

The background of the slide is a light gray gradient with several realistic water droplets of various sizes scattered across it. The droplets have highlights and shadows, giving them a three-dimensional appearance. The text is centered on the page.

UNIT 1: WATER SYSTEMS ON EARTH

CHAPTER 1: THE WATER CYCLE

HOW DO YOU USE WATER???



House Hold Use

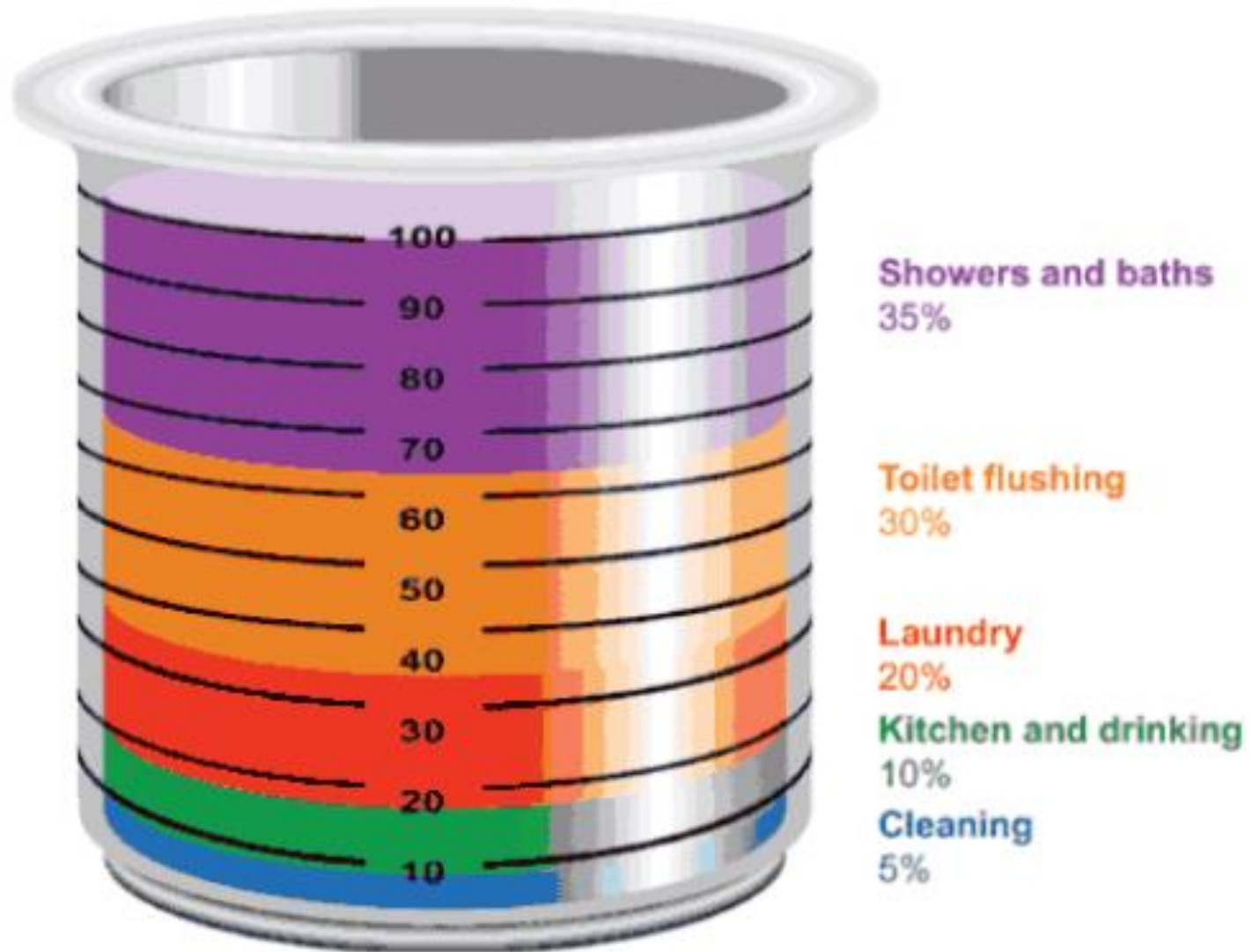


Personal Use



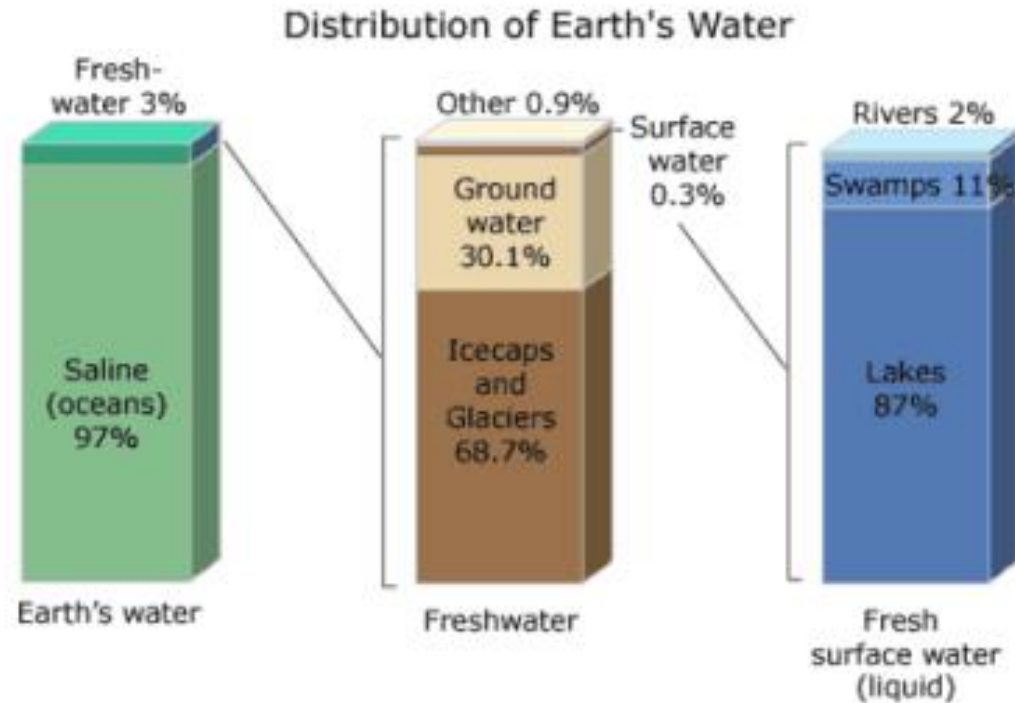
Recreational Activities

HOW WE USE WATER IN OUR HOUSES!!



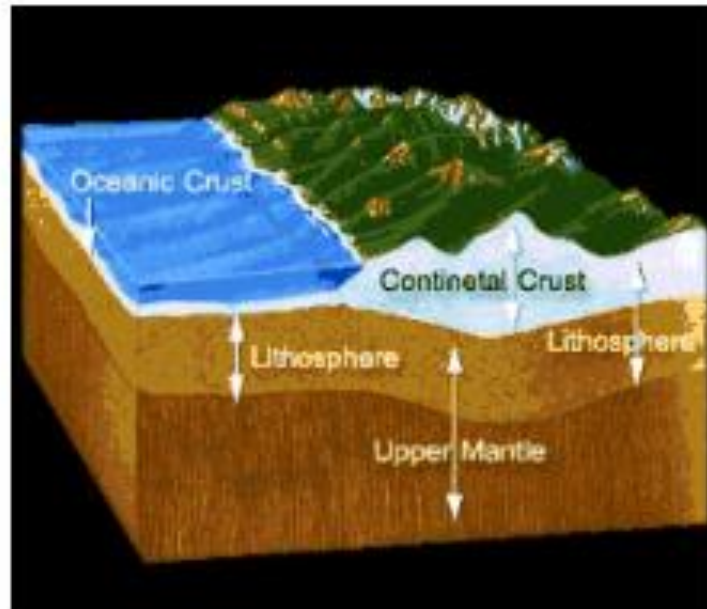
WATER DISTRIBUTION

- ONLY 3% OF THE EARTH'S WATER IS FRESH WATER!
- 2/3 OF THIS WATER IS FROZEN IN ICE SHEETS
- YOU DO THE MATH: ONLY 1% OF THE FRESH WATER ON THE EARTH'S SURFACE IS AVAILABLE



IMPORTANT DEFINITIONS:

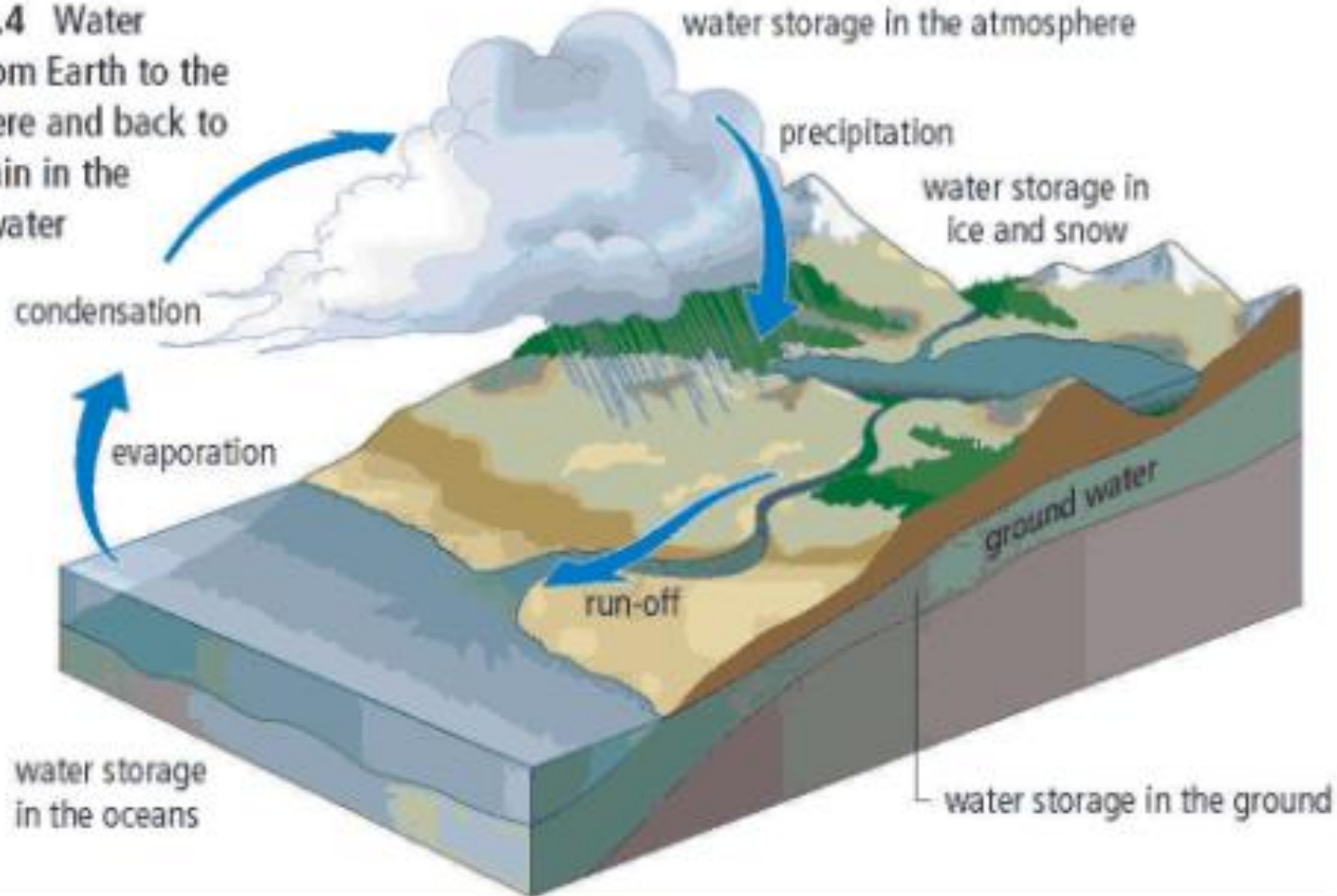
- **LITHOSPHERE:** THE SOLID ROCKY GROUND OF THE EARTH'S CRUST
- **ATMOSPHERE:** THE ENVIRONMENT SURROUNDING THE EARTH
- **HYDROSPHERE:** ALL WATER ON EARTH. INCLUDING THAT IN THE LITHOSPHERE AND THE ATMOSPHERE



HOW DO WE NOT RUN OUT OF WATER?

THE WATER CYCLE!!

Figure 1.4 Water moves from Earth to the atmosphere and back to Earth again in the endless water cycle.





- THE WATER CYCLE IS THE CONSTANT CYCLING OF WATER THROUGH THE PROCESSES OF **EVAPORATION** AND **CONDENSATION**.

- WATER IS CONSTANTLY CHANGING FORM:

(**GAS** → → → **LIQUID**)

- DRIVEN BY THE **SUN'S ENERGY!!**



PRACTICE!

- PAGE 13 #'S 1-4, 6, 8
- WATER CYCLE WORKSHEET

OCEAN WATER VS. FRESH WATER

- THERE ARE THREE MAJOR DIFFERENCES BETWEEN OCEAN WATER AND FRESH WATER, WHICH ARE:

1) **SALINITY**: THE AMOUNT OF SALT DISSOLVED IN A SPECIFIC AMOUNT OF WATER

SALT COMES FROM DISSOLVED SOLIDS IN THE GROUND AND VOLCANOES!

2) **DENSITY**: THE AMOUNT OF MASS OF A SUBSTANCE IN A CERTAIN UNIT VOLUME
(HOW TIGHTLY PACKED TOGETHER THE MATERIAL IS IN A SUBSTANCE

3) **FREEZING POINT**: THE TEMPERATURE AT WHICH A LIQUID FREEZES

	Fresh Water	Salt Water
Salinity	Less salt	More salt
Density	Less dense	More dense
Freezing point	Higher (0°C)	Lower (-1.9°C)

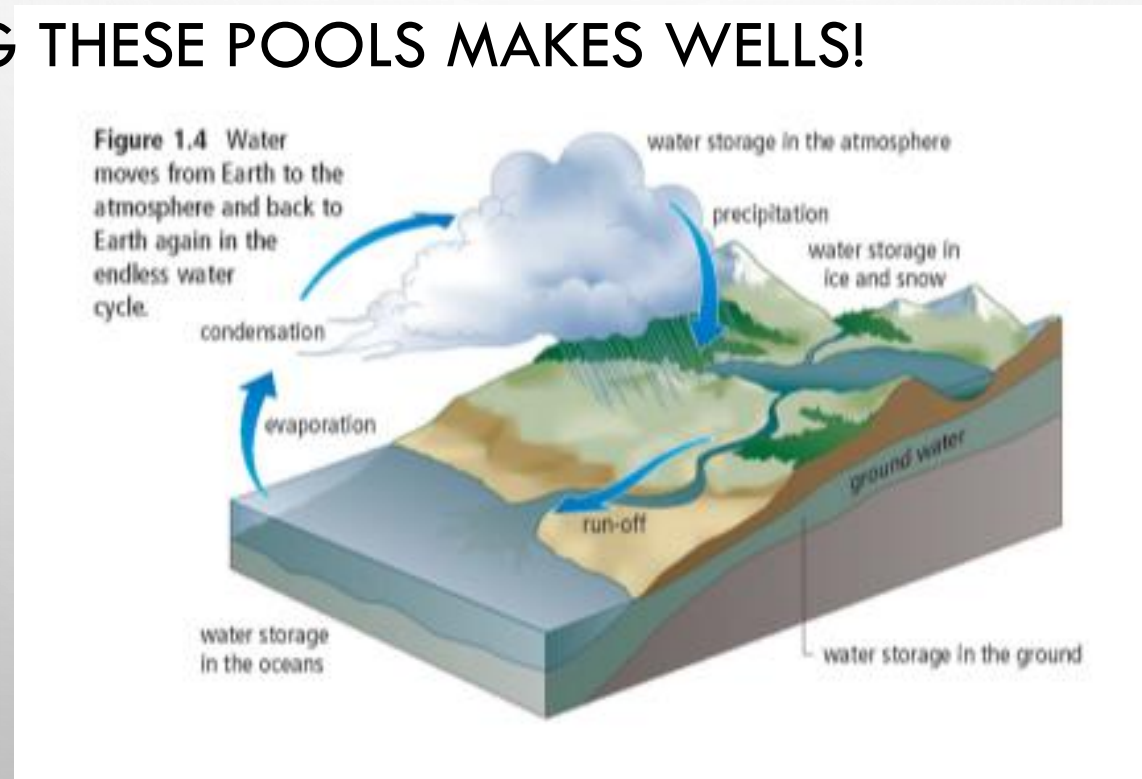
PRACTICE

- WATER DISTRIBUTION ASSIGNMENT
- CORE SALINITY LAB 1-3A & 1-3B

SOURCES OF FRESH WATER:

1. GROUND WATER:

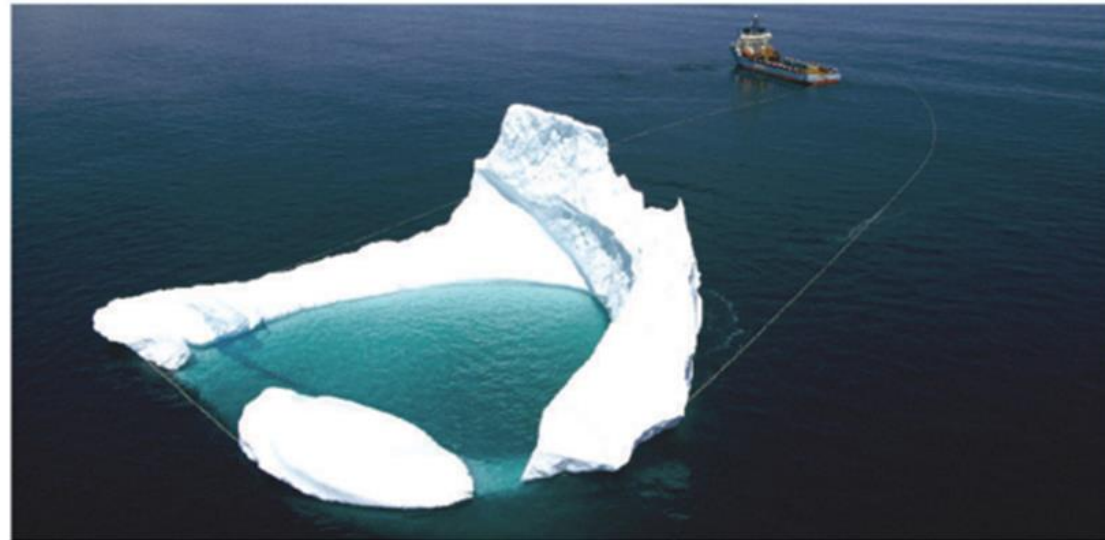
- PRECIPITATION THAT FALLS ON LAND AND SINKS OUT OF SIGHT,
- IT SINKS THROUGH PORES IN ROCKS UNTIL IT REACHES BEDROCK WHERE IT POOLS.
- DRILLING THESE POOLS MAKES WELLS!



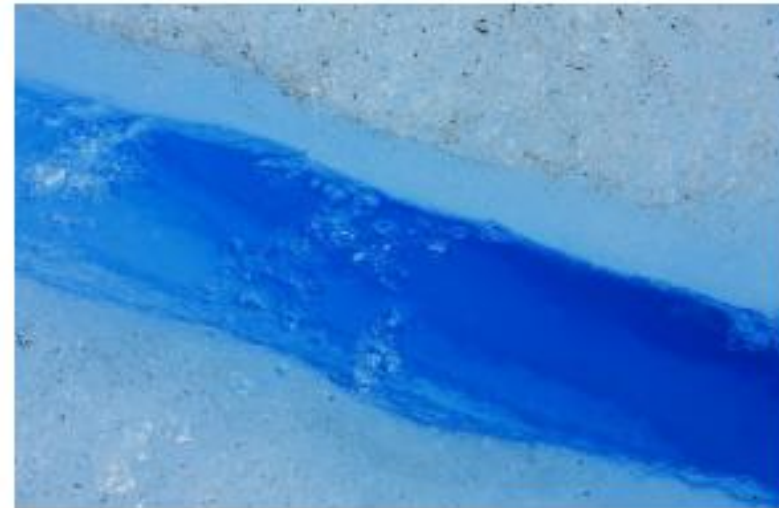
2. GLACIERS:

- A MOVING MASS OF COMPRESSED SNOW AND ICE.
- FOUND IN AREAS WHERE IT IS SO COLD THE SNOW REMAINS ALL YEAR.
- GLACIERS ARE RESERVOIRS - THEY STORE FRESH WATER.
- THEY RELEASE THE WATER DURING THE HOT SUMMER MONTHS
- THEY GIVE US INFORMATION ABOUT THE EARTH'S PAST CLIMATES.

Figure 1.13 The east coast of Labrador and Newfoundland is known as Iceberg Alley. The icebergs that travel down through Iceberg Alley come from Greenland. To keep shipping lanes and oil rigs safe, sometimes icebergs have to be towed to a different location as shown here.



GLACIERS IN MOUNTAINS AND ON THE CONTINENT OF ANTARCTICA



THE ICE AGE:

- THE EARTH HAS HAD AT LEAST 7!
- MOST RECENT: 120 000 YEARS AGO - 11 000 YEARS AGO.



- THE LAST GLACIER COVERED FROM THE **ARCTIC** TO AS FAR SOUTH AS THE **GREAT LAKES!**
- THE ENVIRONMENT WAS **COLDER** AND A LOT OF PLANTS AND ANIMALS WENT **EXTINCT.**



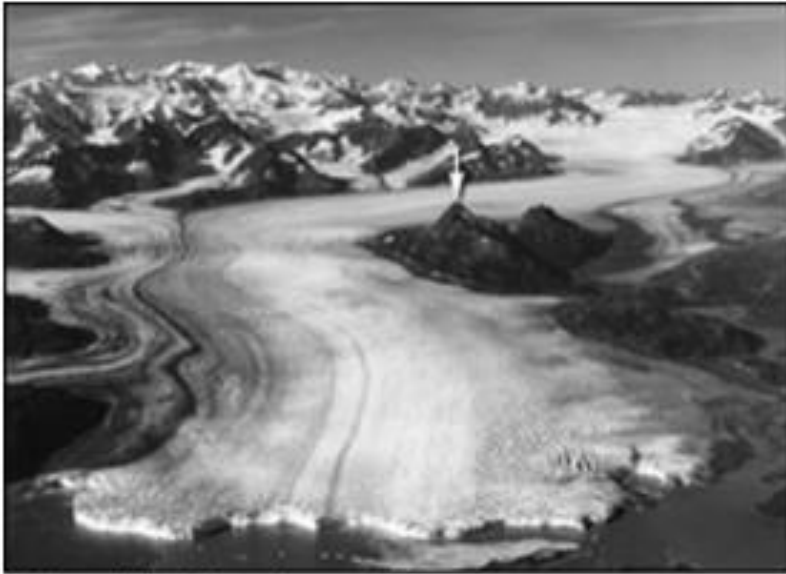
Figure 1.14 During the last ice age, glaciers in North America covered an area three times as large as they do today. Northern sections of the Yukon and Alaska remained free of glaciers because they were too dry.

GLACIERS AND GLOBAL WARMING

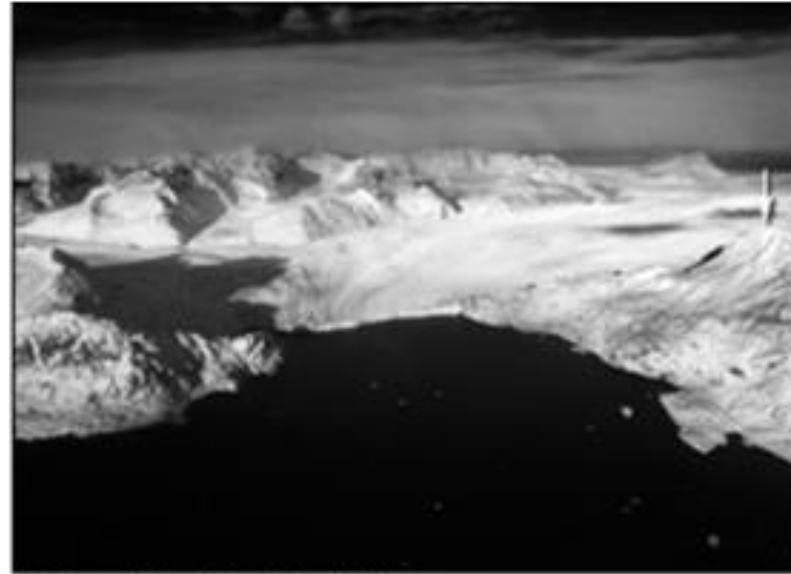
- IN THE LAST 100 YEARS THE AVERAGE SURFACE TEMP HAS INCREASED BY 0.5°C .
- THE WORLD'S GLACIERS ARE MELTING AT A QUICKER PACE THAN EVER BEFORE.

Receding Athabasca Glacier
in Alberta. It has receded 1.5
km since 1843.





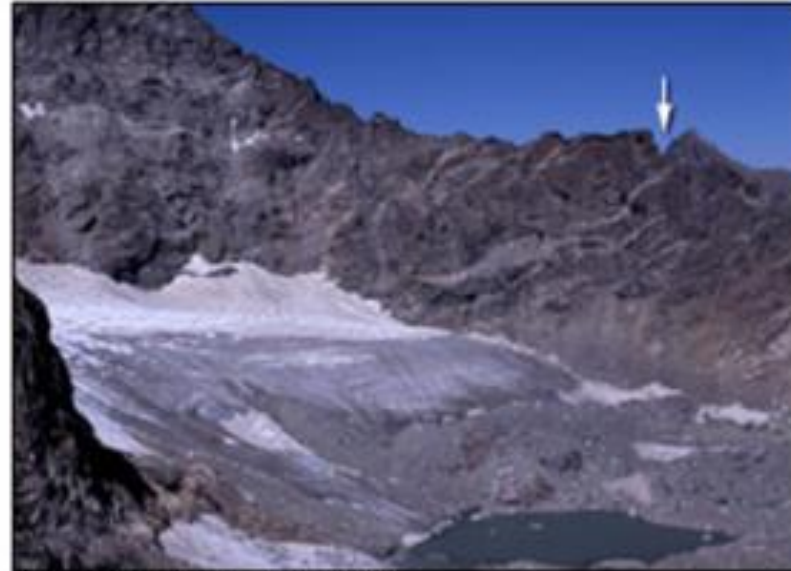
Columbia Glacier c. 1980



Columbia Glacier 2005



Arapaho Glacier 1898



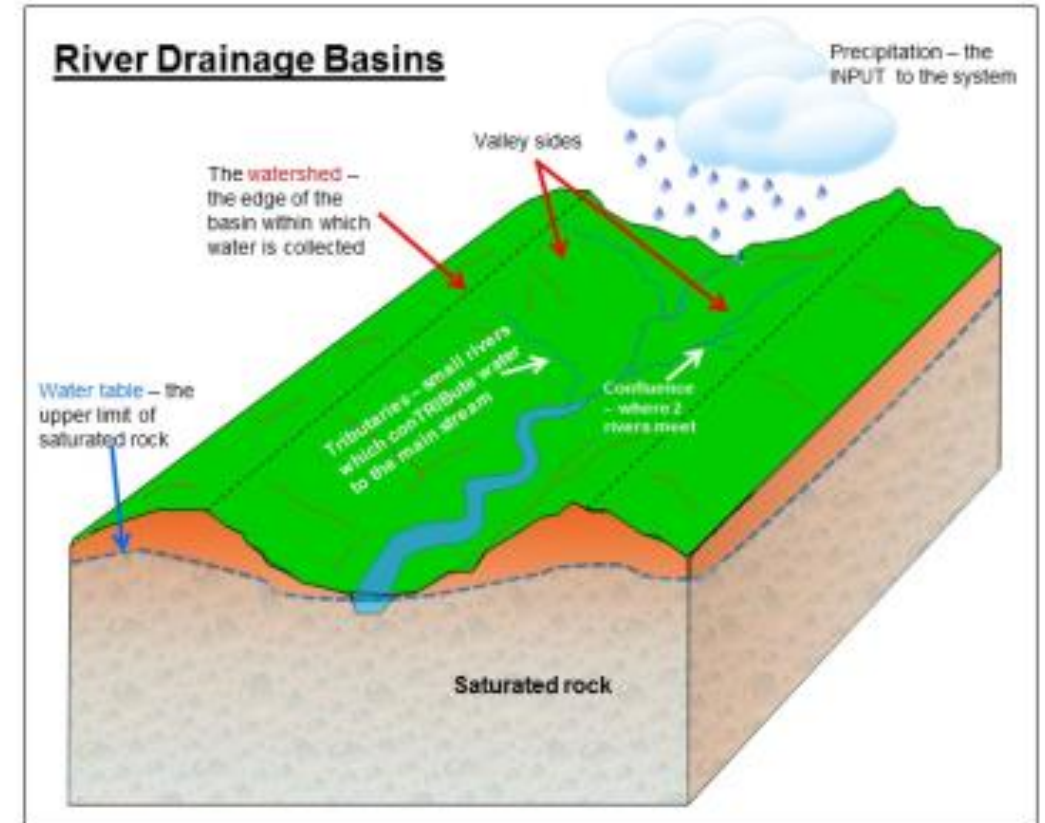
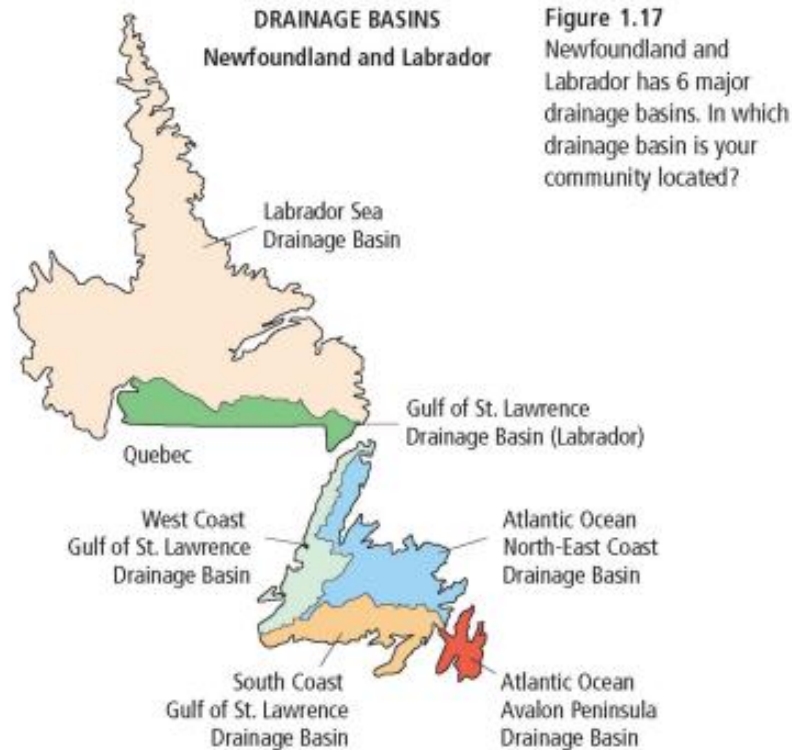
Arapaho Glacier 2003

WHAT DOES ALL THIS MEAN???

- OCEAN WATERS MAY RISE
 - FLOODING
 - [VIDEO CLIP](#)

3. DRAINAGE BASINS (A.K.A WATERSHED):

- AN AREA OF LAND FROM WHICH WATER DRAINS INTO A BODY OF WATER (EX. RIVER, POND, LAKE OR OCEAN)
- THERE ARE MANY SMALL DRAINAGE BASINS WITHIN A LARGER BASIN



PRACTICE

- PAGE 17: #'S 1, 4, & 5
- PAGE 26: #'S 1-5
- PAGE 33: #'S 3-7
- PAGE 34: CHECKING THE CONCEPTS #'S 1-2, 4-8