

Topic 1 Pollution

Draw and annotate a diagram to show the process of pollution and the level of pollution management

How effective is each stage of management?

1. Altering Human Activity
2. Controlling Release of Pollutant
3. Clean-up and Restoration of Damaged Systems

Topic 1 Pollution: DDT

Define and give examples of the following:
Bioaccumulation:

Biomagnification:

What is DDT?

Uses of DDT

Restrictions of DDT

Environmental Impacts of DDT

Social impacts of DDT

Topic 1 Pollution

Define and give examples of the following:
Pollution:

Organic substances:

Inorganic substances:

Biological agents:

Invasive species:

Define & give examples of
Acute effects of pollution:

Chronic effects of pollution:

Outline point source pollution with examples

Define and give examples of primary pollution

Define and give examples of persistent pollutants

Outline non-point source pollution with examples

Define and give examples of secondary pollution

Define & give examples of biodegradable pollutants

Topic 1 Sustainability

Define and outline the following:
Millenium Ecosystem Assessment:

Environmental Impact Assessment:

Ecological Footprint

Outline the findings of the MEA

Outline the role of stages of an EIA

Baseline study:

Predicting and evaluating possible impacts:

Audit:

Monitoring:

List the baseline study measures:

Outline the role and purpose of an environmental impact assessment:

Topic 1 Sustainability

Define the following:
Sustainable Development

Sustainable

Natural Capital

Natural Income

Outline how humans use resources beyond their sustainable limits

Define and give examples of renewable resources

Define and give examples of non-renewable resources

Draw the 3 pillars of sustainability (or the sustainability stool)

Define and give examples of ecosystem services for 3 ecosystems

Topic 1 Resilience and Diversity

Define the following:

Ecological resilience:

Ecological Diversity:

Outline how following factors can influence the resilience of an ecosystem

Diversity

Size of storage

Humans

Outline an example of how humans have affected the resilience of a species or ecosystem

Outline the relationship between resilience, stability, equilibria and diversity

Topic 1 Energy and Equilibria

Outline steady-state equilibrium

Outline static equilibrium

Outline the difference between stable and unstable equilibrium

Outline Positive Feedback

Outline Negative Feedback

Topic 1 Energy and Equilibria

Define the following and give examples of:

Open system:

Closed system:

Isolated system:

Outline the first law of thermodynamics

Define the following:

Entropy:

Tipping point:

Equilibrium:

Outline the second law of thermodynamics

Topic 1 - EVS

Plan your answer to this question

- (c) Discuss how different environmental value systems influence responses to the human population growth rate.

(c) Discuss how different environmental value systems influence responses to the human population growth rate.

[9]

Answers may include:

Eccentric / Deep/Soft-Ecologists:

- role of personal (and society's) behavior / Role of education/ Less materialistic society / Spirituality may mean values of environmental protection embedded in society, eg Bhutan / Need to put nature's needs at a higher priority / Biogrits / Need to rethink economic growth as continual need for use of resources
- probably sees human population growth as a negative impact on the Earth
- would thus promote education of women as strategy to reduce human population growth
- would promote self-restraint in family size
- would promote international collaboration to support countries in meeting the Millennium Development Goals and thus reduce population growth

Anthropocentric / Environmental Manager:

- sustainably manage the global system / use of taxes / use of regulation and legislation / debate would be encouraged to reach a consensus to solving population challenges
- probably sees human population growth as a problem that needs tackling
- also promotes international collaboration to reduce population growth
- may impose national legislation to control population growth
- eg China's one child policy
- many societies implement policies to encourage or discourage pregnancies and children
- eg tax breaks for families

Technocentric / Cornucopian:

- technological developments can provide solutions to environmental problems / role of human ingenuity in improving the lot of humanity / scientific research is encouraged / emphasis on how systems can be controlled, manipulated or exchanged to solve problems / A pro-growth agenda is deemed necessary for society's improvement
- population growth may be seen as a way of supporting economic growth
- if population is deemed to need controlling then technological innovations may be provided including use of contraception
- population growth seen as less of a problem as new technologies may support a growing population
- as Esther Boserup demonstrated in her work on agricultural innovation in primitive societies with growing populations
- promote scientific research to support a growing population
- eg growing meat in a parrish / vertical gardens / farms

Section B, part (c) markband

Marks	Level descriptor
0	The response does not reach a standard described by the descriptors below and is not relevant to the question.
1-3	The response contains: <ul style="list-style-type: none"> • minimal evidence of knowledge and understanding of ESS issues or concepts • fragmented knowledge statements poorly linked to the context of the question • some appropriate use of ESS terminology • no examples where required, or examples with insufficient explanation/relevance • superficial analysis that amounts to no more than a list of facts/ideas • judgments/conclusions that are vague or not supported by evidence/argument.
4-6	The response contains: <ul style="list-style-type: none"> • some evidence of sound knowledge and understanding of ESS issues and concepts • knowledge statements effectively linked to the context of the question • largely appropriate use of ESS terminology • some use of relevant examples where required, but with limited explanation • clear analysis that shows a degree of balance • some clear judgments/conclusions, supported by limited evidence/arguments.
7-9	The response contains: <ul style="list-style-type: none"> • substantial evidence of sound knowledge and understanding of ESS issues and concepts • a wide breadth of knowledge statements effectively linked with each other, and to the context of the question • consistently appropriate and precise use of ESS terminology • effective use of pertinent, well-explained examples, where required, showing some originality • thorough, well-balanced, insightful analysis • explicit judgments/conclusions that are well-supported by evidence/arguments and that include some critical reflection.

Topic 1 - EVS

Plan your answer to this question

- (c) Discuss how different environmental value systems influence responses to the human population growth rate.

[9]

Topic 1 - EVS

Outline the potential approaches taken by ecocentrics and technocentrics to the following environmental challenges

Challenge	Ecocentric	Technocentric
Extensive fossil fuel use		
Increasing demand for water		
Acid rain		

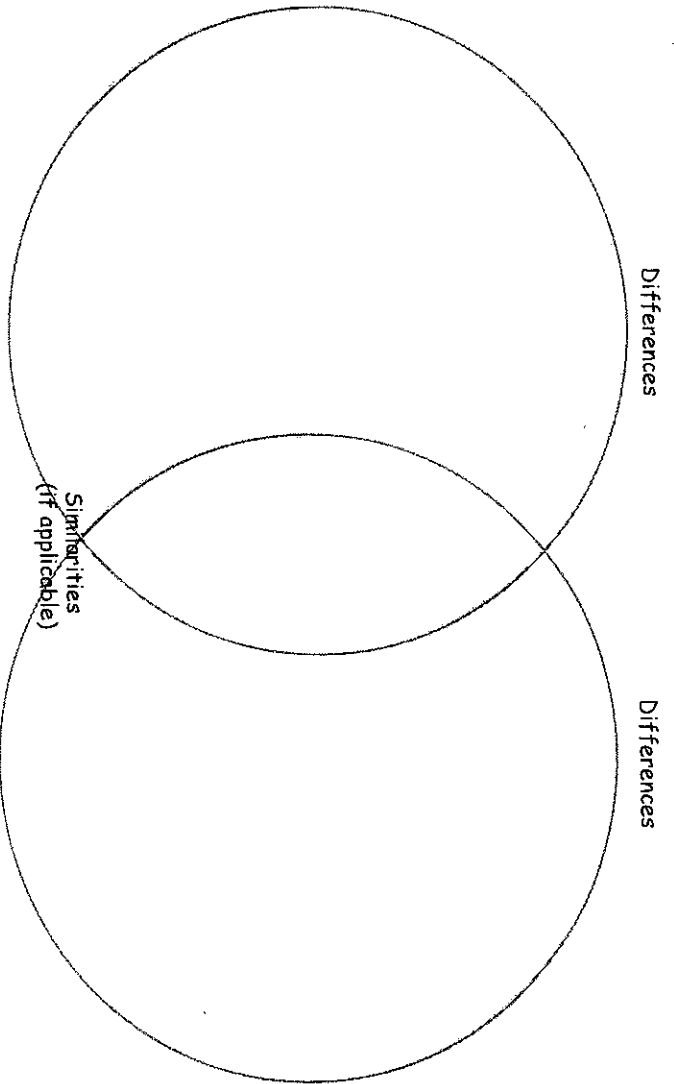
Topic 1 - EVS

Outline one example of an **ecocentric** EVS

Outline one example of a **technocentric** EVS

Outline one example of an **anthropocentric** EVS

Outline two societies with contrasting environmental value systems

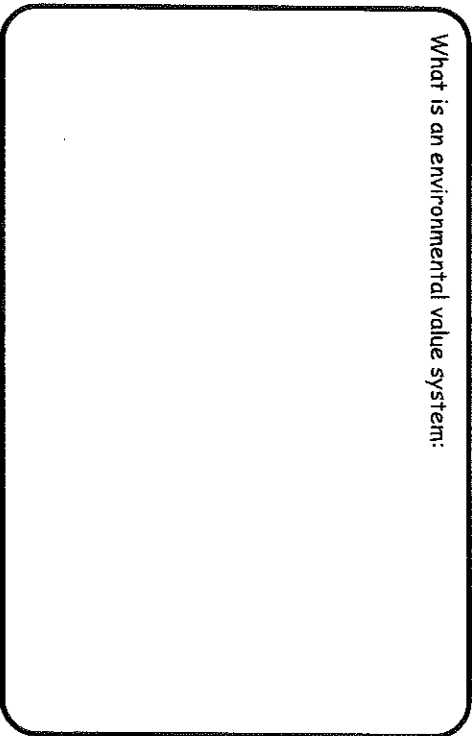


Define and give an example of an **altruistic** viewpoint

Briefly outline your EVS

Topic 1 - EVS

What is an environmental value system:



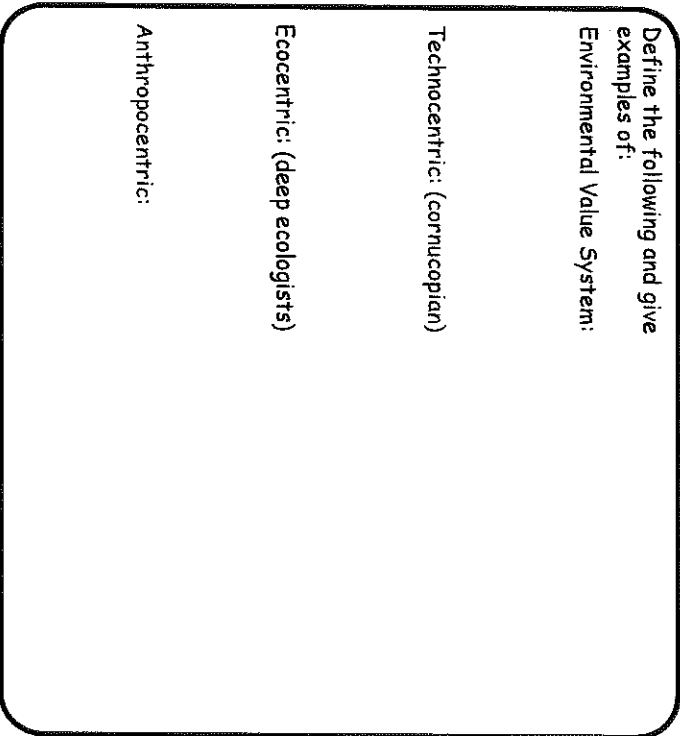
Define the following and give examples of:

Environmental Value System:

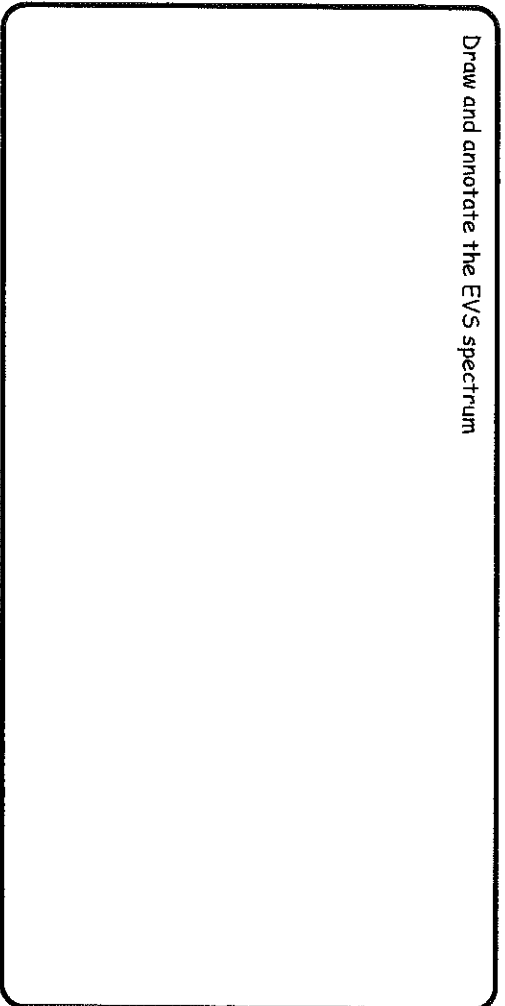
Technocentric: (cornucopian)

Eco-centric: (deep ecologists)

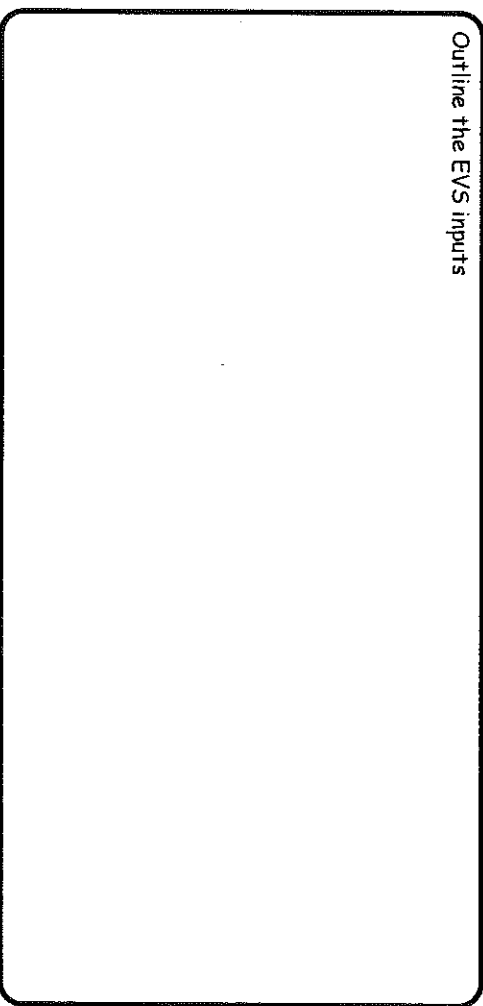
Anthropocentric:



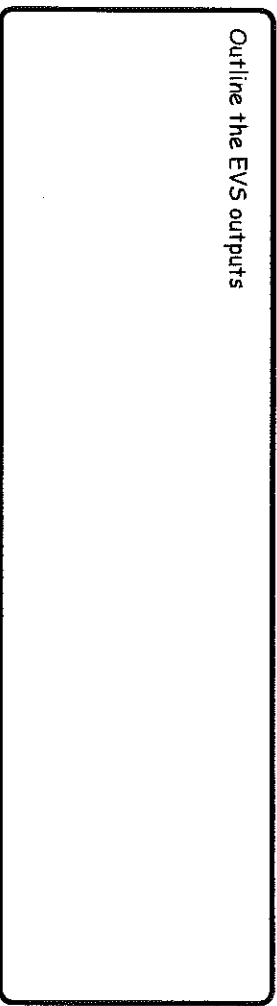
Draw and annotate the EVS spectrum



Outline the EVS inputs



Outline the EVS outputs



Topic 1 - History of the Environmental Movement (EM)

Draw a brief timeline for the development of the environmental movement. Provide brief annotation to outline how events promoted environmental awareness

Outline the role of environmental disasters in the EM

Outline the role of the media in the EM

Outline the role of International Agreements in the EM

Outline the role of technology in the EM

Topic 2

Define the following with an example:

Species:

Habitat:

Niche:

Abiotic:

Biotic:

GPP:

NPP:

Explain the difference between a realised and fundamental niche:

Empty box for explanation of realised vs fundamental niche.

Empty box for explanation of realised vs fundamental niche.

Empty box for explanation of realised vs fundamental niche.

Large empty box for additional notes or definitions.

Population Interactions

Outline one predator-prey relationship

Define the following, give examples where possible
Carrying capacity:

Predation:

Herbivory:

Parasitism:

Mutualism:

Intraspecific competition:

Interspecific competition:

Outline positive feedback in a system

Outline negative feedback in a system

Explain how predator-prey is an example of negative feedback

Population interactions

Outline 5 factors limiting factors that slow population growth

Outline how disease can reduce the carrying capacity of the organism it is infecting

What is a population growth curve??

Draw and annotate an S population curve

Draw and annotate an J population curve

Communities and Ecosystems

Outline the process of photosynthesis

Outline the process of respiration

Outline the effect of overharvesting on one food web

Outline the difference between an energy transfer and transformation

Communities and Ecosystems

Define the following with an example:
Community:

Ecosystem:

Biome:

GPP:

NPP:

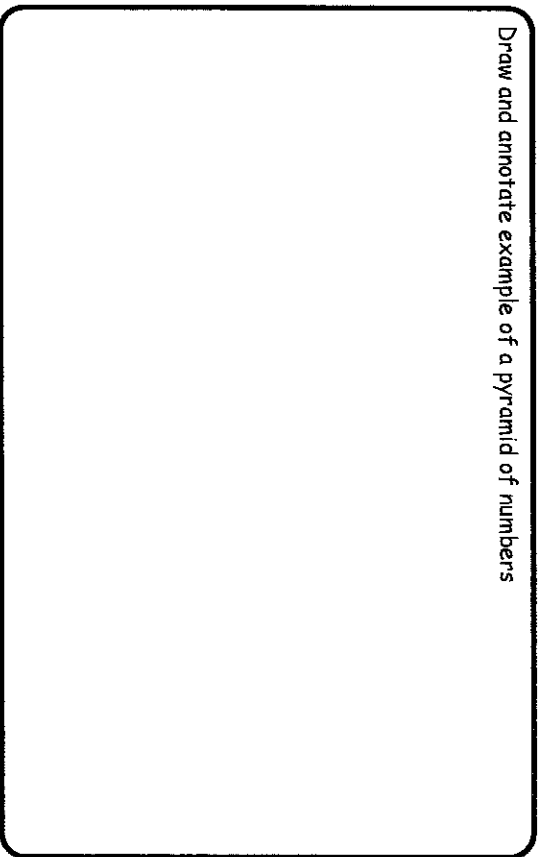
Outline the biotic and abiotic characteristics of a terrestrial ecosystem

Outline the biotic and abiotic characteristics of a marine ecosystem

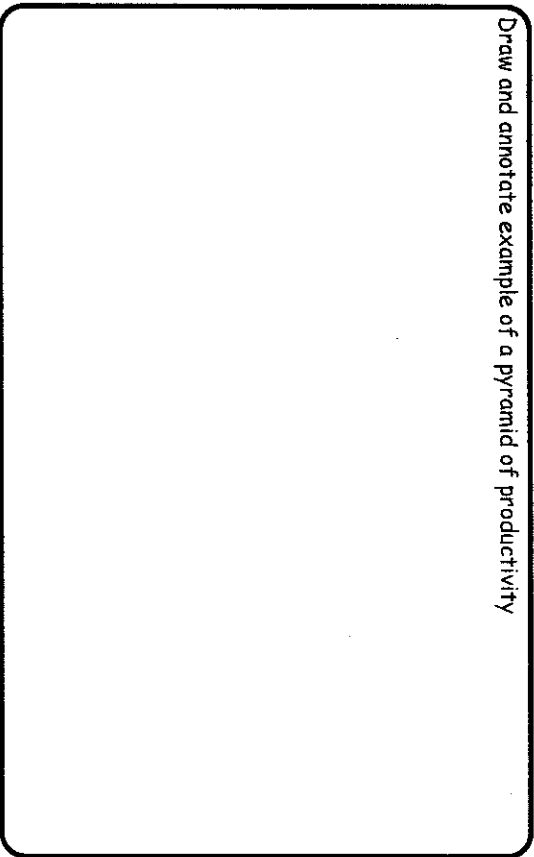
Outline the biotic and abiotic characteristics of a freshwater ecosystem

Pyramids

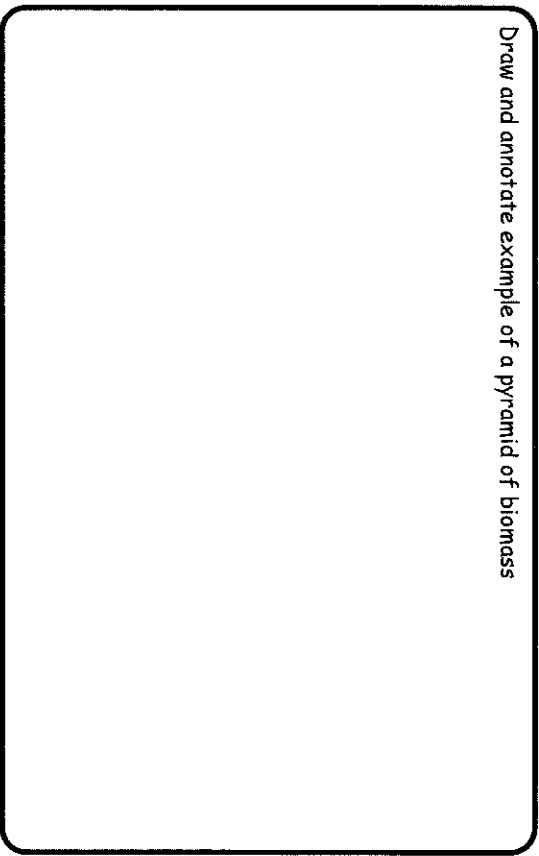
Draw and annotate example of a pyramid of numbers



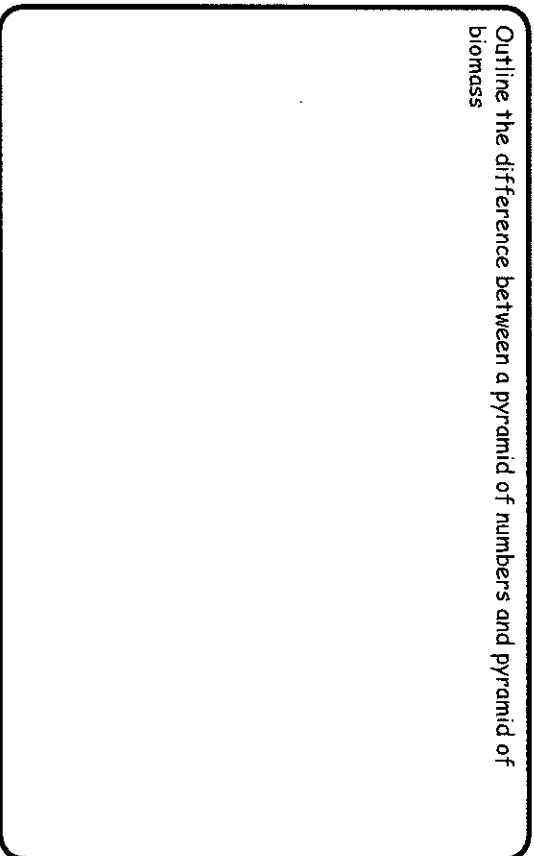
Draw and annotate example of a pyramid of productivity



Draw and annotate example of a pyramid of biomass

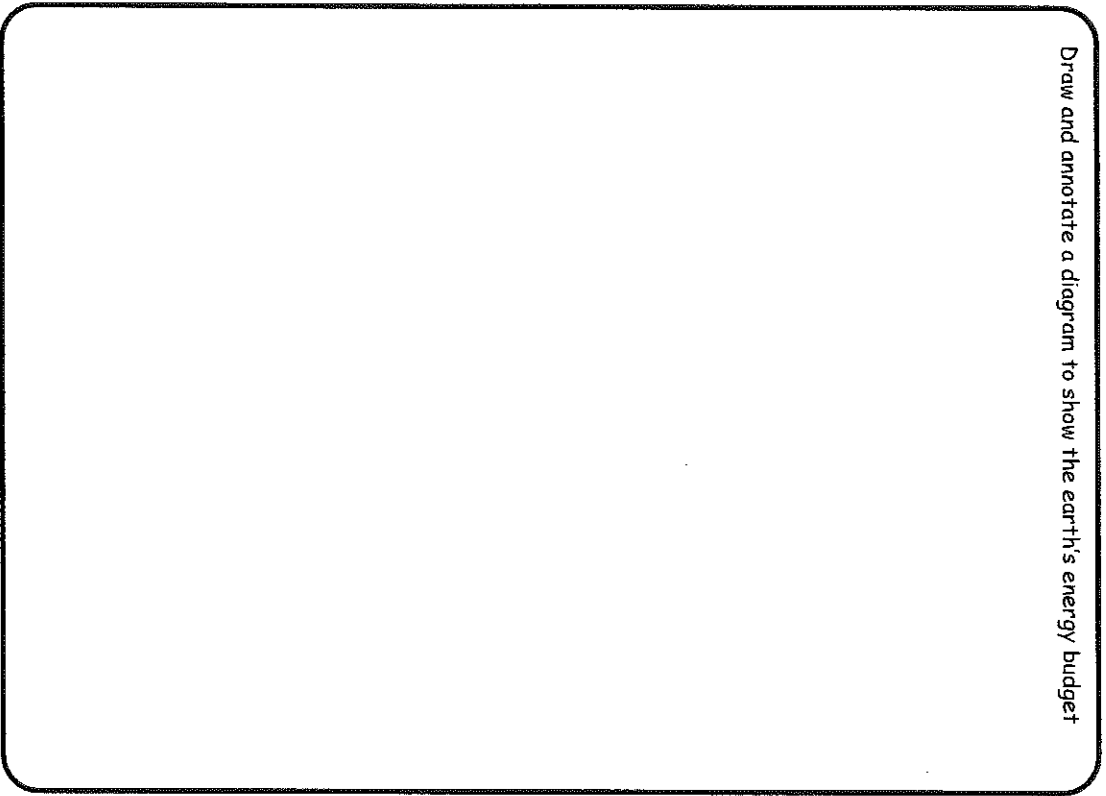


Outline the difference between a pyramid of numbers and pyramid of biomass

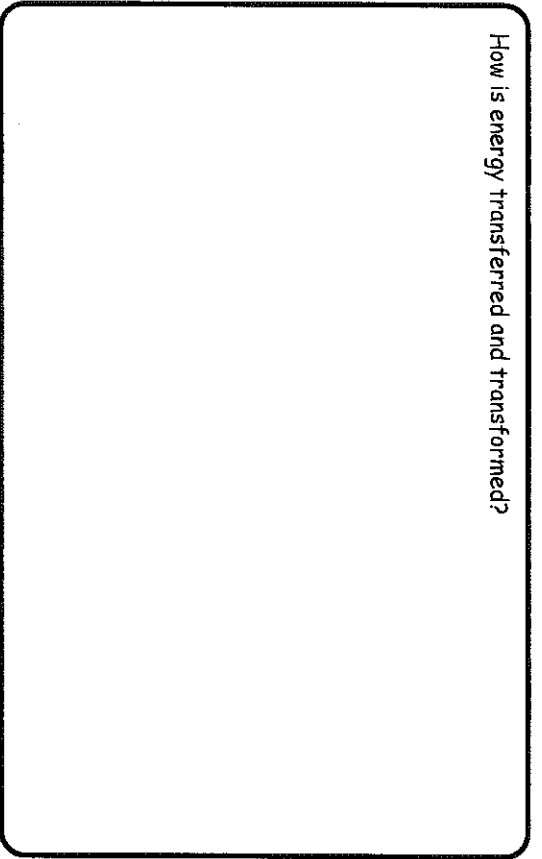


Flows of Energy

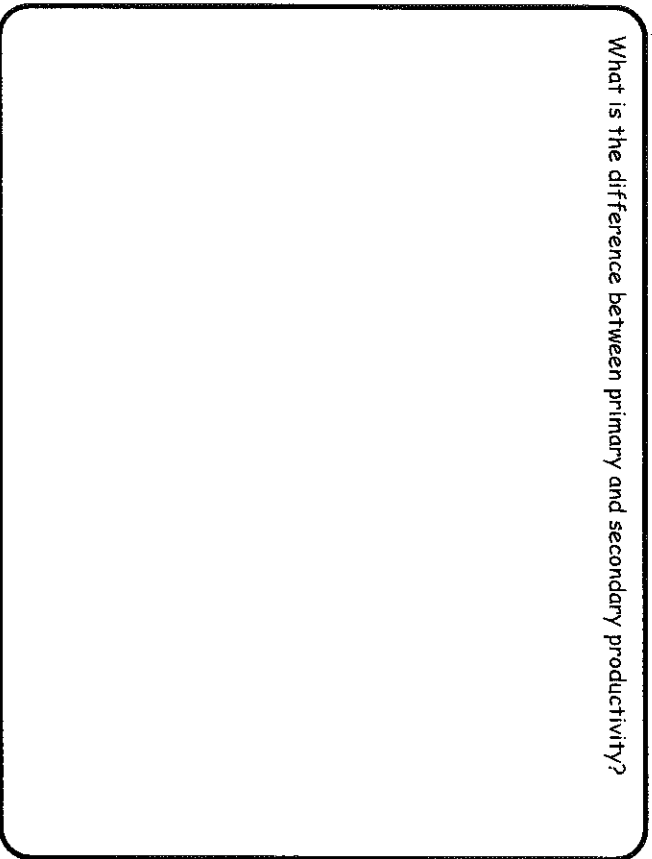
Draw and annotate a diagram to show the earth's energy budget



How is energy transferred and transformed?



What is the difference between primary and secondary productivity?



Flows of Energy

Define the following terms:

Gross Productivity:

Net Productivity:

Gross Primary Productivity:

Gross Secondary Productivity:

Net Primary Productivity:

Net Secondary Productivity:

How could you calculate GPP and NPP?

How could you calculate GSP and NSP?

Flows of Energy

Draw and annotate a diagram to show the carbon cycle

Draw and a
notate a diagram to show the nutrient cycle

Draw and annotate a diagram to show the nitrogen cycle

Outline how human activities impact on energy flows and matter cycles

Succession

Draw and annotate a diagram to show succession

Define the following terms:

Zonation:

Succession:

Pioneer community:

Climax community:

Production: respiration ratio:

What is diversity like at the early stages of succession? (p116)

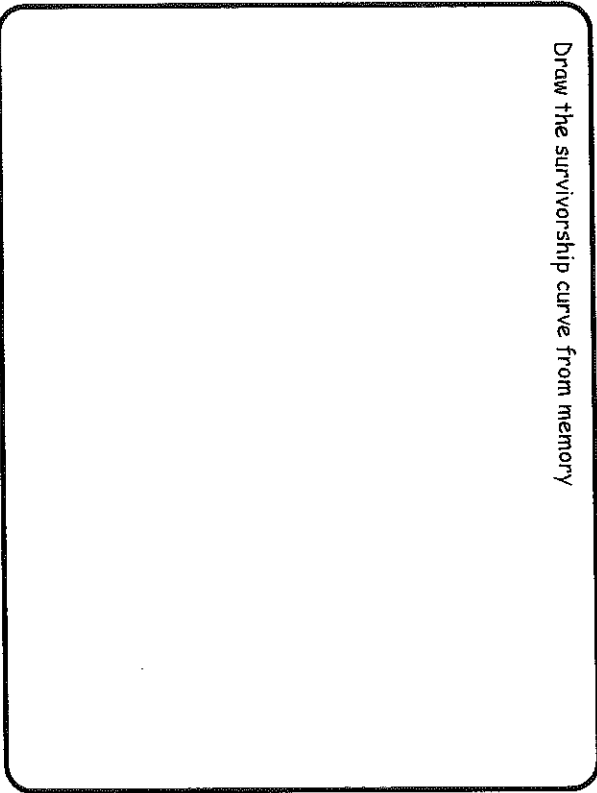
What is diversity like at the later stages of succession?

What is the P/R ratio like at the early stages of succession? (p117)

What is the P/R ratio like at the later stages of succession?

r- and K-strategists

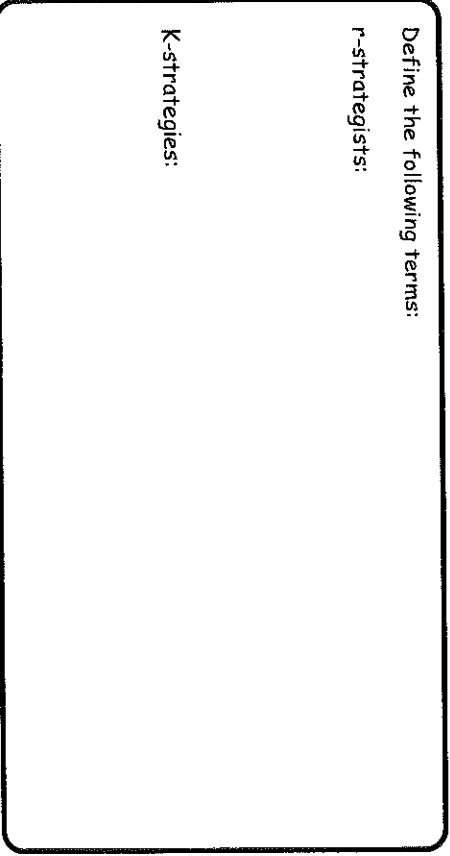
Draw the survivorship curve from memory



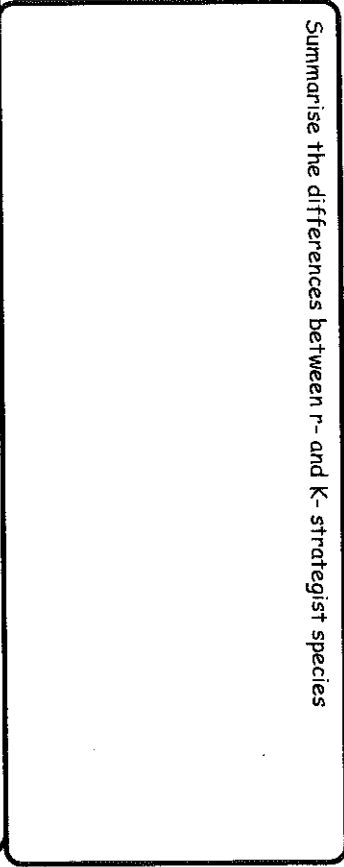
Define the following terms:

r-strategists:

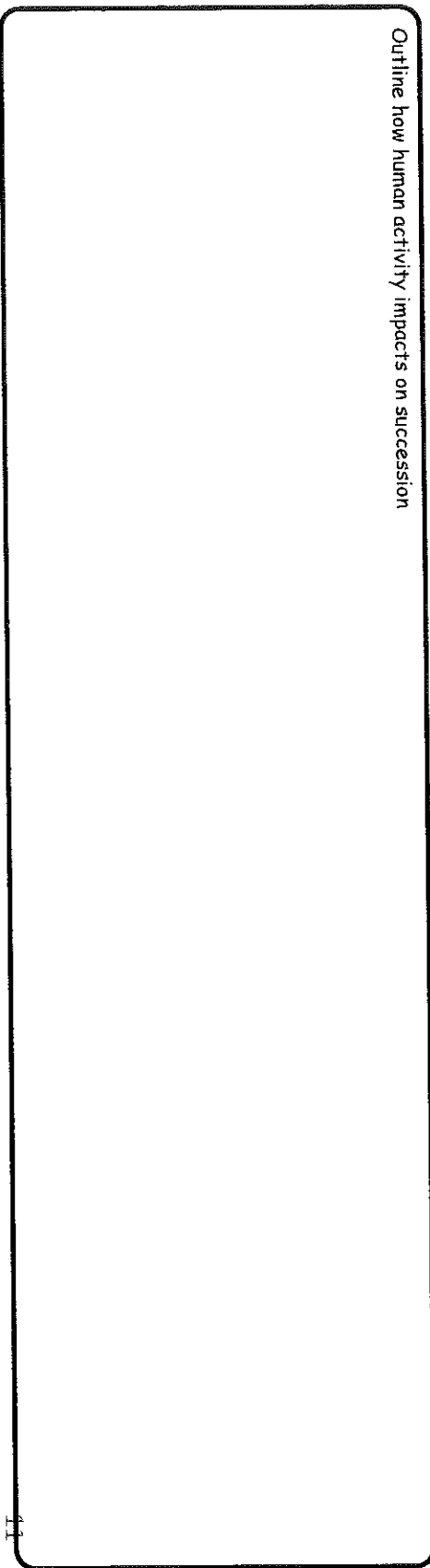
K-strategies:



Summarise the differences between r- and K- strategist species

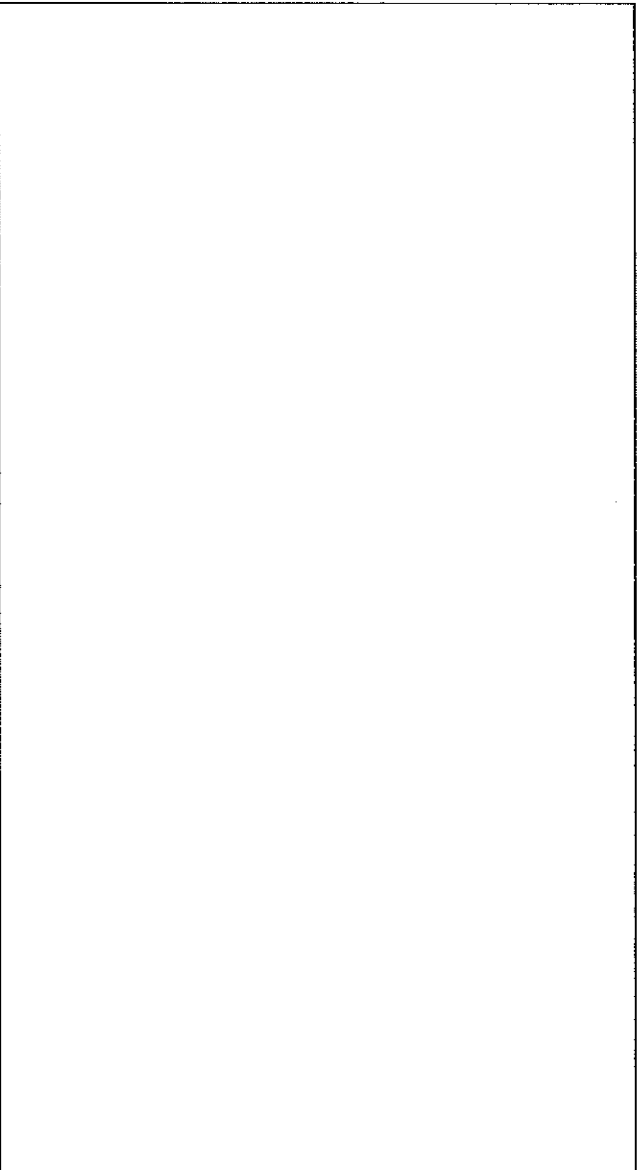


Outline how human activity impacts on succession



PPQ

3. (a) (i) Draw a sketch graph showing a typical survivorship curve for a "K-strategist" species. [2]



- (ii) Outline one reason for the shape of the curve from part 3(a)(i) above. [1]

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Pollutants

Define the following:
Bioaccumulation

Biomagnification

Non-biodegradable pollutant

DDT

Outline the impact of a persistent/non-biodegradable pollutant on a named ecosystem

**What is net primary productivity
and how is it calculated?**

**What is the equation for
respiration and photosynthesis?**

**How can climate change affect
biomes?**

**What is intraspecific
competition?**

**Define three factors governing
the distribution of biomes.**

