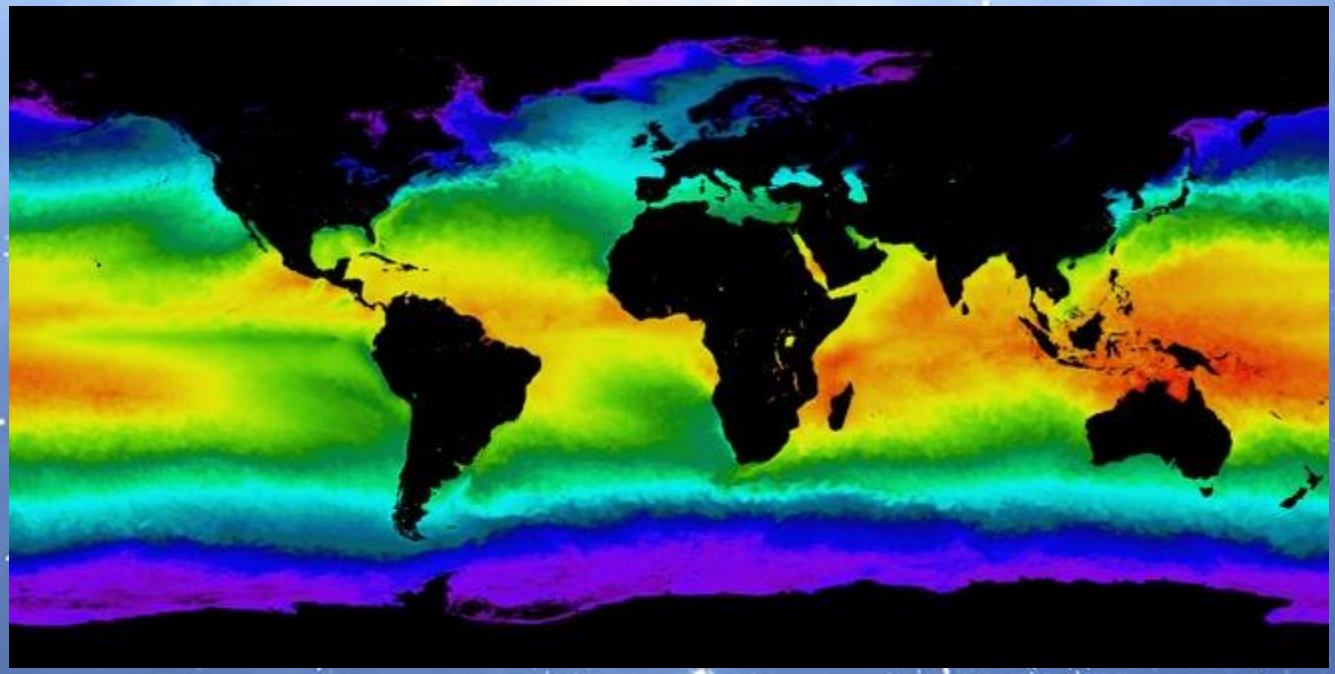
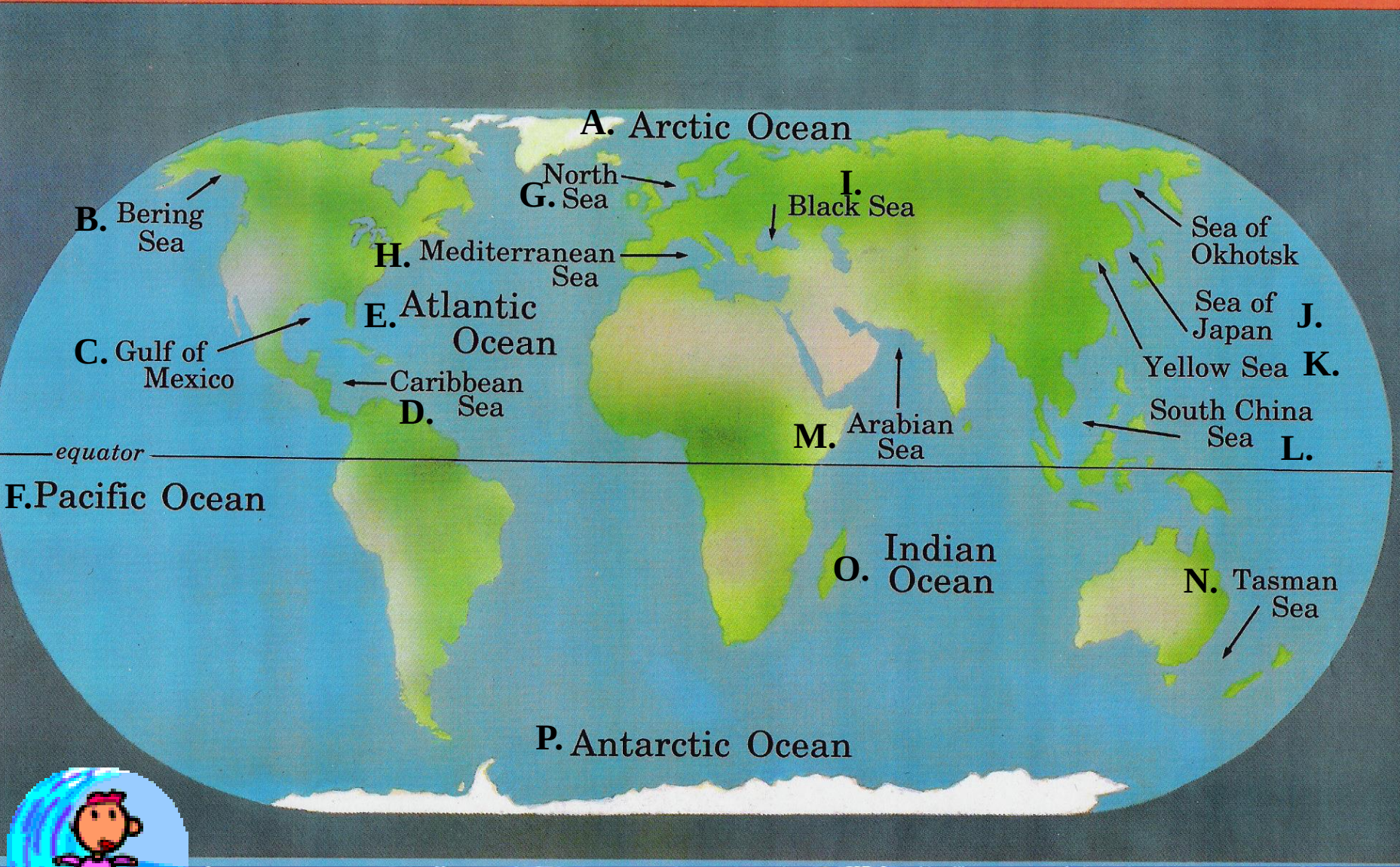
Mapping Ocean Temperatures



6th Grade Science

Akimel Middle School

Oceans and Seas of the World

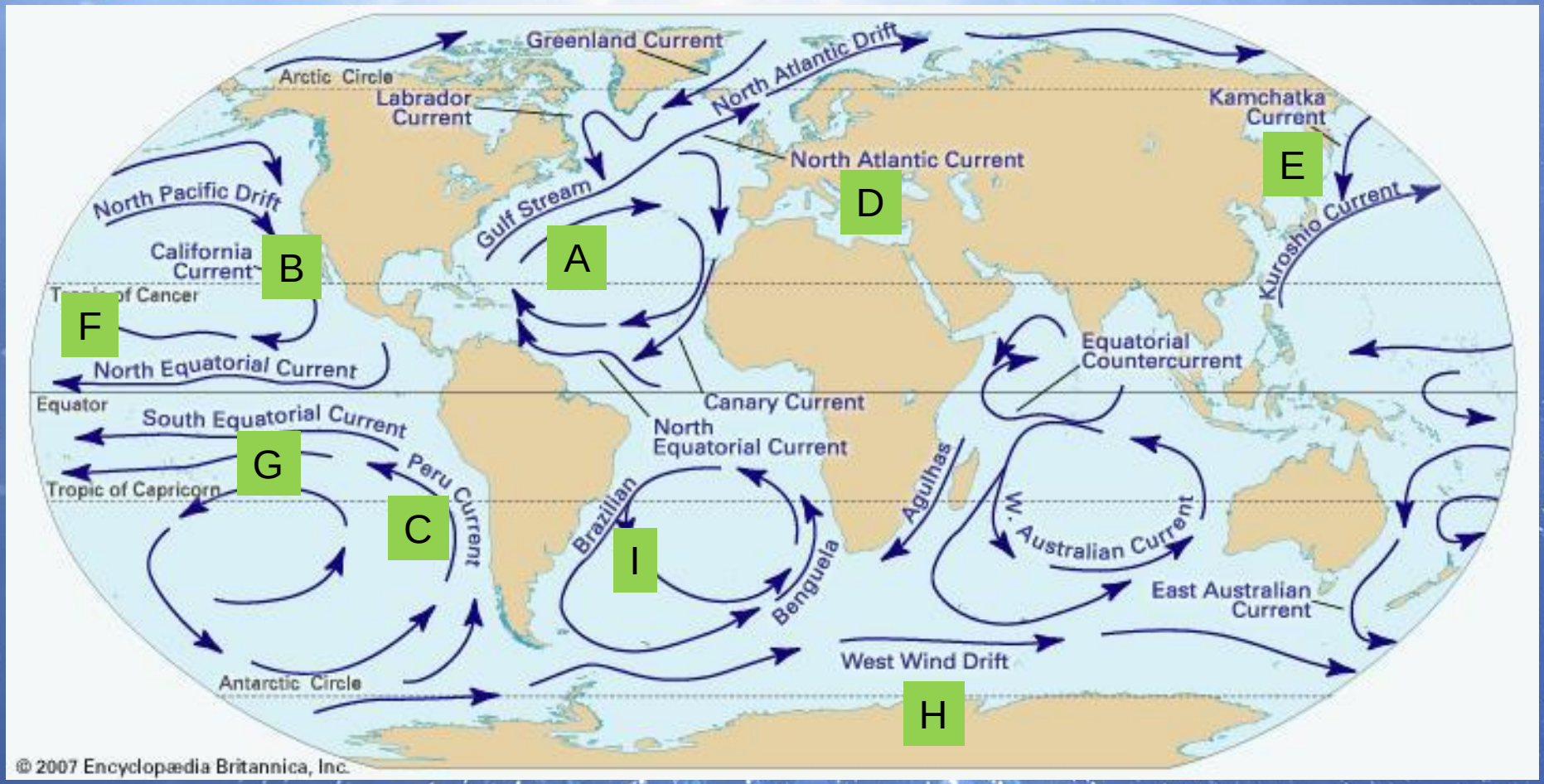


<u>Oceans from largest to smallest</u>:

Pacific, Atlantic, Indian, Arctic, & Antarctic

Brainpop: oceans

Major Currents of the Ocean



Oceans & Seas of the World

- All of the oceans of the world are part of one vast body of water.
- 71% of the Earth's surface is covered by water
- The amount of salt in the water is called salinity.
- Ocean waters found near the equator are usually *warm*; ocean waters found near the *poles* are usually cold.

Oceans

- Pacific: largest of the 5 oceans; 1/3 of Earth's surface
- Atlantic: second largest; @ 1/5 of Earth's surface; *Titanic* sank in North Atlantic
- Indian: named after a country
- Arctic: northernmost; the north pole lies in the middle on a thick sheet of ice
- Antarctic: southernmost

Seas

- Mediterranean Sea: largest; European; almost enclosed by land; separates Europe from Africa
- Bering Sea: cold; between North America & Eastern Russia
- Caribbean Sea: holds 14% of Earth's coral reefs
- Yellow Sea: between Korea & China
- Tasman Sea: between Australia & New Zealand

How do ocean temperatures vary over the surface of the Earth?

- Temperatures in North America have different temperatures than other land areas on Earth.
- There is only one world-wide ocean.
- Did you know that surface temperatures of the ocean also varies?
- Even if the ocean is several kilometers deep, the majority of the sun's energy is absorbed at the surface.

Climatologist or Hydrologist

- **Climatologist**: scientist who studies the Earth's climate
- **Hydrologist**: scientist who studies the distribution & movement of the Earth's water
- Both have to collect huge amounts of data before making conclusions.
- Ocean temperatures vary over the course of the year, data is collected month to month and averaged to find the mean.

Fahrenheit to Celsius

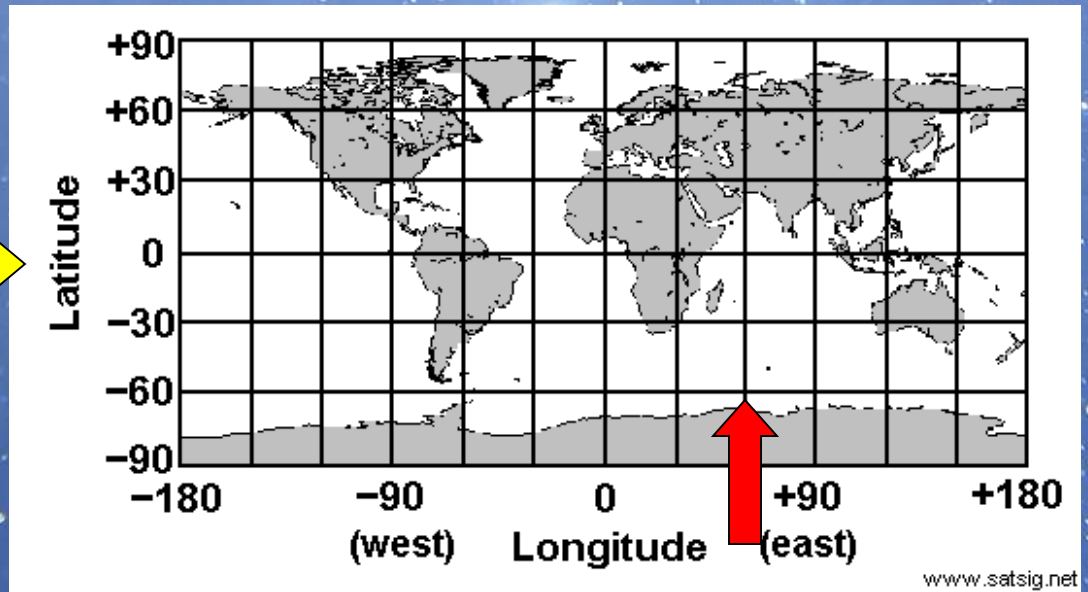
To convert from Fahrenheit to Celsius:

multiply by 1.8 then add 32

Example: 5°C = (5*1.8) +32 = 9 +32 = *41°F*

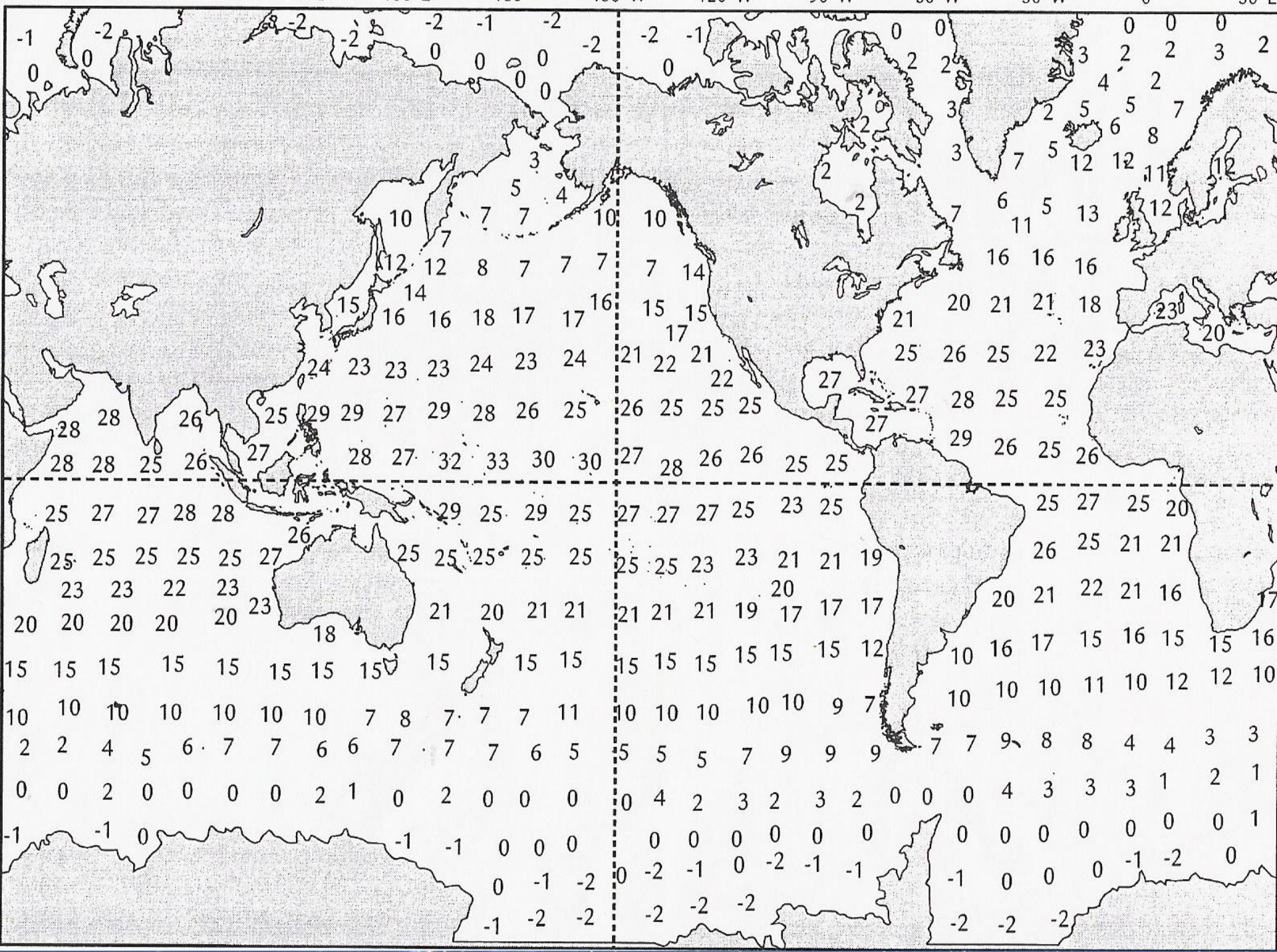
Geography Review

- **Longitude**: Imaginary lines that cross the surface of the Earth, running from north to south, measuring how far east or west of the prime meridian a place is located.
- **Latitude**: Imaginary lines that cross the surface of the Earth parallel to the Equator, measuring how far north or south of the Equator a place is located.
- **Prime Meridian:** An imaginary line running from north to south through Greenwich, England, used as the reference point for longitude.
- **Equator:** It is an imaginary line between the Northern and Southern Hemisphere also know as the Tropic of Cancer.

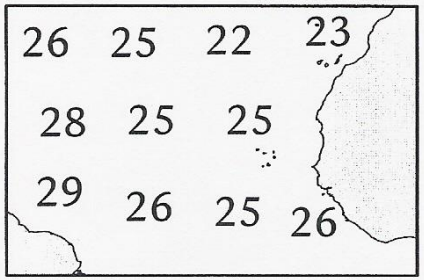


Directions

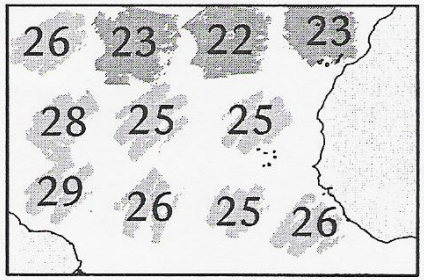
- Examine the surface temperatures noted on the data sheets you receive.
- Color code each sheet according to the color key.
- When scientists study the oceans it makes sense for them to use a map like this to examine trends.
- Study the final picture and look for worldwide patterns.
- Answer the questions on the paper.



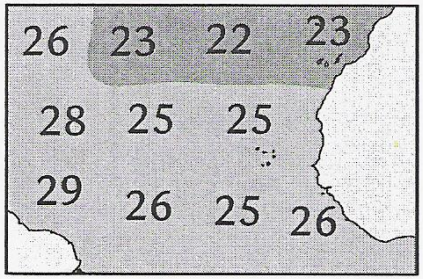
Directions for coloring



Look at the mean ocean surface temperatures shown on your map. Land areas have been shaded gray.



Using the "Temperature Color Key" on the bottom of your map, shade the oceans with their corresponding colors.



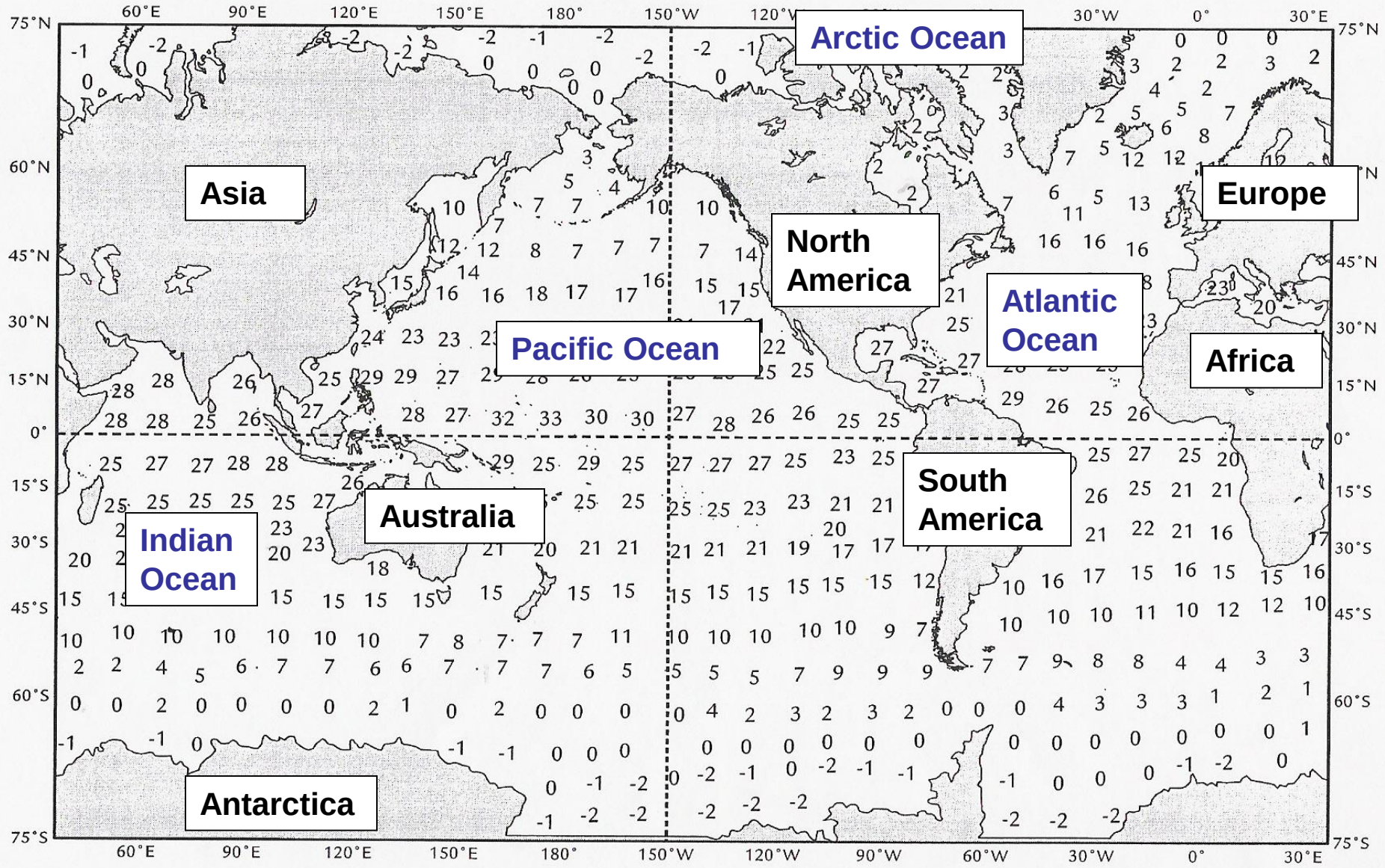
When shading, connect regions in the same temperature range.

Be sure to use your colors all the way to the borders of the land.

Temperature Color Key

Red	30°C and up
Orange	25-29° C
Yellow	20-24° C
Green	15-19° C
Blue	10-14° C
Purple	5-9° C
Brown	0-4° C
White	Below 0° C

Add the following labels:



Questions to Answer:

1. What worldwide patterns do you see? (hint – near the equator and as you move north and south of the equator)
2. How do the temperature patterns of the ocean compare to the temperature patterns of land?
3. Do you think that oceans affect the climate of the land?