SATURN V HALL

LIFE ABOARD

12. Each Apollo astronaut ate three meals totaling about _____ calories. If a mission crew contained three astronauts, how many total calories did the crew eat each day? [4.OA.1]

a. If the mission lasted for 4 days, how many calories did the three astronauts eat during the entire mission? [4.OA.1]

BIGELOW BA 330 MODEL [4.MD.4, 4.NF.2, 4.NF.4]

(Inflatable Space Station)

13. This model is a 1/3 scale model of the original. Make a line plot of the following fractions (change the fraction to an improper fraction):

$1\frac{2}{3}, \frac{1}{3}, \frac{6}{3}, 3, \frac{7}{3}, \frac{18}{9}, 1\frac{2}{6}, \frac{4}{3}, \frac{4}{6}, \frac{3}{9}, \frac{2}{3}, 1, 1\frac{1}{3}, \frac{9}{3}, \frac{14}{6}$.

$\frac{0}{3}$ $\frac{1}{3}$ $\frac{2}{3}$ $\frac{3}{3}$ $\frac{4}{3}$ $\frac{5}{3}$ $\frac{6}{3}$ $\frac{7}{3}$ $\frac{8}{3}$ $\frac{9}{3}$

a. Which number occurs most often on the line plot?

b. What is the difference between the largest data point and the smallest data point?

c. Find the product of the data points 1 2/3 and 2.

ULA EXHIBIT

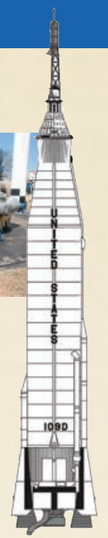
14. ULA employs about _____ people in the Decatur/ Huntsville area. How many people would they employ if they had a total of four locations with this same number of employees at each location? [4.NBT.5]

ROCKET PARK

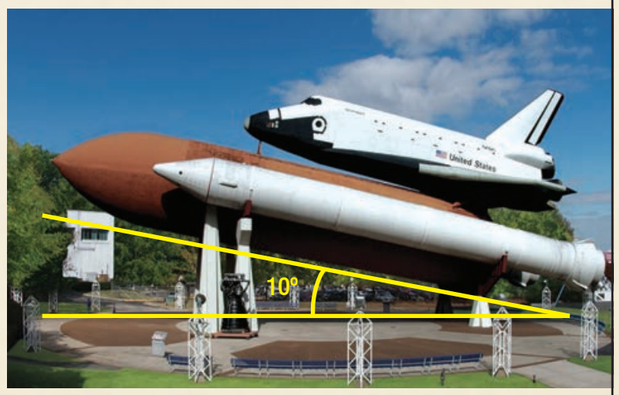
NASA ATLAS ROCKET

1. How many line(s) of symmetry do you see on the NASA Atlas rocket?

a. Describe where the line(s) of symmetry are. [4.G.3]



SHUTTLE PARK



PATHFINDER

1. The Pathfinder shuttle is at a vehicle altitude of 10°. Identify this angle as acute, obtuse, right or straight and list its characteristics? [4.G.1]

SPACE CAMP TRAINING CENTER

ABLE AND BAKER

1. Monkeynauts Able and Baker withstood 38 times the pull of gravity. List all factors of the number 38.

a. Is the number 38 prime or composite?

b. Explain your answer. [4.OA.4]

SPACE SHUTTLE MAIN ENGINE

2. The space shuttle weighs _____ lbs.

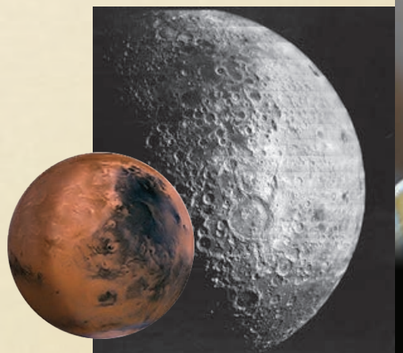
a. Write this number in expanded form. [4.NBT.2]

b. How is the 4 in the weight of the shuttle similar to or different from the 4 in 7,740? [4.NBT.1]

SPACE SCALES

3. Weigh yourself on the space scales and record your weight on the moon. _____ lbs. Convert your weight in pounds (lbs) to ounces (oz).

Weight on Mars? _____ lbs.
Convert your weight in pounds (lbs) to ounces (oz). [4.MD.1]



Math Exploration

Math Exploration Grade 4

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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.

SATURN V HALL

APOLLO COURTYARD

1. Apollo 15 astronauts Irwin and Scott spent 18 ½ hours on the surface of the moon. Rewrite this fraction using an equivalent fraction. [4.NF.1]

MERCURY PROJECT

2. Alan Shepard, the first American in space was in orbit for ___ minutes and ___seconds.

a. Convert this time to seconds. [4.MD.1]

APOLLO 16 COMMAND MODULE

3. Fully loaded the Apollo 16 Command Module weighs a total of 13,000 pounds including the crew, supplies and Lunar samples. The astronauts weigh a total of 504 pounds, the moon rocks weigh _____ and the supplies weigh 370 pounds. What is the weight of the Command Module by itself? [4.NBT.3, 4.NBT.4]

a. The height of the Apollo Command Module (CM) is ____ feet ____ inches and the height of the Apollo Lunar Module is 22 feet 11 inches. Which of these two modules is taller and by how much? [4.MD.2]

ROCKET ENGINES

4. The Saturn V first stage has _____ F-1 engines with a total of 7,500,000 pounds of thrust. The second stage has five J-2 engines each generating _____ pounds of thrust. The third stage has one J-2 engine generating _____ pounds of thrust. What is the total thrusting power (in pounds) of the combined Sautrn V engines? [4.OA.2]

a. Write an equation to represent the total weight of all the Saturn V engines together. [4.OA.3]

J-2 ENGINE

5. The J-2 Engine had 69 successful flights in a row in 1966. About how many flights did they average each month during that year? [4.NBT.6]

H-1 ENGINE

6. The H-1 engine, used by the Saturn 1B, is 8.8 feet high and the J-2 engine, used by the Saturn V engine, is 11.1 feet high. Write a comparison of the height of these two rocket engines using <, > or =. [4.NF.7]

SATURN V SCALE MODEL

7. The Saturn V model is $36\frac{1}{2}$ feet high. If a $5\frac{1}{2}$ foot tall person stood on top of the model, how tall would they be together? [4.NF.3]

a. The scale model of the Saturn V is $\frac{1}{10}$. Write an equivalent fraction with a denominator of 100. [4.NF.5]

b. Write this fraction as a decimal. [4.NF.6]

c. Take the equivalent fraction with a denominator of 100 and add it to the fraction $4\frac{30}{100}$. What is the sum? [4.NF.3]

THE FORCE (MODEL)

8. Look for the various shapes, objects, and angles on the model. [4.G.2]

a. Draw and label the following: point, line, line segment, parallel lines and perpendicular lines. [4.G.1]

b. If one of the rectangles in the model has a perimeter of 70 inches and a length of 30 inches, what is its width? [4.MD.3]

c. Draw and label the following shapes: rectangle, trapezoid and pentagon and list their characteristics. [4.G.2]

LUNAR FLOOR MAP

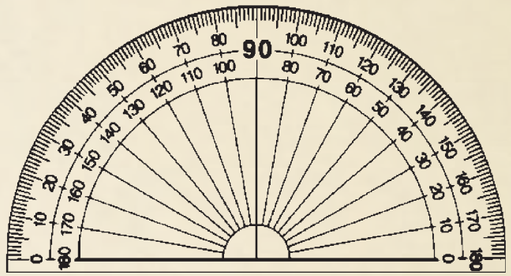
9. Stand on the landing site for Apollo 16 and orient yourself so that the landing site for Apollo 15 is at 90°. Record the angles for the other Apollo landing sites, and circle whether it is acute or obtuse and sketch the angle.

a. Apollo 11 _____° and is acute/obtuse.

b. Apollo 12 _____° and is acute/obtuse.

c. Apollo 14 _____° and is acute/obtuse.

d. Apollo 17 _____° and is acute/obtuse.



OMEGA WATCH

10. When the hands of the watch are at 12 and 3 a 90° angle is formed. When the hands of the watch are at 3 and 9 a 180° angle is formed. What degree angle is formed when the hands are at 9 and 12? [4.MD.5]

a. What is the sum of these three angles? [4.MD.7]

LUNAR MODULE

11. If an astronaut has to press buttons in the sequence shown below to get the Lunar Module to jettison from the moon, draw the next four buttons he will need to press. [4.OA.5]