

ESCI 1 Study Guide

The Quizzes and Final are an **individual** assessment: Open journal

Quiz 1 topics: Highlighted in Yellow. Questions can relate to the Lecture, Video or in-class Activities.

Quiz 2 topics: Highlighted in Green. Questions can relate to Lecture, Video, Presentations, in-class activities.

Quiz 3 topics: Highlighted in Blue. Questions can relate to Lecture, Video or in-class Activities.

List of Key Concepts and Terms:

1. The Kirsch Building: Passive Solar features
2. Hypothesis, Scientific Theory, Scientific Law, Correlation vs Cause-and-effect relationships
3. Environmental Science, Sustainability vs Consumptive economy
4. Three Unifying Themes of Environmental Science: Science, Stewardship, Sustainability
5. Conservation, Preservation
6. Precautionary Principle
7. Tragedy of the Commons, Public Trust Doctrine
8. Polluter Pays
9. Environmental Justice

10. Ecology and ecological hierarchy
11. Food Web (how energy and nutrients move in an ecosystem)
12. Trophic pyramid or trophic hierarchy (how much energy is transferred to next level?)
13. Trophic categories (learn to identify trophic category of an organism in a food web)
14. Limits of tolerance, optimal range and zones of stress relating to abiotic factors and conditions
15. Bio-accumulation (why is this a problem?)

16. What are terrestrial biomes? What two reasons determine which biome occurs where? Give 5 examples of terrestrial biomes and what kind of climate they occur in.
17. List the different types of aquatic systems (include all fresh water and salt water ecosystems).
18. What are some threats faced by terrestrial biomes and aquatic systems? What are some solutions?

19. Evolution – what are the two main processes (Variation and Natural Selection)?
20. How do new species form?
21. What is biodiversity? What are the different types of biodiversity?
22. Why is biodiversity important?
23. Why are “wild species” important? (Do not confuse this with wild life!)
24. What is intrinsic and instrumental value?

25. What are the ecosystem services provided by forests?
26. What are the ecosystem services provided by coastal oceans?
27. Ecosystem resilience (ecological succession after disturbances)
28. How are biodiversity hotspots defined? Some info on one hotspot you researched.

29. What is the field of Conservation Biology?
30. What does “citizen scientist” mean? Who do they help and Why are they important?
31. Which activity that you did in class helped you to learn what a “citizen scientist” does?

32. Water Cycle (diagram) Meaning of each term in the water cycle
33. Difference between evaporation & transpiration?
34. What impact does deforestation have on the watercycle?
35. What is a watershed? Which watershed do you live in? How can you protect it?
36. Video: The California Water Story <https://www.youtube.com/watch?v=Ozle7tS1SgQ>

37. Importance of Soil and Soil Conservation

38. Review The Carbon Cycle (from [Week 4 Ecosystems Biogeochemical Cycles](#))
39. What are the Carbon Sinks and Carbon Sources in nature? How do they inform mitigation for global warming?
40. Difference between Weather and Climate
41. Green House Gases, how do they impact Earth’s temperature?
42. Examples of green house gases
43. Natural Greenhouse Effect (diagram)
44. What is human-enhanced Greenhouse Effect? Why is this harmful?
45. Impacts of increasing CO2 in atmosphere, oceans
46. Impacts of global warming
47. Mitigation, Adaptation
48. Climate Change in California – Biological Impacts, Physical Impacts, Health Impacts for Humans
49. Video: Climate Change – Lines of Evidence (<https://www.youtube.com/watch?v=gIUN5ziSfNc>)

50. What is the difference between “good ozone” and “bad ozone”
51. What is Ozone hole? What is its significance to human health? How was it mitigated?
52. What health impact does ground level ozone have?
53. What is air pollution? Difference between primary pollutants and secondary pollutants. Examples of both
54. Health impacts of air pollution.

55. What is Urban Sprawl?
56. Sustainable City – what does it mean? How can we design sustainable cities (list 5 things to consider)

57. Renewable energy – meaning and examples
58. Pick one type of renewable energy and learn about its pros and cons.

59. What was your favorite topic in the course? Why?