Module 3 Study Guide: Climate Change

Key Terms

- **Climate Change**: Long-term climate pattern changes
- **Global Warming**: Increase in Earth's temperature
- **Greenhouse Effect**: Heat trapping by gases
- **Greenhouse Gases**: Gases that trap heat
- **Carbon Dioxide**: Major greenhouse gas
- **Ocean Acidification**: Decrease in ocean pH
- **Mitigation**: Reducing climate change causes
- **Adaptation**: Adjusting to climate impacts
- **Phenology**: Timing of biological events
- **Sea Level Rise**: Increase in ocean levels

Greenhouse Effect

- Natural process essential for life
- Enhanced by human activities
- Major gases: CO2, CH4, N2O
- Leads to global warming

Evidence

- Rising temperatures
- Melting ice
- Sea level rise
- Extreme weather
- Ecosystem changes

Ecosystem Impacts

Terrestrial

- Species range shifts
- Phenology changes
- Altered growing seasons

Marine

- Ocean acidification
- Coral bleaching
- Distribution changes

Freshwater

- Flow alterations
- Temperature increases
- Species composition changes

Responses

Mitigation

- Reduce emissions
- Renewable energy
- Energy efficiency
- Carbon capture

Adaptation

- Protect ecosystems
- Restore habitats
- Assist migration
- Resilient practices

Study Questions

1. What causes climate change?
2. What evidence supports climate change?
3. How does climate change affect ecosystems?
4. What are mitigation strategies?
5. How can we adapt to climate change?

Practice

- Analyze climate data
- Evaluate impacts
- Design solutions
- Compare scenarios