

Women in Mining

Layer Cake Core Drilling

Social Studies/Math/Science (Adaptable for 6-12)

PURPOSE:

Trying to “see” what is beneath the surface of the earth is one of the jobs of a geologist. Instead of digging up vast tracts of land, core samples can be taken and analyzed to determine the likely composition of the earth’s interior. In this activity students model core sampling techniques to learn what sort of layers are in the cake.

MATERIALS NEEDED:

2 pkgs White Cake Mixes

Colored Pencils (black, blue, red, green and yellow)

1 pkg Chocolate Frosting

1 Rectangular foil baking pan

Rulers

Food Coloring (blue, red, green, and yellow)

Paper Plates

Plastic Forks

Plastic Transparent Straws

Napkins

Graph Paper

Sharp Knife

Cake Preparation: Make layer cake with at least three layers of colored batter. Mix 2 cakes mixes together. Take approximately 1/3 of the batter and set aside. Take the remaining 2/3 of the batter and divide in 3 or 4 (depending on number of colors used) small bowl for coloring. Add a different food color to each bowl (make sure it is dark for that color). Layer all the batters in the baking pan. Use different patterns and thickness while leaving some areas colorless. Baking and temperature will have to be estimated. Temperature should be approximately 25 degrees lower than directions and time will be anywhere from 10 to 20 minutes longer. Check center of cake with toothpick for doneness. Toothpick should be clean and sides pulling away from pan.

Once cake is cooled, frost in the pan to prevent showing any of the cake.

ACTIVITY:

1. Provide each student/group with a straw, graph paper, colored pencils and ruler. Straws can be cut to a length slightly higher than the cake.
2. Ask the students how they might get more information about the layer cake without peeling the foil back or cutting the cake open.
3. Determine a coordinate system for straw drill holes (i.e., X,Y) see accompanying figure, making sure that the coordinate system and the cake are oriented the same and that North is indicated. The grid should reflect the rectangular shape of the pan.
4. Determine a unit of measurement all must use.
5. Have students/group drill the cake (one per group) and then create their cross-section on graph paper. Once cross-section has been done and students have discussed the exercise, cut cake and see how it compares to the cross-section. Eat cake.

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