

Estimating the Human Impact on the Natural Environment (version 1)

How much has the global human population increased since 1960?

- It has increased by one-quarter
- It has increased by one-half
- It has increased by two-thirds
- It has increased by three-quarters
- It has doubled

What percentage of the world's population lives in the United States?

- 31-40%
- 21-30%
- 11-20%
- 6-10%
- less than 5%

Approximately how much of the world's oil, coal, and natural gas is consumed by the United States?

- 9%
- 13%
- 17%
- 21%
- 25%

Approximately how much of the world's carbon emissions from burning fossil fuels are generated by the U.S.?

- 9%
- 13%
- 17%
- 21%
- 25%

How much has worldwide meat production increased since the 1950s?

- it has remained steady
- two times
- three times
- four times
- five times

How much land is needed to produce meat vs. to produce plant crops for human consumption?

- a quarter to a third as much
- half as much
- about the same amount
- one-and-a-half to twice as much
- two to four times as much

How much meat do people in industrial countries like the U.S. eat compared to people in developing countries?

- about the same amount
- about one-and-a-half times as much
- about twice as much
- about two-and-a-half times as much
- about three times as much

If the world were to consume as much meat and fossil fuels as the U.S., how many planets would we need to sustain that lifestyle?

- 1
- 2
- 3
- 4
- 5

Rainforests cover about 2% of the earth's surface. What proportion of the earth's species live in the rainforest?

- About one-sixth
- about one-fifth
- about one-quarter
- about one-third
- about half

What percentage of the plants identified by the National Cancer Institute as useful in cancer treatment are found only in the rainforest?

- 30%
- 40%
- 50%
- 60%
- 70%

What is the current rate of tropical rainforest loss?

- an area the size of two football fields is lost every week
- an area the size of two football fields is lost every day
- an area the size of two football fields is lost every hour
- an area the size of two football fields is lost every minute
- an area the size of two football fields is lost every second

The chimpanzee is our closest living relative (differing by just over 1% of our DNA). It is estimated that in 1900 there were between 1 and 2 million chimpanzees alive in the world. Today, due to habitat loss caused by humans, chimpanzees are an endangered species. How many are estimated to be alive today?

- 150,000
- 250,000
- 350,000
- 450,000
- 500,000

If the length of time that modern humans (*Homo sapiens sapiens*) have existed on the planet was represented by the length of a regulation basketball court (just under 92 feet), what would be the length that would represent the time that has passed since the invention of the light bulb?

- about the last three feet
- about the last two feet
- about the last foot
- about the last five inches
- about the last inch

On which continent do most of the world's chronically hungry people live?

- Africa
- Asia

What country is the world's largest producer of beef?

- United States
- Brazil

Which bird is more likely to be found sharing habitat with a polar bear?

- Penguin
- Swan

In the United States, which of the following categories of animals includes a larger number of species currently threatened with extinction?

- Mammals
- Fish

Which of the following categories comprises more of the household waste generated in the U.S.?

- Plastics
- Yard trimmings

Which of the following is the most common source used to generate electricity in the United States?

- Nuclear power plants
- Coal-burning power plants

When you go grocery shopping, you can use bags provided by the store or bring your own reusable bags. Suppose that your usual grocery store begins paying 10 cents for every reusable bag you bring with you. How likely are you to bring your own bags?

- | | | | | |
|----------------------|---|--------------------|---|----------------|
| 1 | 2 | 3 | 4 | 5 |
| not at all
likely | | somewhat
likely | | very
likely |

Rachael, 28, majored in Justice and Peace Studies in college. She does not own a car. She likes to spend time hiking, rock climbing, and camping. She is a vegetarian. Which of the following is more likely?

- Rachael is a bank teller.
- Rachael is a bank teller and is active in the environmental movement.

Estimating the Human Impact on the Natural Environment (version 2)

How much has the global human population increased since 1960?

- It has increased by one-half
- It has increased by two-thirds
- It has doubled
- It has tripled
- It has quadrupled

What percentage of the world's population lives in the United States?

- 6-7%
- 5-6%
- 4-5%
- 2-3%
- less than 2%

What percentage of the world's oil, coal, and natural gas is consumed by the United States?

- 10%
- 15%
- 25%
- 35%
- 45%

Approximately how much of the world's carbon emissions from burning fossil fuels are generated by the U.S.?

- 10%
- 15%
- 25%
- 35%
- 45%

How much has worldwide meat production increased since the 1950s?

- three times
- four times
- five times
- six times
- seven times

How much land is needed to produce meat vs. to produce plant crops for human consumption?

- about the same amount
- one-and-a-half to twice as much
- two to four times as much
- four to six times as much
- six to eight times as much

How much meat do people in industrial countries like the U.S. eat compared to people in developing countries?

- about twice as much
- about two-and-a-half times as much
- about three times as much
- about three-and-a-half times as much
- about four times as much

If the world were to consume as much meat and fossil fuels as the U.S., how many planets would we need to sustain that lifestyle?

- 3
- 4
- 5
- 6
- 7

Rainforests cover about 2% of the earth's surface. What proportion of the earth's species live in the rainforest?

- about one-quarter
- about one-third
- about half
- about two-thirds
- about three-quarters

What percentage of the plants identified by the National Cancer Institute as useful in cancer treatment are found only in the rainforest?

- 50%
- 60%
- 70%
- 80%
- 90%

What is the current rate of tropical rainforest loss due to human impact?

- an area the size of two football fields is lost every hour
- an area the size of two football fields is lost every minute
- an area the size of two football fields is lost every second
- an area the size of two football fields is lost every half a second
- an area the size of two football fields is lost every quarter of a second

The chimpanzee is our closest living relative (differing by just over 1% of our DNA). It is estimated that in 1900 there were between 1 and 2 million chimpanzees alive in the world. Today, due to habitat loss caused by humans, chimpanzees are an endangered species. How many are estimated to be alive today?

- 50,000
- 100,000
- 150,000
- 250,000
- 350,000

If the length of time that modern humans (*Homo sapiens sapiens*) have existed on the planet was represented by the length of a regulation basketball court (just under 92 feet), what would be the length that would represent the time that has passed since the invention of the light bulb?

- about the last foot
- about the last five inches
- about the last inch
- about the last half inch
- about the last quarter inch

On which continent do most of the world's chronically hungry people live?

- Africa
- Asia

What country is the world's largest producer of beef?

- United States
- Brazil

Which bird is more likely to be found sharing habitat with a polar bear?

- Penguin
- Swan

In the United States, which of the following categories of animals includes a larger number of species currently threatened with extinction?

- Mammals
- Fish

Which of the following categories comprises more of the household waste generated in the U.S. (before recycling)?

- Plastics
- Yard trimmings

Which of the following is the most common source used to generate electricity in the United States?

- Nuclear power plants
- Coal-burning power plants

When you go grocery shopping, you can use bags provided by the store or bring your own reusable bags. Suppose that your usual grocery store begins charging 10 cents for every bag. How likely are you to bring your own bags?

- | | | | | |
|----------------------|---|--------------------|---|----------------|
| 1 | 2 | 3 | 4 | 5 |
| not at all
likely | | somewhat
likely | | very
likely |

Rachael, 28, majored in Justice and Peace Studies in college. She does not own a car. She likes to spend time hiking, rock climbing, and camping. She is a vegetarian. Which of the following is more likely?

- Rachael is a bank teller.
- Rachael is a bank teller and is active in the environmental movement.

Estimating the Human Impact on the Natural Environment (INSTRUCTOR KEY)

ANCHORING & ADJUSTMENT

For every item, the correct answer is the last option on Version 1 and the middle option on Version 2.

How much has the global human population increased since 1960?

- It has doubled (more than doubled from about 3.0 in 1960 to 6.2 billion in 2002)

What percentage of the world's population lives in the United States?

- 4-5% (less than 5%)

What percentage of the world's oil, coal, and natural gas is consumed by the United States?

- 25% (25% of coal, 27% of natural gas, 26% of oil)

Approximately how much of the world's carbon emissions from burning fossil fuels are generated by the U.S.?

- 25% (about 24%)

Compared to other industrial nations, how much larger are emissions per person in the U.S.?

- 100% (twice as much)

How much has worldwide meat production increased since the 1950s?

- five times (from 17.2 kg per person in 1950 to 39 kg per person in 2002)

How much land is needed to produce meat vs. to produce plant crops for human consumption?

- two to four times as much (Producing 1 calorie of meat requires 11- 17 calories of feed, so the meat eater's diet requires two to four times more land than a vegetarian's diet)

How much meat do people in industrial countries like the U.S. eat compared to people in developing countries?

- about three times as much (People in industrial countries eat 80kg meat per person compared to 28kg/per in developing countries)

Rainforests cover about 2% of the earth's surface. What proportion of the earth's species live in the rainforest?

- about half (According to Rainforest Action Network online fact sheet at http://www.ran.org/info_center/about_rainforests.html)

What percentage of the plants identified by the National Cancer Institute as useful in cancer treatment are found only in the rainforest?

- 70% (According to Rainforest Action Network online fact sheet at http://www.ran.org/info_center/about_rainforests.html)

What is the current rate of tropical rainforest loss?

- an area the size of two football fields is lost every second (According to Rainforest Action Network online fact sheet at http://www.ran.org/info_center/factsheets/04b.html, 2.4 acres (1 hectare) per second: equivalent to two U.S. football fields)

The chimpanzee is our closest living relative (differing by just over 1% of our DNA). It is estimated that in 1900 there were between 1 and 2 million chimpanzees alive in the world. Today, due to habitat loss caused by humans, chimpanzees are an endangered species. How many are estimated to be alive today?

- 150,000 "Recent figures indicate that fewer than 150,000 chimpanzees -- among our closest relatives in the animal kingdom -- remain in the African wilderness, where 1 to 2 million lived in the year 1900." (Jane Goodall Institute, 2005, www.janegoodall.org)

If the length of time that modern humans (*Homo sapiens sapiens*) have existed on the planet was represented by the length of a regulation basketball court (just under 92 feet), what would be the length that would represent the time that has passed since the invention of the light bulb?

- about the last inch (approximately 130/130,000 years)

Source for all stats not credited above:

Worldwatch (2003), Vital Signs 2003, available at <http://www.worldwatch.org/pubs/vs/2003/>

AVAILABILITY HEURISTIC

On which continent do most of the world's chronically hungry people live?

- Africa
- Asia

Answer: Asia

What country is the world's largest producer of beef?

- United States
- Brazil

Answer: Brazil

Which bird is more likely to be found sharing habitat with a polar bear?

- Penguin
- Swan

Answer: Swan (penguins live in the Southern hemisphere, polar bears in the Northern hemisphere)

In the United States, which of the following categories of animals includes a larger number of species currently threatened with extinction?

- Mammals
- Fish

Answer: Fish, according to the IUCN Redlist (www.redlist.org), in 2004 there were 40 mammal species and 154 fish species that were threatened with extinction in the United States.

Which of the following categories comprises more of the household waste generated in the U.S. (before recycling)?

- Plastics
- Yard trimmings

Answer: Yard trimmings are 12.1% (and 28.6 million tons) of all waste generated, compared to 11.3% (and 26.7 million tons) for plastics (According to the Environmental Protection Agency's report, "Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures 2003" available at epa.gov).

Which of the following is the most common source used to generate electricity in the United States?

- Nuclear power plants
- Coal-burning power plants

Answer: 52% from coal, 21% from nuclear according to the U.S. Department of Energy's (2004) report, "Annual Energy Review 2004", Report No. DOE/EIA-0384, posted: August 15, 2005 at http://www.eia.doe.gov/emeu/aer/pecss_diagram.html

FRAMING/LOSS AVERSION

Gain frame: When you go grocery shopping, you can use bags provided by the store or bring your own reusable bags. Suppose that your usual grocery store begins paying 10 cents for every reusable bag you bring with you. How likely are you to bring your own bags?

Loss frame: When you go grocery shopping, you can use bags provided by the store or bring your own reusable bags. Suppose that your usual grocery store begins charging 10 cents for every bag. How likely are you to bring your own bags?

Are students more likely to bring their own bags when the issue is framed in terms of potential loss than in terms of potential gain?

(This item was inspired by Fallshore, M. & Hall, D. (2005). Recycling and canvas bags: Can charging people increase recycling? Presentation at the annual meeting of the Society for Human Ecology, Salt Lake City, October.)

THE REPRESENTATIVENESS HEURISTIC & CONJUNCTION FALLACY

Rachael, 28, majored in Justice and Peace Studies in college. She does not own a car. She likes to spend time hiking, rock climbing, and camping. She is a vegetarian. Which of the following is more likely?

- Rachael is a bank teller.
- Rachael is a bank teller and is active in the environmental movement.

(Answer: Rachael is a bank teller. This is an adaptation of the "Linda is a bank teller" item in Tversky & Kahneman, 1983).