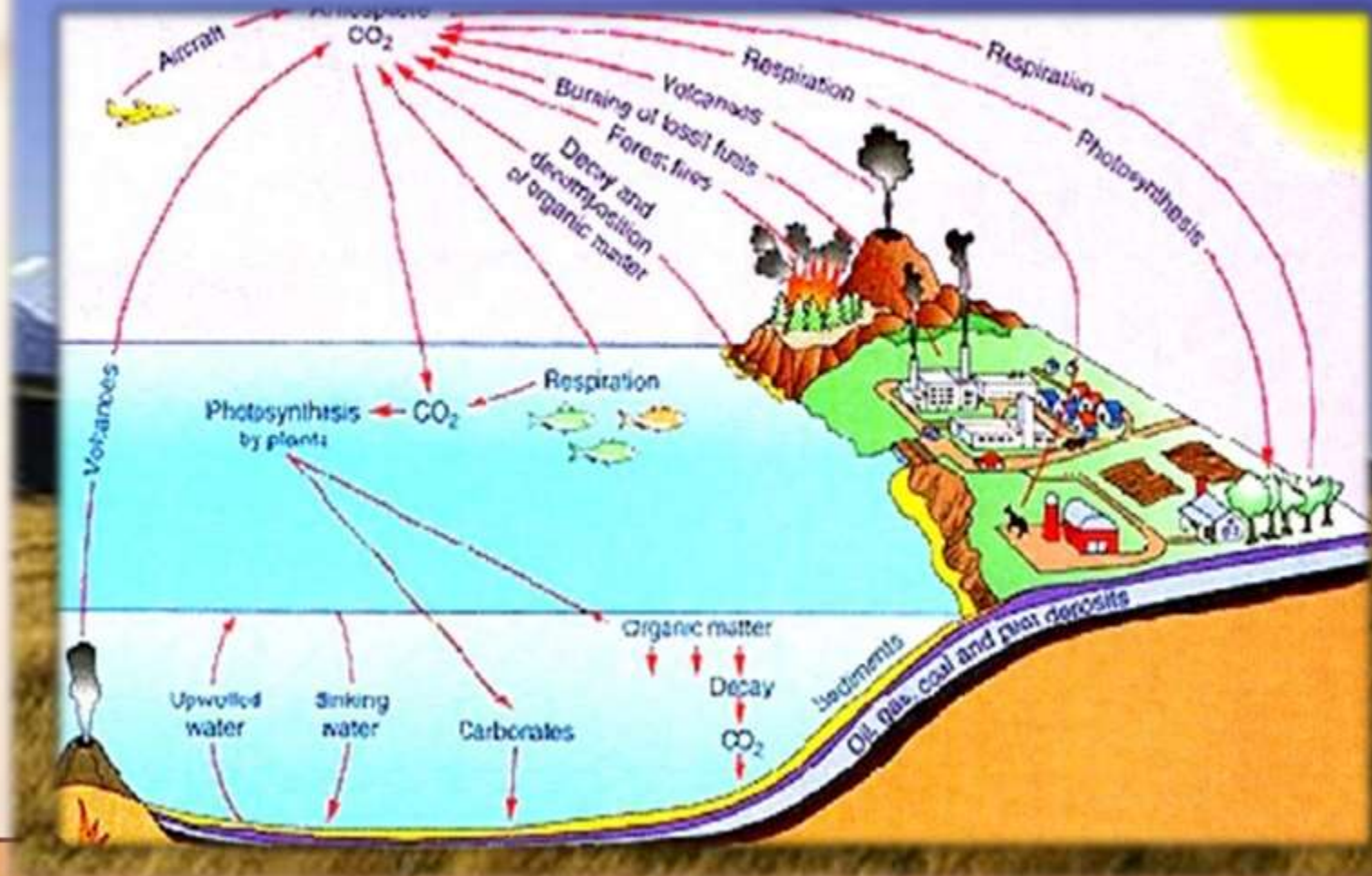
Sketch & Section

4. Ecosystem Functions



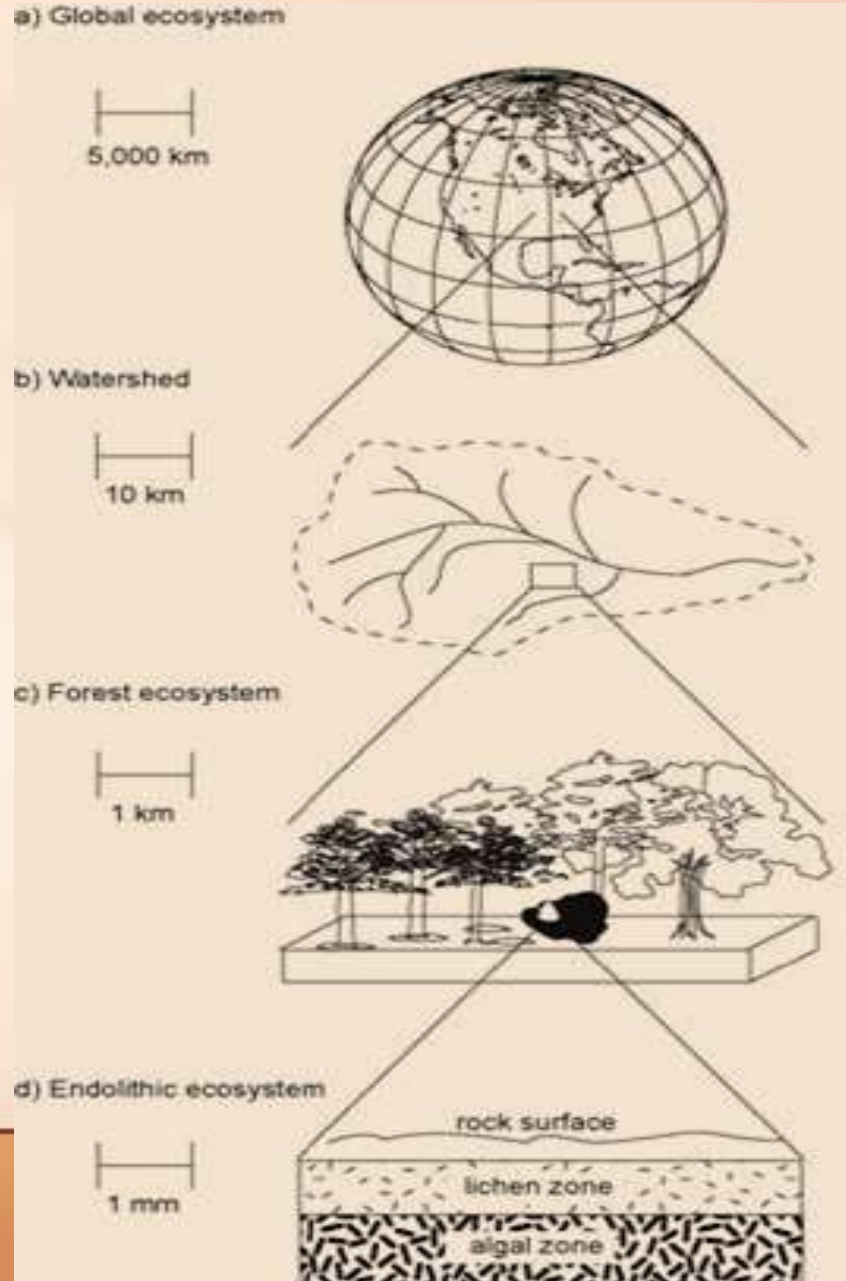
4. Ecosystem Functions

The Carbon Cycle



5. Boundaries of Ecosystem (as a functional UNIT);

Spatial scale



Boundaries of Ecosystem (as a functional UNIT);

How do we decide where to draw the lines around an ecosystem?

Natural Boundaries:

Ecosystems sometimes are bounded by naturally delineated borders (crop field, lake); *appropriate questions include whole-lake trophic dynamics and energy fluxes (e.g., Lindeman 1942)*



6. Time Scale in Ecosystem Ecology



- Rapid changes (over the day/ days/ weeks): e.g. level of water in wetlands.
- Seasonal: e.g. land cover in semi-arid zones, grassland
- Successional: (totally new generations) 3 months after fire, 300 years after fire
- Major transformation: 1 to thousands of years

10 min



Rapid changes

Seasonal

Successional

Major transformation:

To understand an Ecosystem

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Educational activity

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Studio (60 mint)

- On an A3 paper: compare main features of 3 Ecosystems
- On the Egyptian map: Draw bounties of different types of Natural Ecosystems

Homework



1- Name & Location map of your Case study (T)

2- PPT: Desert- Forests- Islands - Deltas/Rivers

1. International conventions, conferences??
2. Organizations (Who & How)
3. Development guidelines

UNDP/UNEP/CBD/World Bank/...



Enjoy short Break