

Radioactive Decay

Summary

In this activity students will use a mathematical model to study the process of radioactive decay in order to help understand how it can be used to determine the age of ancient earth materials.

Time Frame

1 class periods of 60 minutes each

Group Size

Small Groups

Materials

- cardboard shoe box with lid
- markers
- 100 popcorn kernels
- [student sheet](#)
(attached)

Student Prior Knowledge

Students should have been introduced to radioactive decay.

Instructional Procedures

NOTE: These instructions are also printed on the attached student worksheet.

Number each side on the inside of the shoe box 1, 2, 3, and 4. Put all 100 popcorn kernels inside the box. Cover the box and give it a shake.

Open the box and remove all the kernels that have the small end pointed toward side.

Count them, and subtract that number from 100. Record the number of remaining kernels in the data table. Do not return the kernels to the box.

Repeat this process until all of the popcorn kernels have been removed from the box.

Return all 100 pieces of corn to the box, cover it, and repeat the above procedure except this time, after each shake, remove the corn kernels that are pointed toward side 1 and 2. Count the corn remaining after each shake and record your data. Continue this procedure until all of the corn has been removed from the box.

Finally, return all of the corn to the box and repeat the entire procedure a third time except this time remove the kernels that are facing sides 1, 2, and 3. Repeat until all the corn has been removed from the box. Count and record each of your observations in the data table.

Graph your data. The number of shakes is on the X axis and number of corn kernels remaining on the Y axis. Your graph should show 3 lines, one for each column of figures in your data table. Fill out the key to show which line is which.

Bibliography

Lesson Design by Jordan School District Teachers and Staff.

Authors

[Utah LessonPlans](#)