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Learning Template

Educator Name	Jackie Cooke	Title of Learning Plan	Unlocking the Mysteries of the Universe: Skylab Orbital Workshop
Grade Levels	K-5	Subject Areas	Mathematics
Museum Sites	Smithsonian Air and Space and US Postal Museum	Time Frame (in weeks)	

Summary	Students will learn about the history of the Skylab Mission, research and record data found that was collected during the three missions, answer and create math story problems related to living and working in space, and design their own data collection tool.
Description of Culminating Project	Students will organize data related to activities they spend time on in a day, and then generate a set of questions that could be answered by interpreting the data. Then they will select one of their questions and share their solution. The project will be scored using a grade appropriate project scoring guide.
Common Core State Standards	<p>Common Core Standards for Math:</p> <p>K: Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.</p> <p>1: Represent and solve problems involving addition and subtraction.</p> <p>2: Use place value understanding and properties of operations to add and subtract. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.</p> <p>3: Solve problems involving the four operations, and identify and explain patterns in arithmetic. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs.</p> <p>4: Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Solve problems involving addition and subtraction of fractions by using information presented in line plots.</p> <p>5: Solve real world problems involving multiplication of fractions and mixed numbers. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions,</p>

## Overview of Activity Sequences

Lesson #	Time Frame (in min)	Skill Objectives	Assessments	Digital & Mobile Media Tools
1	Three class periods of 30-40 minutes each	Identifying math patterns in poetry and use the patterned structure to create an original space poem.	Use Space Poetry Rubric to score student created poems. (See Resources Below)	View Introduction Video: <a href="http://smithsonian.mobilemuseums.org/educators/pg/smithsonian_gallery/?view=smithsonian_gallery&amp;album=1897#1898">http://smithsonian.mobilemuseums.org/educators/pg/smithsonian_gallery/?view=smithsonian_gallery&amp;album=1897#1898</a>
2	One class period of 40 to 50 minutes	Organize data found about Skylab in chart or table format		Research factual information about the Skylab missions. <a href="http://www.nasm.si.edu/exhibitions/gal114/SpaceRace/sec500/sec510.htm">www.nasm.si.edu/exhibitions/gal114/SpaceRace/sec500/sec510.htm</a> (See other possible links in the resources section below.)
3	One class period of 40 to 50 minutes	Solve problems using the four operations  Analyze data	Use Math Scoring Guides to score student math problem solving work. (See Resources Below)	View the Making Meaning Video: <a href="http://smithsonian.mobilemuseums.org/educators/pg/smithsonian_gallery/?view=smithsonian_gallery&amp;album=1897#1898">http://smithsonian.mobilemuseums.org/educators/pg/smithsonian_gallery/?view=smithsonian_gallery&amp;album=1897#1898</a>
4	Two class periods of 40 to 50 minutes. One to determine question to solve and work on solution. The other to report to the class about their problem solving methods.	Generate questions for which the data can be used to solve.  Solve one math story problem of their choice.	Use Math Scoring Guides to score student math problem solving work. (See Resources Below)	Analyze and use data from chart to create their own math story problems. ( <a href="http://www-pao.ksc.nasa.gov/kscpao/history/skylab/skylab-stats.htm">http://www-pao.ksc.nasa.gov/kscpao/history/skylab/skylab-stats.htm</a> )
5	Two to Three weeks (One possibility might be for the student to collect and organize data over a week and then spend a week creating the presentation to report their findings during a class period)		Project Grading Points Sheet (See Resources Below)	View the Connection Video: <a href="http://smithsonian.mobilemuseums.org/educators/pg/smithsonian_gallery/?view=smithsonian_gallery&amp;album=1897#1898">http://smithsonian.mobilemuseums.org/educators/pg/smithsonian_gallery/?view=smithsonian_gallery&amp;album=1897#1898</a>
6	Optional Extension	Research and create math story problems about stamps with space themes such as the value of the stamp collections viewed on the website or age of particular stamps, etc.		Online Virtual Stamp Exhibit: <a href="http://www.arago.si.edu/flash/?eid=294 d_all=0 sf=1 sq=Skylab s1=6">http://www.arago.si.edu/flash/?eid=294 d_all=0 sf=1 sq=Skylab s1=6</a>
7	Optional Extension	Read an electronic book about other tools in space and select one of interest for further research.		Online electronic book: <a href="http://spaceplace.nasa.gov/en/kids/storybooks/index.shtml#">http://spaceplace.nasa.gov/en/kids/storybooks/index.shtml#</a>