SCIENCE ON ORBIT

1. While on a mission in space, astronauts grew cabbage and lettuce in the Destiny Laboratory aboard the International Space Station. The plants were fed the following nutrients each week: cabbage got $3\frac{3}{4}$ cups of plant food and carrots got $2\frac{1}{6}$ cups of plant food. How much plant food were both plants given in a week? Explain your reasoning. [5.NF.1, 5.NF.2]

2. Calculate the total width of a Space Shuttle's four main landing gear tires if one tire is $44\frac{1}{62}$ inches wide. [5.NF.1, 5.NF.2]

ROCKET PARK

1. Compare the heights of the US Army Juno II, the German V-1 and NASA Atlas.

a. Which rocket is the tallest? [5.NB.T]

b. How much taller is the tallest rocket than the shortest rocket? Include units. [5.NBT.7]

2. The Crew Exploration Vehicle can carry up to six astronauts to and from the International Space Station. How many missions would be needed to transport 50 astronauts to the station? [5.NBT.5, 5.NBT.6, 5.NF.3]

POWER OF ZERO

1. **How Much Trash Do You Make In A Day?**

the power of ZERO

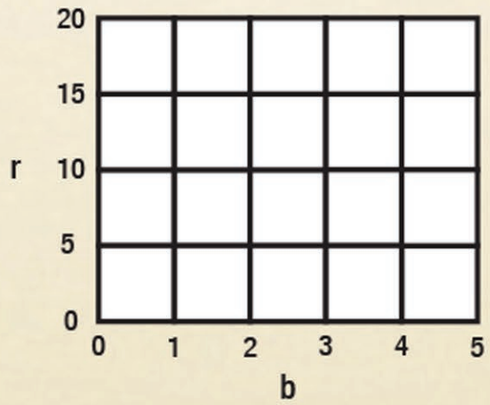
2. Seven billion humans populate the earth and create 32,900,000,000 pounds of trash in one day. Write this number in expanded notation. [5.NBT.3]

3. One person creates around 1715.5 pounds of trash in one year. Round this number to the nearest whole number. [5.NBT.1, 5.NBT.4]

4. How does the 5 in the one's place compare to the 5 in the tenths place in the above number? Explain your answer. [5.NBT.1, 5.NBT.4]

5. Complete the table to show how the amount of trash created daily, r, depends on the number of people, b. Function: r = b x 4.7 Graph your findings. [5.OA.3, 5.G.2]

b	r
1	
2	
3	
4	



SHUTTLE PARK

1. The External Tank provided fuel for _____ test firings of the Shuttle's Main Propulsion System with a total test time of _____seconds (equivalent to about _____ flights). The External Tank fuels the Orbiter's Main Engines during the first _____ minutes of flight. [5.OA.1, 5.OA.2]

2. Write an expression to represent the number of test flights equivalent to the test firings that the External Tank fueled. [5.OA.1, 5.OA.2]

3. The tail of the orbiter can best be described by which of these polygons: triangle, quadrilateral, parallelogram, trapezoid, rectangle, square, ellipse. [5.G.5]

4. The External Tank contains _____ lbs of liquid oxygen and _____ lbs of liquid hydrogen and has a gross lift-off weight of 1,655,000 lbs. Write these numbers in scientific notation. Round to hundredths place. [5.NBT.2]

_____ x10—— lbs of liquid oxygen

_____ x10—— lbs of liquid oxygen

1.655×10^6 lbs – lift-off weight

Math Exploration Grade 5

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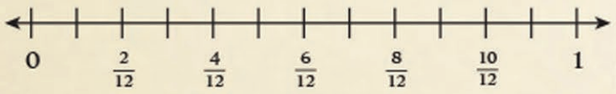
These skill-based activities correlate to nationally-accepted mathematics standards and are aligned with Common Core Standards as well as the Alabama College and Career Ready Standards.

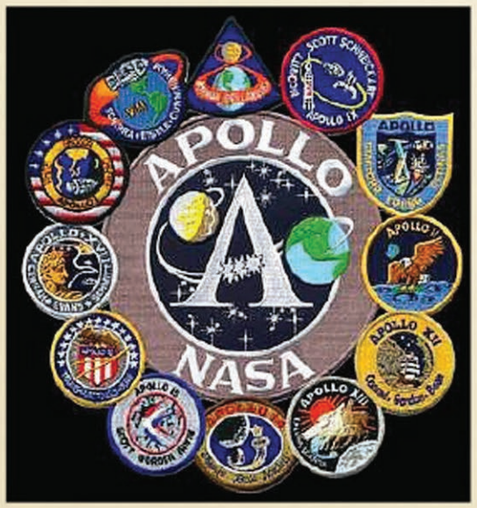
APOLLO COURTYARD

Twelve (12) manned Apollo missions occurred between 1969 and 1972. Complete the table below showing the number of manned missions occurring each year. [5.MD.2]

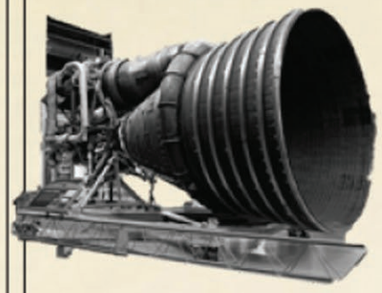
YEAR	TALLY	NUMBER	FRACTION OF TOTAL MISSIONS
1967			
1968			
1969			
1970			
1971			
1972			

Use the above table to create a line plot to illustrate the fractional representation of how many Apollo mission occurred per year. [5.MD.2]





SATURN V HALL

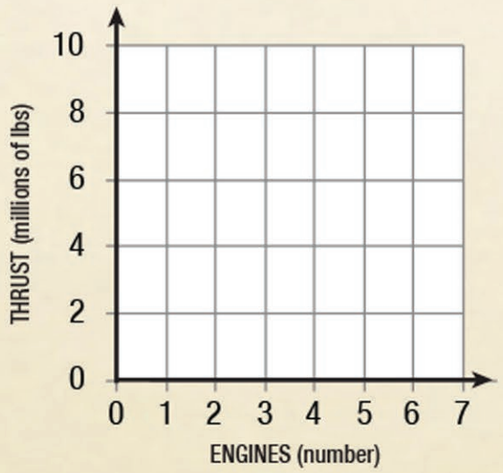


F-1 ENGINE

How many engines are on the first stage of the Saturn V? [5.OA.3]

Complete the table below to determine the total amount of thrust provided by the number of engines specified. Graph the data below. [5.OA.3]

NUMBER OF ENGINES	THRUST (millions of lbs)
1	1.5
2	
3	
4	
5	



SATURN V

The second stage of the Apollo/Saturn V rocket consists of five J-2 engines. Without calculating, complete the inequality below using <, > or =. [5.NF.5]

5 x 4/5 ____ 5

LUNAR MODULE

Which of the following polygons can you identify in the lunar module: triangle, square, rectangle, trapezoid and rhombus? Draw the shapes you find below and list their properties. [5.G.3]

APOLLO 12 MOON ROCK

The lunar rock on display weighs about 453 grams. Convert the number of grams to kilograms. [5.MD.1]

LIFE ABOARD

An astronaut aboard the Saturn V Rocket consumes 2800 calories per day. If he or she eats three meals per day, how many calories does he consume at each meal. Write your answer as a fraction. [5.NF.7]

BIGELOW BA-330 (Inflatable Space Station)

The dimensions of a payload container in the Bigelow BA-330 habitat are 8 in. by 6 in. by 4 in. What unit of measure is used when stating the volume of the container? Include units in your answer. [5.MD.3, 5.MD.4]

Calculate the volume of the container? [5.MD.5]

v = l x w x h

GIFT SHOP

Your teacher wants to buy t-shirts for each of the 24 students in your class. One third ($^1/_3$) of the shirts will be small, one-third ($^1/_3$) of the shirts will be medium and one-third ($^1/_3$) of the shirts will be large. If the teacher wants half ($^1/_2$) of the shirts to be red and half ($^1/_2$) of the shirts to be blue, how many small red t-shirts must be purchased? Include units in your answer. [5.NF.6, 5.NF.7]

What is the area of the eraser shown below? [5.NF.4]