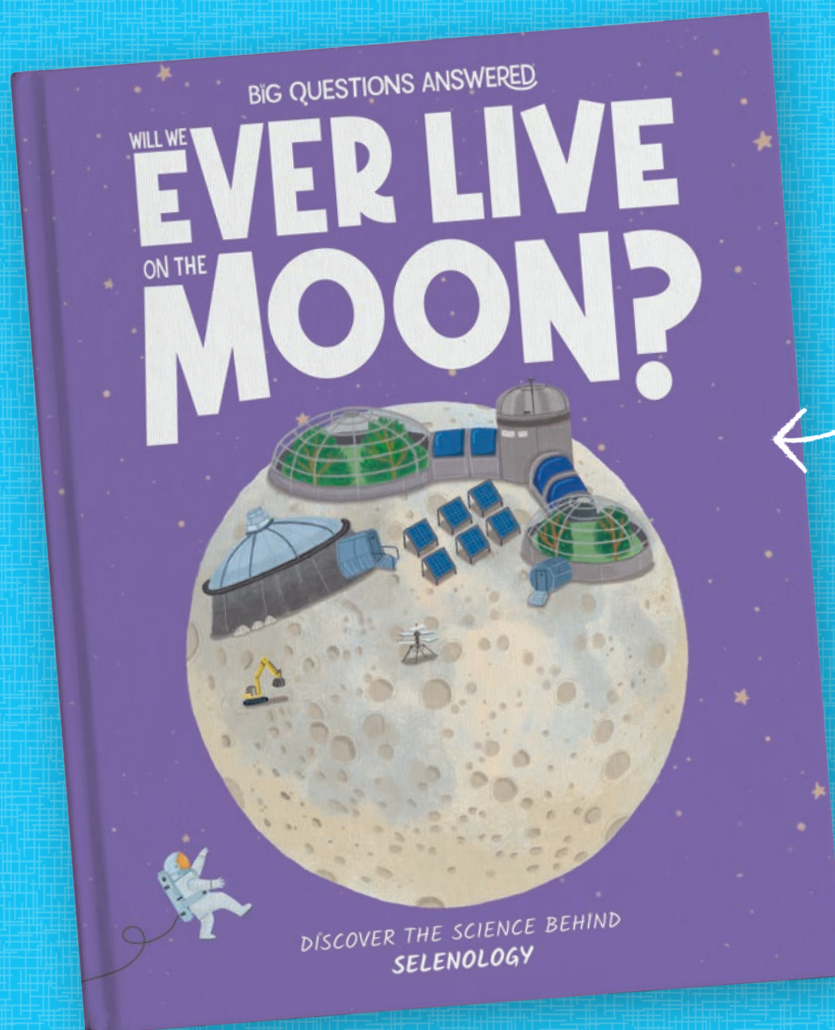


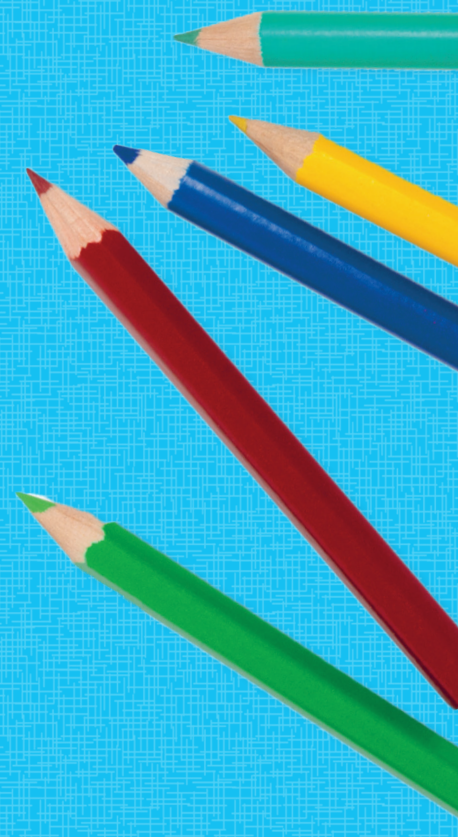
THE BIG QUESTIONS ANSWERED

YOUNG SELENOLOGISTS'

ACTIVITY PACK



*Full of fun and
exciting activities to
accompany this book!*



CONTENTS:

| | |
|--|----|
| A Trip to the Moon: Creative Drawing | 3 |
| Back in Time: Spot the Difference | 4 |
| Design Your Own Telescope: Creative Drawing | 5 |
| Rocket Power: Symmetry Drawing | 6 |
| Adventurous Astronauts: True or False? | 8 |
| In the Lab: Connect the Labels | 9 |
| Back to the Moon: Fill in the Blanks | 10 |
| Experiment Mix-Up: Cut and Stick | 11 |
| Word Smash: Word Scramble & Words Within a Word | 12 |
| Liftoff to the Moon: Reflective Writing | 13 |
| Words Floating in Space: Word Search | 14 |
| Mission to Mars: Line Maze | 15 |
| Design Your Own Moon Base: Creative Drawing | 16 |
| Write Your Own Selenology Story: Creative Writing | 17 |
| More Fun Activities: Coloring Sheets and More! | 18 |
| Activity Answers | 28 |

Picture Credits:

(t = top, b = bottom, m = middle, l = left, r = right)

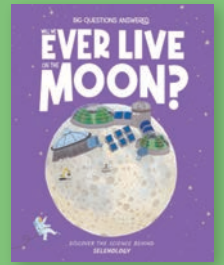
Shutterstock: Designsells 9ml, 9tl, 31bl; Morphart Creation 9bl, 31bl; Third Lab 9ml, 31bl; Yevheniia Kolesnyk 9bl, 31bl;

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WILL WE EVER LIVE ON THE MOON?

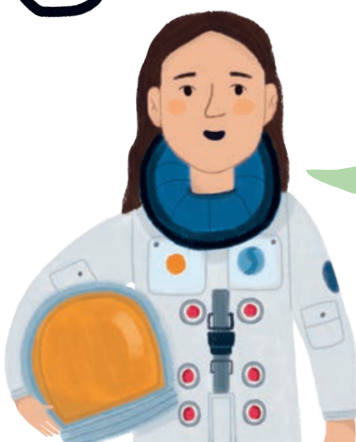
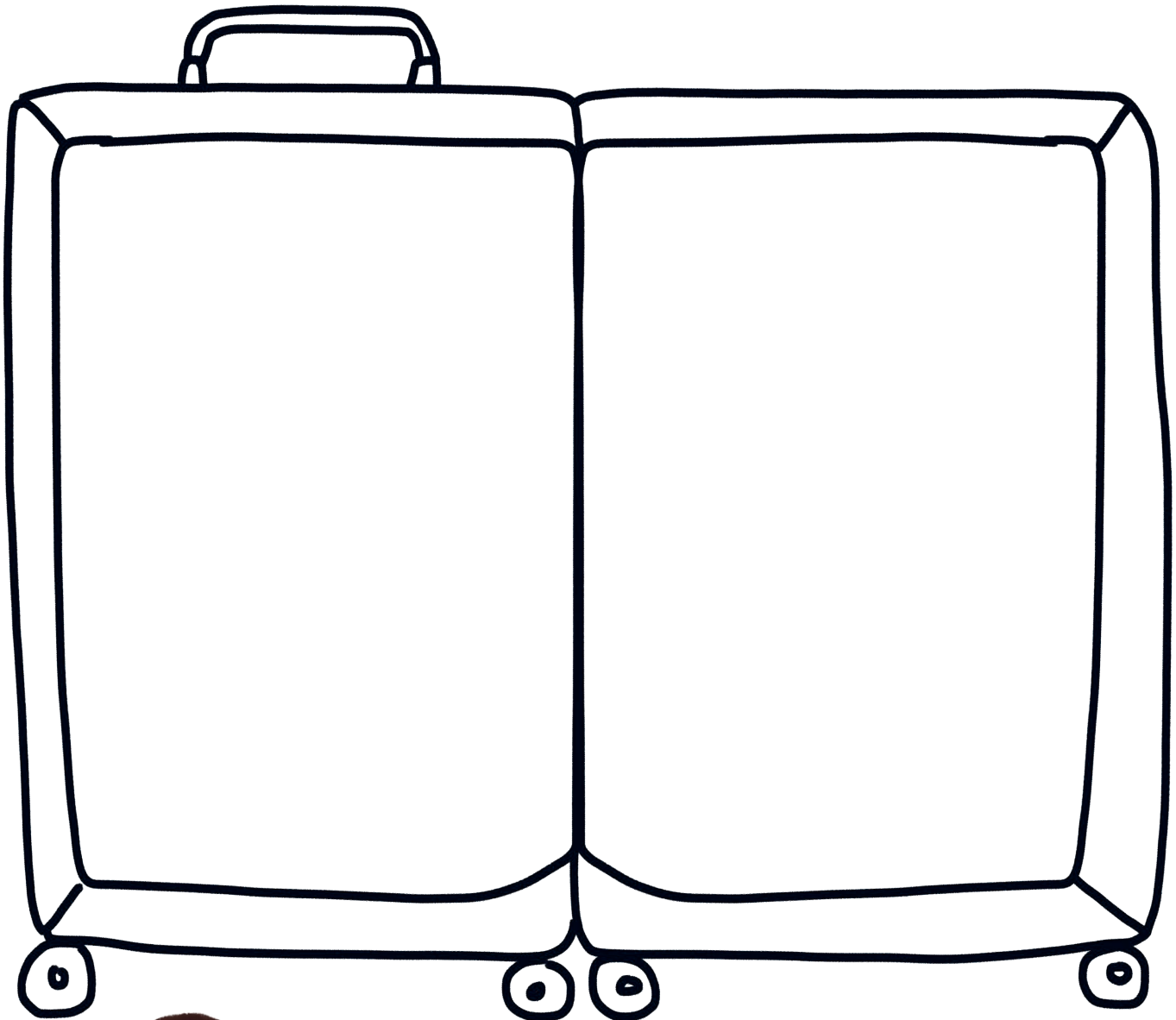
For reference to the Teachers' & Parents' Resources, this goes with "Our Amazing Moon: Scene 1".

www.thebigquestionsanswered.com



A TRIP TO THE MOON

Imagine you've been chosen to visit the Moon and help scientists learn more about it. What would you pack in your suitcase? Draw the items in, but choose carefully – you can only take 10 things with you!



What do you think would be the strangest thing about visiting the Moon?

WILL WE EVER LIVE ON THE MOON?

For reference to the Teachers' & Parents' Resources, this goes with "Astronomers Long Ago: Scene 2".

www.thebigquestionsanswered.com



BACK IN TIME

These cavemen are trying to catch us out! Can you spot the **10** differences between the two scenes? Circle them when you spot them.



WILL WE EVER LIVE ON THE MOON?

For reference to the Teachers' & Parents' Resources, this goes with "The Invention of Telescopes: Scene 3".

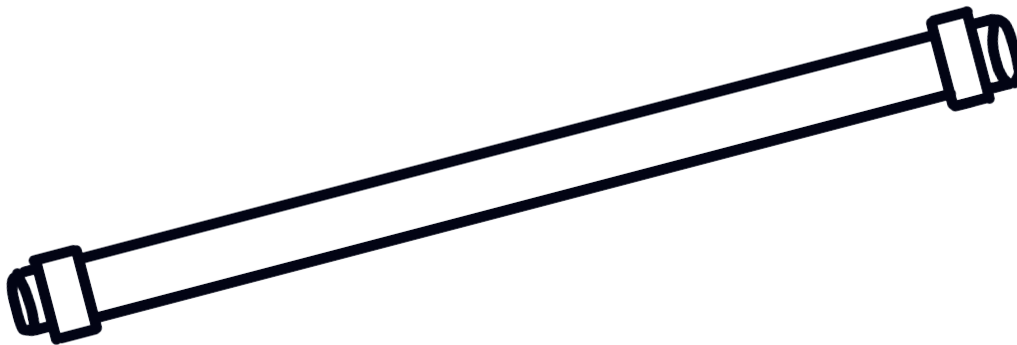
www.thebigquestionsanswered.com



DESIGN YOUR OWN TELESCOPE

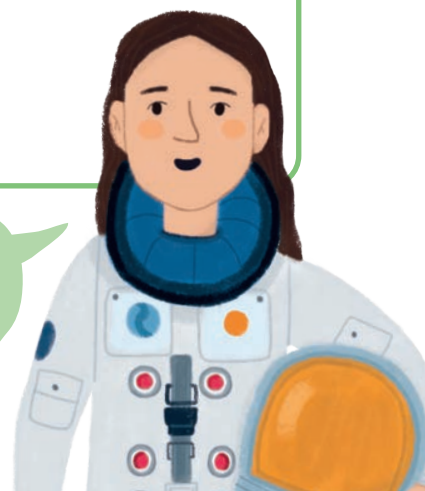
The design of Galileo's telescope – see image on the right – really stood out at the time. Below is a basic drawing of a telescope eyepiece. Can you decorate the telescope with a stand that a selenologist would be proud to use? Why not color it in afterward too!

Galileo's telescope



Get creative with your telescope in here!

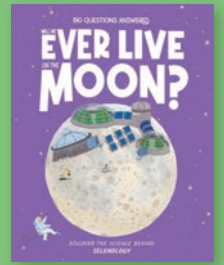
Did you know that the first telescopes were made more than 400 years ago?



WILL WE EVER LIVE ON THE MOON?

For reference to the Teachers' & Parents' Resources, this goes with "Building Rockets: Scene 4".

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ROCKET POWER

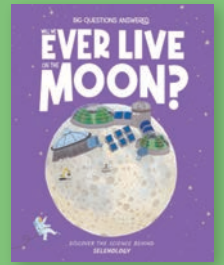
Scientists have made lots of incredible rockets to explore space with. Can you complete the picture of each rocket by drawing the other half? Finish the pictures by coloring them in.



WILL WE EVER LIVE ON THE MOON?

For reference to the Teachers' & Parents' Resources, this goes with "Building Rockets: Scene 4".

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ROCKET POWER

Scientists have made lots of incredible rockets to explore space with. Can you complete the picture of the rocket by drawing the other half? Finish the picture by coloring it in.



WILL WE EVER LIVE ON THE MOON?

For reference to the Teachers' & Parents' Resources, this goes with "One Small Step for Man: Scene 5".

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ADVENTUROUS ASTRONAUTS

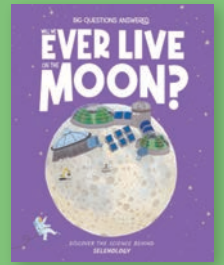
There's a lot to learn about astronauts and their adventures in outer space.
Read the statements below and decide if they are true or false.

| | SENTENCE | TRUE | FALSE |
|---|---|------|-------|
| 1 | Astronauts have to wear space suits whenever they're in space. | | |
| 2 | Astronauts can breathe in space without a helmet on. | | |
| 3 | It's hard to walk on the Moon because it has stronger gravity than Earth. | | |
| 4 | It takes about 3 days to get to the Moon in a rocket. | | |
| 5 | You don't need to train to become an astronaut. | | |
| 6 | The Moon is the only other world humans have walked on besides Earth. | | |

WILL WE EVER LIVE ON THE MOON?

For reference to the Teachers' & Parents' Resources, this goes with "Examining Moon Rocks: Scene 6".

www.thebigquestionsanswered.com



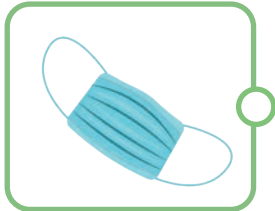
IN THE LAB

Selenologists have equipment that they use all the time. Below are three columns showing the image of a piece of equipment, the name, and the description. Can you connect each piece of equipment with the correct name and description? Draw lines between them to connect them.



TONGS

I am something that is used to make tiny things look much bigger.



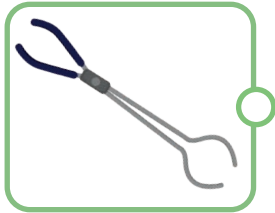
STETHOSCOPE

I am something that is used to hold and move samples during an experiment.



GLOVES

I am something that is worn to stop the person from breathing in anything dangerous.



MICROSCOPE

I am something that is worn to keep samples clean from contamination and to keep scientists' hands safe.



FACE MASK

I am something that is used to listen to someone's heart or breathing.

One of the items above doesn't belong in the selenology lab.
Can you name it below and give your reasoning?

.....

.....

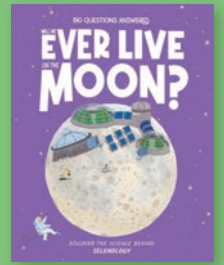
.....



WILL WE EVER LIVE ON THE MOON?

For reference to the Teachers' & Parents' Resources, this goes with "Why Visit the Moon: Scene 7".

www.thebigquestionsanswered.com



BACK TO THE MOON

Can you use the words below to fill in the blanks and uncover some amazing facts about the Moon? Each answer can only be used once.

moon

electricity

orbits

3

medical equipment

1969

1. The Moon is a natural satellite that _____ Earth.
2. Scientists used to think it was the only _____ to exist, but we now know there are lots more in outer space.
3. Humans walked on the Moon for the first time in _____. It's still the only world besides Earth that people have visited.
4. After liftoff, it took the astronauts and their spacecraft about _____ days to reach the Moon.
5. Scientists think we can gain a lot by going to the Moon. Moon rocks are full of special minerals and metals that are used to build machines like phones, computers, and _____.
6. Scientists also think we could turn helium-3 from the Moon into a powerful type of energy that could be used as _____ to power different machines.



What's your favorite moon fact?



WILL WE EVER LIVE ON THE MOON?

For reference to the Teachers' & Parents' Resources, this goes with "Experiments on the Moon: Scene 8".

www.thebigquestionsanswered.com



EXPERIMENT MIX-UP

Cut out along the dotted lines before starting this activity. Match the Moon experiment to its description. The descriptions give clues to the tools' appearances and their uses. If you get stuck, use the images in the main book to help you.

LASER RANGING RETROREFLECTOR

LUNAR DUST DETECTOR

SEISMOMETER

SOLAR WIND COMPOSITION EXPERIMENT

LUNAR SURFACE MAGNETOMETER

SOLAR WIND SPECTROMETER

I'm a silver square platform that is used for reflecting laser beams aimed at the Moon from Earth.

I measured the amount of dust that built up on the Moon's surface to show the effect of spacecraft.

I measure and record "moonquakes"! I have three black solar panels at either side to keep me powered up.

I'm the tallest experiment of all! Scientists used me to work out what solar wind is made of.

I was used to test the Moon's magnetic field. I have three long arms.

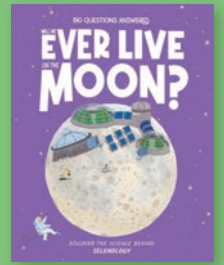
I may look like a little robot, but I'm not! I'm used to measure lots of data about solar wind.



WILL WE EVER LIVE ON THE MOON?

For reference to the Teachers' & Parents' Resources, this goes with "The Ancient Moon: Scene 9".

www.thebigquestionsanswered.com



WORD SMASH UP

Oh no! Asteroids have crashed all around the solar system and mixed up a bunch of words! Test your word-solving skills by trying to unscramble the words. They are all related to the Moon and outer space! There is a list of the correct words below to help you.

NOMO

EPACS

RIDOSTAE

OSLNESTGILEO

TREEMO

THEAR

KROCTE

MOON

EARTH

ROCKET

SELENOLOGIST

SPACE

METEOR

ASTEROID

EXTRA ACTIVITY - WORD WITHIN WORDS

Can you find as many words as you can within the word "selenologist"?

1. You can only use the letters within the word "selenologist".
2. Each of these letters can only be used once: N, G, T.
3. "Selenologist" has two letter S's, two E's, two L's, and two O's, so you can use them twice.
4. You can't use any other letters from the alphabet.

Example: you can make the word LONG using the letters in SELENOLOGIST.

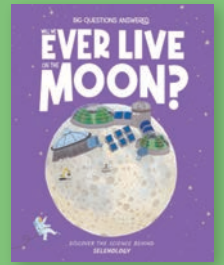
SELENOLOGIST



WILL WE EVER LIVE ON THE MOON?

For reference to the Teachers' & Parents' Resources, this goes with "What We Need to Live on the Moon: Scene 10".

www.thebigquestionsanswered.com



LIFTOFF TO THE MOON

The Moon is a curious place with lots more secrets to discover. The future of space science and exploration is complicated but very exciting. What do you think about it? Read the questions below and think about your own opinions before filling in your answers.

If you had the chance, would you go to the Moon? Why or why not?

.....

.....

.....

What do you think living on the Moon would be like?

.....

.....

.....

What excites or scares you the most about the idea of traveling to the Moon?

.....

.....

.....

What 3 things would you take with you to the Moon and why?

.....

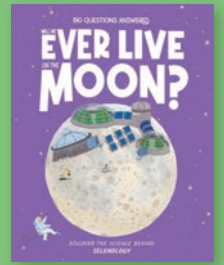
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.....

WILL WE EVER LIVE ON THE MOON?

For reference to the Teachers' & Parents' Resources, this goes with "Future Moon Experiments: Scene II".

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WORDS FLOATING IN SPACE

Find and circle the words listed below, in the grid. Words can be found in any direction (including diagonals) and can overlap each other.

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

MOON
ASTRONAUT
TELESCOPE
EXPERIMENT

ATMOSPHERE
GRAVITY
SELENOLOGIST
EARTH

SPACE SUIT
SATELLITE
ORBIT

WILL WE EVER LIVE ON THE MOON?

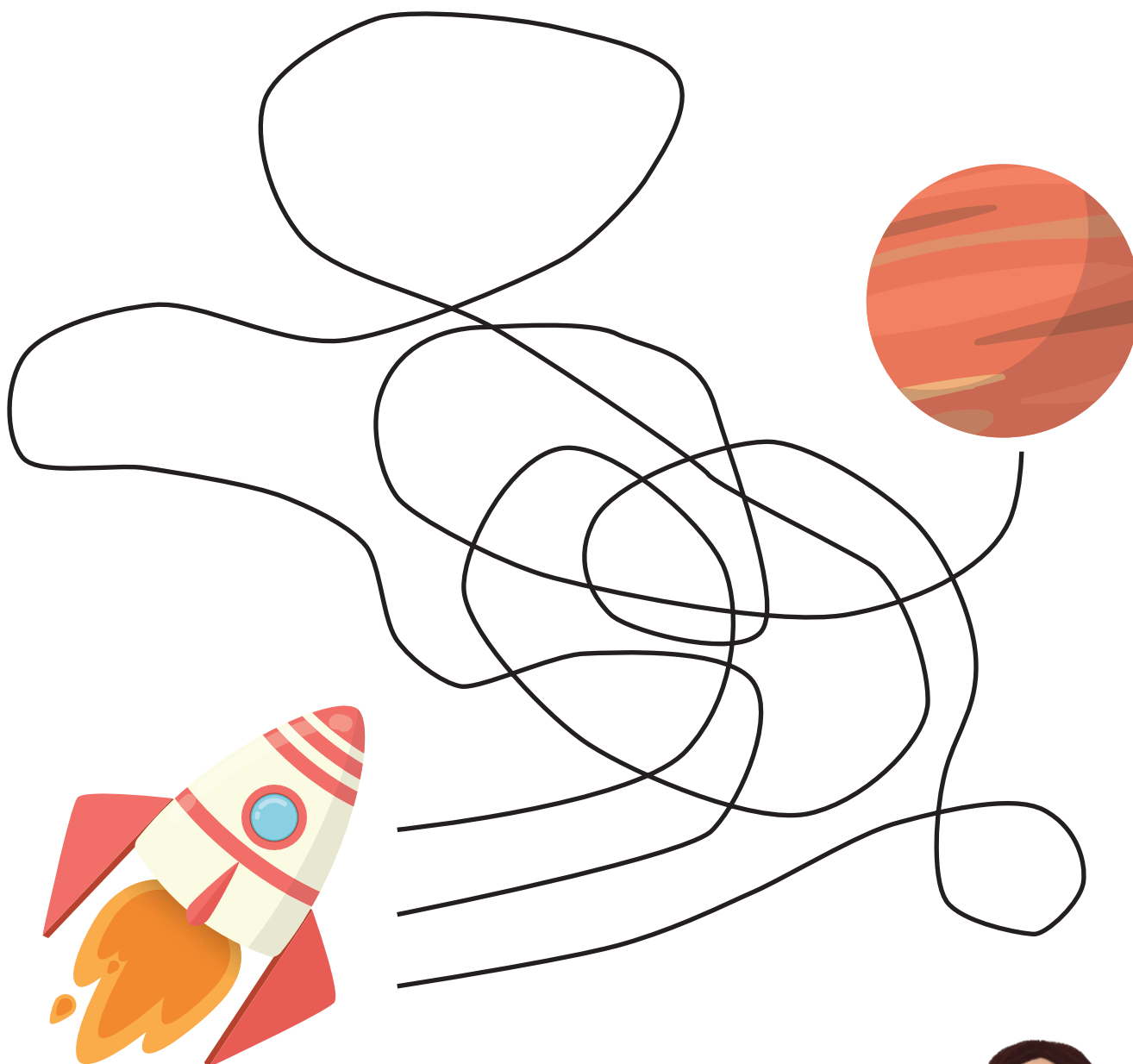
For reference to the Teachers' & Parents' Resources, this goes with "Stepping Stone to Mars: Scene 12".

www.thebigquestionsanswered.com

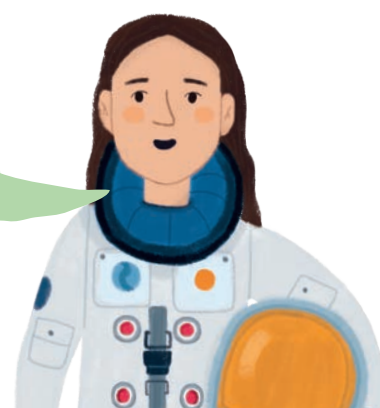


MISSION TO MARS

Oh no! This rocket needs some help finding Mars.
Can you help the rocket complete the maze and reach Mars?



Did you know that Mars is the
second-smallest planet in our
solar system?

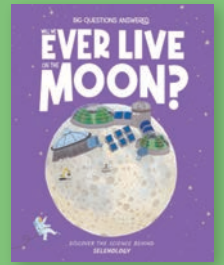




WILL WE EVER LIVE ON THE MOON?

For reference to the Teachers' & Parents' Resources, this goes with "Future Moon Base: Scene 13".

www.thebigquestionsanswered.com



DESIGN YOUR OWN MOON BASE

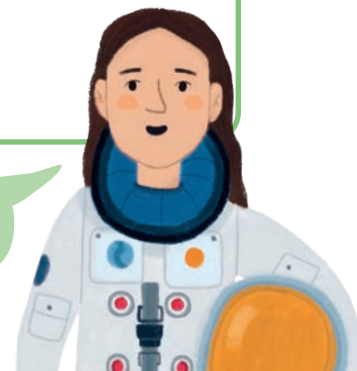
Scientists are planning to create a space base on Earth's Moon in the future, which they will use for scientific research and as a base from which to explore deeper into outer space. Try creating your own space base, using the prompts below.

Think about:

- How many people will live in your colony?
- Will the buildings be aboveground or underground? What shape will they be?
 - What will the people eat? How and where will they grow food in space?
 - What will the people's space suits look like?
 - How will the people get around the Moon?

*Draw your Moon base
in here!*

What will you call your
new Moon base?



MORE FUN SELENOLOGY ACTIVITIES

COLORING SHEETS & MORE!

The following activities aren't based on any specific scenes in the book. They can be used on their own or alongside the book as extra activities.

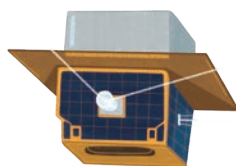
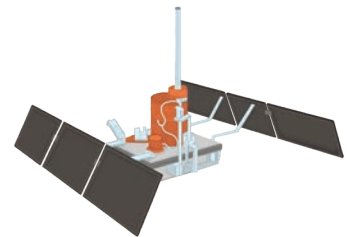
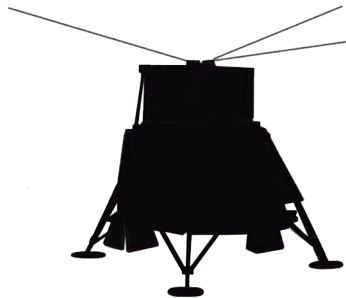
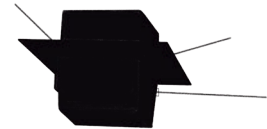
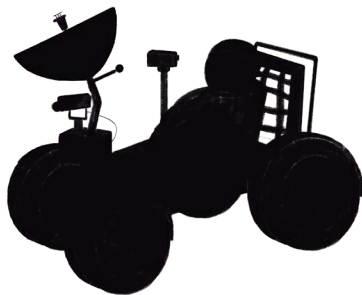
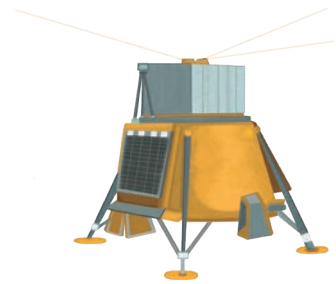
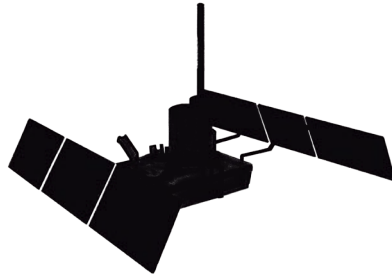
FIND THE SCIENTIST

**There are lots of different scientists below. Can you find the selenologist?
Circle them when you find them – there's only one!**



MATCH THE SHAPE

Can you match each shadow to the correct picture? Draw a line to connect them.



SIMPLE SUMS

Below are 3 objects which represent different numbers.

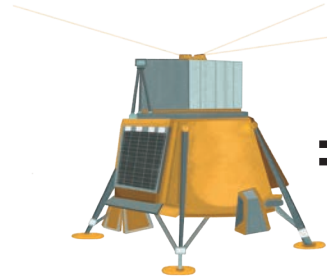
Work out the sum based on what each object represents and write your answers in the boxes.



= 1



= 2



= 3



+



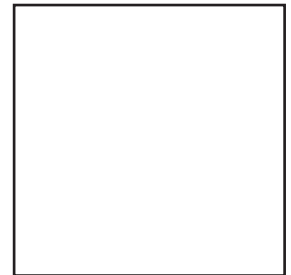
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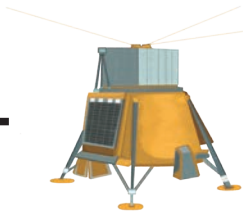
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=



+



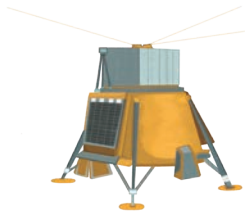
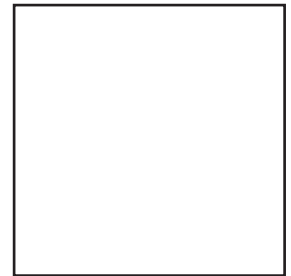
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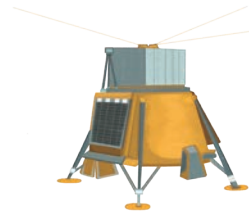
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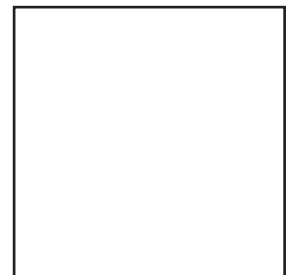
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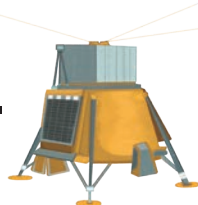
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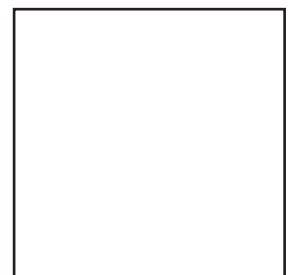
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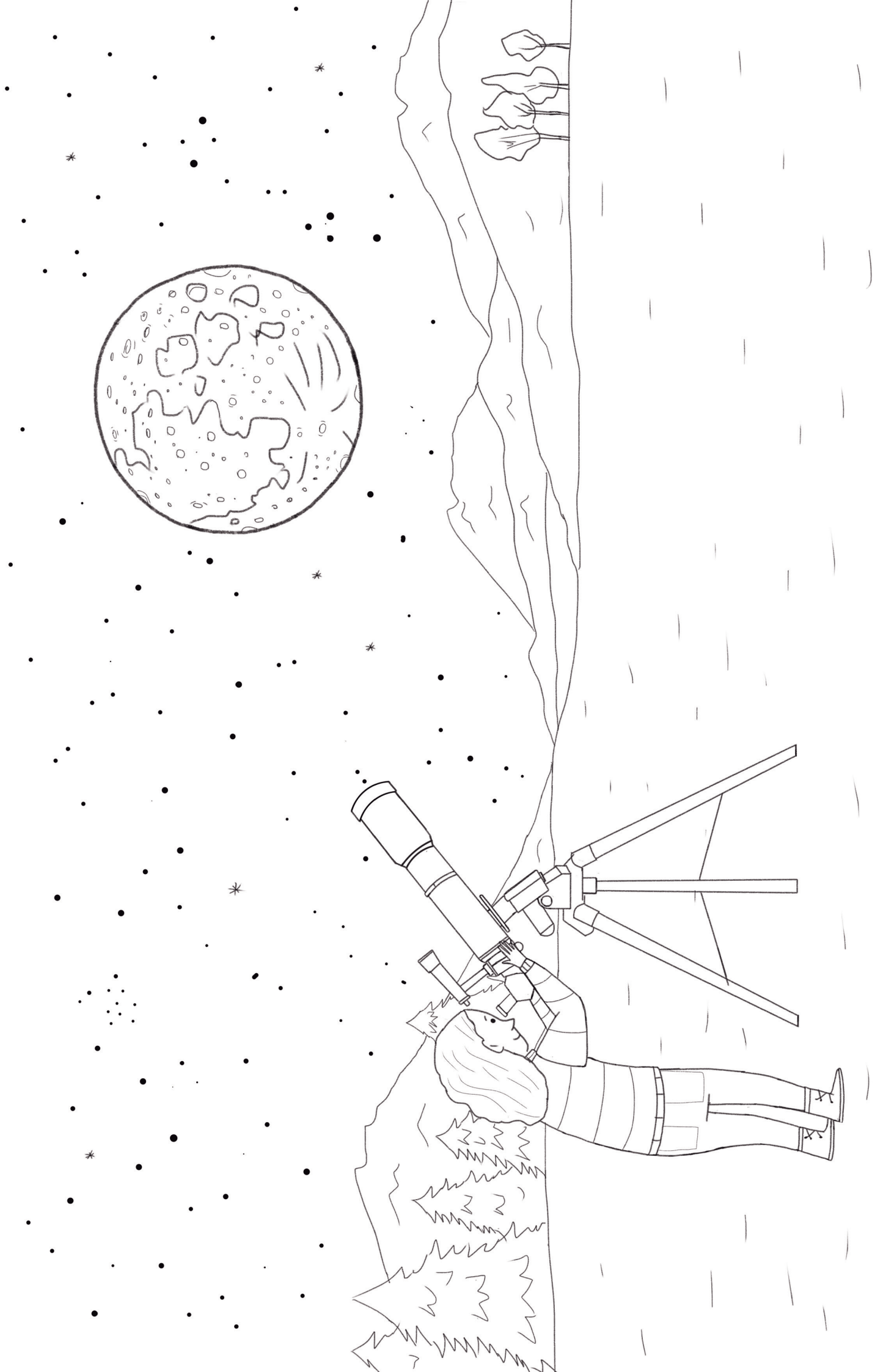


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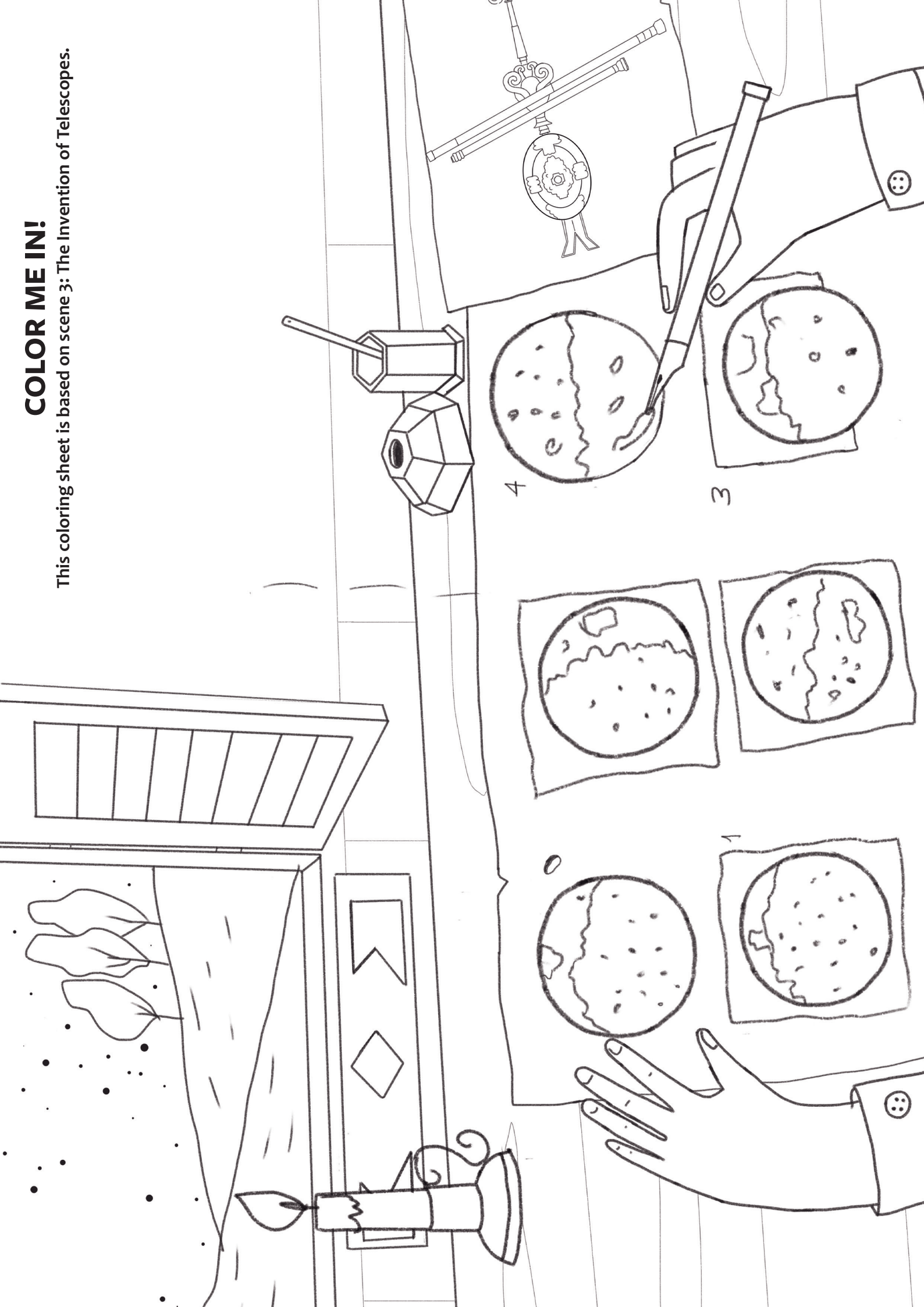
COLOR ME IN!

This coloring sheet is based on scene 1: Our Amazing Moon.



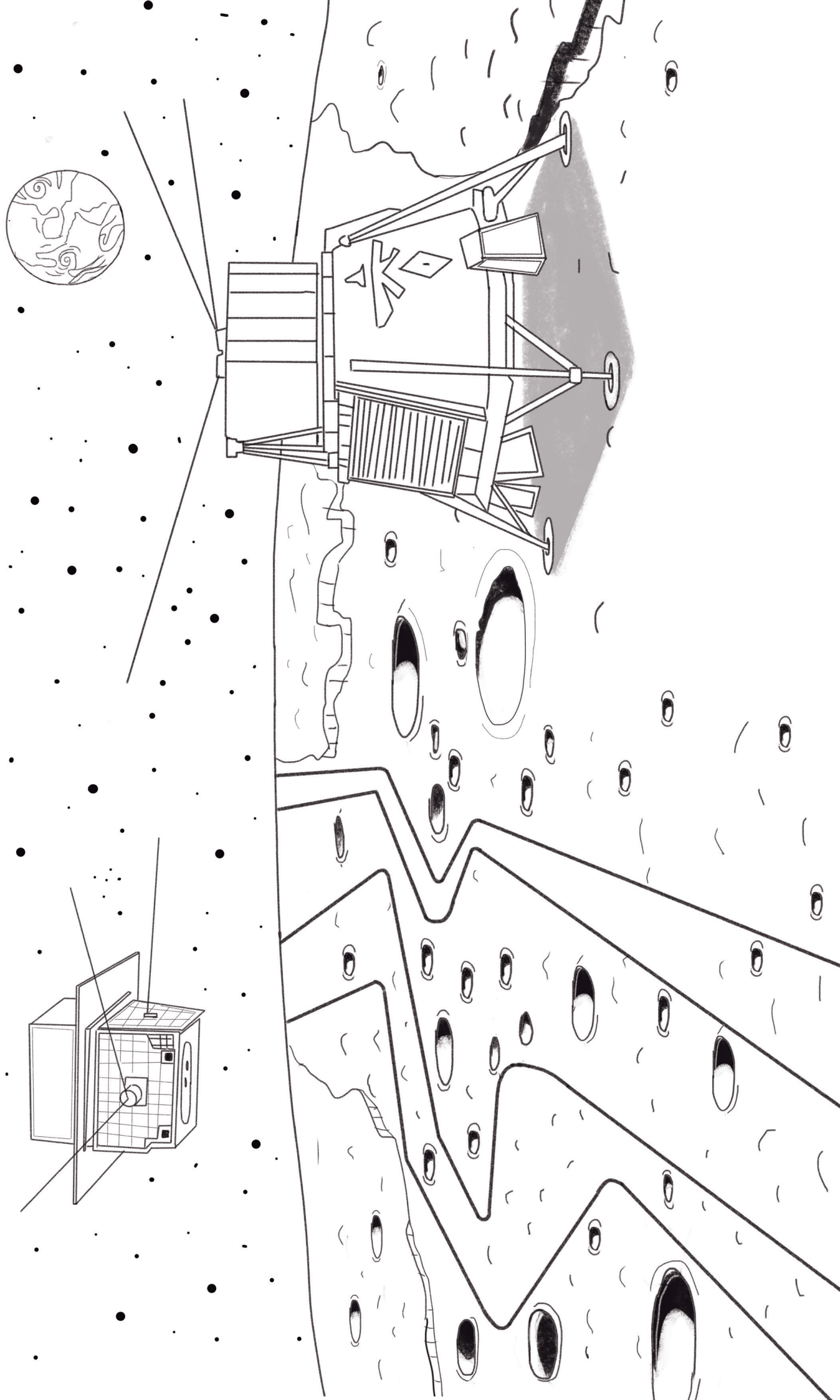
COLOR ME IN!

This coloring sheet is based on scene 3: The Invention of Telescopes.



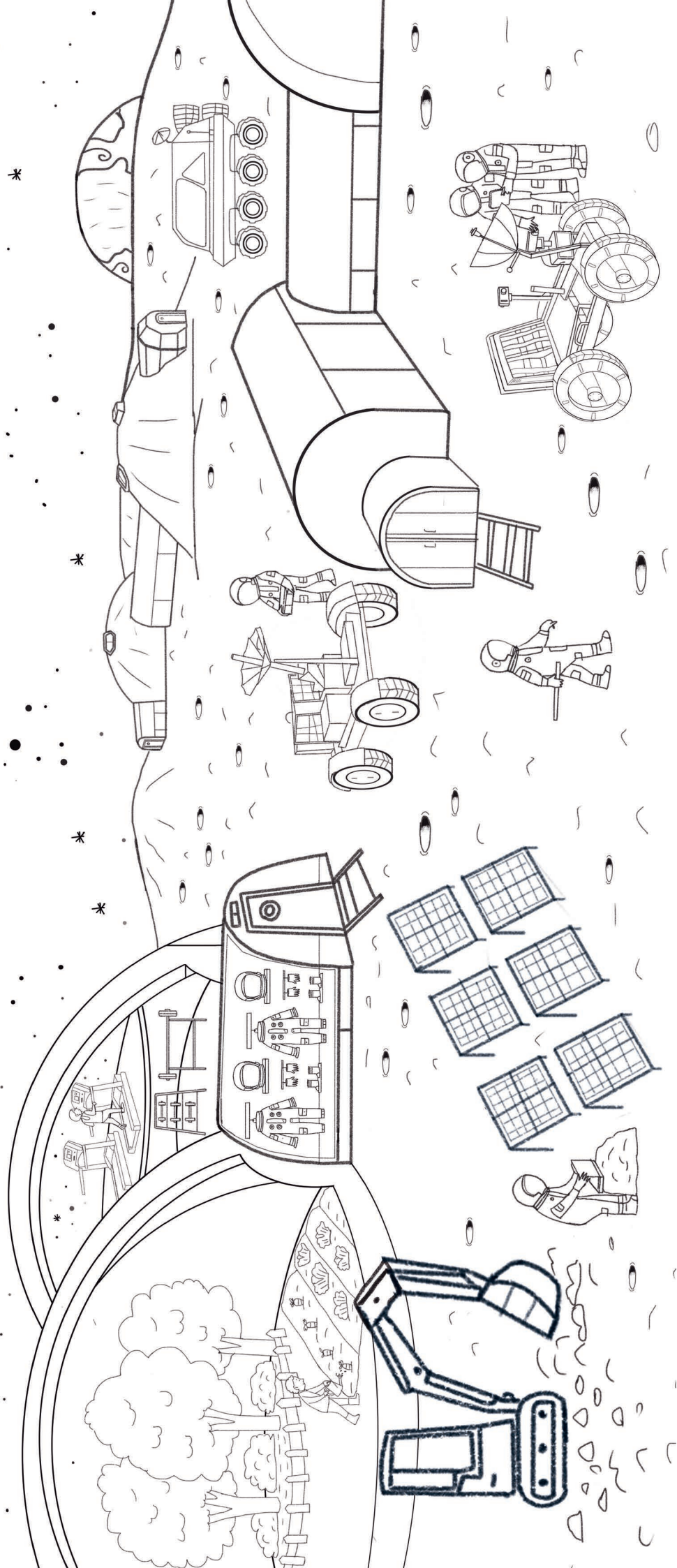
COLOR ME IN!

This coloring sheet is based on scene 11: Future Moon Experiments.



COLOR ME IN!

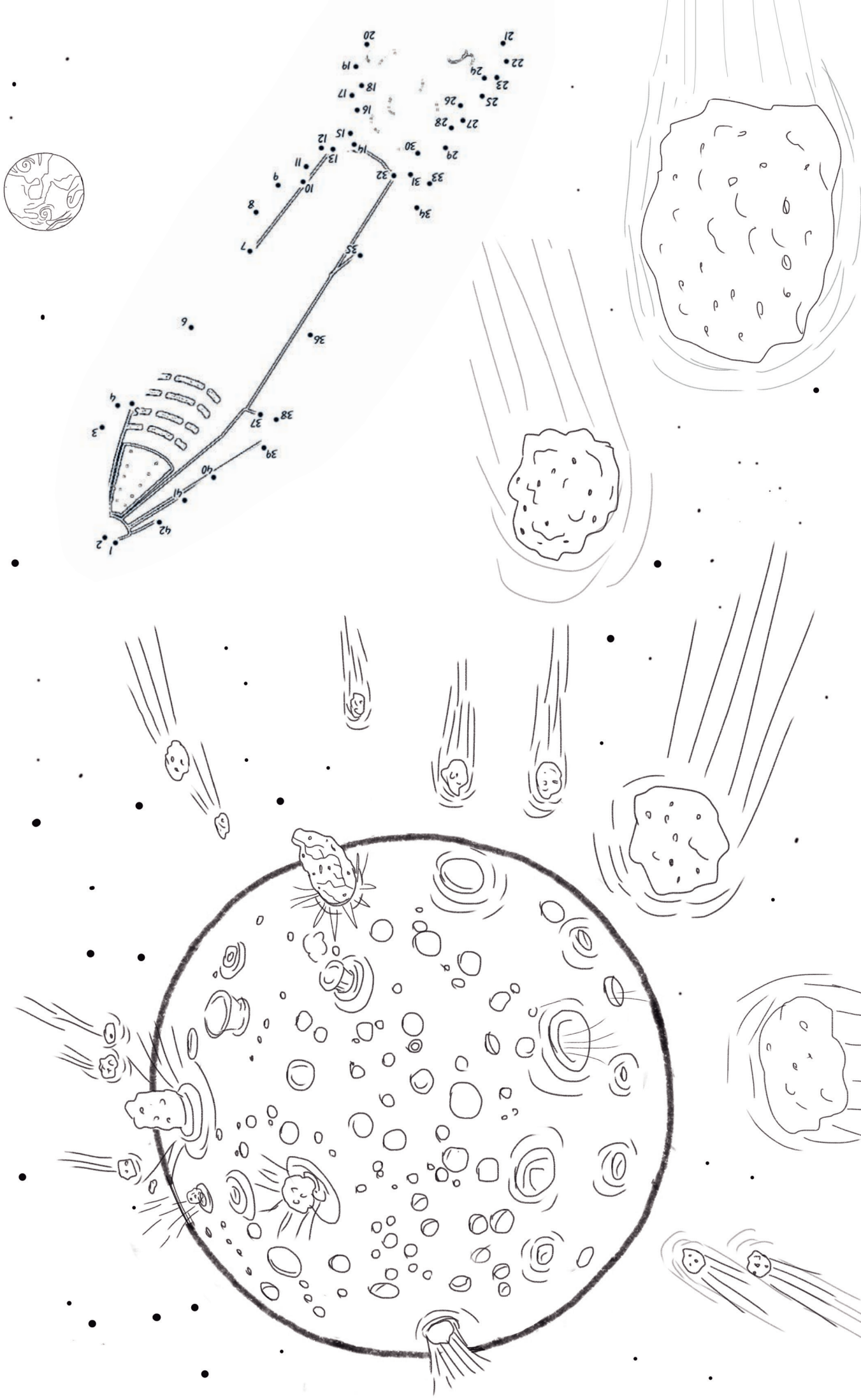
This coloring sheet is based on scene 13: Future Moon Base.



COLOR ME IN AND DOT-TO-DOT!

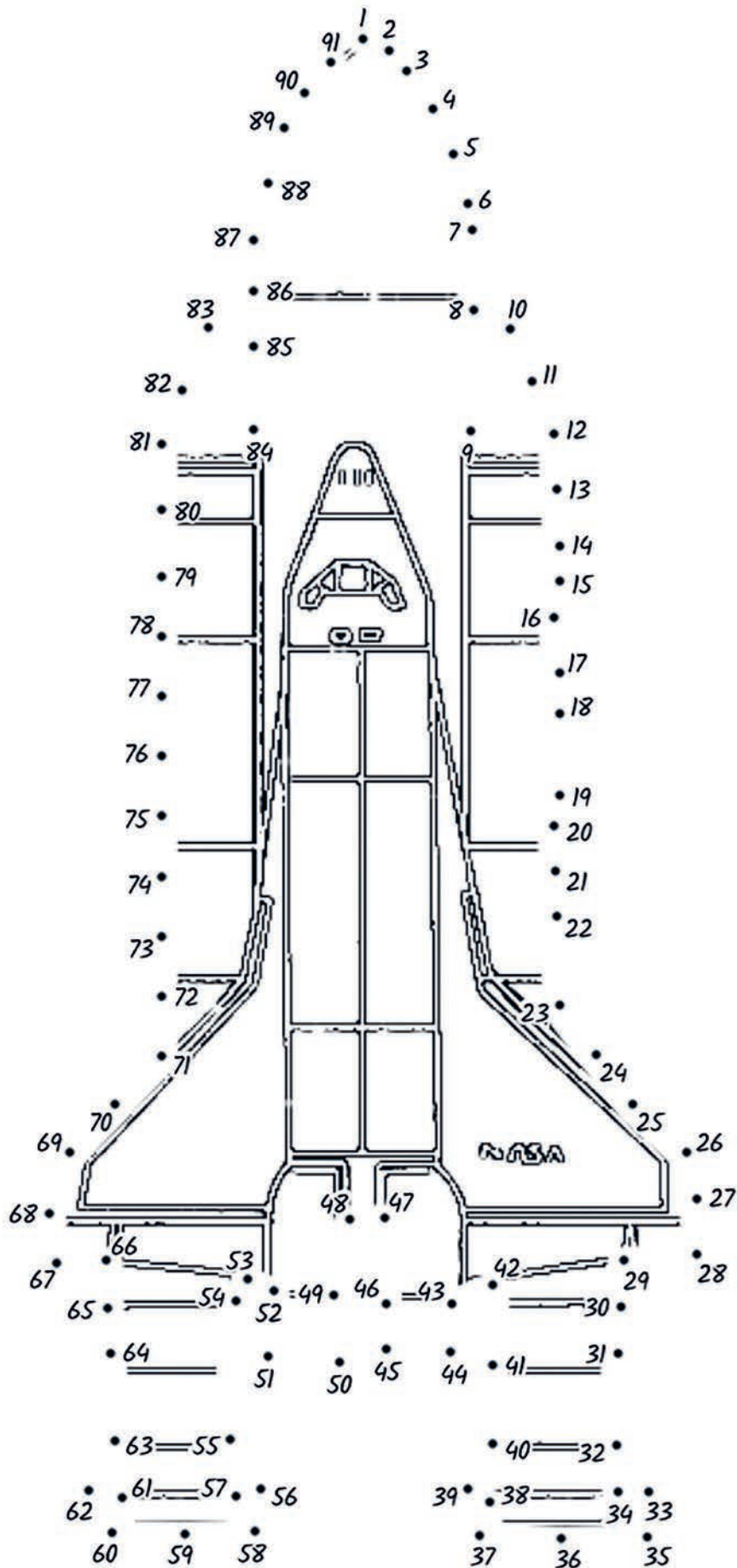
This coloring sheet is based on scene 9: The Ancient Moon.

Starting from 1, draw a line connecting the numbers to create a picture. Why not color it in afterward?



DOT-TO-DOT

Starting from 1, draw a line connecting the numbers to create a picture. Why not color it in afterwards?



YOUNG SELENOLOGISTS' ACTIVITY ANSWERS

Find the answers to the activities on the following pages.

ACTIVITY ANSWERS

Check your answers against the correct answers below!

BACK IN TIME ANSWERS

The answers below are for the “spot the difference” activity on page

4.



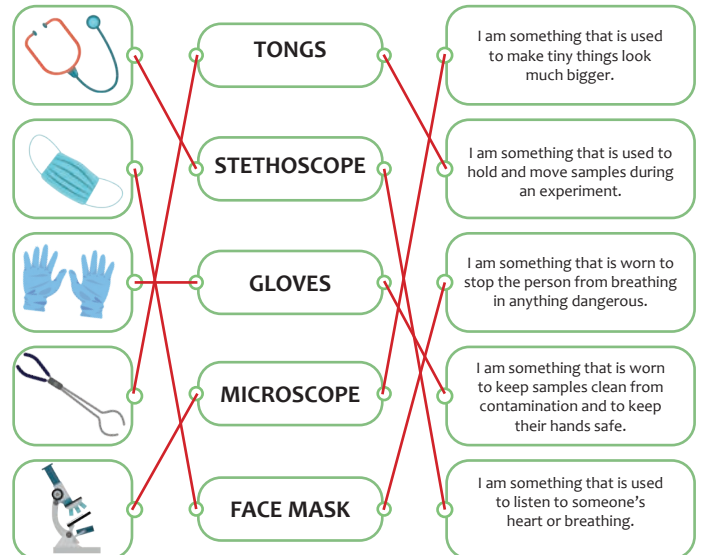
ADVENTUROUS ASTRONAUTS ANSWERS

The answers below are for the “true or false?” activity on page 8.

| | SENTENCE | TRUE | FALSE |
|---|---|------|-------|
| 1 | Astronauts have to wear space suits whenever they're in space. | TRUE | |
| 2 | Astronauts can breathe in space without a helmet on. | | FALSE |
| 3 | It's hard to walk on the Moon because it has stronger gravity than Earth. | | FALSE |
| 4 | It takes about 3 days to get to the Moon in a rocket. | TRUE | |
| 5 | You don't need to train to become an astronaut. | | FALSE |
| 6 | The Moon is the only other world humans have walked on besides Earth. | TRUE | |

IN THE LAB ANSWERS

The answers below are for the “connect the labels” activity on page 9.



The answers below are for the “odd one out” activity on page 9.

STETHOSCOPE

BACK TO THE MOON ANSWERS

The answers below are for the “fill in the blanks” activity on page 10.

1. The Moon is a natural satellite that orbits Earth.
2. Scientists used to think it was the only moon to exist, but we now know there are lots more in outer space.
3. Humans walked on the Moon for the first time in 1969. It's still the only world besides Earth that people have visited.
4. After liftoff, it took the astronauts and their spacecraft about 3 days to reach the Moon.
5. Scientists think we can gain a lot by going to the Moon. Moon rocks are full of special minerals and metals that are used to build machines like phones, computers, and medical equipment.
6. They also think we could turn helium-3 from the Moon into a powerful type of energy that could be used as electricity to power different machines.

EXPERIMENT MIX-UP ANSWERS

The answers below are for the “cut and stick” activity on page 11.

LASER RANGING RETROREFLECTOR

I'm a silver square platform that is used for reflecting laser beams aimed at the Moon from Earth.

LUNAR DUST DETECTOR

I measured the amount of dust that built up on the Moon's surface to show the effect of spacecraft.

SEISMOMETER

I measure and record “moonquakes”! I have three black solar panels at either side to keep me powered up

LUNAR SURFACE MAGNETOMETER

I was used to test the Moon's magnetic field. I have three long arms.

SOLAR WIND SPECTROMETER

I may look like a little robot, but I'm not! I'm used to measure lots of data about solar wind.

SOLAR WIND COMPOSITION EXPERIMENT

I'm the tallest experiment of all! Scientists used me to work out what solar wind is made of.

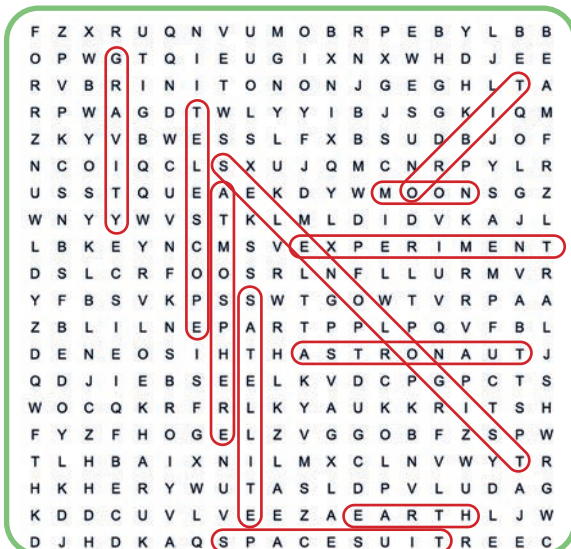
WORD SMASH ANSWERS

The answers below are for the 'word scramble' activity on page 12.

NOMO _____ **MOON**
EPACS _____ **SPACE**
RIDOSTAE _____ **ASTEROID**
OSLNESTGILEO _____ **SELENOLOGIST**
TREEMO _____ **METEOR**
THEAR _____ **EARTH**
KROCTE _____ **ROCKET**

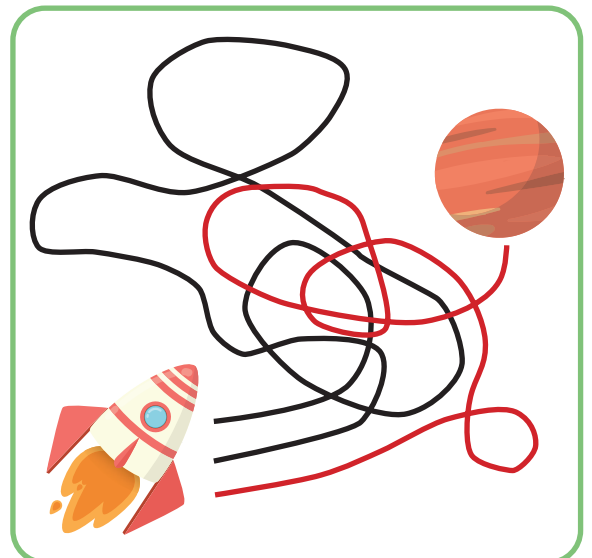
WORDS FLOATING IN SPACE ANSWERS

The answers below are for the
"word search" activity on page 14.



MISSION TO MARS ANSWERS

The answers below are for the
"line maze" activity on page 15.



EXTRA ACTIVITY ANSWERS

Check your answers against the correct answers below!

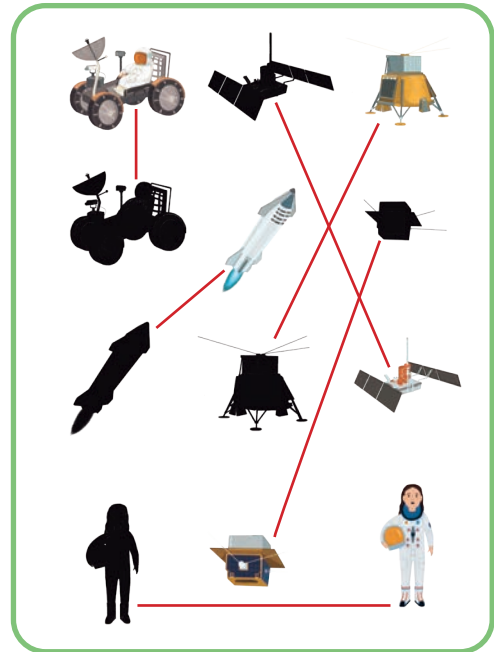
FIND THE SCIENTIST

The answers below are for the activity on page 19.



MATCH THE SHAPE

The answers below are for the activity on page 20.



SIMPLE SUMS

The answers below are for the activity on page 21.

$$\text{Astronaut} + \text{Astronaut} - \text{Rocket} + \text{Astronaut} = 1$$

$$\text{Rocket} + \text{Spaceship} - \text{Astronaut} + \text{Rocket} = 6$$

$$\text{Spaceship} + \text{Spaceship} - \text{Astronaut} = 5$$

$$\text{Rocket} + \text{Rocket} + \text{Rocket} + \text{Astronaut} - \text{Spaceship} = 4$$