2.5 The Demographic Transition Model

Objective and Essential Learning

2.5 Explain theories of population growth & decline.

- The demographic transition model can be used to explain population change over time.
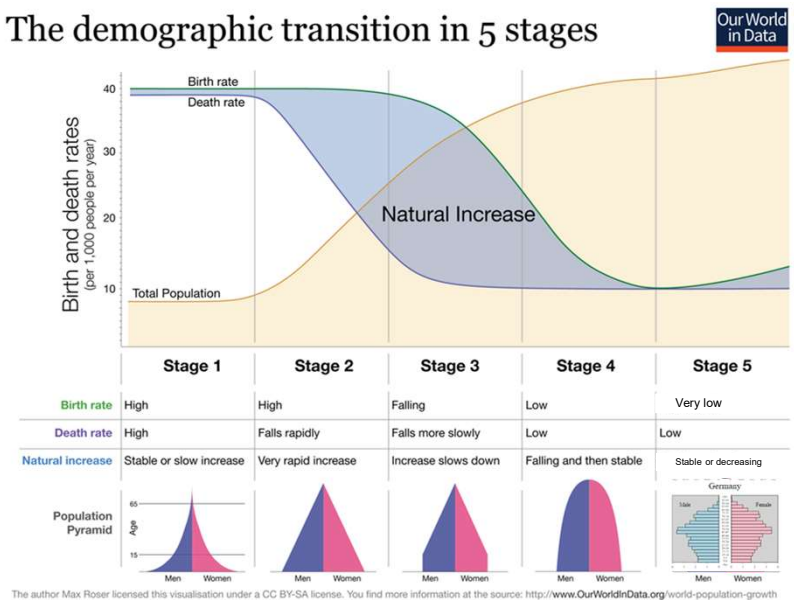- The epidemiological transition explains causes of changing death rates.

2.8 Explain how the changing role of females has demographic consequences in different parts of the world.

- Changing social values and access to education, employment, health care, and contraception have reduced fertility rates in most parts of the world.
- Changing social, economic, and political roles for females have influenced patterns of fertility, mortality...

The Demographic Transition Model

- Demography: The study of population statistics.

- Demographic Transition Model (DTM): Model used by geographers to analyze and predict trends in population growth and decline including patterns of <u>births</u>, <u>deaths</u> and <u>natural increase rates</u>.

The demographic transition in 5 stages

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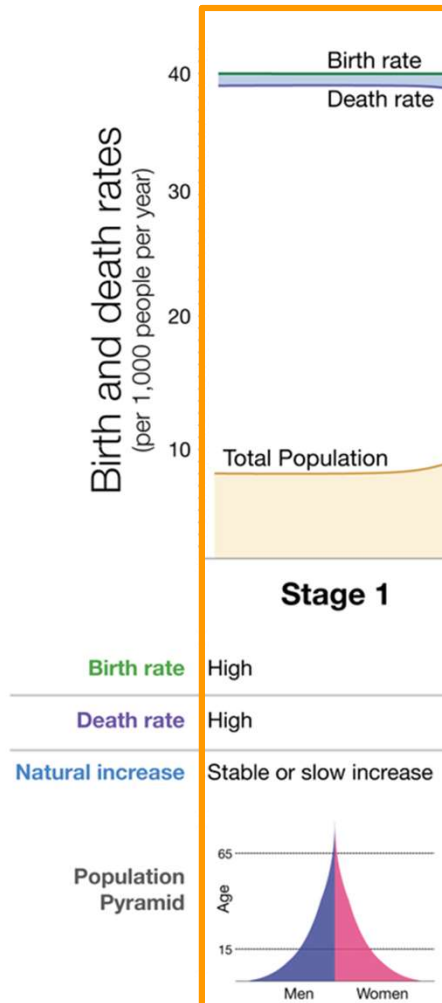
Characteristics of Stage One

Birth Rate: High
Death Rate: High
Natural Increase Rate: Low Growth

Reasons for CBR
- High TFR because children are not likely to survive long-term -> High IMR & CMR.
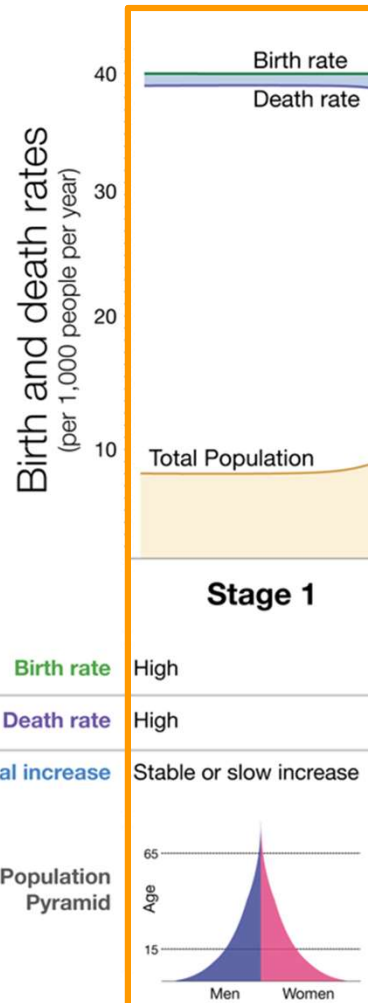- Need for child labor in agricultural soceities.

Characteristics of Stage One
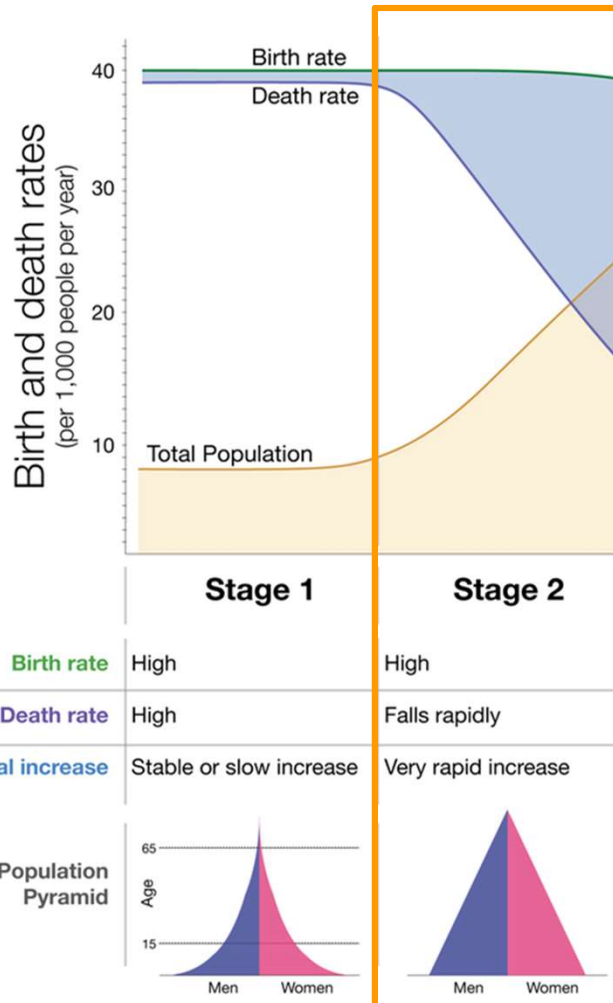
Reasons for CDR
- Short life expectancy
- Famine, poor diet, inadequate housing, disease, warfare

Examples: No countries are in this stage. Historic stage.

Population Composition: Youth dependency

Birth and death rates (per 1,000 people per year)

Birth rate
Death rate

40
30
20
10

Total Population

Stage 1

Birth rate — High
Death rate — High
Natural increase — Stable or slow increase
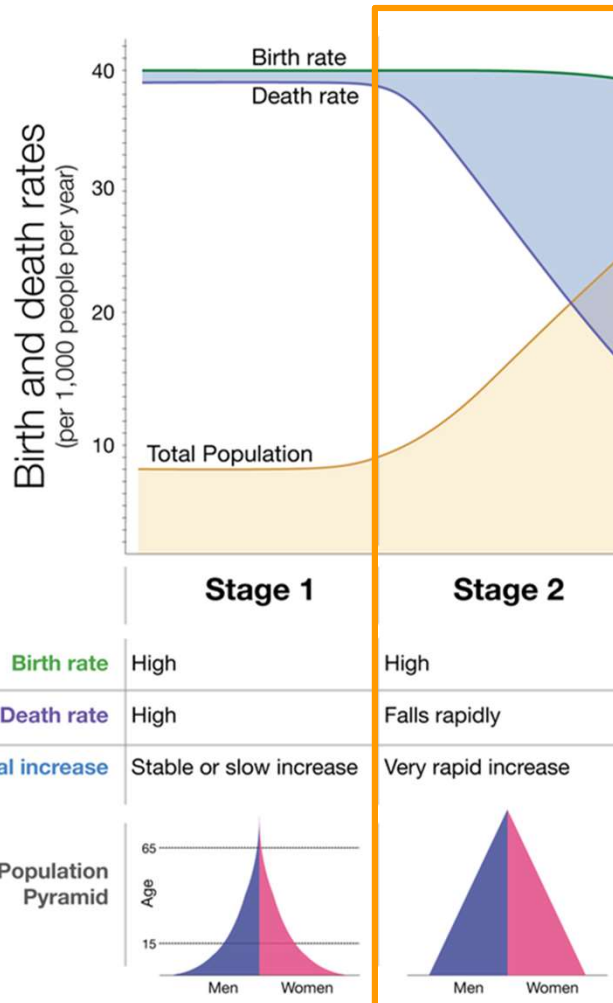
Population Pyramid

65
Age
15

Men   Women

Characteristics of Stage Two

Birth Rate: High
Death Rate: Falls rapidly
Natural Increase Rate: Rapid growth

Reasons for CBR
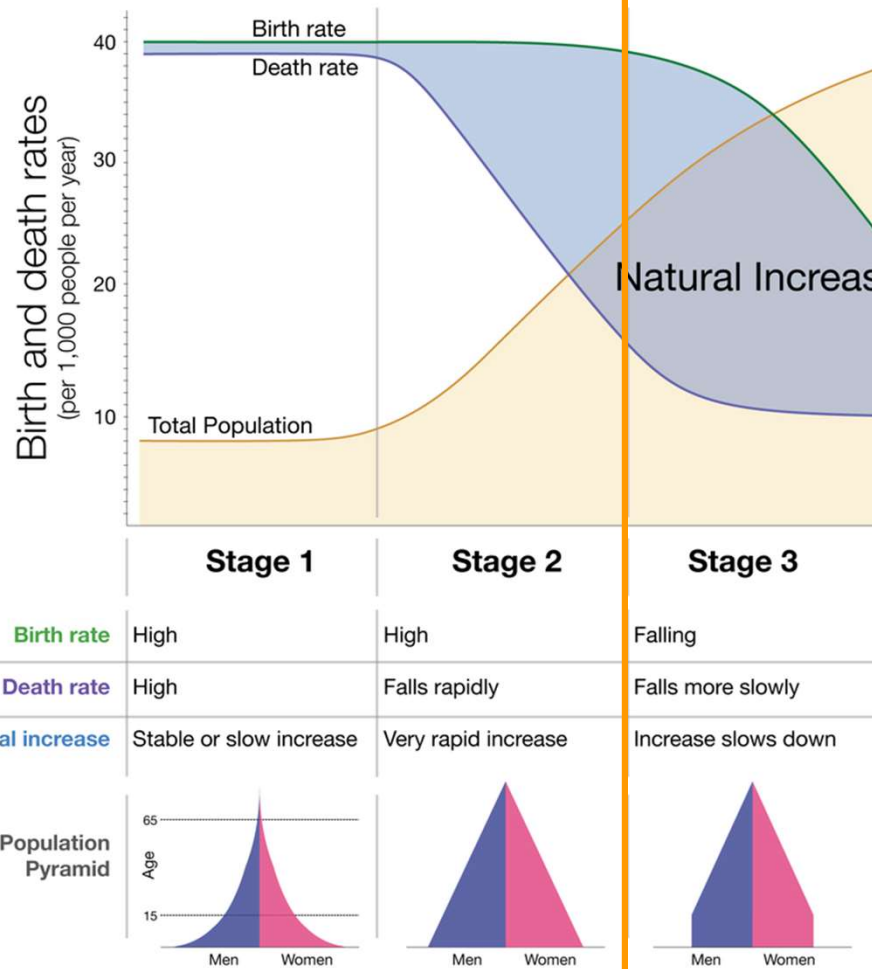- Remains the same as previous stage

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Characteristics of Stage Two

Reasons for CDR
- Still a low life expectancy, but...
- Improved nutrition, sanitation and medicines.

Examples: LDCs, Niger, Mali, South Sudan

Population Composition: Youth dependency

The chart shows the following:

Birth and death rates (per 1,000 people per year)

- Birth rate
- Death rate
- Total Population

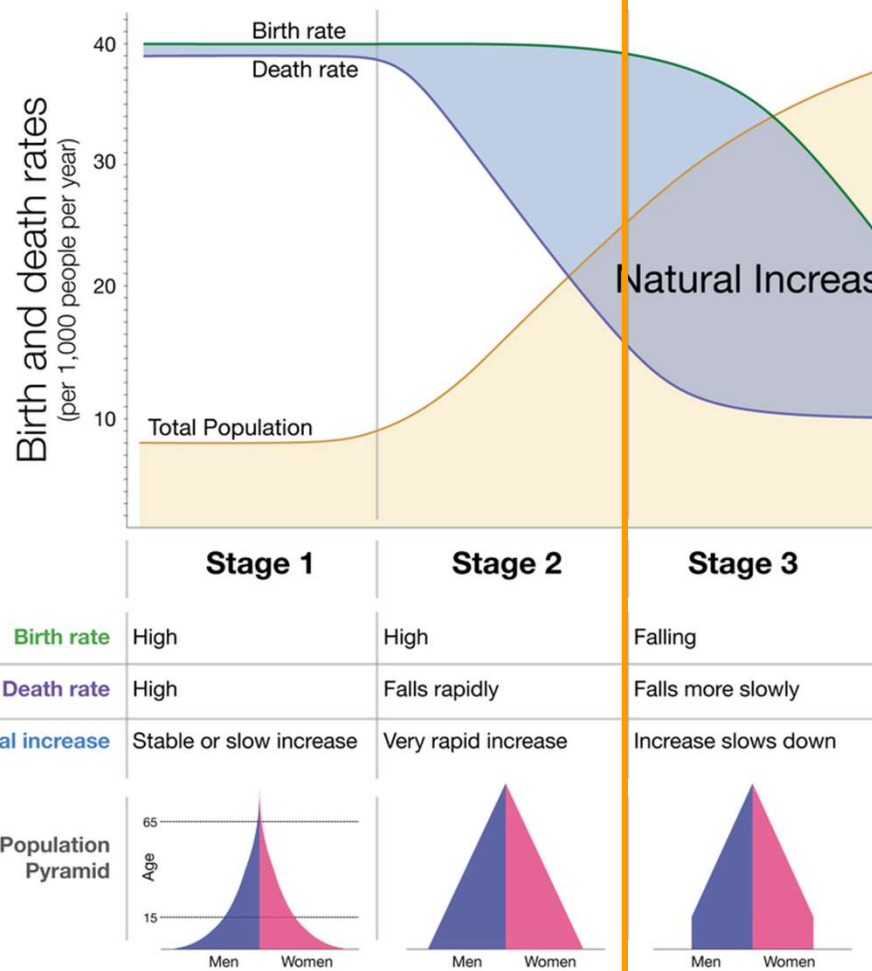|	Stage 1	Stage 2
Birth rate	High	High
Death rate	High	Falls rapidly
Natural increase	Stable or slow increase	Very rapid increase
Population Pyramid	Men / Women (Age 15–65)	Men / Women

Characteristics of Stage Three

Birth Rate: Falling
Death Rate: Falls more slowly
Natural Increase Rate: Growth slows

Reasons for CBR
- Urbanization reduces the need for child labor - children $$, smaller living spaces.
- Increase in healthcare, female employment and education

Birth and death rates (per 1,000 people per year)

- Birth rate
- Death rate
- Natural Increase
- Total Population

	Stage 1	Stage 2	Stage 3
Birth rate	High	High	Falling
Death rate	High	Falls rapidly	Falls more slowly
Natural increase	Stable or slow increase	Very rapid increase	Increase slows down
Population Pyramid			

Characteristics of Stage Three

Reasons for CDR
- Life expectancy increases due to the progression of advancements from previous stage.

Examples: Many Semi-Periphery countries like Turkey, Mexico, Indonesia, India

Population Composition: Society is still young, but there are more people surviving longer.

	Stage 1	Stage 2	Stage 3
Birth rate	High	High	Falling
Death rate	High	Falls rapidly	Falls more slowly
Natural increase	Stable or slow increase	Very rapid increase	Increase slows down
Population Pyramid			

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Characteristics of Stage Four

Birth Rate: Low

Death Rate: Low

Natural Increase Rate: Falls and then stabilize

Reasons for CBR: Same as previous stage.

Reasons for CDR
- Life expectancy continues to increase.

Examples: Majority of MDCs- China, Australia, Canada, South Korea, US

Population Composition: Beginning to shift to elderly dependency.

Stage 4	Stage 5
Low	Very low
Low	Low
Falling and then stable	Stable or decreasing

http://www.OurWorldInData.org/world-population-growth

Characteristics of Stage Five

Birth Rate: Very low
Death Rate: Low
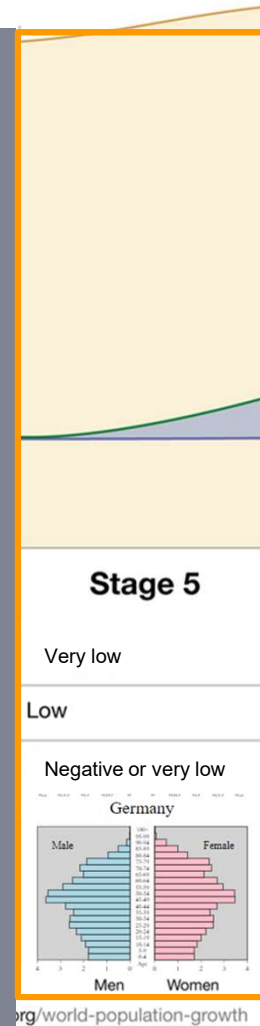Natural Increase Rate: Negative or very low.

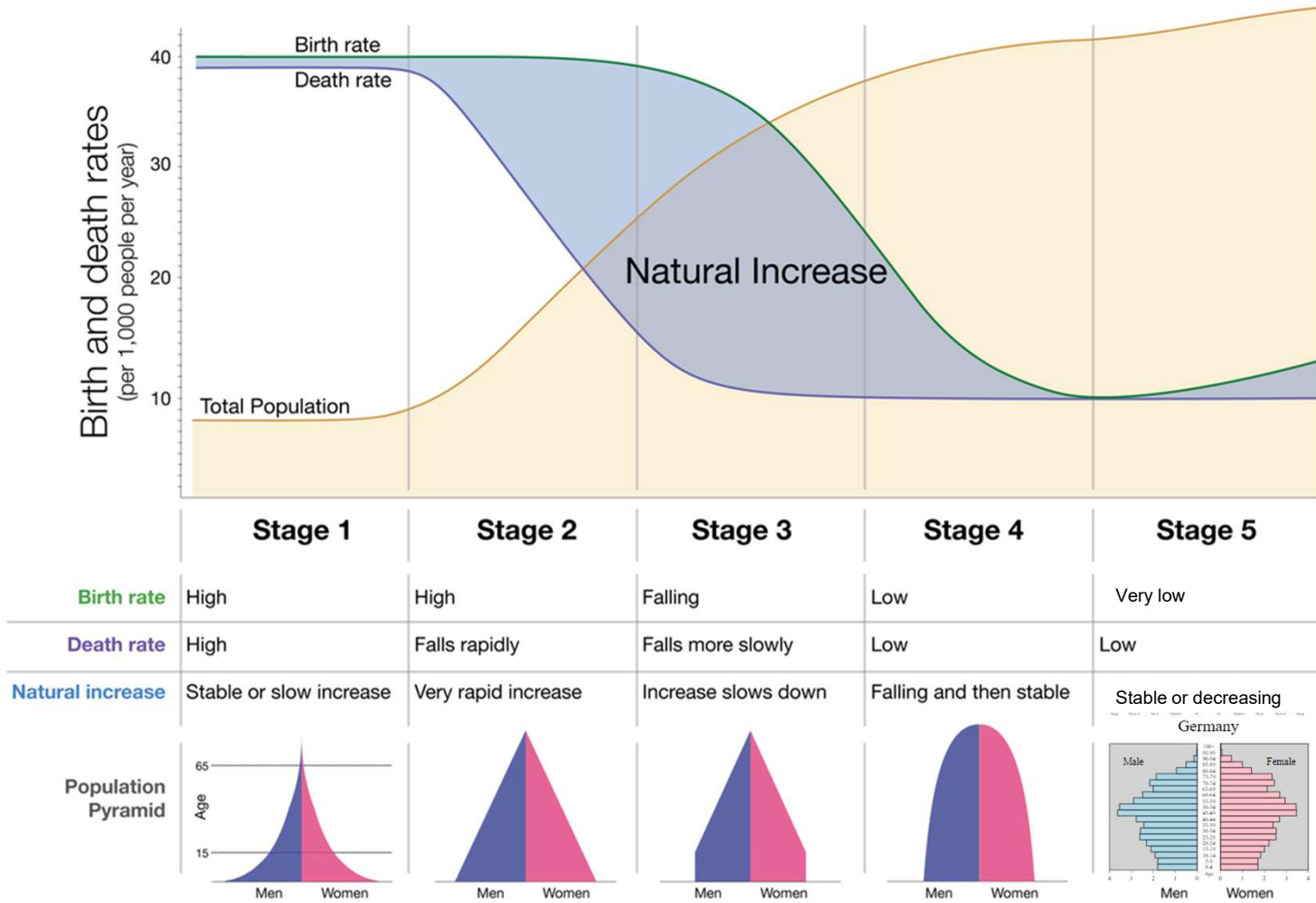Reasons for CBR
- Zero Population Growth (ZPG)

Reasons for CDR
- Most medically advanced

Examples: Japan, Germany

Population Composition: Most likely to have a high elderly dependency ratio.

Stage 5

Very low

Low

Negative or very low

Germany

Male | Female

Men | Women

org/world-population-growth

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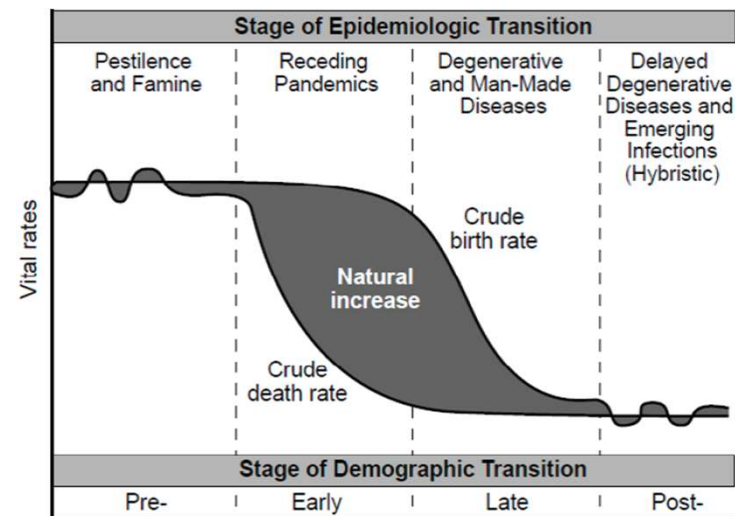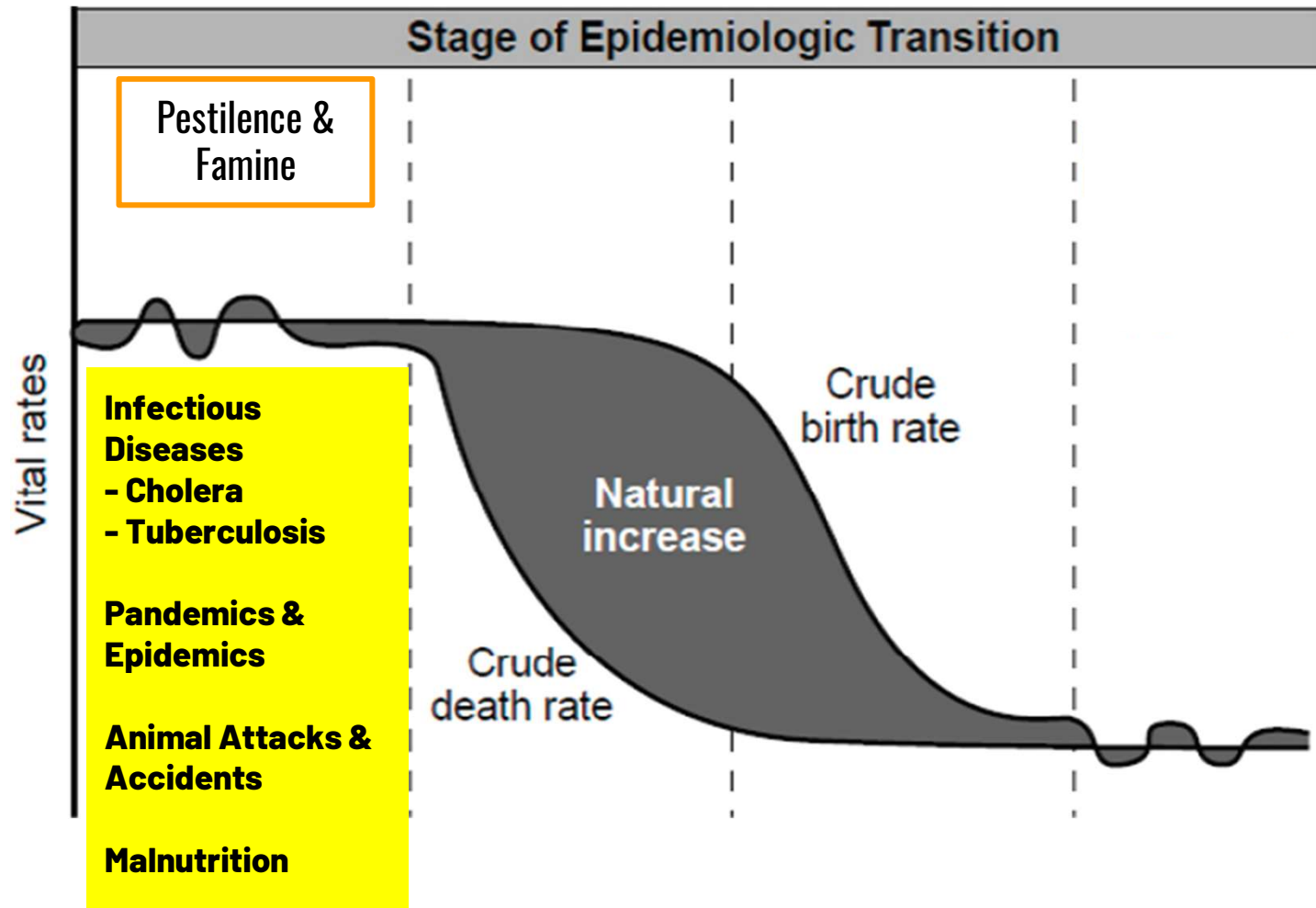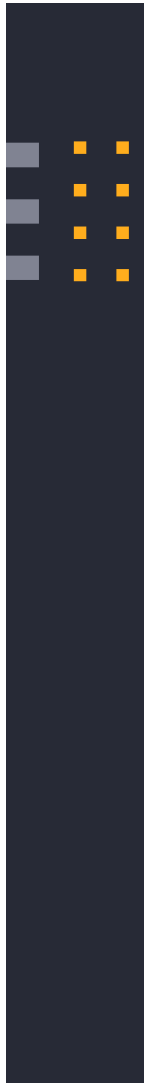
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Directions: For each scenario below, write what stage from the Demographic Transition Model it represents

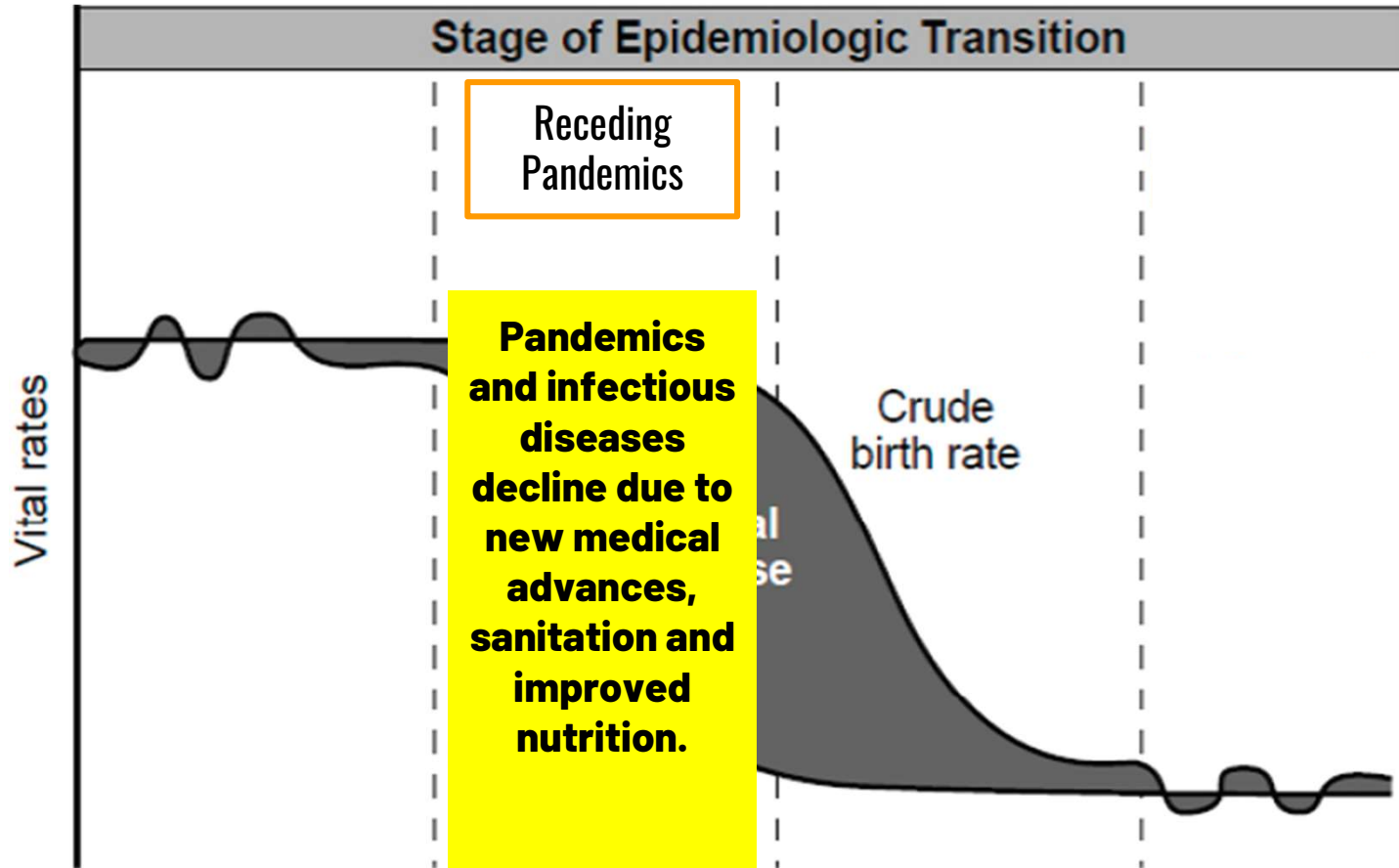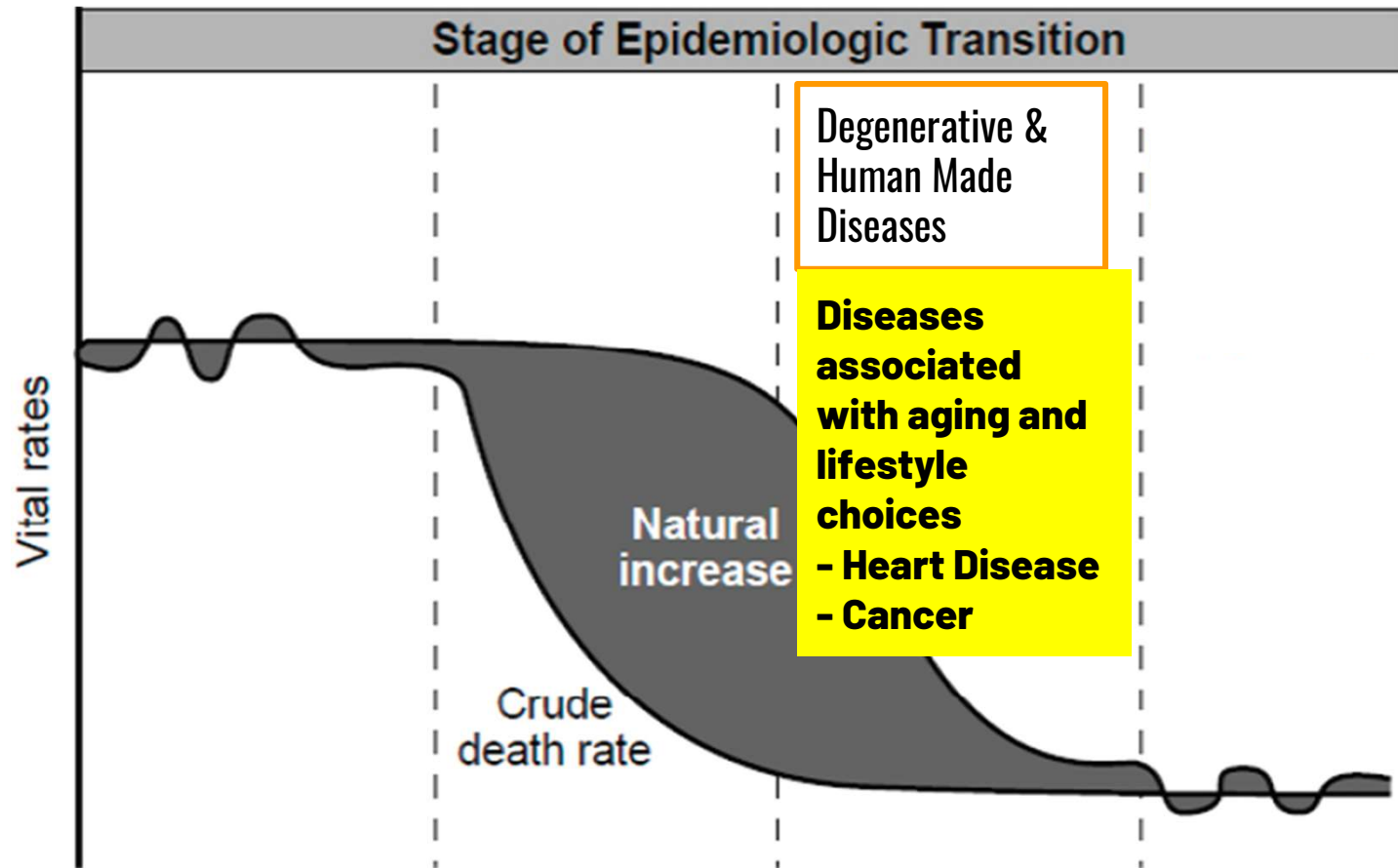| Scenario	Stage	Scenario	Stage
Billy White loses his job a grave digger		New home construction is rapidly increasing	
Parents start to think more about family planning		The public health inspector smiles as the buildings sewer system is completed	
Children are warmer in bed each night because they have more brothers and sisters		Fewer children share a bedroom	
There are more Golden (50 years) anniversaries being celebrated		Grandparents are very rare	
A mother sobs over the grave of her last six children who died because of smallpox		There are more grandparents than grandchildren	
Women begin to earn college degrees and obtain jobs		Death Rate Falling Rapidly	
Extremely Low Birth Rate, Low Death Rate		The United States	
Continued medical advancements, enhanced welfare provisions, economic independence of women, and improved access to contraceptives is seen in stage		Improved sanitation, children seen as an asset, mechanization, and population explosion are characteristics of stage	

The Epidemiological Transition Model
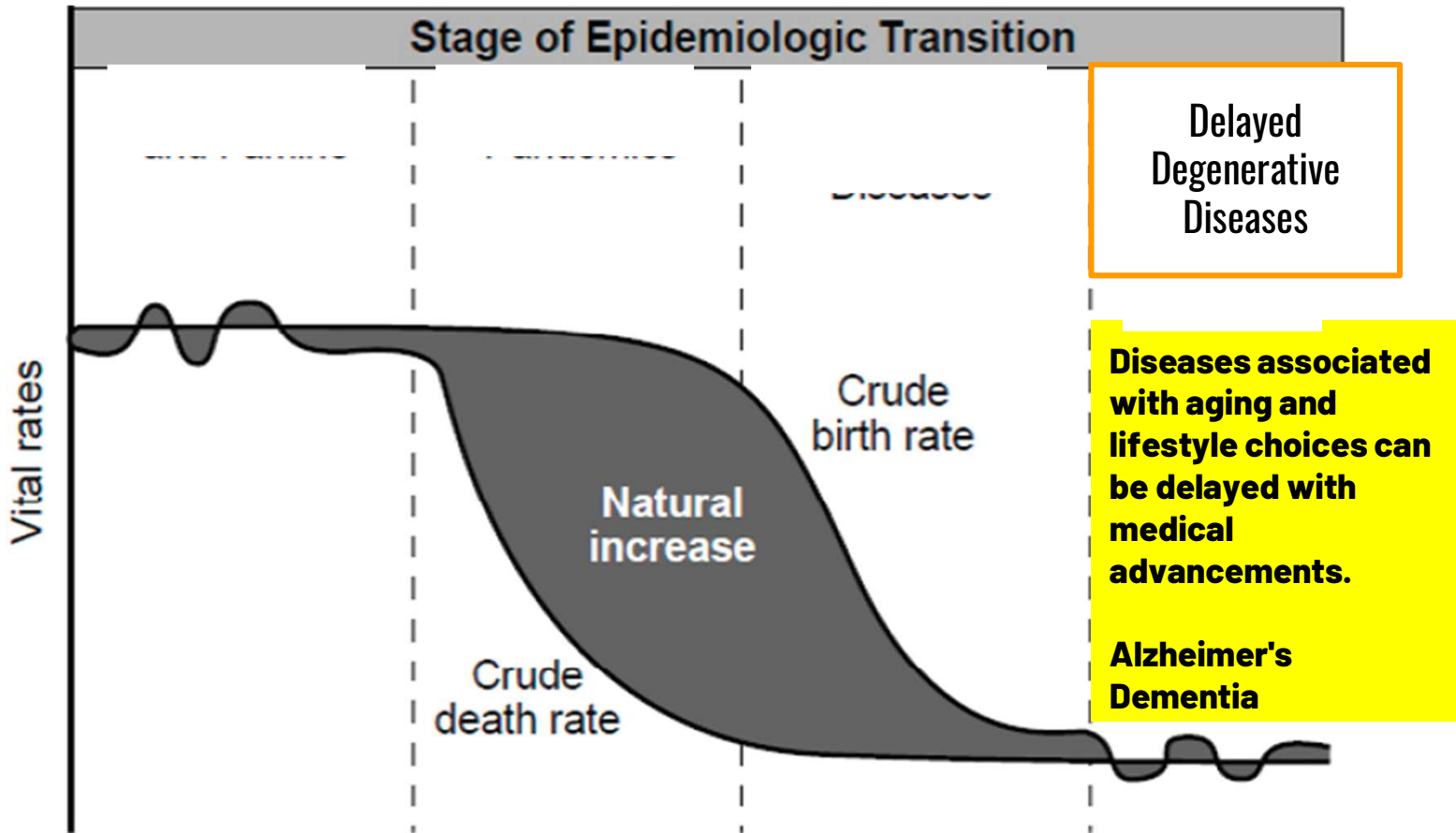
- Epidemiological Transition Model (ETM): Predictable stages in disease and life expectancy that countries experience as they develop which corresponds with the stages of the DTM.

Stage of Epidemiologic Transition

Receding Pandemics

Vital rates

Pandemics and infectious diseases decline due to new medical advances, sanitation and improved nutrition.

Crude birth rate

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Stage of Epidemiologic Transition

Degenerative & Human Made Diseases

Diseases associated with aging and lifestyle choices
- Heart Disease
- Cancer

Vital rates

Natural increase

Crude death rate

Stage of Epidemiologic Transition

Vital rates

Crude birth rate

Crude death rate

Natural increase

Delayed Degenerative Diseases

Diseases associated with aging and lifestyle choices can be delayed with medical advancements.

Alzheimer's Dementia

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Stage of Epidemiologic Transition

Vital rates

Crude birth rate
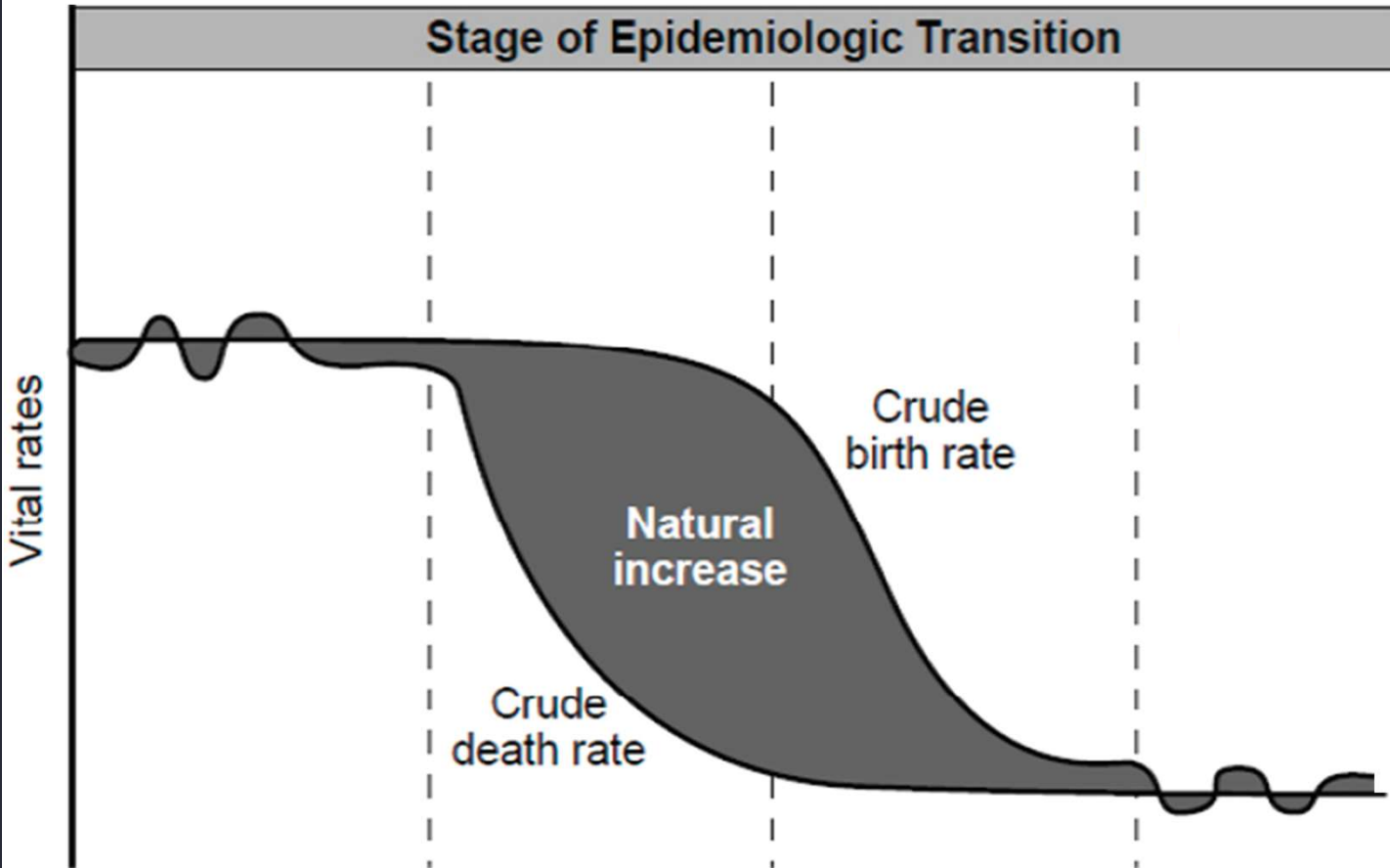
Natural increase

Crude death rate

Reemergence of Infectious Diseases

Bacteria and parasites become resistant to antibiotics and vaccines.

Reemergence of infectious diseases.

Ebola
COVID-19