Cosmos Counting

**Target Standard Communication**

- Organize and consolidate their mathematical thinking through communication
- Communicate their mathematical thinking coherently and clearly to peers, teachers, and others
- Analyze and evaluate the mathematical thinking strategies of others
- Use the language of mathematics to express mathematical ideas precisely

**Related Standard Number and Operations**

- Develop and use strategies to estimate the results of whole-number computations and to judge the reasonableness of such results

**Teaching Plan**

**Materials**

Hubble image of numerous galaxies
Cosmic Counting activity sheet

**Implementation**

1. Provide each student with a copy of the attached Hubble image of galaxies also found online at: [http://opposite.stsci.edu/pubinfo/pr/2000/08/index.html](http://opposite.stsci.edu/pubinfo/pr/2000/08/index.html)
2. Ask students to determine how many galaxies are visible in this image from the Hubble Space Telescope. Working in pairs, have students estimate and then actually count the galaxies in this field of view.
3. Students should record their answers on the Cosmic Counting activity sheet and share their estimation strategies with their partner.
Name:

Cosmic Counting:
Partner Problem Solving

Partners: ____________________  ____________________

Write the problem you are trying to solve in your own words:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Solve the problem. You may use the space below to record your thinking!

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

After solving the problem, write down the steps you completed to get to your solution:

________________________________________________________________________

________________________________________________________________________
Restate your solution:

Could there be another solution?
Hubble Space Telescope Image of Galaxies

Image courtesy of NASA: NASA, A. Fruchter and the ERO Team (STScI, ST-ECF), found online at: http://oposite.stsci.edu/pubinfo/pr/2000/08/index.html