

Part 1: **Home Movie**

Watch the movie **Home** on youtube and answer the following questions. Follow the link provided below.

<https://www.youtube.com/watch?v=jqxENMKaeCU>

1. Describe the conditions on early Earth.
2. What happened to the carbon that poisoned the atmosphere?
3. How did the agricultural revolution change the Earth?
4. How has Earth changed in the last 60 years since the use of oil has become more widespread?
5. What is most of the grain in the US used for?
6. What led to the dramatic decline in the biodiversity of agricultural crop species?
7. How many kilos of water does it take to produce 1 kilo of beef?
8. How have cars shaped the way housing is laid out in the US and other developed countries?
9. How much has the volume of international trade increased since 1950?
10. What are your thoughts on how the video portrays Dubai? Is it self-sustainable?
11. Rainforests are cut down to make farmland for which products/crops?
12. What makes the growth of Lagos different from how most other cities grow?
13. Where does the water from Greenland's melting ice sheet go?
14. Why are the glaciers of mountains so important for the people in the lowlands?

This video project covers many topics that we will discuss in APES this year. Give two specific examples that are portrayed in the video about each of the APES concepts that are listed below:

15. All living things are linked

- 1.
- 2.

16. Developed vs. Developing Countries

- 1.
- 2.

17. Human Innovation and Technology

- 1.
- 2.

18. The Carbon cycle

- 1.
- 2.

19. Climatic Balance

- 1.
- 2.

20. Shortage of Resources

- 1.
- 2.

21. After watching the film, what topics are you most looking forward to learning about this year? What questions do you have?

22. What did you think of the movie?

23. How does the movie end? Why do you think the filmmaker Yann Arthus-Bertrand finishes his film in this way?

24. What conclusion(s) do you think the filmmaker Yann Arthus-Bertrand wants us to reach?

25. If you had to give the film an alternate title, what would you name it?

Part 2: Prerequisite Basic Scientific Concepts: You should be familiar with the following terms/concepts from

Biology, Chemistry, and Earth Science.

- |   |   |
|---|---|
| ✓ Organic vs. Inorganic                 | ✓ Cellular Respiration (reactants & products) |
| ✓ Natural vs. Synthetic                 | ✓ Aerobic vs. Anaerobic                       |
| ✓ Kinetic vs. Potential Energy          | ✓ Adaptation                                  |
| ✓ Radioactive decay                     | ✓ Mutation                                    |
| ✓ Half life                             | ✓ Gene  |
| ✓ Law of Conservation of Matter         | ✓ Trait                                       |
| ✓ 1st Law of Thermodynamics             | ✓ Chromosome                                  |
| ✓ 2nd Law of Thermodynamics             | ✓ Gene pool                                   |
| ✓ Entropy                               | ✓ Natural Selection                           |
| ✓ Organism                              | ✓ Biodiversity                                |
| ✓ Species                               | ✓ Extinction                                  |
| ✓ Population                            | ✓ Plate Tectonics                             |
| ✓ Community                             | ✓ Weathering                                  |
| ✓ Ecosystem                             | ✓ Climate Change                              |
| ✓ Producers/Autotrophs                  | ✓ Rocks vs. Minerals                          |
| ✓ Consumers/Heterotrophs                | ✓ Climate vs. Weather                         |
| ✓ Decomposers                           |   |
| ✓ Photosynthesis (reactants & products) |   |

You will also need to know the full name of each of these chemical abbreviations:

- ✓ CO<sub>2</sub>
- ✓ CO
- ✓ C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>
- ✓ CH<sub>4</sub>,
- ✓ H<sub>2</sub>
- ✓ H<sub>2</sub>O
- ✓ N<sub>2</sub>
- ✓ NO<sub>x</sub>
- ✓ NO<sub>3</sub>
- ✓ NH<sub>3</sub>
- ✓ O<sub>2</sub>
- ✓ O<sub>3</sub>
- ✓ P
- ✓ P<sub>04</sub>
- ✓ S
- ✓ SO<sub>2</sub>
- ✓ Cl
- ✓ K
- ✓ NaCl
- ✓ Pb
- ✓ Hg
- ✓ U