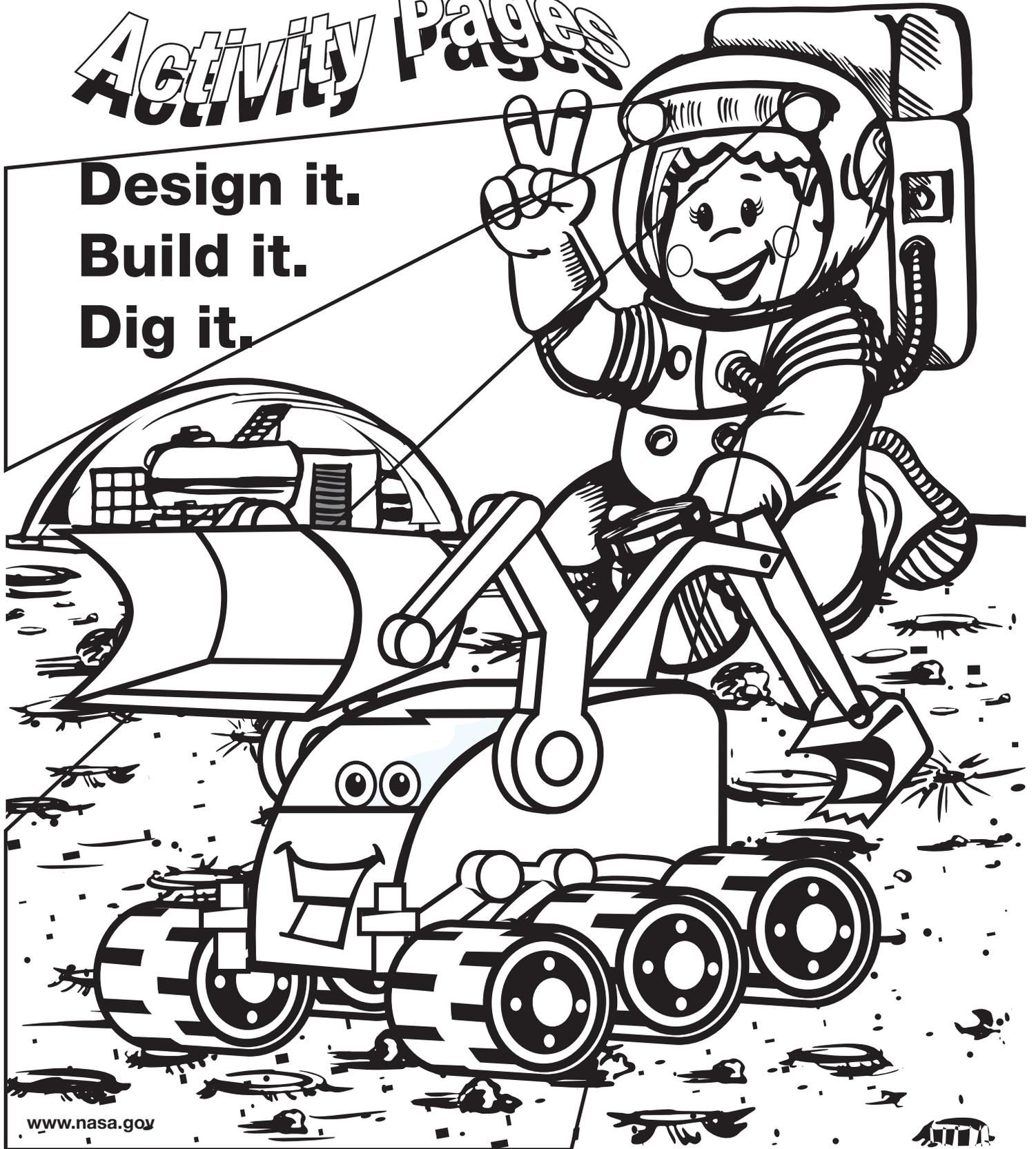




Activity Pages

**Design it.
Build it.
Dig it.**



Space Search

Circle the 15 words listed below.

Words appear straight across, backwards, up and down, and diagonally.

Check your work with the answers listed below.

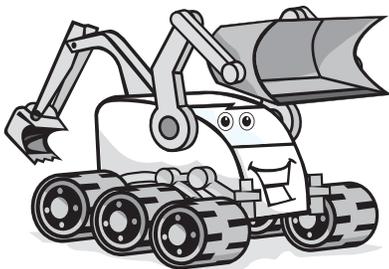
WORD LIST

- Robotics
- Dig
- Mining
- Design
- Mars
- Scoop
- NASA
- Space
- Gravity
- Math
- Rocket
- Launch
- Mass
- Rover
- Crater

U T N L B O A A C E G I K M
 M O Q A S U W Y B D F H J A
 G L N P S R T V X Z A C E R
 R G I S P A C E K M O Q N S
 A O U W Y B D F H J L L N P
 V R V T V X Z A C E A G R I
 I G K E M M O Q S U U W O Y
 T R B C R A T E R D N F B H
 Y V J L N S P R T S C O O P
 V A X D E S I G N Z H A T C
 M I N I N G E G I K M D I G
 A T O Q S U W Y B D F H C J
 T Y L N P R T V X Z A C S E
 H G I K M O Q S R O C K E T

U T N L B O A A C E G I K M
 M O Q A S U W Y B D F H J A
 G L N P S R T V X Z A C E R
 R G I S P A C E K M O Q N S
 A O U W Y B D F H J L L N P
 V R V T V X Z A C E A G R I
 I G K E M M O Q S U U W O Y
 T R B C R A T E R D N F B H
 Y V J L N S P R T S C O O P
 V A X D E S I G N Z H A T C
 M I N I N G E G I K M D I G
 A T O Q S U W Y B D F H C J
 T Y L N P R T V X Z A C S E
 H G I K M O Q S R O C K E T

Solution



SPACE STATS

Curiosity traveled 350,000,000 miles to get to Mars. It would take you 665½ years traveling at 60 miles per hour.

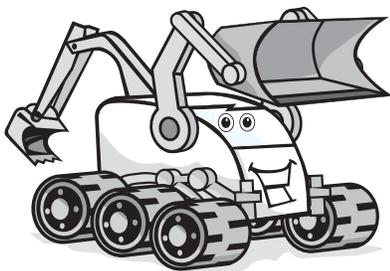
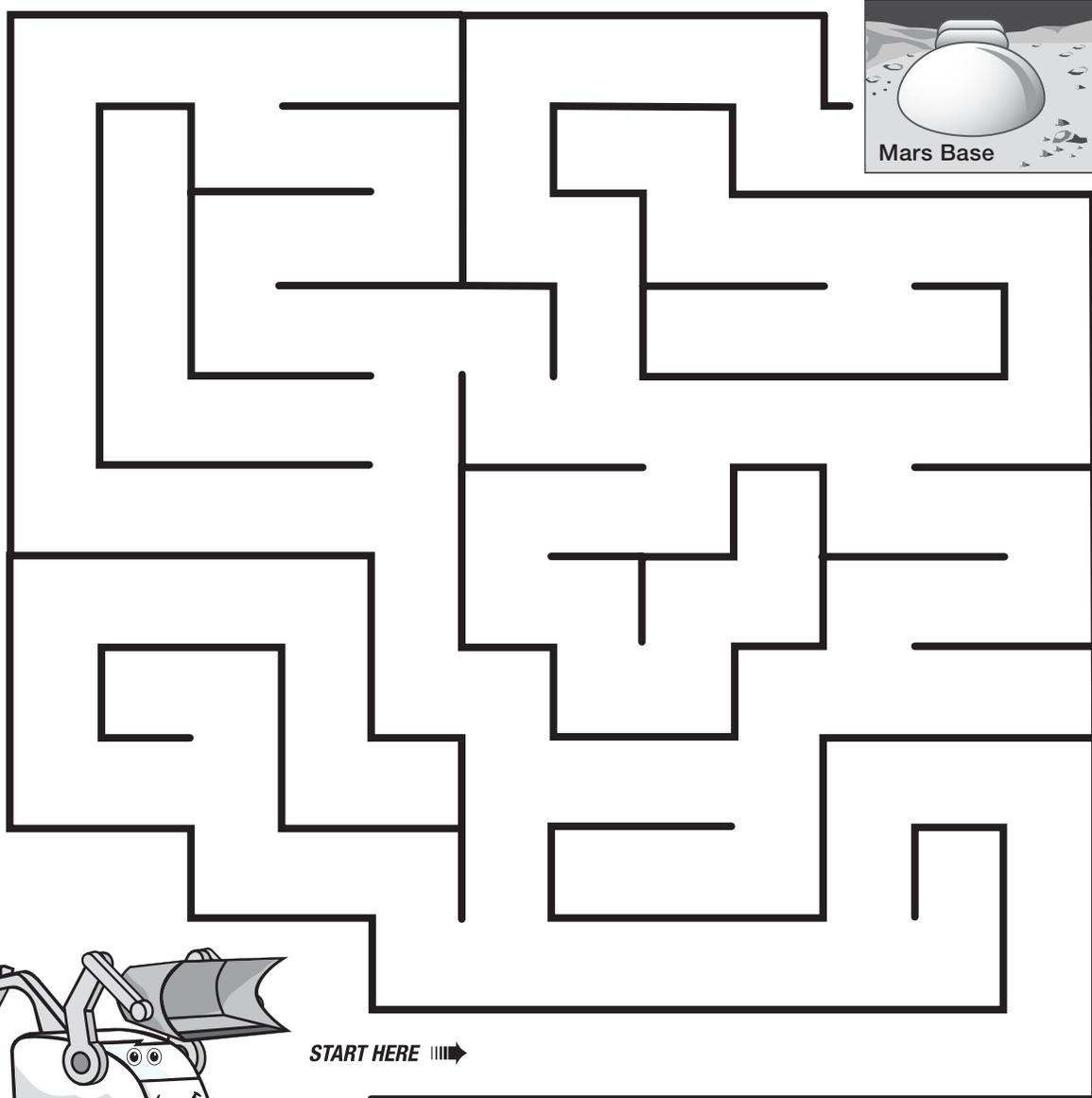
Curiosity did it in less than ¾ of a year!



Mars Maze

Navigate through the maze to the Mars base.

Be careful not to run into any aliens!



START HERE →

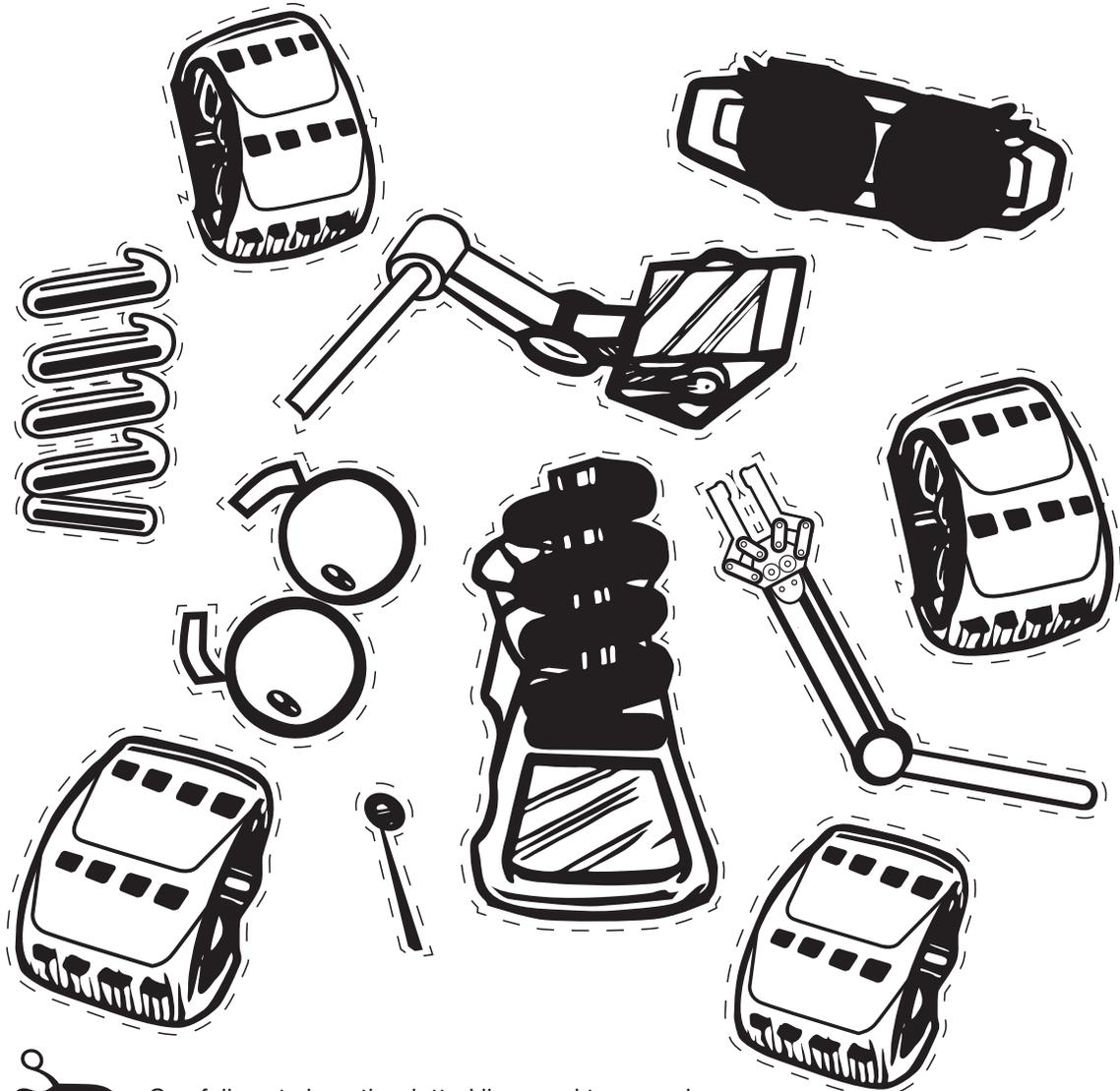
SPACE STATS

Mars has two moons named Phobos and Deimos. They are asteroids that are believed to have been captured into orbit by the gravitational pull of Mars.

Robotic Mining Competition • www.nasa.gov/nasarmc

B.Y.O.R.

(Build your Own Robot)



Carefully cut along the dotted lines and tape or glue

the pieces onto another sheet of paper to build your very own robot.

SPACE STATS

Do you know how much a space suit weights?

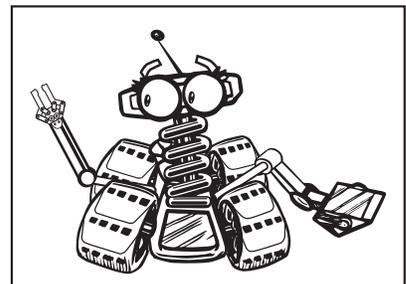
The astronauts who went to the moon wore suits that weighed 180 pounds!

Do you know how much those same suits weigh on Mars?

A mere 68 pounds!

Why the difference?

Mars is smaller than Earth and therefore has less gravity, so everything weighs less on Mars!

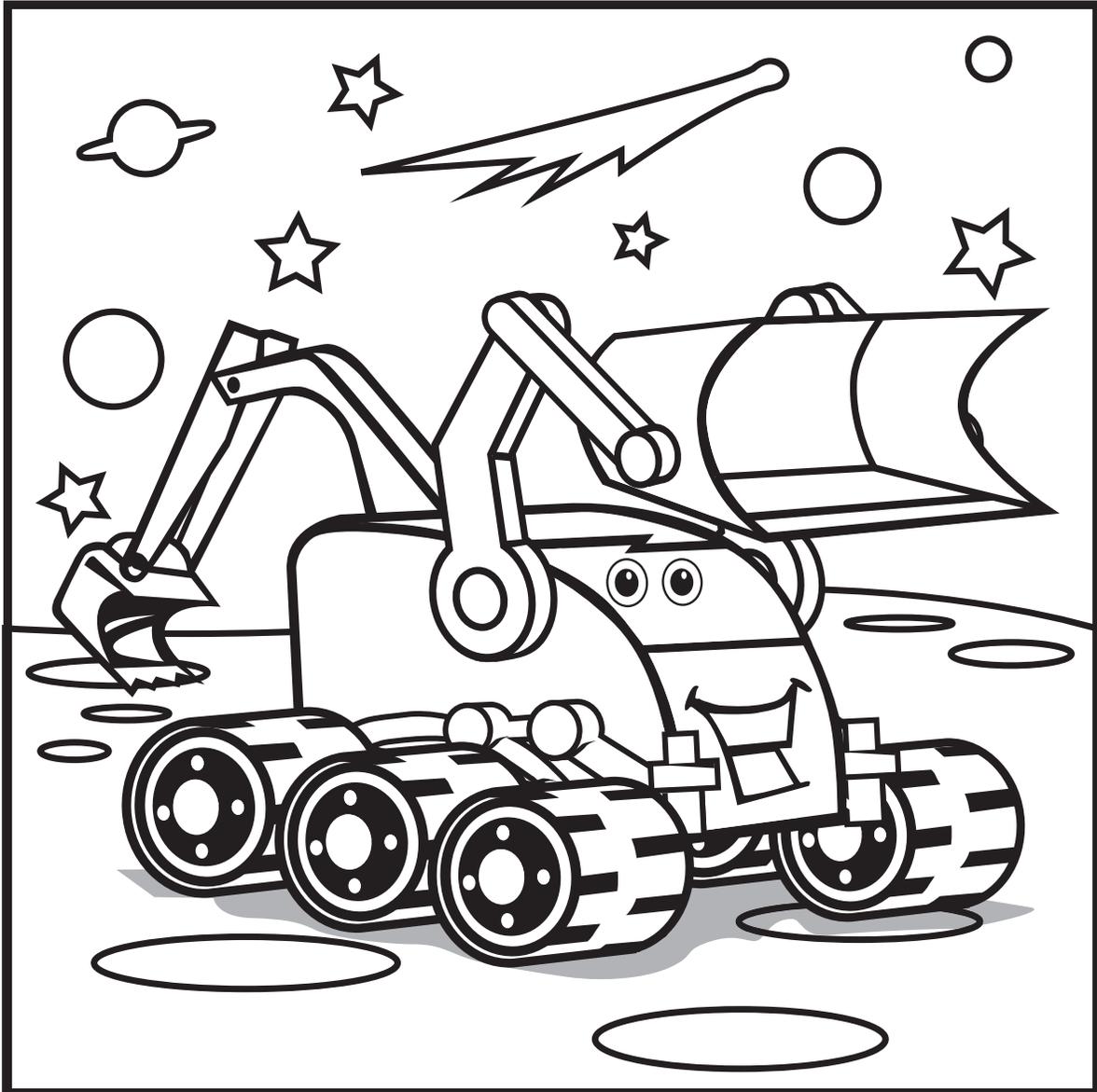
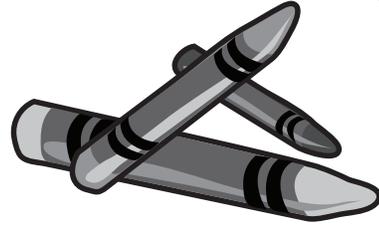


(Hint: view of assembled robot)

<https://www.facebook.com/RoboticMiningCompetition>



COSMIC COLORING



SPACE STATS

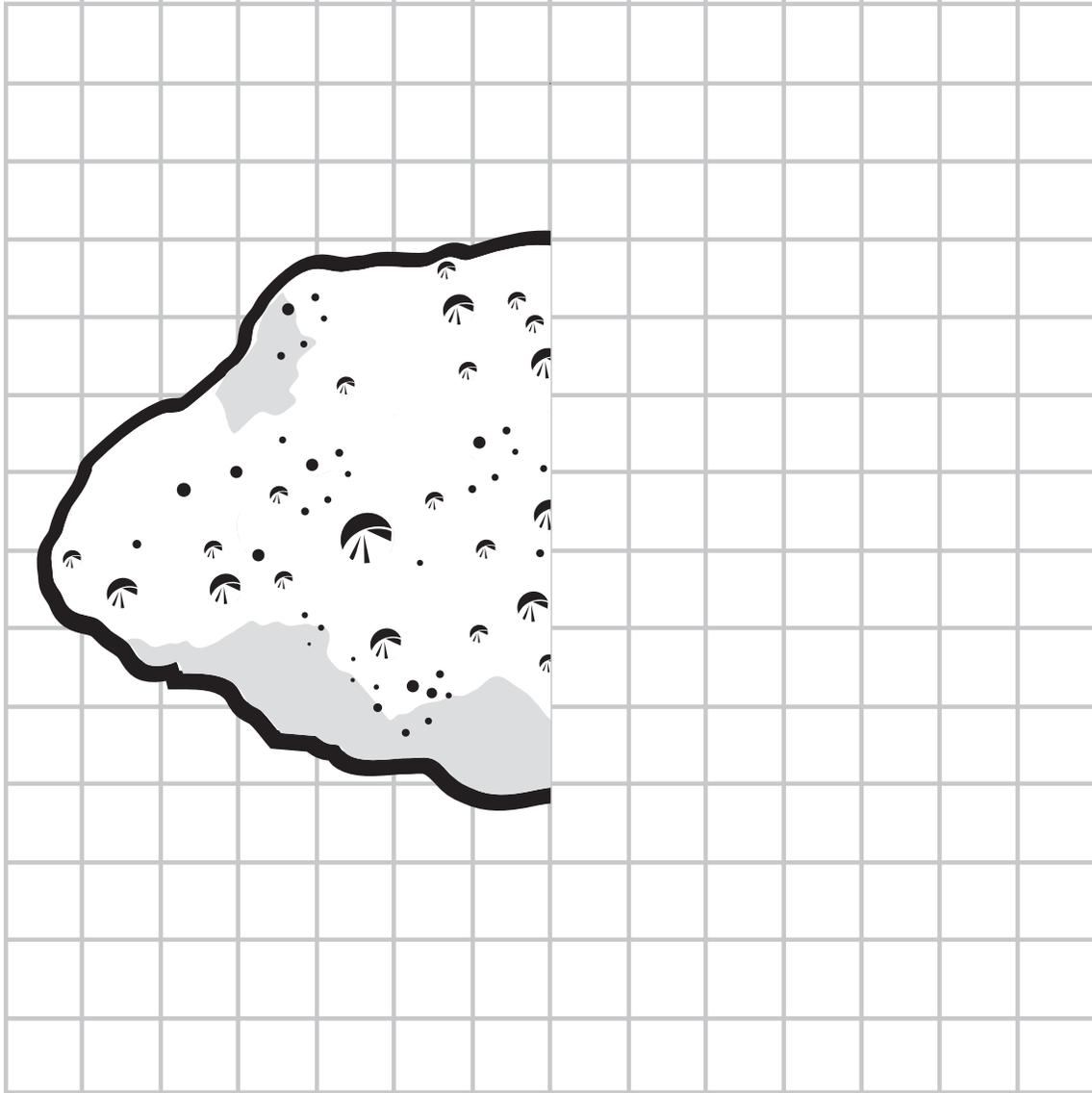
How long does it take Mars to travel around the Sun?

It takes just over 687 days. When an object such as Mars, travels around another object, like the Sun, we refer to that as a revolution or an orbit.

Robotic Mining Competition • www.nasa.gov/nasarmc

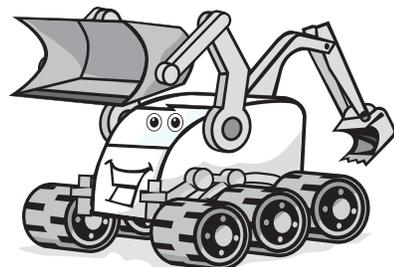
Capturing an Asteroid

While preparing a mission to a designated asteroid, half of the drawing of the asteroid was misplaced. *Can you help fill in the missing parts?* (We need to know that our digger robot is headed to the right asteroid.)



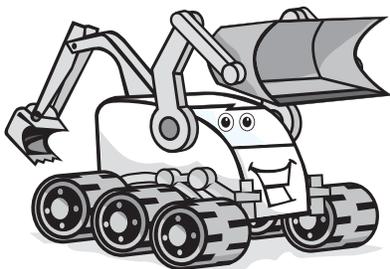
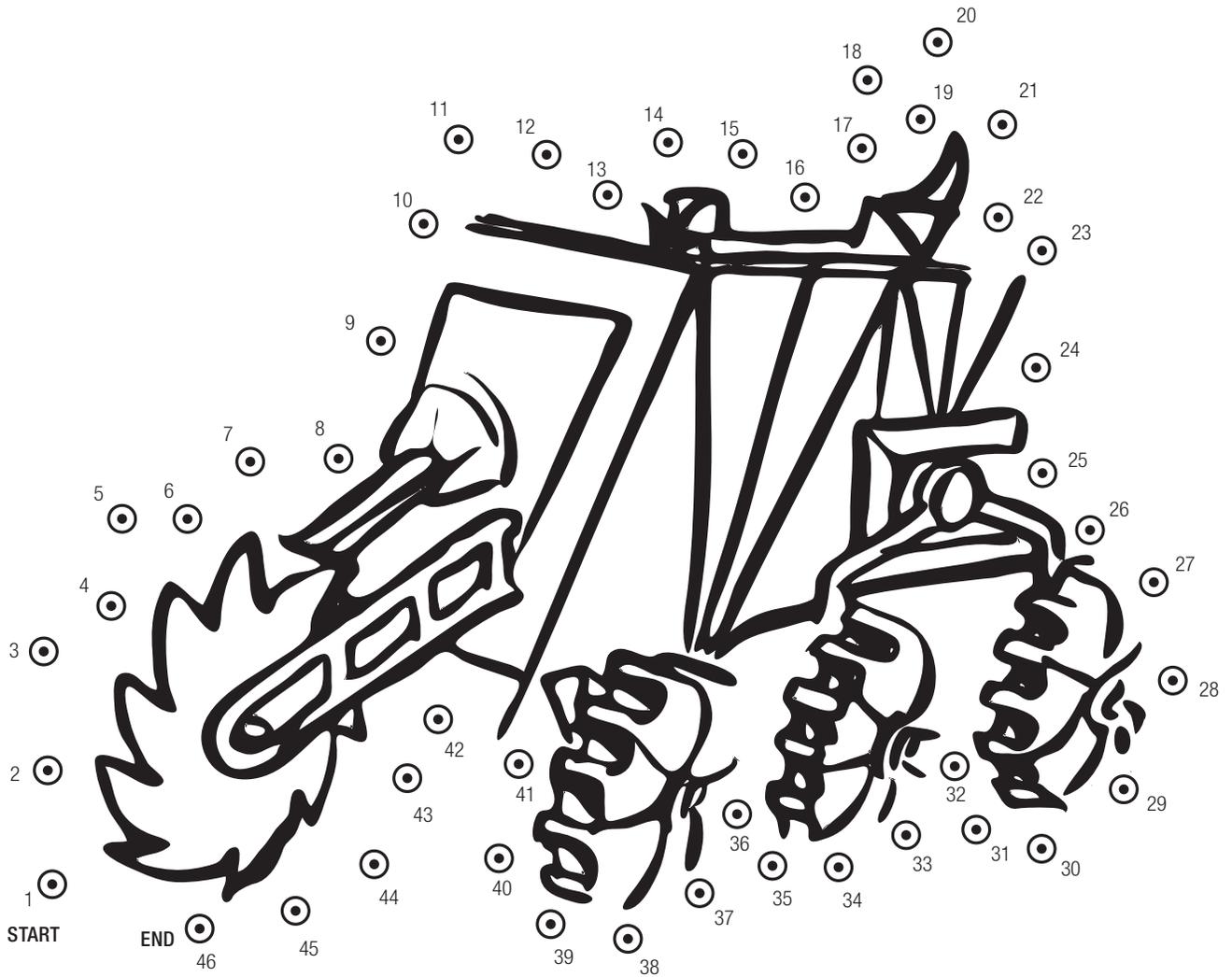
SPACE STATS

Do you know how old Mars is?
Mars is approximately 4.5 billion years old.
That's a lot of birthdays!





DIGGING THE DOTS



SPACE STATS

Do you know the name of the first American lander on Mars?
The answer is Viking 1.

Robotic Mining Competition • www.nasa.gov/nasarmc

Science Scramble

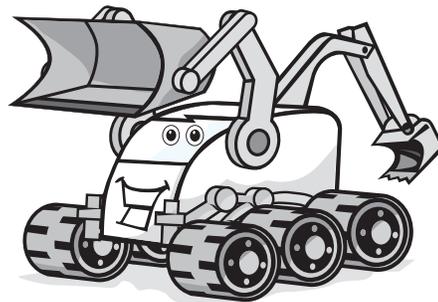
Can you unscramble the words on the left to reveal cool words related to Robotics?

- ROTIBOSC = _____
- DGI = _____
- GNIMIN = _____
- SIDENG = _____
- TERCOK = _____
- CHANUL = _____
- EPASC = _____
- TYRAVIG = _____
- THAM = _____
- CESENIC = _____
- RACRET = _____
- DIOSTREAS = _____

SPACE STATS

Did you know?

The asteroid belt lies roughly between the orbit of Mars and Jupiter.



Answers: ROBOTICS, DIG, MINING, DESIGN, ROCKET, LAUNCH, SPACE, GRAVITY, MATH, SCIENCE, CRATER, ASTEROIDS



CRATER CODE CRACKER

Use the decoder key box below to fill in the corresponding letters.
When you are finished decoding it will reveal a special message from Mars.

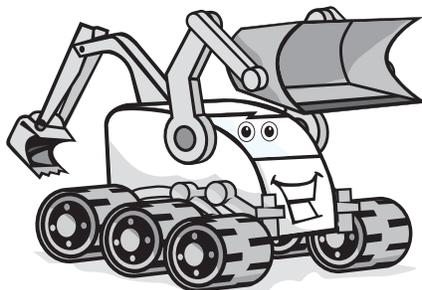
A = 1	H = 8	O = 15	V = 22
B = 2	I = 9	P = 16	W = 23
C = 3	J = 10	Q = 17	X = 24
D = 4	K = 11	R = 18	Y = 25
E = 5	L = 12	S = 19	Z = 26
F = 6	M = 13	T = 20	
G = 7	N = 14	U = 21	

4	5	19	9	7	14

9	20

2	21	9	12	4

9	20



4	9	7

9	20

SPACE STATS

The word "Robot" was first used in 1920.

LEFTOFF LETTERS

Fill in the missing letters of the various NASA terms listed below.

Match the missing letters to the numbered spaces below
and discover the answer to the riddle.

S P A E

R V E R

A S T E R I D

O C K E T

G R A V T Y

P H O O S

C O O P

C R A E R

Solve this Riddle: Science drives this technology AND this technology drives Science.

1

2

3

4

5

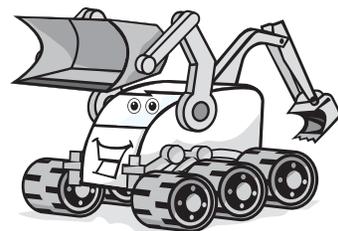
6

7

8

SPACE STATS

Planets are not the only ones with moons. The Galileo spacecraft proved that point in 1993 when it did a flyby of 243 Ida and discovered a moon, named Dactyl, orbiting the asteroid.





Unidentified Funny Objects

Using your powers of deduction, circle the objects below closely related to Robotics and space exploration. *Hint: There are 10, can you find them all?*



SPACE STATS

Making robots light is essential for getting them to Mars. It cost \$10,000 per pound to launch supplies to the ISS using NASA's space shuttle.

Robotic Mining Competition • www.nasa.gov/nasarmc

TEN TIMES

COSMIC COUNTDOWN

This challenge involves counting by 10 from the the number 10 all the way to 100. Using a crayon, colored pencil or marker, color the next number in the series as you move down the page.
Hint: each row has one of the "tens" numbers you just have to find it and color it.

01	05	07	02	08	10	03	09	04	06
14	11	19	18	16	17	15	12	20	13
28	22	30	24	29	26	23	27	25	21
40	33	39	35	32	37	34	38	36	31
46	48	41	42	50	44	47	43	45	49
56	59	52	54	58	51	55	60	53	57
67	63	70	64	68	65	66	62	61	69
71	77	73	79	75	78	80	74	76	72
83	87	84	90	88	89	86	81	85	82
93	100	98	91	96	95	94	97	92	99

Times Tables

Write your answers in the space provided.

$1 \times 10 = \square$

$2 \times 10 = \square$

$3 \times 10 = \square$

$4 \times 10 = \square$

$5 \times 10 = \square$

$6 \times 10 = \square$

$7 \times 10 = \square$

$8 \times 10 = \square$

$9 \times 10 = \square$

$10 \times 10 = \square$

Answers: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100

TRIVIA on the 10's

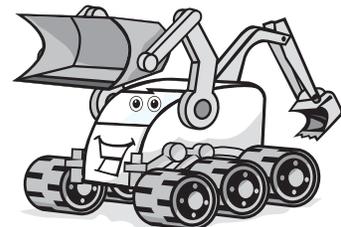
The following word problems all have "Tens" answers that fill in the blanks. Use logic and write down your answers in the spaces provided.

- There are _____ United States.
- The number of seconds in a minute is _____.
- Track competition: _____ yard dash.
- A decade is made up of _____ years.
- Perfect vision is described as _____ / _____.
- Jules Verne's *Around the World in _____ days*.

Answers: 1, 50, 2, 60, 3, 100, 4, 10, 5, 20/20, 6, 80

SPACE STATS

Mars has the tallest Volcano in the Solar System named Olympus Mons and it is 15 miles high which is three times the height of Mount Everest.





Multiple Asteroids

How many pairs of Asteroids?



sets of 2 =

x =

How many pairs of Asteroids?



sets of 2 =

x =

How many pairs of Asteroids?



sets of 2 =

x =

How many pairs of Asteroids?



sets of 2 =

x =

How many pairs of Asteroids?



sets of 2 =

x =

How many pairs of Asteroids?



sets of 2 =

x =

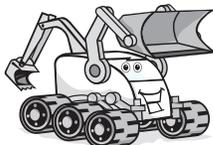
YOU DRAW pairs of Asteroids!

Using the equation below, draw the correct number of Asteroid pairs in the box below.

sets of 2 =

x =

Answers: 3 Sets of 2 = 6; 3 Sets of 2 = 6; 4 Sets of 2 = 8; 4 X 2 = 8; 6 Sets of 2 = 12; 6 X 2 = 12; 8 Sets of 2 = 16; 8 X 2 = 16; 2 Sets of 2 = 4; 2 X 2 = 4; 5 Sets of 2 = 10; 5 X 2 = 10



SPACE STATS

Planning a trip to Mars? You better pack for both warm and cold weather.
The temperature on Mars can range from +70°F to -225°F!

Robotic Mining Competition • www.nasa.gov/nasarmc

MORE or LESS

Addition and Subtraction Math

Select a numbered crater, **ADD 10** to the number and draw a line to the star that features the new number.

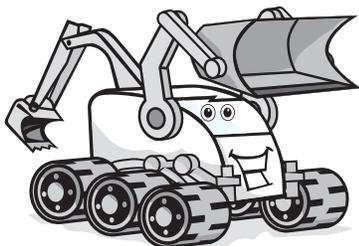
Crater numbers: 6, 20, 3, 12, 17, 7, 9, 15, 11, 22, 2, 8

Star numbers: 30, 16, 19, 27, 21, 25, 32, 22, 12, 17, 18

Select a numbered crater, **SUBTRACT 10** from that number and draw a line to the star that features the new number.

Crater numbers: 20, 15, 17, 32, 25, 28, 19, 30, 16, 24, 27, 18

Star numbers: 10, 15, 5, 9, 18, 17, 20, 8, 22, 7, 14, 6



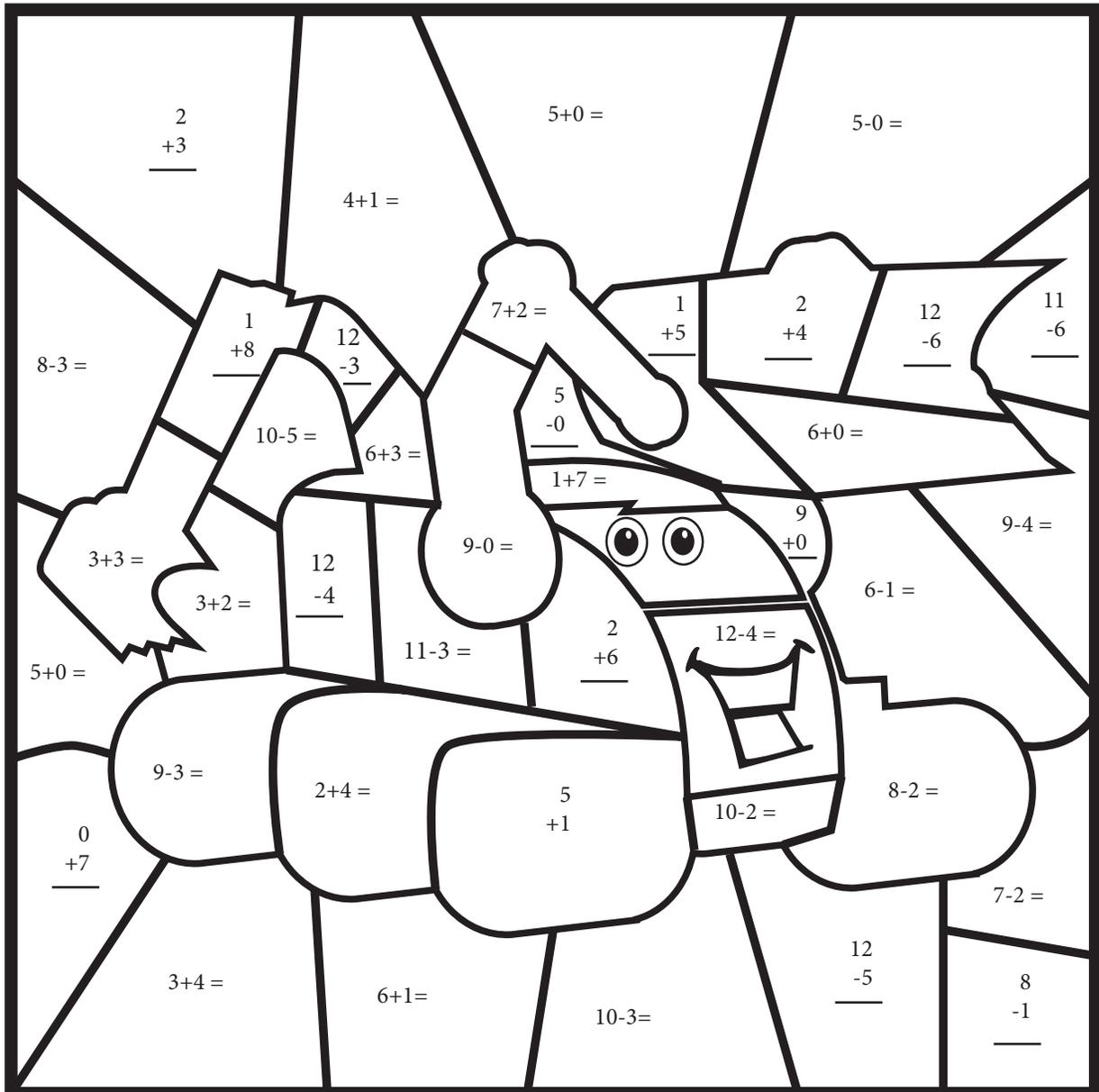
SPACE STATS

Ever wonder how far away the International Space Station is?
The station orbits the earth approximately 250 miles above us.
That is a long way up!



MARS MATH MASTERPIECE

Calculate the sum of each problem and then color using the key at the bottom.



- 5
- Blue
- 6
- Gray or Silver
- 7
- Red or Brown
- 8
- Green yellow
- 9
- Orange

SPACE STATS

Valleys and Canyons on Mars suggest that the planet once had large amounts of surface water.

Robotic Mining Competition • www.nasa.gov/nasarmc

ROBOTOGRAPHS

