

Environmental Science Study guide (Semester 1)

Students should prepare for the following types of questions. Some are multiple choice, but others will require written answers in complete sentences.

You will be able to use one page of notes with whatever you can write on that page. You MAY NOT use this printed study guide, but can write down anything on it for your test

➤ Scientific method

- What are the general steps when approaching a problem or question scientifically?
- Can you formulate a plan to investigate a particular question? You will get one of the following questions on the test and must answer in complete sentences. To get full credit, you should propose a hypothesis, design an experiment with a control and a test group, and describe your responding variable (how will you know if you answered your question?)
 - Why is the grass in the park dying?
 - Does some activity or food help lab mice perform well in a maze?
 - You walk into a room and your cell phone gets no reception, but you walk outside and now it does. Why?
 - You and your next door neighbor have bird feeders. You get many birds to come to your feeder but your neighbor barely gets any at all. Why?

➤ Ecology

- Define the following: Producer, consumer, secondary consumer, tertiary consumer, decomposer
- Define and give an example of the following interactions
 - Predation
 - Mutualism
 - Commensalism
 - Parasitism
- You could draw a food web showing the flow of energy from one organism to another
 - Arrows point to where the energy is going. The first example would be incorrect, unless it was the rabbit from *Monty Python and the Holy Grail*

Wolf → Rabbit **Incorrect**

Wolf ← Rabbit **Correct**

- 10% rule: that only about 10% of the energy from one level is used in the next trophic level
 - Example: A baby rat that grows into an animal that weighs 1 pound will need at least 10 pounds of food to accomplish this
- Keystone species: what if you take them out of the ecosystem?

- Invasive species...you will be asked to give a specific example (review your invasive species presentation and research)
- Human population
 - Stats from around the world
 - 7.6 billion currently
 - Top five countries: China, India, US, Indonesia, Brazil
 - Population densities: example of a place with few people per square mile and one with many
 - Factors that affect birth rates
 - Education
 - Family planning
 - Culture
 - Economics/gender equality
 - Laws and mandates (ie: China)
 - General trends around the world
 - Countries with low birth rates (Japan, Russia, Italy)
 - Countries with high birth rates (Ethiopia, Indonesia)
 - Will we go up forever? Why or why not?
- Agriculture
 - History of agriculture
 - Advantages of it over hunting/gathering
 - What were the positive effects and negative effects of it on people, culture and the environment?
 - Green Revolution
 - How do we grow more food faster ever since industrialization?
 - Positive aspects for society
 - Negative aspects for society/environment
 - Sustainable agriculture
 - What methods for growing are more sustainable (see Top Crop game for a review of this)
 - How can we reduce our food consumption, have less food waste and have as little impact as possible as consumers?
- Forest service
 - Compare and contrast national forests to national parks
 - What factors go into the likelihood for fires?
 - What methods are used to combat fires? What are the best ways to prevent fires?
 - Should some fires be allowed to burn? Under what circumstances?