Lesson Plan: Looking Back in Time

Overview

The following lesson plan will provide a concrete way for the students to understand the concept of "distance in space equals distance in time." This will be done using a time line activity from information gathered in the Student Handout from Lesson Plan 1: Earth, the Universe, and Culture.

Student Handout PDF Document: Explore the Famous Scientists

Objectives

Students will

- Experiment with how distances are measured in space
- Create time lines to demonstrate the concept "distance in space equals distance in time"

Assessment Strategies

Asking students to compare and contrast two timelines which they developed. Discussing the use of measurements on Earth and space. See Teachers Notes PDF Document for elaboration.

Grade Level: 5-8

Suggested Time

45 minutes

Multimedia Resources

- Looking Back in Time QuickTime Video

Materials

- Masking tape
- Ruler or a yardstick
- Student Handout PDF Document: Measure Distance and Time
- Color dots, post-it notes, markers

Note: This activity might work best in a long hallway or gymnasium, but a classroom space that is

cleared of desks could also work.

Procedures

See Teachers Notes PDF Document for elaboration.

Part 1: Engage the students by asking questions about measuring stars and galaxies very far away. Then explain what a light year is. Show the students Video 5:

Looking Back in Time QuickTime Video

[Time – 3:53] and emphasize that Swift will be measuring gamma-ray bursts that are billions of light years away.

Part 2: To make the concept of distance in space equaling distance in time more concrete, have the students devise a time line, through the activity, Measure Distance and Time (see Student Handout PDF Document). After completion of Part 2 of the activity, compare the distance of the scientists to distances of stars as they fall on the time line and explain to the students that the farther you are from the start of your time line (your distance in space), the farther in time you go.

Part 3: Finally, explain to the students how Swift can be considered as a “time machine”.