

Where is the South Pole?

Integration: Geography; Social Studies

Grade Levels: 3-6

Time: 1 class period

Materials:

- Map of Antarctica
- Baking pan
- Plastic wrap
- Water
- Paper
- Small flag or marker of some type

Objectives:

Students will:

1. Be able to locate the South Pole on the map of Antarctica.
2. Distinguish between the ceremonial pole and the geographic pole and explain the why they are different.

Lesson:

1. Ask students what they think of when they hear South Pole.
2. Discuss and explain that the South Pole is the point that is the farthest south on the Earth. Have students locate it on a map.
3. Discuss with students how they would know they had reached the South Pole.
 - a. It is marked.
4. Inform students that a ceremonial South Pole is marked with a red and white striped pole with a metallic mirrored ball on top.
 - a. Ask students to explain what ceremonial means. (having to do with a special occasion). The pole was placed as a formal marker.
5. Explain to students that where this marker is located is not the actual geographic pole.
 - a. Ask students to explain what geographic means. (having to do with a specific location)
 - b. In other words, the red and white pole symbolizes the southernmost point but is not in the actual location.

6. Ask students for theories of why the ceremonial South Pole is not the geographic pole.
 - a. Remind students that Antarctica is covered by ice. Each year the ice moves slightly. With it moves the ceremonial South Pole.
 - b. Each year a new, simple marker is added to reestablish where the geographic South Pole is located. It is added by an American organization called the United States Geological Survey (USGS).
 - c. The geographic South Pole marker is a few yards away from the ceremonial South Pole. In fact, there is a series of simple markers designating where the geographic pole was located in prior years.

7. Demonstrate the movement of the ceremonial pole and necessity of the geographic pole marker.
 - a. Line a baking pan with plastic wrap, overlapping the edges.
 - b. Add about $\frac{1}{2}$ inch of water.
 - c. Freeze the pan to form a block of ice that easily lifts out by pulling up on the plastic wrap.
 - d. Mark a spot on a piece of paper to signify the South Pole (geographic). The spot should be large and bright enough to see through the block of ice.
 - e. Place the block of ice, with the plastic wrap on the bottom, over the piece of paper and mark the location of the "South Pole" with a stamp or flag on top of the ice.
 - f. Move the ice block slightly to signify the movement of the Antarctic ice.
 - g. Allow students to respond to how the movement of the ice affects the placement of the marker. (The marker is now in the wrong place and a new one is needed).

ALTERNATIVE: Lift the ice out and place it on top of the paper as previously discussed. Flatten the plastic wrap over the paper and gently tip the table it is resting on. Check periodically for the movement of the ice. As the ice melts it will begin to move. Place towels or a bucket beneath the edge of the table to catch water. Complete demonstration as previously indicated.

8. Have students write an explanation of what they have learned in their own words.

Assessment:

Teachers will assess:

1. Student's ability to identify the South Pole.
2. Student's ability to distinguish between the ceremonial and geographic South Pole.