Name: Period:

Topic: Date:

Warm Up

1) In the United States, most families spend less than \_\_\_% of their income on food. In poorer parts of Africa, that number rises to \_\_\_\_\_\_%. When prices double or more, food becomes unaffordable and riots can result.

* Periodic food shortages due to \_\_\_\_\_\_\_\_\_\_\_, pests, storms, or similar events can trigger explosive \_\_\_\_\_\_\_\_ increases. Increasing yield and stabilizing the \_\_\_\_\_\_\_\_ supply by increases in drought and pest resistance are primary goals of global food policy.

2) Approximately 925 million people worldwide (\_\_\_\_\_% of the world population!!) do not have access to enough food to fully meet their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ needs.

* Undernutrition—meaning people do not \_\_\_\_\_\_\_\_\_\_\_\_\_ enough calories.
* Food \_\_\_\_\_\_\_\_\_\_\_— all people at all times having access to sufficient, safe, and nutritious food.
* World Health Organization: 50 \_\_\_\_\_\_\_\_\_\_\_\_ people starve to death every day.

3) When quality or \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is insufficient, nutrition is poor and people become at \_\_\_\_\_\_\_\_\_\_\_ for diseases leading to many permanent maladies, such as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and death.

* Malnutrition - defined as a state of poor health that \_\_\_\_\_\_\_\_\_\_\_ from inadequate or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ food intake.
* Political instability and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ degradation are also significant factors.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ countries are much more likely to experience armed conflict, poverty, and social disempowerment leading to under-nutrition.

4) The **Green Revolution** refers to a series of \_\_\_\_\_\_\_\_\_\_\_\_\_\_, and development, and technology transfer initiatives, occurring between the 1940s and the late \_\_\_\_\_\_\_\_\_\_\_\_, that increased agricultural production worldwide, particularly in the developing world, beginning most markedly in the late 1960s.

* As global \_\_\_\_\_\_\_\_\_\_\_\_\_\_ rose and agricultural productivity stalled, the international community launched a \_\_\_\_\_\_\_\_\_\_\_ effort to bring modern agricultural techniques, including the use of pesticides, modern irrigation methods, and chemical fertilizers, to developing countries.

5) High Yield \_\_\_\_\_\_\_\_\_\_\_\_\_\_ - they have higher nitrogen-absorbing potential than other varieties, allowing for faster and more efficient growth.

* Selective \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in many staple crops have greatly increased yields worldwide. These varieties have also been bred to resist diseases, pests, and grow faster.
* Global food production has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and famine \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ enough to grow enough food to feed the approximately 7 billion people on earth.
* Yet \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is still present in many parts of the world.

6) The New Green Revolution also \_\_\_\_\_\_\_\_\_\_\_\_\_\_ new problems:

* Loss of crop \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Water contaminated by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from farm fields
* Water shortages from overuse

7) A **cash crop** is an agricultural crop which is grown for sale to return a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

* Imported food \_\_\_\_\_\_\_\_\_\_\_\_\_\_ are cheaper than locally grown, often due to subsidies.
* Most farmable land is then converted to \_\_\_\_\_\_\_\_\_\_\_ profit cash crops which can be exported.

8) GMO – An \_\_\_\_\_\_\_\_\_\_\_ where genetic material has been transferred from one organism to another.

* This can give organisms new traits that are \_\_\_\_\_\_\_\_\_\_\_\_\_\_; higher resistance to pests, drought, and viruses.
* One method of increasing crop \_\_\_\_\_\_\_\_\_\_\_\_\_ is with crops that have been genetically altered to be more pest or drought resistant or increased nutrient production.
* In the United States, more than \_\_\_\_% of processed foods contain GMOs, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 85−90% of corn, soybeans, and cotton.

9) **Organisms** that have altered genomes are known as **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ organisms.**

* Basically any GMO would be considered \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Transgenics allows for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to grow in a wider variety of environmental conditions, including pest and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ resistance.
* Fears of GMO’s include contamination of wild species by cross-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the potential medical reactions of humans by direct consumption, and concerns that beneficial insects may be negatively impacted.

10) Advanced technology (GMO’s) is not the only \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Many communities are using older techniques to improve agricultural yields. **Microfertilization** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ using small, precise amounts of material for each individual plant, rather than the entire field.