- **Development of Agriculture**
  - “Agriculture began about _____________ years ago, when a _____________ climate enabled humans to plant seeds and raise livestock.”

- **Development of Agriculture**
  - **Selective Breeding**
    - “Our ancestors then began planting seeds only from those plants whose fruit they liked the most.”
    - “______________________________ has resulted in all the food crops and livestock that feed you every day.”

- **Development of Agriculture**
  - ________________________________ or Biologically Powered Agriculture
    - By hand and animals

- **Industrial Agriculture**
  - “The **Industrial Revolution** introduced ________________________________ and ________________________________ engines to agriculture just as it did to industry”

- **Industrial Agriculture**
  - **The Green Revolution** “how the world farms today”
    - “agricultural scientists from _____________ nations introduced ________________________________
      ________________________________, and ________________________________to the ________________________________ world”

- **Industrial Agriculture**
  - **The Green Revolution produced**
    - “new strains of _____________ (insect resistant)”
• “new __________ of industrial agriculture (monoculture)”
• “large amounts of ___________________ (nitrogen and phosphates)”

• Industrial Agriculture
  – **The Green Revolution produced**
    • ____________________________

• Industrial Agriculture
  – **The Green Revolution produced**
    • “___________________________”
    • “liberally ___________________ (groundwater and lake)”
    • “using ____________________ powered by fossil fuels

The Green Revolution problems
• ____________________________,
• ____________________________
• ____________________________
• ____________________________
• ____________________________
• ____________________________
• ____________________________
• ____________________________

• **Industrial Agriculture**
  – “Because it uses ___________________ and ___________________, that are customized for a ___________________, to be most efficient, industrial agriculture requires that large areas be planted with a **single crop**, in a ______________________________.”
• Drawback to Monoculture Production
  – **Reduction in** ________________
  – All plants in a **monoculture** are the same plant they are
  _____________ to the same ___________ or _______________
  (all your eggs in one basket)
  – Citrus greening in Florida
  – Lack of_____________________________ (growing more than 1 crop)
• Big problem with monoculture is:
  – Insect Pests and Weeds
    • Insect and Weeds become________________________
• Three types of Pest Control
  – **Chemical Pesticides**
  – **Biological Pest Control**
  – **Integrated Pest Management**
• **Chemical Pesticides**
  • **Advantages**
    – “Chemicals used to__________________________(source petrochemicals)”
    – “most cost effective, ________________________________”
    – Tend to create_________________________ down the road
  **Disadvantages**
    – “but if used to often, insect population become ________________”
    – “_________________________ accumulate in the food chain”
    – “May_________________________ other species that are not pest”
    – “best method is to_________________________ or chemical application”
• **Biological Pest Control**
  – The use of an ____________________ to “________________________”
    a population of unwanted pest insects

  **Big problem if you introduce a new pest**
  – May become impossible to ____________________
  – May find a ______________________ it likes more
  – May eat useful ______________________

• **Integrated Pest Management**
  – The use of both ____________________ and ____________________ to
    remove unwanted pest

• **Agriculture Relies on Pollinators**
  – “Pollination is the process by which ____________________
    of a plant (pollen) fertilize female sex cells of a plant.”
  – “Pollinators are those organism that ____________________
    from one plant to the other”

• **Food Security**: The guarantee of an ________________ and
  ________________ food supply for all people at all times

• **We have increased food production by**:  
  • devoting more ____________________ energy to agriculture”
  • ____________________ and ____________________ more frequently;
  • by increasing the use of ____________________ , ________________,
    and ____________________
  • by increasing the amount of ____________________ land;
  • and by developing more ____________________ and
    ______________________
But the world’s _______________ are in ________________, and nearly all the planet’s ________________ is already being farmed.

Making the food supply secure depends on
1. maintaining healthy _______________ and _______________,
2. protecting the ________________ of food sources,
3. and ensuring the ________________

Industrial Food Production
______________, ________________, and other methods of industrial food production are efficient, but they have disadvantages.

**Sustainable Agriculture:** Sustainable alternatives to industrial agriculture include ________________ and locally ________________.

It also does not reduce the ________________ of soil, water, and genetic diversity essential to long-term crop and livestock production.

- **Sustainable Agriculture**
  - **Organic Agriculture:** growing practices that use no ________________, ________________, ________________—but instead rely on ________________ such as ________________ and ________________ pest control”

- **Sustainable Agriculture**
  - **Low-input agriculture:** “Sustainable agriculture that uses - ________________, ________________, ________________, ________________, ________________, and ________________ energy than are currently used in industrial, high-input agriculture”