PPT/NOTES Presentation

All slides are editable.

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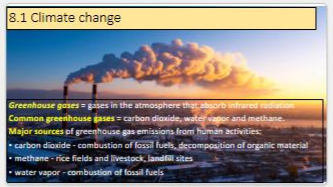

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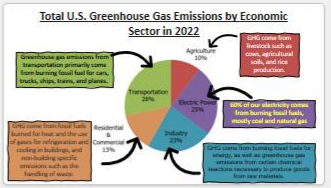

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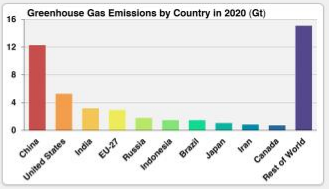

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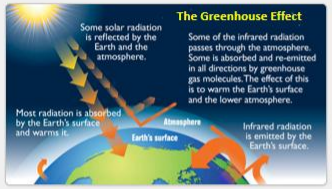

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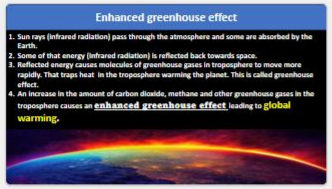

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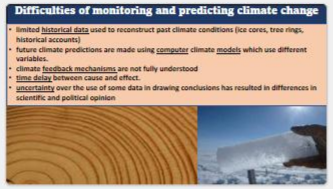

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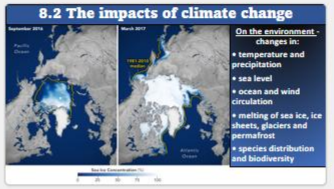

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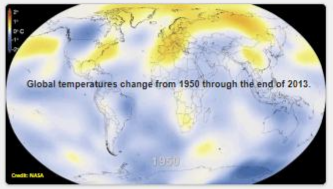

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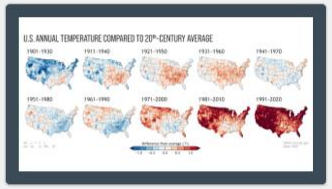

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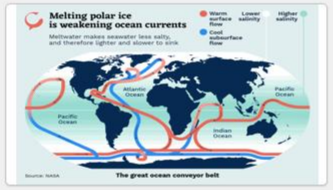

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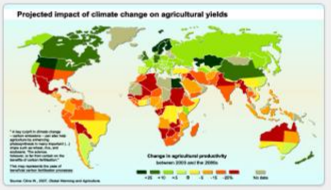

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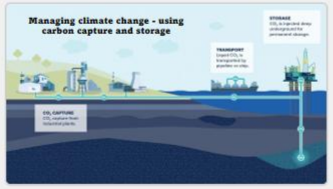

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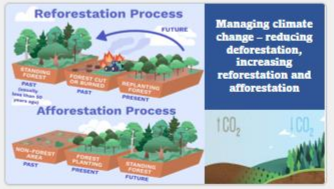

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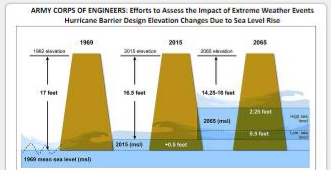
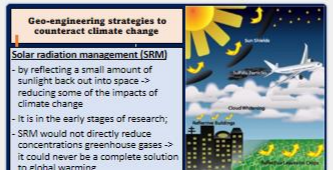
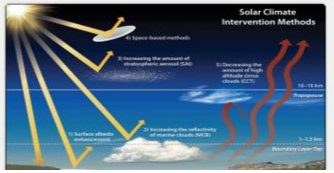
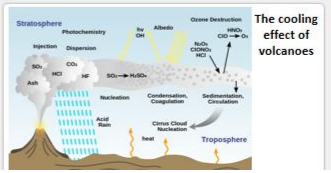
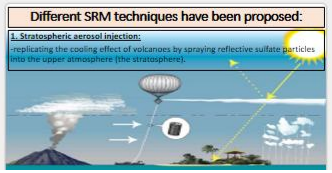








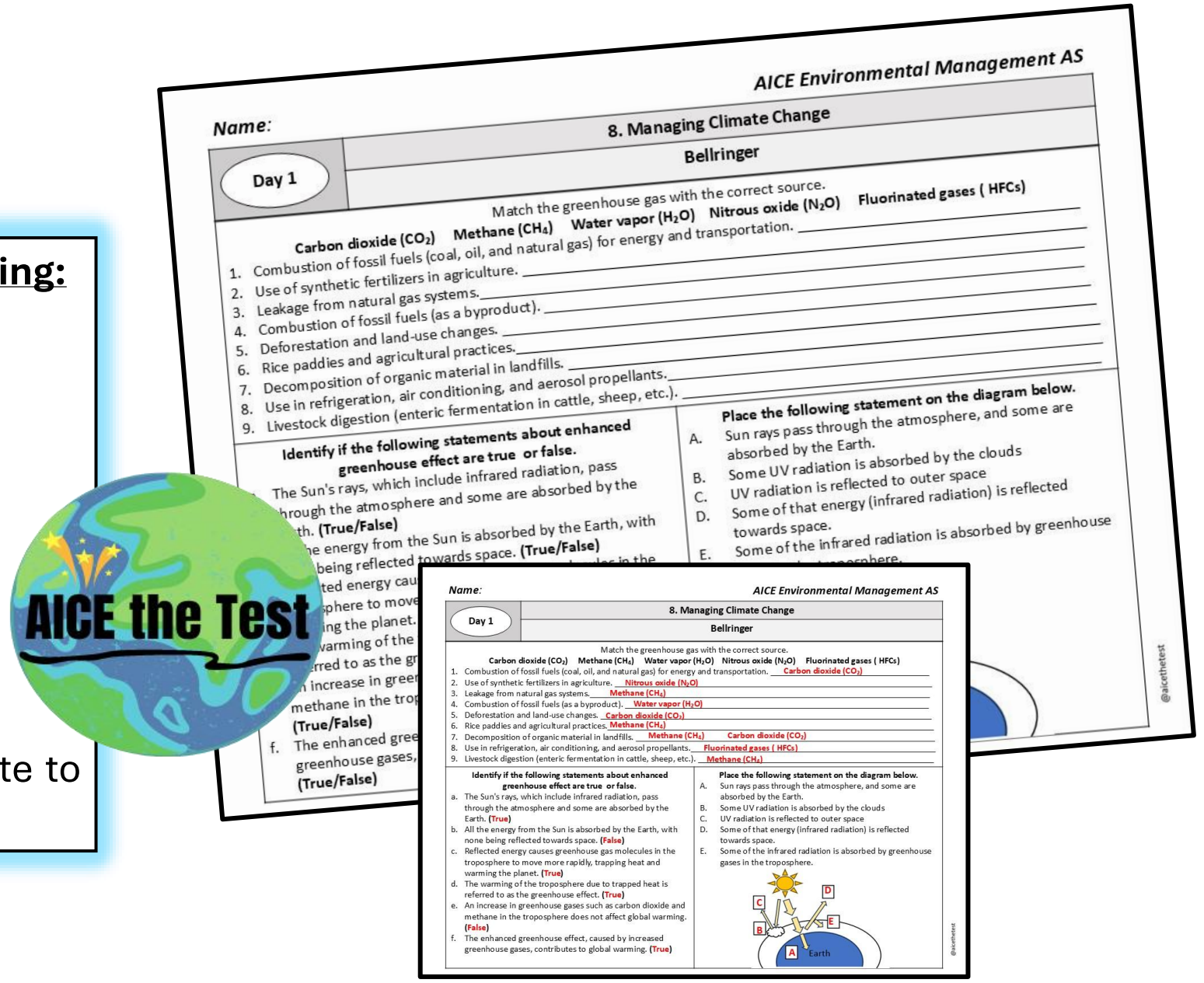


Bell Ringers for Unit 8 Managing Climate Change

What's *included?*

This resource includes the following:

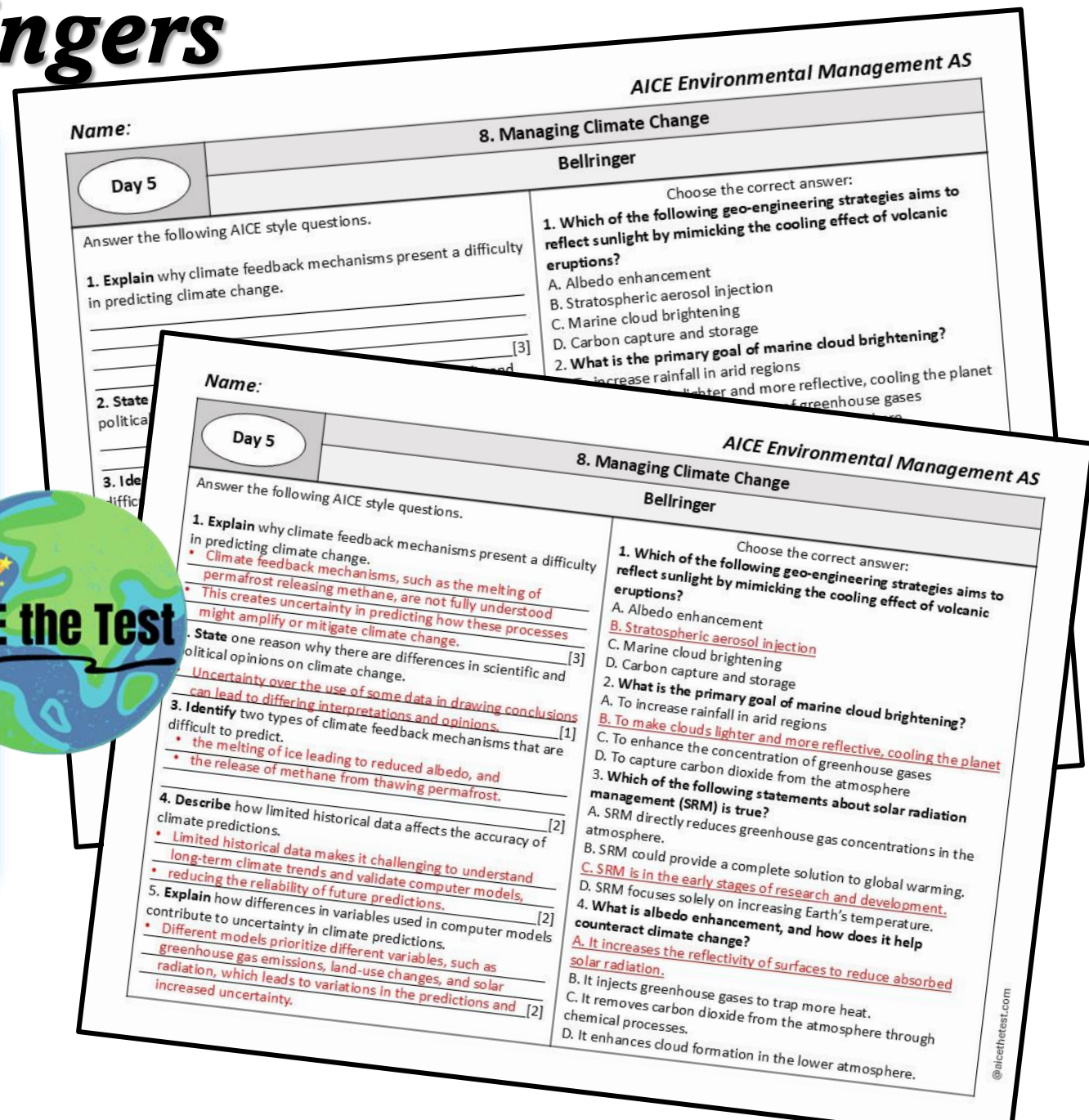
- 7 unique bell ringer prompts including:
  - True/False questions
  - Matching questions
  - Multiple choice
  - AICE style questions
  - One self-evaluation
  - **Answer Key**
- 100% editable
- Zero prep. Just print and distribute to students.



How *to use* the *Bell Ringers*

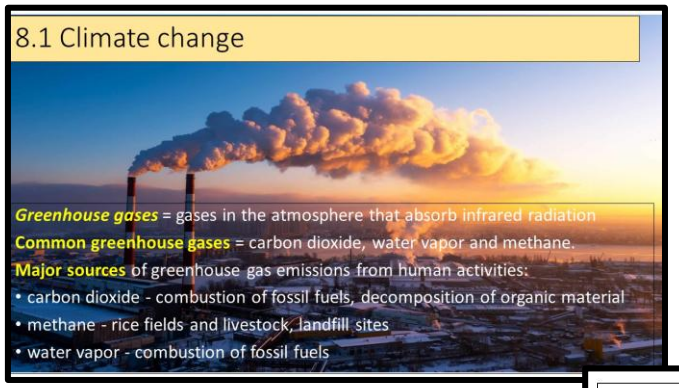
- ✓ **Edit:** you can customize it for your students.
- ✓ **Use** as Bell Ringer/Warm-up or as Exit Ticket.
- ✓ **Print:** print one day/page at a time, or all the bell ringers for the chapter at once.
- ✓ **Practice:** students can work individually or with a partner.
- ✓ **Discuss**: use the bell ringer a tool for class discussion each day.

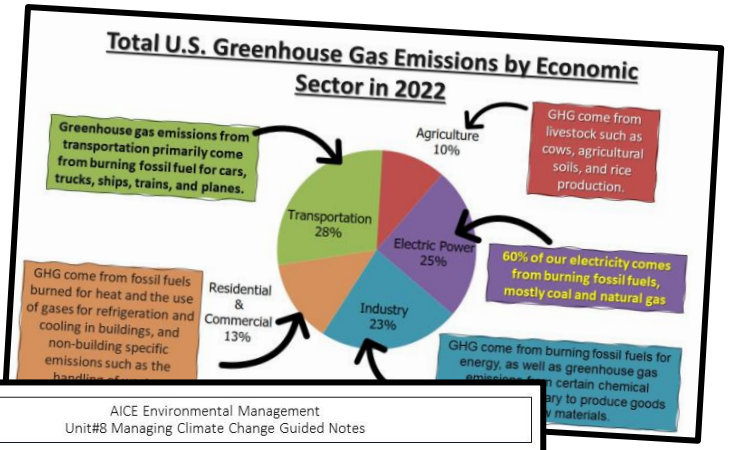
Enhances classroom management: Bell ringers improve classroom management by providing students with a structured activity as soon as they enter the room.



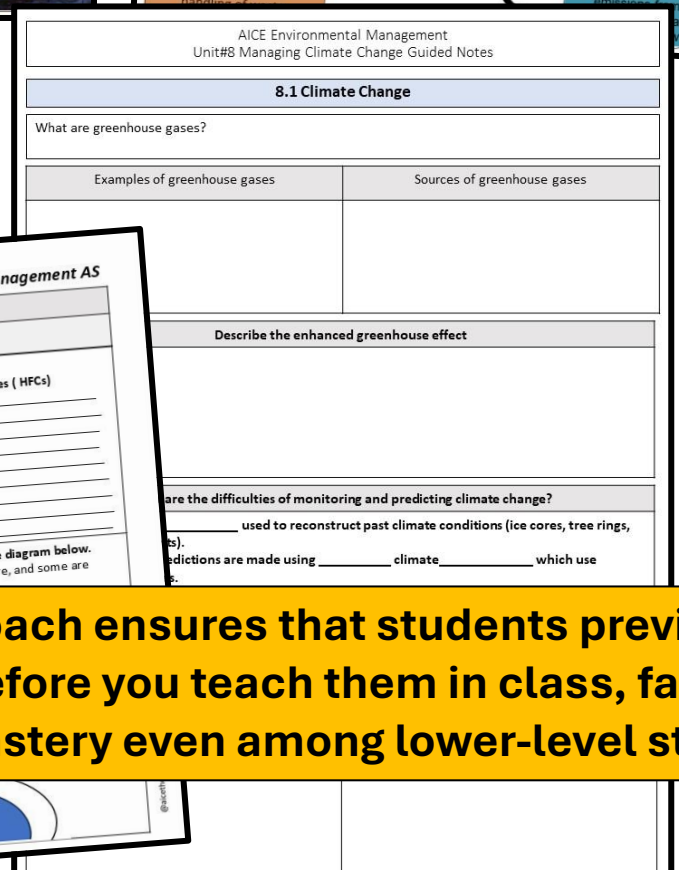
How to use the Notes/PowerPoint, Guided Notes and Bell Ringers to prep students for AICE Exam

1. Assign students to read specific sections of the **PowerPoint/Notes** (example slides)

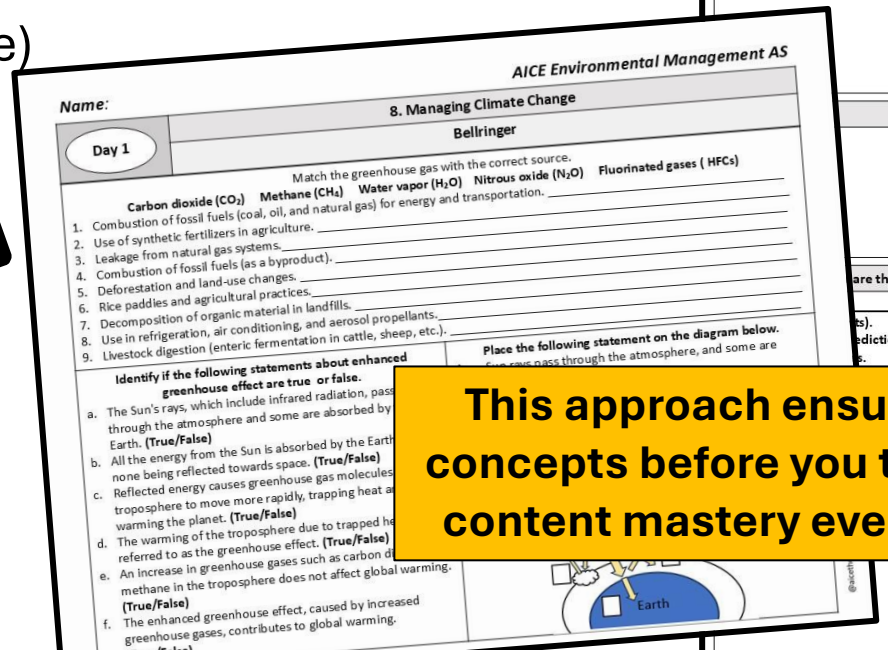




2. Have students take notes using the **Student Guided Notes** format as homework (example page one)



3. Upon entering class, provide them with a **bell ringer** activity (example Day 1 Bell Ringer)



This approach ensures that students preview the concepts before you teach them in class, facilitating content mastery even among lower-level students.

Practice Q's - 8 pages with answer key included

AICE Environmental Management
Chapter#8 Managing Climate Change – Practice Quest

1. The table below shows the levels of carbon dioxide in ppm fr
ice coverage, in millions of square Km for the same period.

Year	Carbon di levels (p
1960	316
1970	325
1980	340
1990	353
2000	371
2010	391
2020	413
2024	423

Table 1

(a) Graph the data.

(b) Carbon dioxide is a greenhouse gas. Define the term greenhouse gas.

(c) List two other examples of greenhouse gases. [1]

(d) For each of the greenhouse gases listed in question (c) identify a possible source. [2]

(e) Describe the trend in CO_2 emissions from 1960 to 2024 as seen in

(f) Calculate the percent change in the amount of CO_2 emissions from 196

(g) Suggest two reasons for the change in CO_2 levels between 1960 and 2024

2. Table 2 shows data on total US greenhouse gas emissions by economic secto
(a) Calculate the % of greenhouse gas emission from agriculture. Fill out the cha

Economic Sector	% of greenhouse gas emissions
Transportation	29
Agriculture	...
Commercial and Residential	13
Industry	23
Electric Power	25

Table 2

(b) Graph Table 2 data in the space provided below. [4]

Key

(c) Identify the economic sector that generates the highest percent of greer

(d) Identify one example of greenhouse gases released from agriculture and
greenhouse gases released from transportation.
agriculture
tansportation

(d) Describe two management strategies to reduce greenhouse gas emissio
transportation.

(e) State two strategy that could be used to reduce residential emissions of

(f) Identify one international agreement that works to reduce greenhouse g

(g) Solar radiation management (SRM) is a theoretical approach to managin
Describe how stratospheric aerosol injection works and identify two disadv

3. Carbon dioxide emissions and the Arctic sea ice levels have been measured from 1970 to 2020 and the data is presented in Table 3.

Year	Carbon dioxide levels (ppm)	Arctic sea ice (Millions Km²)
1970	325	6.5
1980	340	6.5
1990	353	5.8
2000	371	5.7
2010	391	4.2
2020	413	3.4

Table 3

(a) Describe the trends in levels of carbon dioxide and the Arctic sea ice levels from 1970 to 2020, as seen in table 3.

- As carbon dioxide levels increases the extend of Arctic sea ice decreases;
- The lowest levels of CO_2 (325ppm) were recorded in 1970; By 2020 the levels of CO_2 increased by 88 ppm reaching 413 ppm.
- In 1970 the Arctic sea ice was at the highest surface area (6.5 millions Km2); the Arctic sea ice declined to 3.4 million Km2 by 2020;
- Arctic sea ice declined by 48% between 1970 to 2020. [4]

(b) Explain two impacts an increase in carbon dioxide levels in the atmosphere could have on the Arctic Ocean.

- Reduction in sea ice causes habitat loss and impacts biodiversity;
- Melting of ice causes a change in ocean salinity which could further impact ocean currents.

[4]

(c) The increase in greenhouse gases in the atmosphere causes global warming. Describe the impacts global warming could have on a coastal region.

- Global warming causes glaciers to melt which further cause sea level rise; sea level rise cause coastal flooding;
- Coastal flooding could impact the economy, as property could be lost, and people are forced to migrate;
- Sea level rise could cause saltwater intrusion, which leads to aquifer contamination. This could further cause water insecurity.
- Sea level rise impacts coastal ecosystems, such as coral reefs, wetlands and mangroves.
- This could further lower their biodiversity and impacts fishing industry.
- Coastal flooding impacts tourism;

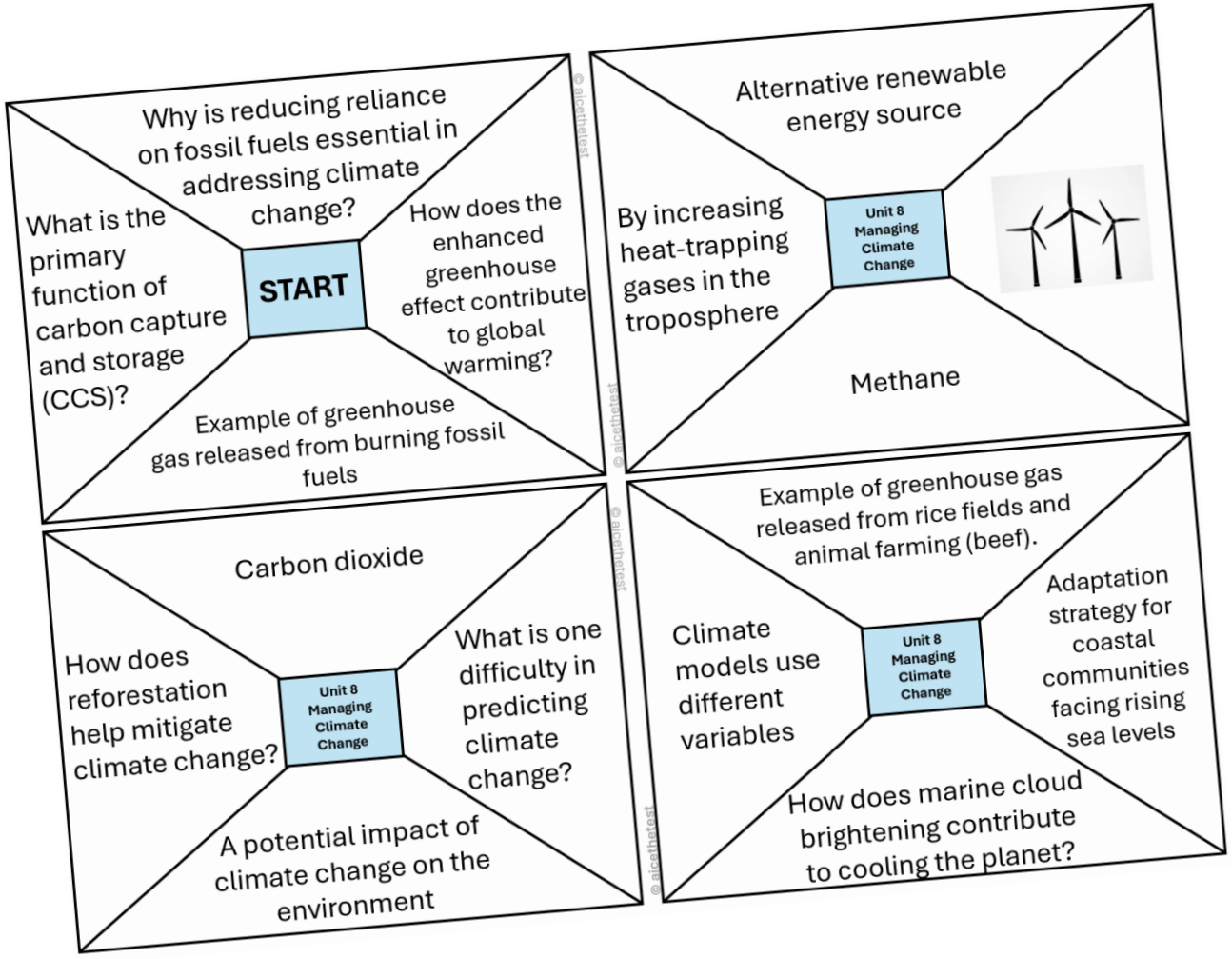
AICE the Test

Thought-provoking questions encourage critical thinking, data evaluation, and problem-solving—key components of the AICE curriculum.

Regular exposure to exam-style questions builds familiarity, reducing test anxiety and helping students perform better under timed conditions.

Students arrange the puzzle pieces to match the statement/question with the answer.

Get ready to engage your students, reinforce key concepts, and make learning about climate change more interactive and fun!



Puzzle Review Game for Unit 8: Managing Climate Change!

By transforming chapter review into an interactive game, students become active participants in their learning process—motivated to solve puzzles rather than passively memorize facts.

AICE Environmental Management
Chapter#8 Managing Climate Change - Test

N_____
P_____
D_____

1. Data table below shows different chemicals released from human activities.

Chemical	Greenhouse gas
Methane	
VOC's	
Carbon dioxide	
CFC	
Nitrogen oxide	
F-gases	
Sulfur dioxide	

(a) Identify which of the chemicals listed in the table a
Insert an "x" into the corresponding boxes.

(b) List two sources for greenhouse gases.

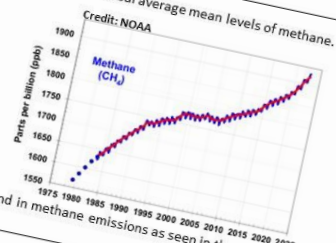
(c) List and desc

(d) Describe how

(e) List two adva

(f) Explain the possible impact of future greenhouse gas emissions from
countries.

2. The graph below shows the global average mean levels of methane.



trend in methane emissions as seen in the graph above.

cent change in methane between 1985 to 2020. Write your answe
es.

global warming has on coastal regions of your choice.

[7]

AICE Environmental Management
Chapter#8 Managing Climate Change – Test ANSWER KEY

1. Data table below shows different chemicals released from human activities.

Chemical	Greenhouse gas
Methane	X
VOC's	
Carbon dioxide	X
CFC	X
Nitrogen oxide	
F-gases	x
Sulfur dioxide	

(a) Identify which of the chemicals listed in the table above represent greenhouse gases.
Insert an "x" into the corresponding boxes. [2]

(b) List two sources for greenhouse gases.
- Carbon dioxide – burning fossil fuels
- F-gases – is an alternative to CFC used as refrigerant [2]

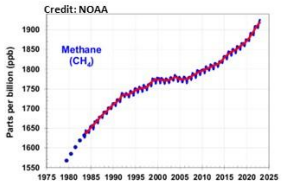
(c) List and describe two management strategies that are used to reduce greenhouse gases.
- Switching from burning fossil fuels to renewable energy sources to reduce emissions of carbon dioxide;
- Plant based diet reduces greenhouse gases as meat production releases methane and meat processing facilities release carbon dioxide in the atmosphere. [4]

(d) Describe how stratospheric aerosol injection strategy works to manage climate change.
- Sulfate aerosol is injected into the stratosphere;
- Using airplanes or balloons;
- Reduces UV radiation that gets to the surface of our planet. [3]

(e) List two advantages and two disadvantages of stratospheric aerosol injection strategy.
- Advantages: reflects some of the incoming UV radiation and creates a cooling effect;
- Disadvantages: side effects are not fully known; sulfate particles can cause acid rain. [4]

(f) Explain the possible impact of future greenhouse gas emissions from newly industrialized countries.
- As more countries move through demographic transition and become industrialized, they will use more fossil fuels in industry and transportation;
- This releases greenhouse gases such as carbon dioxide;
- Which will increase the concentration of GHG in the troposphere;
- Leading to an enhanced greenhouse effect. [4]

2. The graph below shows the global average mean levels of methane.



(a) Describe the trend in methane emissions as seen in the graph above.
- Methane levels have steadily increased from 1980 to 2023
- Increased by about 300ppb [2]

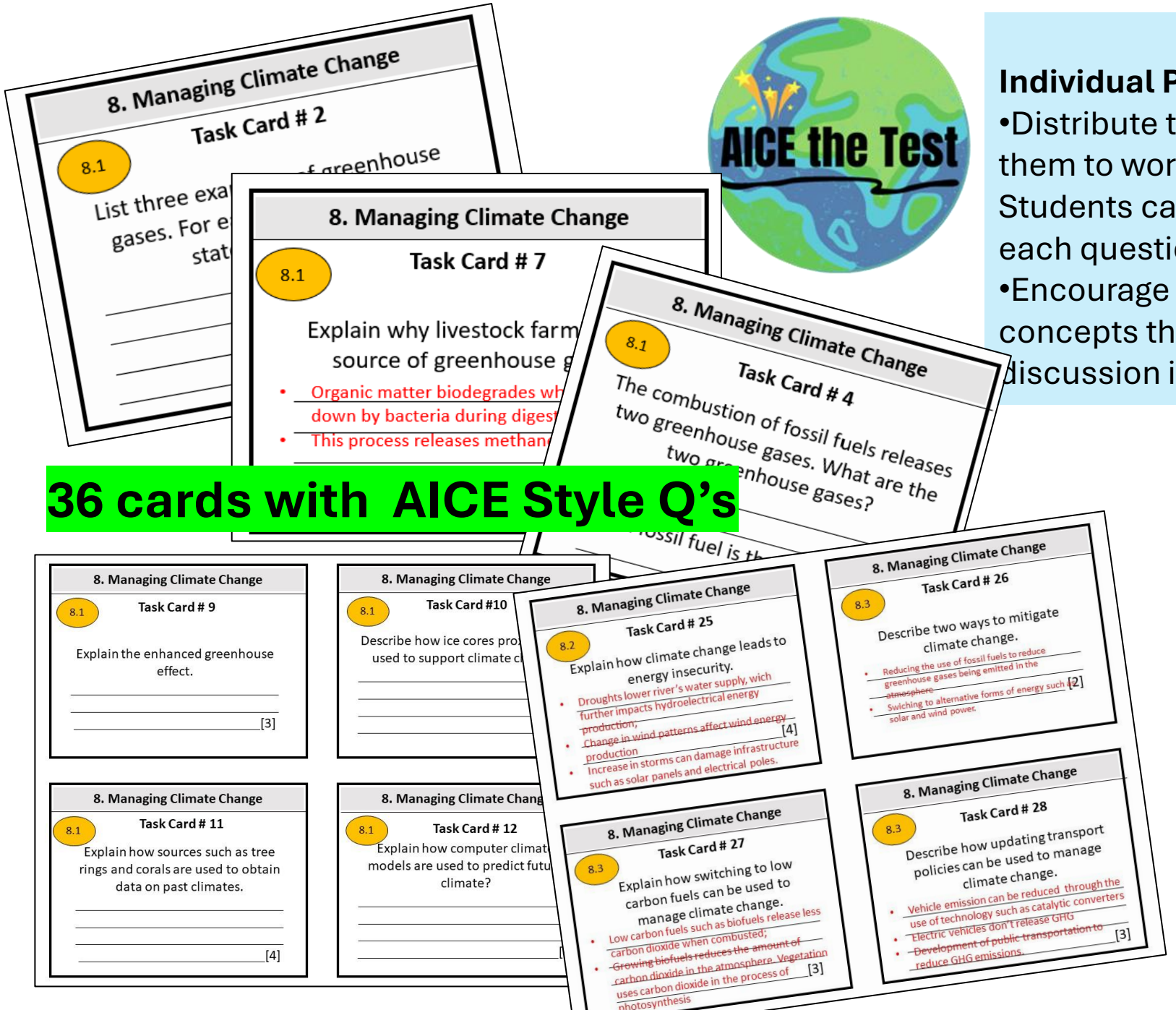
(b) Calculate the percent change in methane between 1985 to 2020. Write your answer using three significant figures.
- %change = 1875 – 1650/1650 x 100 = 13.6% [2]

3. Describe the impacts global warming has on coastal regions of your choice. Any seven
- In Florida, global warming can lead to water insecurity because the melting of glaciers leads to sea level rise causing saltwater intrusion (contaminate the aquifers);
- Soil can be contaminated with salt, lowering crop productivity;
- Loss of land because of sea level rise
- Coastal erosion and loss of property – because of sea level rise
- Loss of ecosystems such as mangroves witch further cause a loss of biodiversity;
- This could negatively impact tourism
- Leading to loss of jobs
- Negative impacts on coral reefs (coral bleaching) leading to loss of biodiversity which impacts fishing industry and jobs;
- Further can lead to food insecurity. [7]

AICE the Test

The resource mimics real AICE Environmental Management exam questions, giving students targeted practice for the test format they'll face.

Includes math calculations, data interpretation, and content-based questions to develop all the essential skills needed for success.



AICE the Test

How To Use the Task Cards

Individual Practice:

- Distribute the task cards to each student, allowing them to work through the questions independently. Students can use the answer key after attempting each question.
- Encourage students to write down any questions or concepts they find challenging for a follow-up discussion in class.

36 cards with AICE Style Q's

Group Practice:

- Divide students into small groups and provide each group with a set of task cards. Students can take turns reading questions aloud and discussing their answers before revealing the correct answer.
- This method fosters collaboration and allows students to clarify their understanding of the topics as they discuss potential answers with peers.

Unit#8 Managing Climate Change– 3 weeks/7 class periods			
Day#	**Date**	**Topic/Objectives**	**Activities/Resources**
1		***8.1 Climate change*** • define greenhouse gases • state the major sources of greenhouse gas emissions from human activities • explain how increased concentrations of greenhouse gases in the atmosphere cause the enhanced greenhouse effect leading to global warming • outline the difficulties of monitoring and predicting climate change	• **Bellringer#1** • Lecture/Notes (PPT – slides 1-9) • Student Guided Notes • Investigative skills 8.1 – page 305-306
2		***8.2 The impacts of climate change*** • state the impacts of climate change on the environment • describe the impacts of climate change on human populations	• **Bellringer#2** • Lecture/Notes (PPT – slides 10 – 17) • Student Guided Notes • Case Study: The impact of climate change on the Great Barrier Reef, east coast of Australia. – page 316-318 (Coursebook) • 8.2 Questions 1-4 page 315 (Coursebook)
3		***Quiz 8.1 and 8.2*** ***8.3 Managing climate change*** • describe strategies for managing climate change through the reduction of greenhouse gas emissions • outline geo-engineering strategies to counteract climate change • evaluate strategies for managing climate change	• **Bellringer#3** • Lecture/Notes (PPT – slides 18-33) • Student Guided Notes • **QUIZ (8.1 and 8.2)** • 8.3a Questions 1-4 page 324 (Coursebook) • Extended Case Study: Island nations and sea level rise -page 327-329 (Coursebook)