

# How to Make a Universe

## Summary

This is a backward design lab where students are given the data of the percent abundances of common elements in the universe. They are to then write the procedures on how they would obtain the data and analyze the data using Excel to draw conclusions based upon their analysis of the data.

## Time Frame

1 class periods of 60 minutes each

## Group Size

Individual

## Materials

- computers with access to Excel is preferred, but can be graphed on paper if necessary
- [student page](#)  
(attached)

## Student Prior Knowledge

Students should be familiar with Excel from math classes. However, you may wish to refresh their memory, and circulate among them and assist as needed.

## Instructional Procedures

Hook activity: begin by asking the students where all of the elements came from and if the elements are in the same quantities everywhere in the universe. Allow them to make several postulates and write a few of the common ones on the board.

Provide students with the lab and tell them that they need to write the procedures to arrive with the data that they are given. (The procedures are not that important other than to reinforce the concept that data must be collected, and not just simply made-up.) There is no one correct answer for how the student's procedures should go except they should have the common theme of collecting data through testing and samples.

Have the students insert data into the Excel program and graph it so that they can see the possible trends. Have students enter the element's atomic mass or number into the chart to help them to better see trends.

## Assessment Plan

### Scoring Rubric:

Answers will vary but hopefully students will arrive at the conclusion that the universe started as the smallest atoms, H and He and has, over time, evolved new elements.

## Bibliography

Lesson Design by Jordan School District Teachers and Staff.

## Authors

[Utah LessonPlans](#)