Study guide: people, places and environment – midterm

Business

Review The Geographical Approach Geography = Only discipline that examines patterns of phenomena on Earth. Geographers are interested in locational aspects of Earth phenomena (can it be mapped?) * Physical geography involves natural phenomena * Human/cultural geography involves phenomena caused by inhabitants Many different fields of geography overlap one another.

All geographers are interested in: * A focus on spatial relationships (terrestrial) * Geographic patterns (+ how they're created) * Where things are, why they're there, how they got there Fundamental Geographical Concepts * Place * Location – absolute & relative * Latitude: Angular distance on the surface of the Earth measured North/South of the equator * Longitude: Angular distance on the surface of the Earth measured East/West of the equator *Equator is always at 0° latitude * Region * Distribution in Space * Distance * Scale * Time & Temporal Change * Earth-human relationships GPS determines position based on triangulation from satellites orbiting Earth using coordinates of latitude/longitude or easting/northing. " White Lies" on Maps

Maps must tell white lies in order to be accurate. They are attempting to represent a complex 3D world on a 2D plane and therefore must offer a selective, incomplete view of reality to present data accurately. This can be done through using different colors and designs to represent data in the desired way. Temporal Changes * Places change through time and over distance * Changes in physical environment vary from small/temporary (ex. river channel changes) to permanent (ex.

mountain uplift over long period) * Humans are causing the Earth to change faster than ever before. Spheres of the Earth System * Atmosphere: Dynamic, gaseous mixture extending from a few meters underground to 60, 000 km above earth. * Lithosphere: The outer shell of solid earth (lithos = rock). * Hydrosphere: All of the water on, in or above the earth (71%). * Cryosphere: All forms of frozen water on or beneath the surface.

* Biosphere: The zone of life (plants, animals, humans & soil). All 5 " spheres" are interrelated and dependant on one another, or " holistic". Systems Theory " System" = Any ordered, interrelated set of things, linked by flows of energy and matter. Open system: Inputs AND outputs of energy and matter, exchanges both with surrounding environment. (ex. Cars) * Closed system: Self-contained, rare in nature.

Open only to transfers of energy. (ex. Earth) System Feedback * Positive: Amplifies or encourages responses. * Negative: Slows or dampens responses, self-regulation, common in living things. Earth & the Environment Earth in Space * Earth is dynamic, depends on a single source of radiant energy (sun). * Unique as its distance from the sun allows for the origin and evolution of life.

* Revolves around the sun once a year, constantly rotating. Results in the amount of daylight in a given day varying between seasons. * Uneven distribution of solar energy results in seasons. *Dynamic Earth Earth is driven by 2 sources which are fueled by radioactive decay. * Sun: Heats surface, provides energy for photosynthesis, controls weather/hydrological systems, and supports life. * Earth's Core: Movement of plates, formation of land,

forges many natural resources It is interconnected through the 5 “ spheres”, which are all key to each other’s survival and balance.

History of the Earth * 4. 56 billion years old

Earth has been through 2 eons, each of which is divided into eras: * Precambrian Eon: – Hadean era – Archaen era – Proterozoic era * Phanerozoic Eon: * Paleozoic era * Mesozoic era * Cenozoic era (present) The Precambrian eon stretched from 4600 to 570 million years ago. It was important as it covered the period of time from when the Earth first formed, through its evolutionary stages to be able to support life. The Phanerozoic eon stretches from the end of the Precambrian eon to the present, it’s 3 eras are divided by major extinctions. *Phanerozoic Eon – Eras Paleozoic: “ Age of fishes”, nearly the entire planet was covered in water.

Largest mass extinction in history. Economically important as many currently used natural resources (i. e. limestone) were formed during this era. * Mesozoic: “ Age of dinosaurs” (Triassic, Jurassic and Cretaceous periods) * Cenozoic: “ Age of mammals”, global cooling and ice ages took place in the quaternary period, spread of humans across globe. Plate Tectonics The Earth’s plates are constantly moving, as is proven by the massive displacement of its continents over the past billions of years.

They are not currently in the same position as they were in the past, nor will they ever be the same as they are now in the future. Plates can be either convergent (colliding) or divergent (pulling away from each other). People & the Environment Environment An environment is the conditions under which any person or thing lives or is developed. (*” Are humans part of the

environment? ” Yes, as they have an influence on everything in their environment) Landscapes * Cultural: Areas where human interference dominates to the point where natural physical processes have been subordinated (ex. ities) * Natural: Areas still subject to natural physical processes As human population grows, cultural landscapes are beginning to expand while natural landscapes are receding. *Humans affect nature, nature affects humans.

Humans ARE A PART OF THE ENVIRONMENT and are a dominant source of change within nature. *Environmental Determinism Environmental determinism is the notion that one’s environment is responsible for one’s physical attributes, character and behavior. This leads to the broader social organization, culture and economies of one’s society.

Hippocrates Theory: Warm climates = hot-blooded people, temperate climates = thoughtful/creative/engaging people, cold climates = calm people with limited mental abilities Climate used to be the environmental factor which environmental determinists believed influenced human culture the most. It was presumed that hot/humid tropics created lazy and dull people whereas temperate regions produced intelligent, industrious peoples. *Environmental Possibilism * Nature defines the possibilities for, rather than determines the character of, cultural expression.

* Env. ossibilists believe that people adapt to their surroundings rather than being defined by them. Revolutions Until about 10 000 years ago, people survived through hunting and gathering, wandering from place to place taking advantage of changing opportunities. This had a small impact on their environments. Agricultural Revolution As civilizations began to form in the

Middle East and populations began to grow, people realized that new food sources were needed for stability.

This led to the controlled breeding of plants/animals, eventually leading to the abandonment of the nomadic lifestyle.

Agriculture originally followed the seasonal cycle of rainfall until humans started finding ways to artificially channel water to land (irrigation). As humans gained more freedom to pursue other non-subsistent activities, cultures developed. Impacts of Agricultural Land Conversion The conversion to agricultural lands is one of the greatest single impacts on the Earth. * 13 million hectares are converted annually (mostly forests). * Crops/pasture make up the highest land use (40%), expected to increase by another 15% in the next 100 years.

Increase in fresh water demand for irrigation * Loss of biodiversity/simplification of ecosystems *Social Traps Decisions that produce short-term benefits, but harm society in the long-term. * Ex. 4 cows = higher production, unsustainable vs. 1 cow = lower production, sustainable Degradation: The substantial decrease in productivity, biodiversity and usefulness of a landscape as a result of human interference. Marginalization: The displacement of societies most disempowered groups into ecologically vulnerable spaces and economically constrained roles. Green Revolution

Use of intensive methods, new crops, industrial fertilizers, and advanced technology to increase agricultural yields.

Increased the world’s agricultural output fivefold, but also produced social marginalization (i. e. Africa) and degraded ecosystems (as land is converted for agricultural purposes). Industrial Revolution Began in Western Europe around 1750, as Western Europe had the economic capital necessary for experimentation, innovation and risk. There was massive population growth there as well, providing a greater number of people to dedicate their time and effort to new advancements.

The discovery of fuel (coal) for mechanization allowed much technological advancement at this time.

Resources began to run out, Europeans looked elsewhere for resources and began settling elsewhere, initially just close to raw materials and power. This led to European colonization. Impact on environment: Total forested area declined by 20%+, cropland grown by 500%, human use of energy increased 100-fold since 1750. Industrial Sectors * Primary: Gathers raw materials * Secondary: Takes raw materials and manufactures them into new products * Tertiary: Sells products/offers services Urbanization Currently 3% of the Earth’s surface is urbanized, expected to double by 2020. * 6/10 people will be city dwellers by 2020 * Cities are the focal point for trade, transportation and technological advancements * Good for economic growth/social and cultural opportunities, bad for environment Population Growth * World’s pop.

was about 5. 3 million before agricultural revolution, which caused a steady rise in population up until the 1700s when the industrial revolution took place. * Industrial revolution caused a population explosion, from just under one billion in 1750, to today’s population of 7 billion. Population has surged

due to high birth rates and low death rates. * Not caused by birth rate increasing, but by death rate falling. * Low death rates caused by medical advancements.

Demographic Transition Model * Preindustrial stage: High death/birth rates, no pop. change * Industrializing: Death rates fall as daily life improves, pop. starts to rise * Mature industrial stage: Death rate continues to fall, birth rate drops slightly, large population growth * Postindustrial stage: Death/birth rates even out at a much lower number than in the preindustrial stage, population high and stable

What Determines Birth Rates? * Better-educated and wealthier people, understanding the economic cost of raising and educating a child, tend to have fewer children * Less educated and poorer people generally have more children, sometimes to have additional workers to bring in more family income * People in cities tend to have fewer children than those in rural areas * Those who marry earlier tend to have more children * Couples with access to and understanding of contraception generally have fewer children * Value systems and cultural norms play critical roles

Environmental Dilemmas Most environmental dilemmas can be traced to 3 main sources: * Overpopulation * Resource use (increases with overpopulation) * Pollution (partly caused by resource use) *Random Definitions LDC = Least Developed Countries MDC = Most Developed Countries Overpopulation Two types of overpopulation: * Human overpopulation: Characteristic of LDCs, many people using small amount of resources * Consumption overpopulation: Characteristic of MDCs, fewer

people using massive amounts of resources Jared Diamond’s 5 Factors to Collapse a Society 1. Natural climate change (ex. ce age) 2.

Self-inflicted damage to environment (ex. overharvesting) 3. Failure to respond to natural environment (ex. not eating fish) 4. Hostile neighbors 5. Loss of friendly neighbors *Anthropogenic Climate Change *Catastrophism (neo-malthusians) vs.

Cornucopians (technocentrists) * Cornucopians: Optimists who believe people can raise the earth’s carrying capacity through innovation and technological advancements. * Neo-Malthusians: Believe human population will exceed resource supply, resulting in a catastrophic increase in death rates. Birth rates must be lowered

Lithosphere ; Humanity First off, to differentiate between natural disasters and natural hazards. An event is only considered a disaster if it impacts humans and their infrastructure, otherwise it is considered a natural hazard. Many natural hazards that cause human suffering are actually beneficial for the environment (i.

e. forest fires restore soil fertility). Vulnerability Refers to the likelihood that a community will suffer injuries, deaths or property damage from a hazardous event. It’s a measure of how well prepared and equipped a community is to cope with said events. Resilience

The capability of a system to maintain its functions and structures in a time of shock and perturbation.

Risk Perception * Individual’s impression of the probability of a hazard affecting them * One of the most serious issues in preparing a community for disaster is the general public’s lack of awareness. * Perception determines response. Mitigation & Adaptation * Mitigation: A proactive measure to lessen the impact of an event. * Adaptation: Implies that the inevitable impact will occur but that strategies will be in place to deal with it. Lithosphere * Divided into 12 major plates. Boundaries of said plates are zones of intense activity which produce many of the large-scale geological features we have today (ex.

mountains). * The oceanic and continental crusts cover the solid layer which is the lithosphere. * Oceanic crust is softer than continental crust, therefore oceanic plates subduct beneath continental plates. Lithosphere – Processes The subduction of oceanic plates under each other, or under continental plates, causes phenomena such as earthquakes, ocean trenches and can even trigger volcanoes. The subduction of a continental plate under another continental plate causes folding and faulting.

Earthquakes Earthquakes occur at plate boundaries or on a fault, resulting in ground shaking, surface faulting, tectonic uplift, ground failures and tsunamis.

They are caused by a sudden displacement of rock at the earth’s crust. Earthquakes – Measurement * Moment Magnitude Scale (Richter): Quantitative (measures amount of energy released), considers amount of slippage, nature of materials and size of rupture, there is only one magnitude for each earthquake * Damage Intensity Scale (Mercalli):

Determined from earthquake’s effect on people, structures and the Earth’s surface at a given location.

Can be more than one rating per earthquake. More at Risk Many places where the vast majority of buildings have not been made life-safe are more vulnerable now than they were in the past, due to high-rises and poorly made multi-story complexes, which upon collapsing will result in many more deaths than simple huts and houses of years past. Volcanoes * Occur at both plate boundaries and occasionally within a plate (ex. ot spots such as Hawaii) * Active = erupted in recorded history, dormant = has not erupted in recorded history but shows signs of life, extinct = hasn’t erupted in recorded history with no signs of life * Magma is the source of many minerals used today, and many natural resources are located on plate boundaries.

* The physical breakdown of volcanic rocks creates fertile soil.
Stratovolcanoes: Cone-shaped. Contains highly viscous magma which can block the vents, resulting in “ explosive” eruptions.

Shield volcanoes: Dome-shaped . Contains free-flowing magma which effusively erupts in every direction down long fissures. Hot spots: An upwelling, or ‘ plume’ of basaltic magma under the crust.

Volcanic Hazards * Lahar (magma mixed with rocky debris and water) * Lapilli (rock fragments) * Nuee Ardente (clouds of denser-than-air gas/ash that glow red and destroy everything in their path) Indirect Hazards * Lightning * Floods * Landslides * Tsunamis Volcanoes in Indonesia Volcanoes are highly revered in Indonesia and are approached very mystically * A means of “ unity in diversity” in a land with 300 ethnic groups and more than

700 languages and dialects * Most view volcanoes as sacred and make offerings * This sacred focus means that warnings of imminent eruption from volcanologists are often ignored * Indonesian politicians have little choice but to honor the mystical rituals assoc. with volcanoes * Current tension between conservative Muslims ; those who revere volcanoes: * Muslims look to purge the faith of these mystical beliefs