Water Distribution Lab

Problem

How much water on Earth is available to humans to drink?

Materials

Part A
1000-mL graduated cylinder
100-mL graduated cylinder
10-mL graduated cylinder
Eyedropper
1000mL of water
Balance
Salt

Part B
Protractor
Compass
Calculator
Pencil Crayons

Procedure
Part A – Making a Model of Earth's Water

1. Fill a 1000-mL graduated cylinder with water. This represents **all the water on earth**.

2. POUR 30mL of this water into a 100mL graduated cylinder. This 30mL represents the total amount of **fresh water** on Earth.

3. Use a balance to measure out 29g of salt. Dissolve the salt in the 970mL of water remaining in the 1000-mL graduated cylinder. This represents the amount of water in all the **oceans**. It is too salty to be drinkable. Put it aside.

4. Now pick up the 100-mL graduated cylinder containing the 30mL of fresh water. Pour 6mL into the 10-mL graduated cylinder. Take the 100-mL graduated cylinder that now contains only 24mL of water and put it aside. This represents the amount of fresh water that is frozen in **glaciers and icecaps**.

5. You now have 6-mL of water left in the 10-mL graduated cylinder. Use an eyedropper to remove a small amount of water. Let one single drop fall into your palm. This one drop represents all the **fresh water** on Earth that is available for people to drink, located in rivers, lakes and ponds! The remaining water is located **underground**.

Part B – Graphing the Distribution of Water on Earth

Construct a circle graph (sometimes called a pie chart) to show the distribution of water. A circle graph uses a circle divided into sections (pies) to show the data. All sections together represent all (100%) of the data.

1. Use a compass to make a large circle on a piece of paper. Make a dot in the center of the circle.

2. Use the following formula for each of the water sources to complete the following chart. Round your number to the nearest whole number.
   Degrees in "piece of pie" = Percent of Total Water/100% x 360°
   Example: Oceans → 97.20% / 100% x 360° = 349.92° = 350°

Water Source	Percent of Total Water	Degrees in "piece of pie"
Oceans	97.20%	350°
Glaciers	2.15%	
Groundwater	0.63%	
Rivers, Lakes, Ponds	0.02%	

3. Draw a straight line from the center to the edge of the circle. Use your protractor to accurately measure the degrees from this line. Make a mark, and then use this mark to draw a second line back to the center. Repeat this step for all the sources of water.

4. Color your graph, labeling each "pie" in the circle.

Pie Chart:

Conclusions

1. Describe how much water is available to humans as drinking water, compared with the rest of the water on Earth.

2. In this activity, you used 2 different methods of presenting information about the distribution of water on Earth. What were the 2 methods? List an advantage and disadvantage of each of the 2 methods.