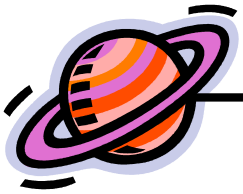

Modeling the Orbits of the Planets

Elementary grades

Lesson Summary
Students create a scale model of the orbits of he outer planets to demonstrate the unique properties of Pluto's orbit.

Prior Knowledge & Skills
- General knowledge of the solar system

AAAS Science Benchmarks
The Physical Setting
The Universe

NSES Science Standards
- **Unifying concepts and processes**: Systems, order and organization
- **Science as inquiry:** Abilities necessary to do scientific inquiry
- **Earth and space science:** Objects in the sky

NCTM National Mathematics Standards
- **Geometry:** Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships

Teaching Time: One 45-minute period

Materials
Each student needs:
- 1 paper clip
- Scissors
- Glue, glue stick, or tape
- Pencil and crayons or markers
- Student sheets copied onto cardstock

Advanced Planning
Preparation Time: 20 minutes
1. Gather materials
2. Review lesson plan

Why Do We Care?
This activity encourages students to think about how Pluto's off-kilter orbit distinguishes it from the other planets in our solar system. Pluto's unusual orbit is one clue that makes some astronomers think Pluto isn't really a planet at all, but one of a cache of "minor planets" orbiting the sun beyond Neptune.

Suggested background reading
Pluto data sheet

Source:

LASP
LABORATORY FOR ATMOSPHERIC AND SPACE PHYSICS
UNIVERSITY OF COLORADO AT BOULDER