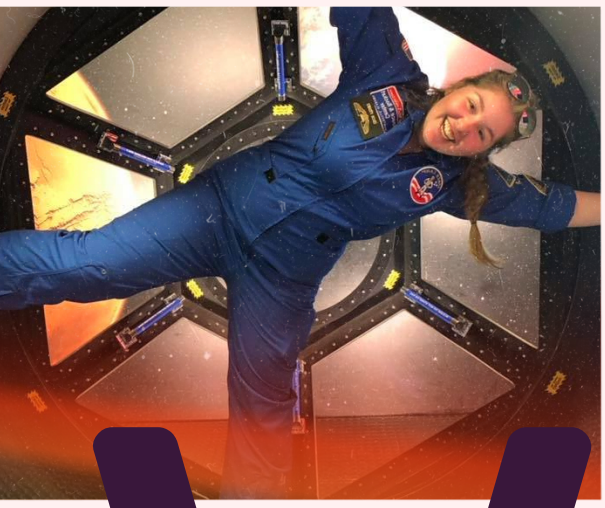
SCIENTIFIC METHOD

A Workbook for Kids K-12 to experience STEAM

Isabella Moyer
IZZY ON MARS
@izzyonmars



WELCOME Note

Hi! My name is Isabella Moyer, but you can call me Izzy!
I made this workbook for ordinary kids like me who love to learn about how extraordinary STEAM can be for their future careers! I've had an EXTRAordinary dream to be an astronaut & go to Mars since I was 3 years old. I love inspiring kids you may not have access to a lot of STEAM influences or experiences on how to choose to be EXTRAordinary in their big dreams too.

In this workbook you'll have some fun activities for all ages & grade levels. First, you'll find worksheets to help each the Scientific Method by doing your own experiments. You'll also find coloring pages & writing prompts, fun facts about scientific figures, and a few games.

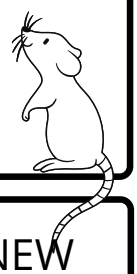
I hope you'll enjoy using this workbook to learn more about STEAM and share it with others to join in on the fun!

PET SCIENTIFIC METHOD

GRADES K - 4TH

Instructions: Research the background of your pet. If you don't have a pet, investigate the origins of a pet you'd like to own.

MY PET'S NAME:



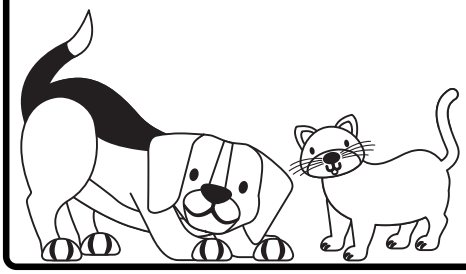
WHAT IS SOMETHING YOU WANT TO KNOW ABOUT YOUR PET?

LEARN SOMETHING NEW ABOUT YOUR PET?

WHAT DO YOU THINK IS SPECIAL ABOUT YOUR PET?

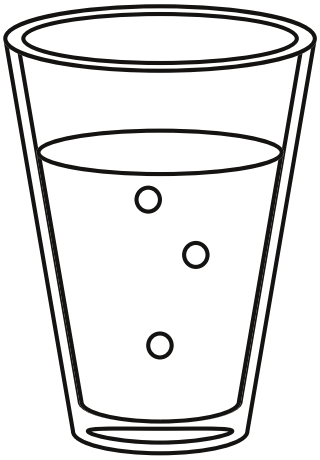
IS YOUR PET LIKE THE PETS YOU LEARNED SOMETHING NEW ABOUT OR DIFFERENT?

BEFORE MY PET'S BREED WAS DOMESTICATED, WHAT WAS ITS ROLE AND PURPOSE?



DRAW A PICTURE OF YOUR PET & WRITE A STORY

DANCING RAISINS



Place some raisins in a cup of tap water. Place some raisins in a cup of mineral water. Watch what happens.

Predicton:

Steps:

Results:

NAME: _____ DATE: _____

SCIENCE INVESTIGATION LOG

GRADES 3RD-7TH

SCIENTIFIC QUESTION: _____

PREDICTION: _____

DESIGN SET-UP:

Describe the materials you will use in your experiment!

STEP 1: _____

STEP 2: _____

STEP 3: _____

STEP 4: _____

STEP 5: _____

RESULTS:

CONCLUSION:

What do you now know?

Science Investigation Continued

USE THIS PAGE TO DRAW OR TAPE IN PICTURES OF YOUR EXPERIMENT

Science Experiment Outline

Grades 8th - 12th

Title: _____

1 PROBLEM

2 HYPOTHESIS

3 PROCEDURE

4 RESULTS

5 ANALYSIS

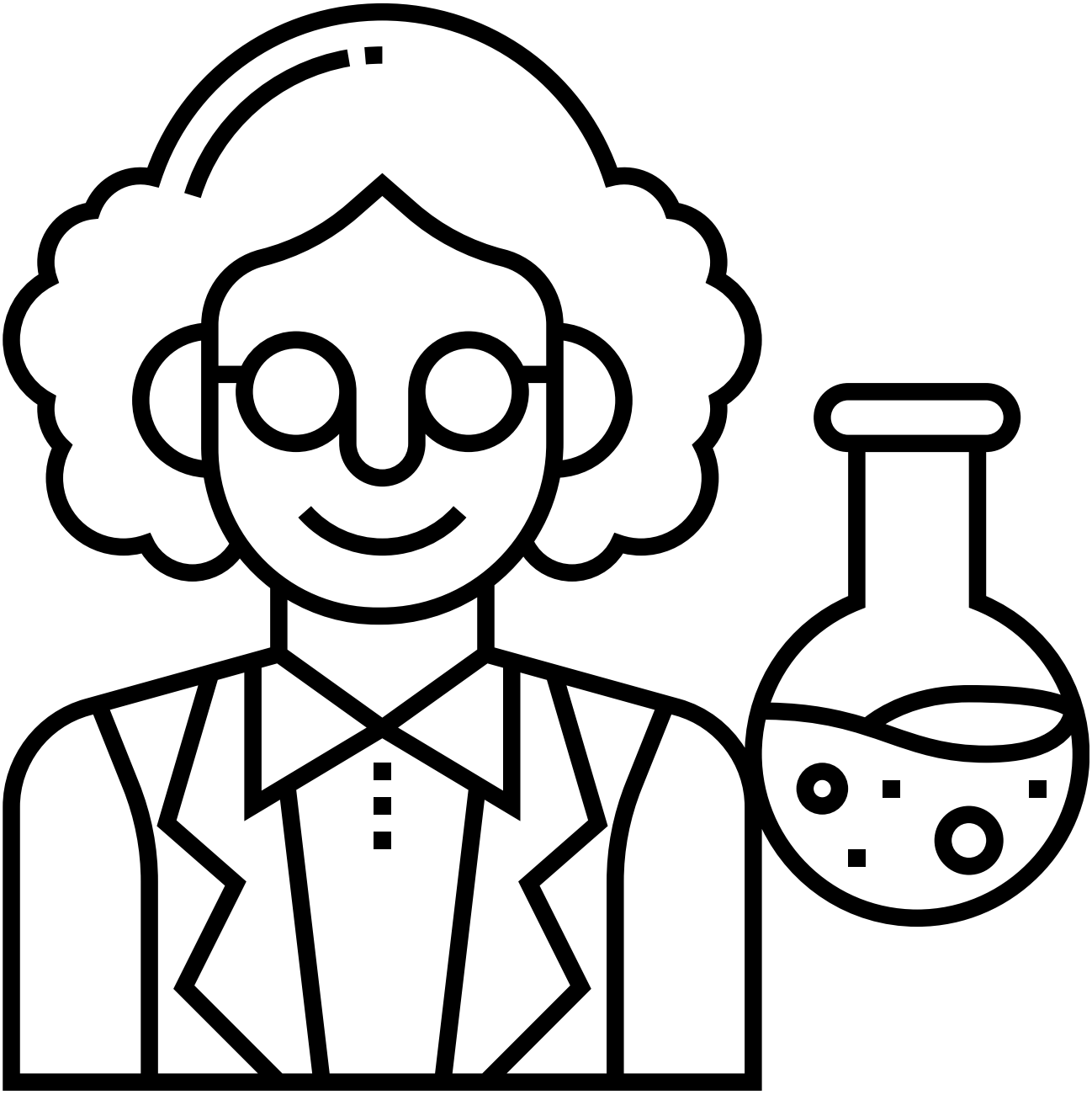
6 CONCLUSION

NAME _____ **DATE** _____

Science Experiment Continued

USE THIS PAGE TO DRAW OR TAPE IN PICTURES OF YOUR EXPERIMENT

Color & Write a Story about the Scientist

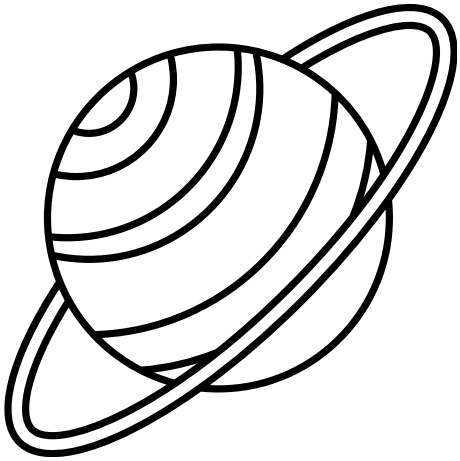


FACTS ABOUT URANUS

BASIC INFORMATION

Name: Uranus
Basic information: Uranus is the seventh planet from the sun.
Color: Blue
Number of Rings: 13

Uranus is one of the farthest planets from the Sun in our solar system, and it's been called a planetary oddity. Read on to learn more about Uranus.



FACTS

Uranus is a giant ice planet where temperature can reach as low as -224.2°C ! It has the coldest temperature out of all the planets, and it's 19 times as far from the Sun as Earth is.

Unlike other planets, Uranus is strongly tilted, so it's almost orbiting the Sun on its side. It spins in the opposite direction as most of the other planets!

HISTORY

Uranus was the first planet to be discovered by scientists using a telescope. It was named after Ouranos, the Greek god of the sky.

RINGS

Like Saturn, Jupiter, and Neptune, Uranus is a ringed planet.

In fact, Uranus has 13 rings. The nine inner rings are mostly dark grey, while the remaining rings are more brightly colored.

MOONS

Uranus has 27 known moons and most of their names are from Greek mythology.

Its five major moons are Ariel, Miranda, Titania, Oberon, and Umbriel.

The diameter of Uranus is four times that of the Earth. That will make Uranus the size of a basketball if our planet is as big as an apple.

Color & Write a Story about Earth

Isaac Newton Fast Facts

Basic information

Name: **Isaac Newton**
Birthdate: **December 25, 1642**
Birthplace: **Lincolnshire, England**
Notable contributions:
Discovering gravity, inventing calculus, and developing the laws of motion

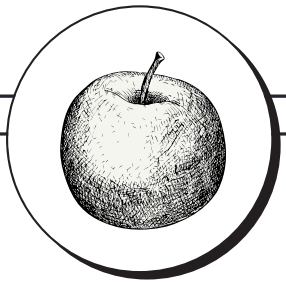
Newton's Method

Also known as the Newton-Raphson Method, this mathematical root-finding algorithm produces a better approximation of roots of a real-valued function.

The Reflecting Telescope

Newton invented a telescope that uses mirrors to reflect light and form an image. This type of telescope technology is used today for major astronomy telescopes.

Sir Isaac Newton is an English 'natural philosopher' and a key figure in the scientific revolution of the 17th century.



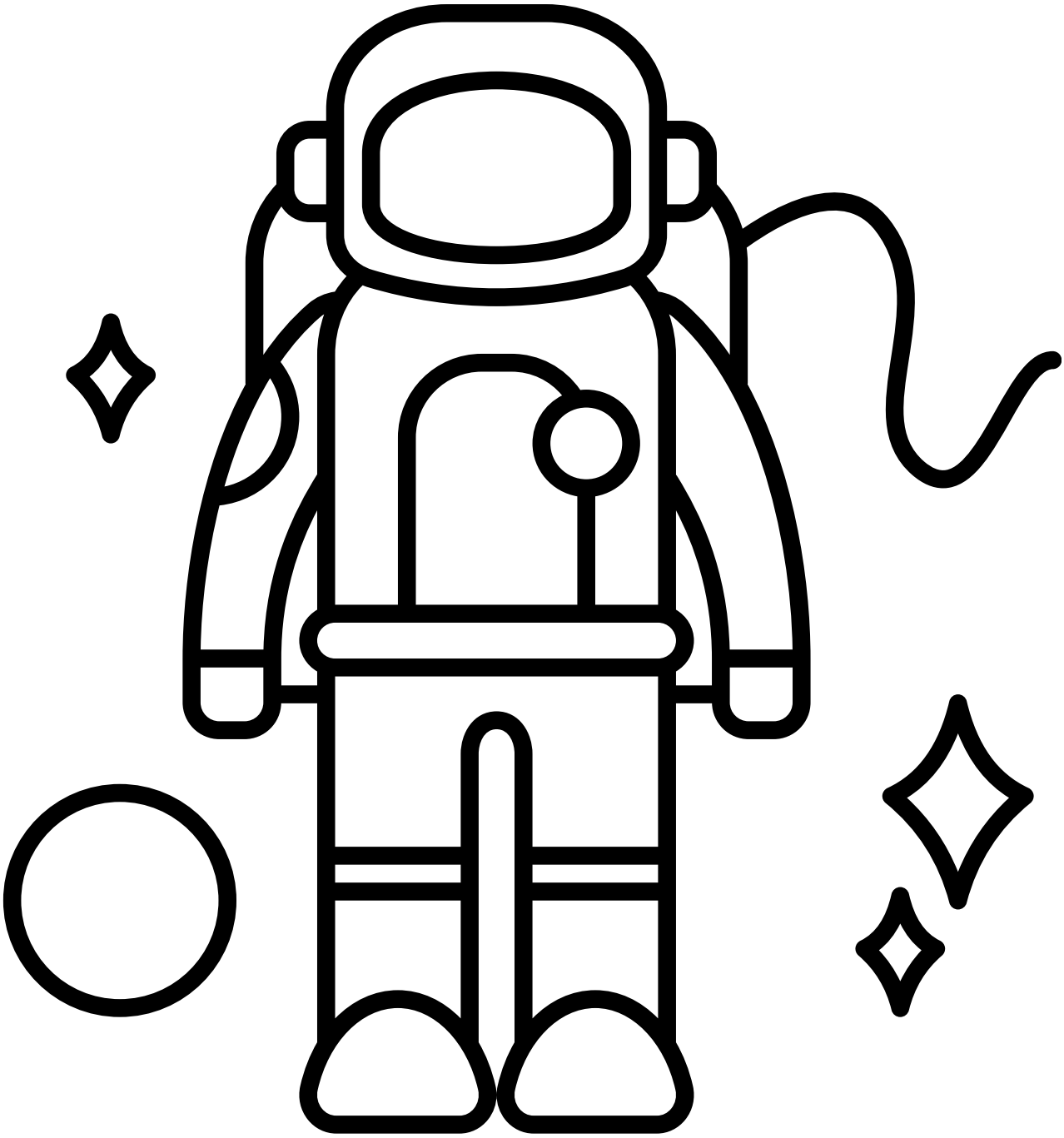
Important Facts

- Newton discovered the laws of motion after surmising apples fell from trees because a force acted upon it. In relation to this, he also concluded that the moon will fly away from the Earth in a straight line if not for the planet's gravitational pull.

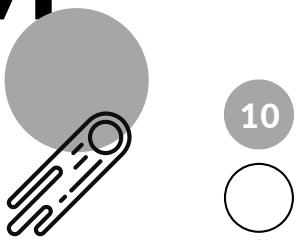
- Newton discovered calculus at the age of 24. It is the study of the rate of change and summation of quantities. Calculus is integral to physics, chemistry, biology, economics, all branches of engineering, and more.

- Philosophiæ Naturalis Principia Mathematica, Newton's work in three books published in 1687, states the laws of motion, the foundations of classical mechanics, Newton's laws of universal gravitation, and Kepler's laws of planetary motion.

Color & Write a Story about the Astronaut

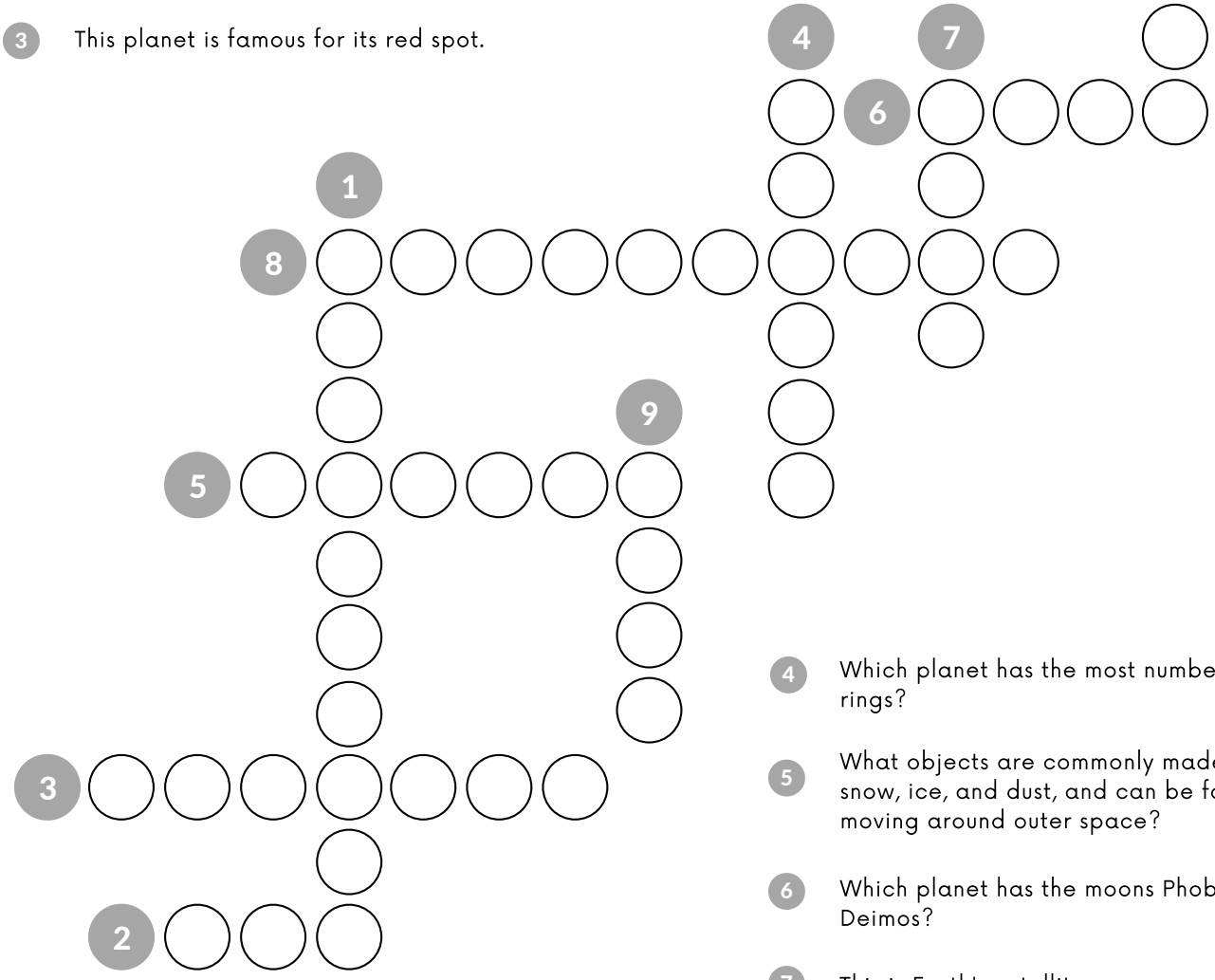


SOLAR SYSTEM CROSSWORD



Answer the questions and fill in the crossword with the correct answers.

1. One turn around the Earth's axis every 24 hours is called .....
2. What is the center of our solar system?
3. This planet is famous for its red spot.



4. Which planet has the most number of rings?
5. What objects are commonly made of snow, ice, and dust, and can be found moving around outer space?
6. Which planet has the moons Phobos and Deimos?
7. This is Earth's satellite.
8. The moon's light is caused by ..... from the Earth.
9. The Sun is a .....
10. This occurs when one heavenly body (moon or planet) moves into the shadow of another.

Name _____

Date _____

Color & Write a Story about the Animal Cell

Name _____ Date _____

Year _____

MY SKY DIARY

Pick a spot around the house where you can see outside. Sit here during the day time, then draw what you see. Come back to the same spot at night and draw what you see. Compare your drawings. List down what things are the same and what things are different.

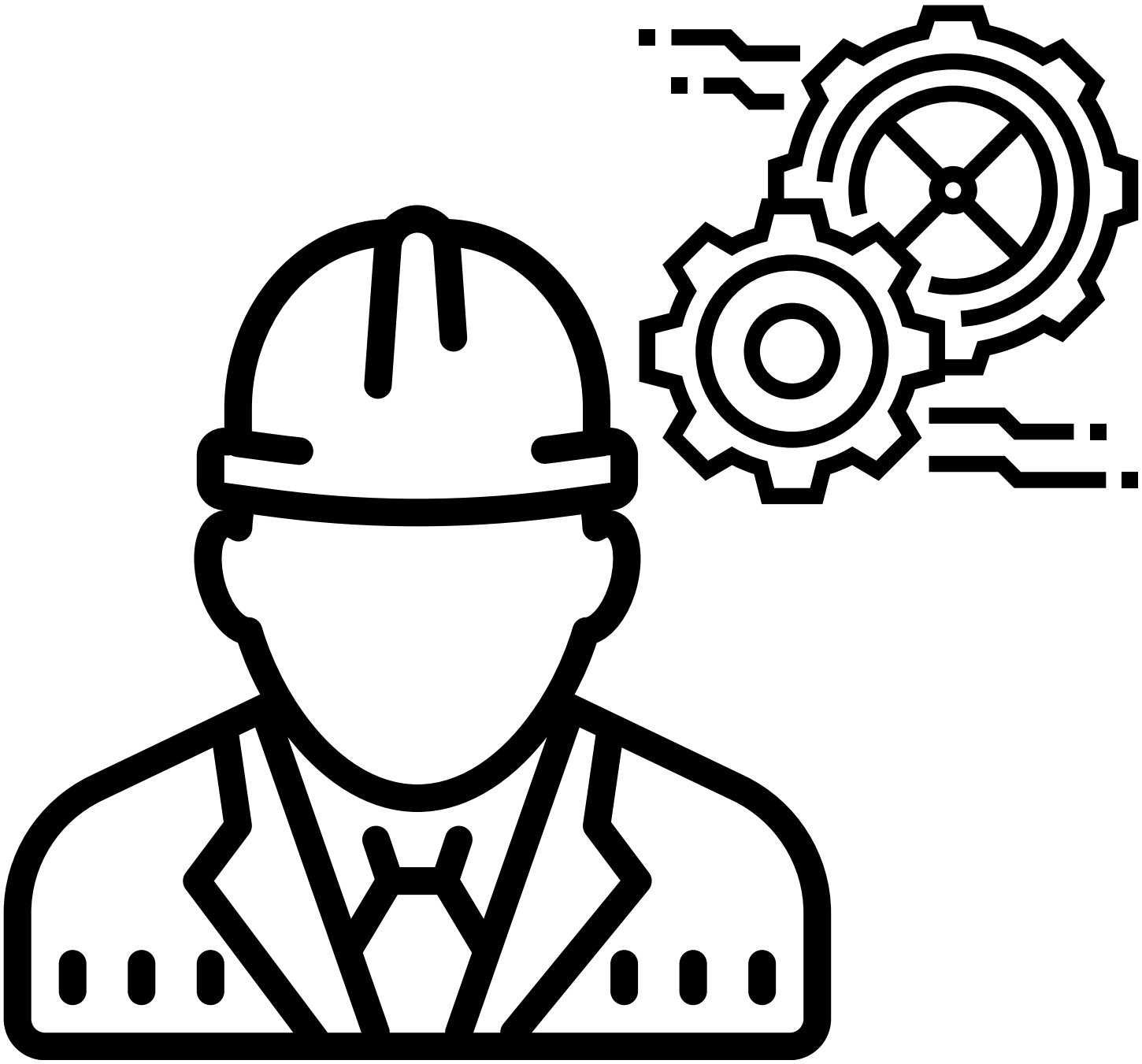
DAY

NIGHT

SIMILARITIES

DIFFERENCES

Color & Write a Story about the Engineer



Isabella Moyer is the youngest citizen scientist astronaut in training in the US. As a life-long Girl Scout she created this workbook & her website www.IzzyOnMars.com to share with youth resources, experiences, and activities to learn & engage with STEAM.

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