



TEACHER GUIDE

• Assessment Rubric	4
• How Is Our Resource Organized?	5
• Bloom’s Taxonomy for Reading Comprehension	6
• Vocabulary	6



STUDENT HANDOUTS

• Reading Comprehension	
1. <i>What Is Salt Water?</i>	
2. <i>Where Is Earth’s Salt Water?</i>	
3. <i>Climate Change and Salt Water</i>	7
4. <i>How the Amount of Salt Water Could Change</i>	
5. <i>How the Purity of Salt Water Could Change</i>	
6. <i>How Changes in Salt Water Could Change Our Lives</i>	
7. <i>Conservation: What We Can Do</i>	
8. <i>Graphic Organizers</i>	12
• Hands-on Activities	14
• Crossword	18
• Word Search	19
• Comprehension Quiz	20



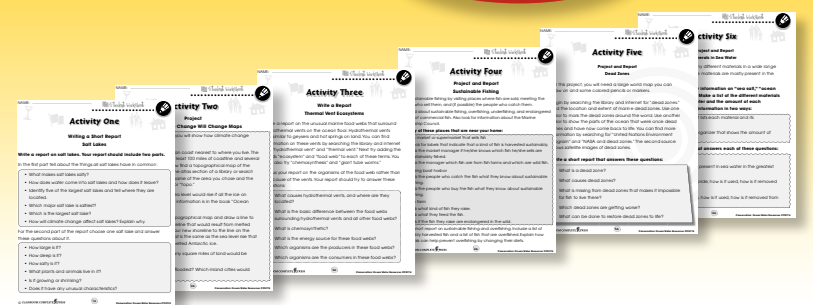
EASY MARKING™ ANSWER KEY	22
---------------------------------------	----

MINI POSTERS	24
---------------------------	----

FREE!

✓ **6 BONUS Activity Pages!** Additional worksheets for your students

- Go to our website: www.classroomcompletepress.com/bonus
- Enter item CC5774 – Conservation: Ocean Water Resources
- Enter pass code CC5774D for Activity Pages





Climate Change and Salt Water

1. Circle the word **TRUE** if the statement is TRUE or Circle the word **FALSE** if it is FALSE.

- a) The greenhouse effect traps heat in Earth's atmosphere.
TRUE FALSE
- b) Carbon dioxide is a greenhouse gas.
TRUE FALSE
- c) Natural gas is a fossil fuel.
TRUE FALSE
- d) When Earth gets warmer, the ocean level drops.
TRUE FALSE
- e) Scientists can predict what the ocean level will be in the year 2100.
TRUE FALSE
- f) Most of Earth's fresh water is frozen in the polar ice caps.
TRUE FALSE
- g) Rising temperature will cause most salt lakes to get deeper.
TRUE FALSE
- h) Using gasoline as a fuel releases greenhouse gases.
TRUE FALSE

2. Put a check mark (✓) next to the answer that is most correct.

- a) All of these are fossil fuels, except
 - A oil
 - B coal
 - C natural gas
 - D hydrogen gas
- b) Where is most of Earth's salt water?
 - A in lakes
 - B underground
 - C in the oceans
 - D in polar ice caps



Climate Change and Salt Water

Twenty thousand years ago, The level of the ocean was 120 meters (400 feet) lower than it is today! Sea level depends on global climate, and Earth's climate is changing. One of the most important factors affecting climate is the **greenhouse effect**.



Dawes Glacier Melting

A greenhouse effect occurs wherever there is a layer of material that transmits light more readily than it transmits heat. In a greenhouse where plants are grown, the layer is glass. Sunlight passes through the glass, which warms the inside. Much of the heat produced is trapped because it cannot pass out through the glass.

For Earth the layer that **transmits** light and traps heat is a layer of gases in the atmosphere. These gases are called **greenhouse gases**. One of the most important greenhouse gases is **carbon dioxide** which is released whenever we burn **fossil fuels**, such as **coal, oil, and natural gas**. Because people have been burning a lot more fossil fuels over the past 100 years, the greenhouse effect has gotten stronger, more heat has been trapped, and Earth has gotten warmer.

STOP! READ! Identify **three** fuels that release carbon dioxide when they are burned.



Climate Change and Salt Water

1. Put a check mark (✓) next to the answer that is most correct.

- a) As temperature rises, the level of inland salt lakes can drop because of increased
 - A condensation
 - B evaporation
 - C precipitation
 - D runoff
- b) Which of these is a greenhouse gas?
 - A oxygen
 - B nitrogen
 - C hydrogen
 - D carbon dioxide
- c) About how much has ocean level changed in the last 100 years?
 - A dropped 195 millimeters (7.7 inches)
 - B dropped 1.5 millimeters (.06 inches)
 - C rose 1.5 millimeters (.06 inches)
 - D rose 195 millimeters (7.7 inches)

2. Earth's climate is changing and will probably continue to change for several decades. Show how climate change will affect each characteristic of Earth by writing "Increase" or "Decrease" in the blank spaces after each characteristic.

- a) Average temperature _____
- b) Sea level _____
- c) Amount of ice at the North and South Poles _____
- d) Level of inland salt lakes _____
- e) Amount of liquid salt water _____

Climate Change and Salt Water

3. Answer the questions in complete sentences.

- a) Explain Earth's greenhouse effect in terms of how easily sunlight and heat pass through the atmosphere.

- b) Describe the type of countries that will have the biggest problems due to global warming and explain why.

Extensions & Applications

- a) If sea level continues to rise at a rate of 1.5 millimeters per year, how many inches higher will sea level be 100 years from now?

- b) Twenty Thousand years ago, Earth's average temperature was much colder than it is today. Describe two ways in which Earth's surface was different 20,000 years ago, compared to today.



Activity Three

Making Salt Water

In this project you will make salt solutions that have the same percent salt as the ocean and two salt lakes. This is what you will need:

- A measuring cup
- A scale or balance
- Some objects that just barely sink in fresh water, like an egg

This is what you do:

- Find the percent salt content in the ocean, the Great Salt Lake, and the Dead Sea.
- Prepare salt solutions that are the same concentration as each of these bodies of water. (remember: 1 milliliter of water has a mass of 1 gram.)
- See which objects will float in which solutions.
- Answer the question: What would it feel like to swim in each of these bodies of water?



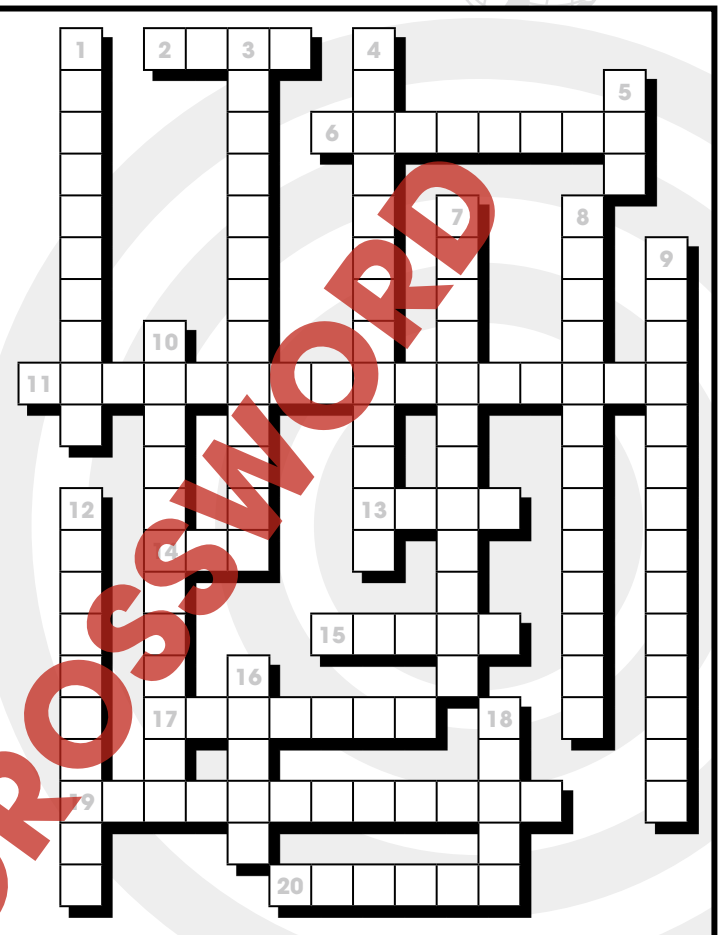
Crossword Puzzle!

Across

- The chemical formula of sea salt.
- A part of the ocean where fish cannot live.
- This keeps Earth's heat from escaping into space.
- This inland salt sea in Asia has lost 75% of its surface area.
- Solid water
- When water evaporates, it becomes water _____.
- A giant ice cube floating in the ocean.
- Saving resources by using them more carefully.
- Oil, coal, and natural gas are _____ fuels.

Down

- All the gases above Earth's surface make up the _____.
- Rising global temperature is an example of this.
- Any one of the gases that trap Earth's heat.
- A large body of water.
- The process before precipitation.
- 3.5% is the _____ of salt in sea water.
- This process cannot take place below an ocean depth of 2000 feet.
- Removing the salt from salt water.
- Evaporation, condensation, precipitation, runoff.
- Sea _____ is zero altitude.
- A low-lying tropical island.



Word List		
ARAL	DEAD ZONE	LEVEL
ATMOSPHERE	DESALINATION	NaCl
ATOLL	FOSSIL	PHOTOSYNTHESIS
CLIMATE CHANGE	GREENHOUSE EFFECT	SEA
CONCENTRATION	GREENHOUSE GAS	VAPOR
CONDENSATION	ICE	WATER CYCLE
CONSERVATION	ICE BERG	

(Note: For answers of more than one word, do not put a space between the words.)



Comprehension Quiz

25

Part A

Circle the word **TRUE** if the statement is TRUE or Circle the word **FALSE** if it is FALSE.

- All Earth's salt water is in the oceans.
TRUE **FALSE**
- Ocean water is 71% salt.
TRUE **FALSE**
- Water enters the ocean through runoff and leaves by evaporation.
TRUE **FALSE**
- An increased greenhouse effect will lead to higher ocean levels.
TRUE **FALSE**
- Most of Earth's ice is in icebergs.
TRUE **FALSE**
- Fertilizer runoff can cause ocean dead zones.
TRUE **FALSE**
- Materials poured down storm drains go to sewage treatment plants.
TRUE **FALSE**

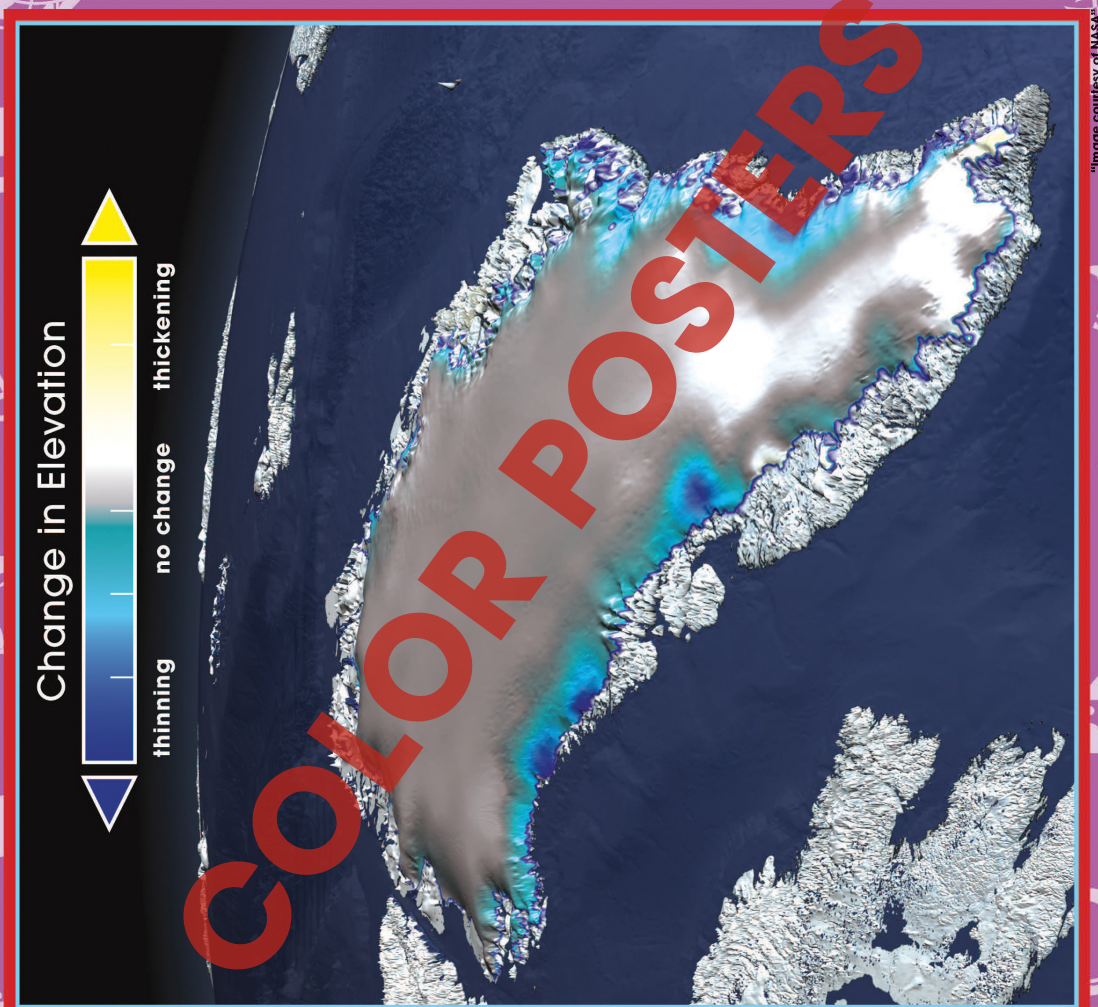
Part B

Put a check mark (✓) next to the answer that is most correct.

- Which of these is a greenhouse gas?
 A oxygen
 B nitrogen
 C carbon dioxide
 D sodium chloride
- What percent of Earth's water is salt water?
 A 3.5%
 B 29%
 C 71%
 D 97.7%
- What problem might people living on tropical atolls face if global temperature continues to rise?
 A drought
 B flooding
 C pollution
 D tsunami

Greenland

(The melting ice sheet)



NAME: _____

After You Read 



Climate Change and Salt Water

3. Answer the questions in complete sentences.

a) Explain Earth's greenhouse effect in terms of how easily sunlight and heat pass through the atmosphere.

b) Describe the type of countries that will have the biggest problems due to global warming and explain why.

Extensions & Applications

a) If sea level continues to rise at a rate of 1.5 millimeters per year, how many inches higher will sea level be 100 years from now?

b) Twenty Thousand years ago, Earth's average temperature was much colder than it is today. Describe *two* ways in which Earth's surface was different 20,000 years ago, compared to today.



- 3.**
- a) Sunlight passes easily through the atmosphere and warms Earth's surface, which radiates heat. Heat does not pass through the atmosphere as easily as light, and so some of it is trapped, warming the atmosphere.
 - b) Low-lying countries will have the greatest problem because of rising sea level caused by rising temperature, which will melt some of the ice at the poles..

Activity Two

- Challenger Deep in the Mariana Trench
- 11,000 meters
- 1,095 as great as at the surface
- Yes—flat fish, sea worms
- Two
- Ooze, flatfish, sea worms, shrimp
- Spherical steel cabin, self-propelled, gasoline-filled float, iron shot ballast
- There are currently no vessels capable of carrying people to the Challenger Deep.

15

Activity Three

- Ocean, 3.5%; Great Salt Lake, about 14%(varies greatly); Dead Sea, 30%
- It would be easier to float in all these bodies of water than in fresh water. It would be difficult to sink in the Great Salt Lake or the Dead Sea.

16

Extension & Applications

a) $(1.5 \text{ mm/yr.}) \times (100 \text{ yr.}) \times (1 \text{ in.}/25 \text{ mm}) = 6 \text{ in.}$

- b) Any two of the following:
 - More ice
 - Ice extended farther from the poles
 - More land area
 - Lower sea level
 - Any answer consistent with more ice and less sea water



17

Activity Four

- To nearly all parts of the ocean
- They were not biodegradable.
- The packaging decomposed in sea water.
- Yes. One of the largest caused Nike shoes to wash up on beaches all over the world.
- The paths of the toys gave scientists a more accurate idea of the paths followed by ocean currents.

EASY MARKING ANSWER KEY

