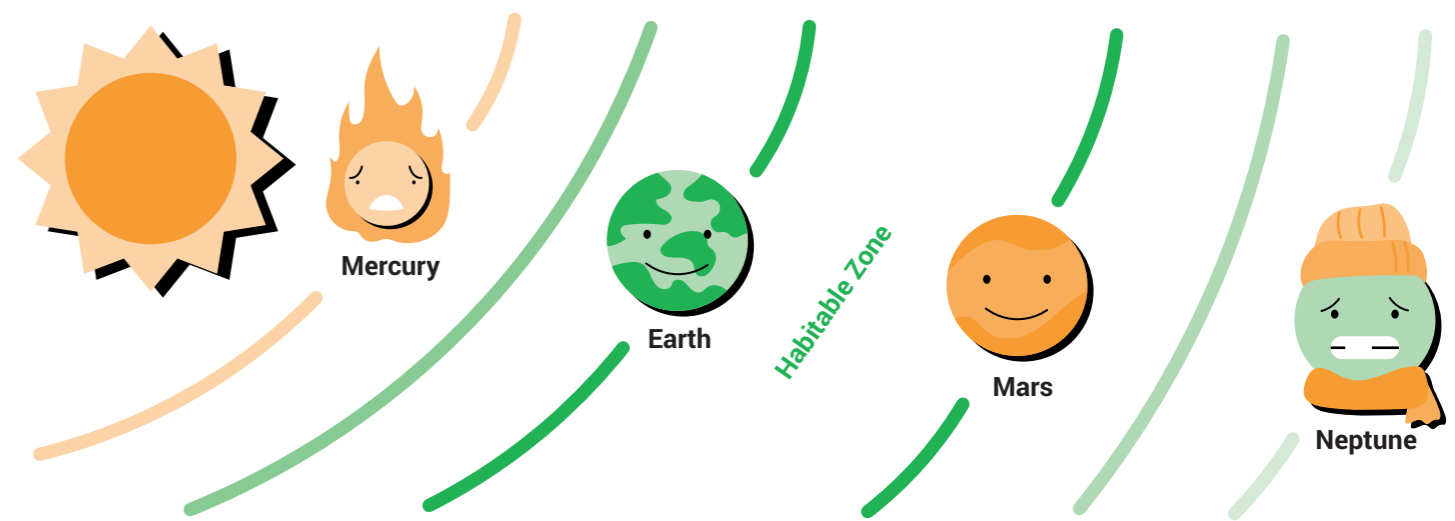




# BEYOND EARTH

Air, liquid water, and atmosphere. These conditions make it possible for Earth to support life. Ever since the first rocket launched into space, humans have dreamt of exploring and settling on other planets. Are there any planets beyond Earth that could potentially harbour life?

We might find such planets in habitable zones. Also known as the Goldilocks Zone, a habitable zone is an area around a star where conditions are neither too hot nor too cold, and where temperatures may be just right for liquid water to exist on a planet's surface. In our solar system, Earth sits comfortably within the Goldilocks Zone, while Mars is located near the Zone's outer boundary.



While scientists today do not think Mars is able to support life as we know it, the National Aeronautics and Space Administration (NASA) has been sending rovers and orbiters to Mars to study its planetary conditions. These rovers collect rock and soil samples, and record radiation levels and atmospheric data. Since 1997, five rovers have landed on Martian soil. Humans have yet to set foot on Mars, but with the help of these machines, that day may not be too far away.



**FUN FACT**

## Seeing Red

Many rocks on Mars contain iron minerals. When exposed to the outdoors, these iron minerals oxidise, or rust, and turn reddish – no different from how an old bicycle left in the backyard gets rusty over time. When the rusty dust on Martian rocks gets kicked up into the air, it makes the sky on Mars look pink.

### Sources:

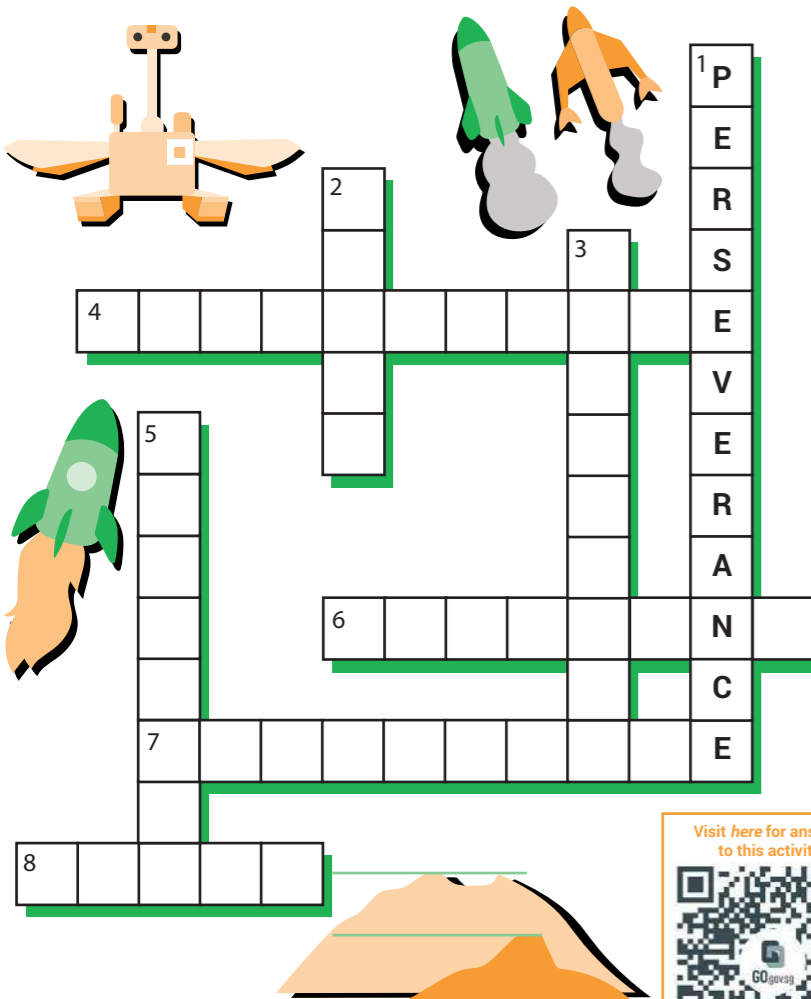
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# Off to Space!



## ACTIVITY

Know a fun fact or two about space? Solve the clues below and complete the crossword puzzle. The first word has been done for you.



### Down

- Q1 In 2020, a rover named Perseverance was sent to Mars.
- Q2 \_\_\_\_\_ is the second country to land and operate a rover on Mars. The rover is called Zhurong.
- Q3 In March 2022, \_\_\_\_\_ signed the United States-led pact on space exploration, known as the Artemis Accords. It is the 18th nation and first Southeast Asian country to do so.
- Q5 The tallest \_\_\_\_\_ known in the solar system is Olympus Mons. It is about three times the height of Mount Everest.

### Across

- Q4 In 2021, three famous and wealthy individuals launched their own recreational spaceflights. This is known as the \_\_\_\_\_ space race.
- Q6 Since 1983, NASA has been using \_\_\_\_\_ to test out new technologies before sending them all the way to space.
- Q7 Mars has a much thinner \_\_\_\_\_ than Earth.
- Q8 There have been attempted landings on our other neighbouring planet, \_\_\_\_\_, but missions have not been as successful due to its climate.

Visit [here](https://go.gov.sg/answer-beyondearth) for answers to this activity!



<https://go.gov.sg/answer-beyondearth>

## Recommended Reads

**Planet Hunting: Racking Up Data and Looking for Life**

**Author**  
Andrew Langley

**Call No.**  
Y 523.2 LAN

**Publisher**  
Capstone Press, 2020

Available as an eBook on the NLB catalogue at [www.nlb.gov.sg](http://www.nlb.gov.sg)

**SPACE SCIENTISTS**

**Author**  
Kathryn Hulick

**Call No.**  
Y 629.409 HUL

**Publisher**  
Abdo Publishing, 2020

**MY FIRST BOOK OF THE COSMOS**

**Author**  
Sheddad Kaid-Salah Ferrón & Eduard Altarriba

**Call No.**  
Y 520 FER

**Publisher**  
Button Books, 2020

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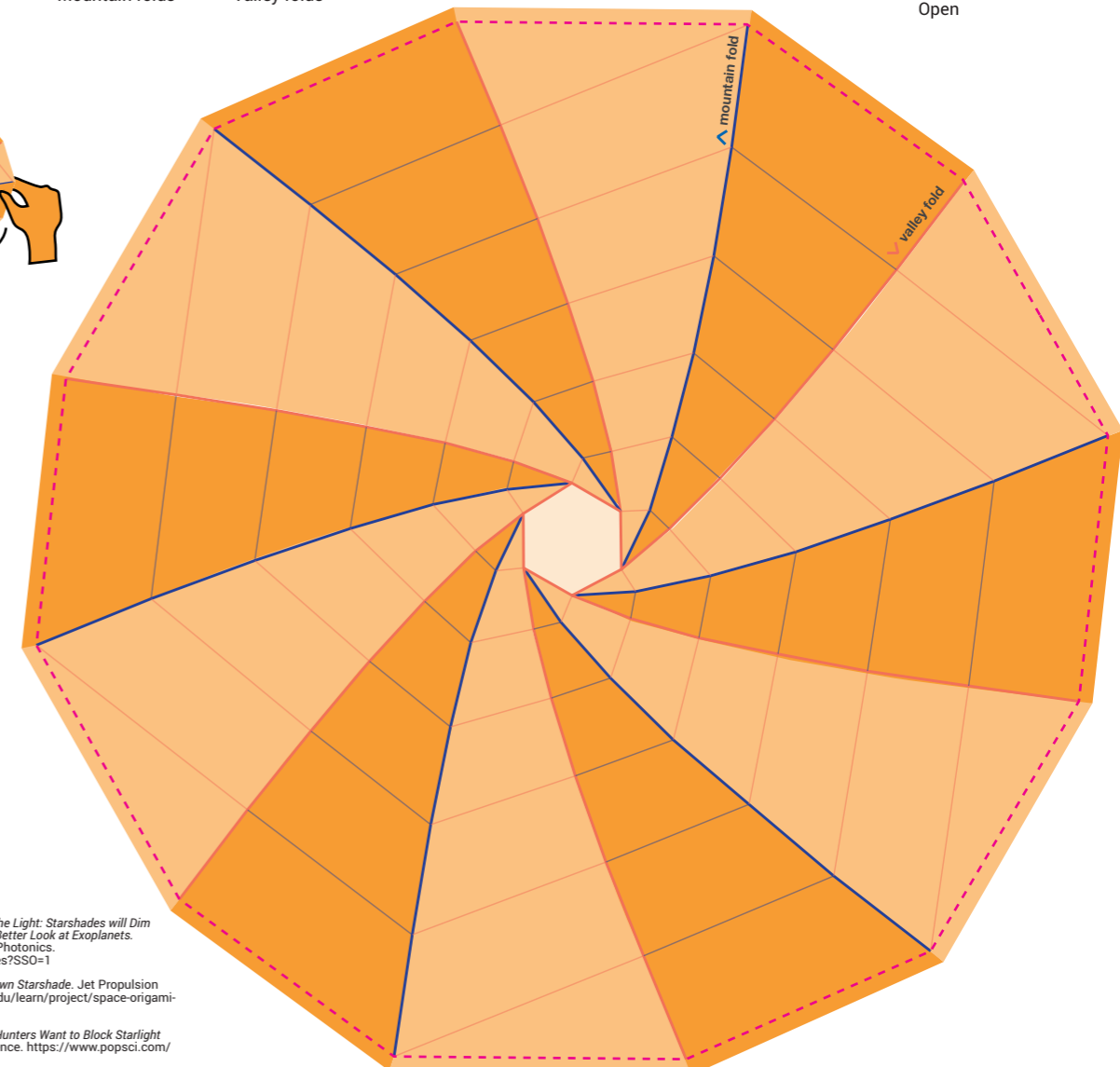
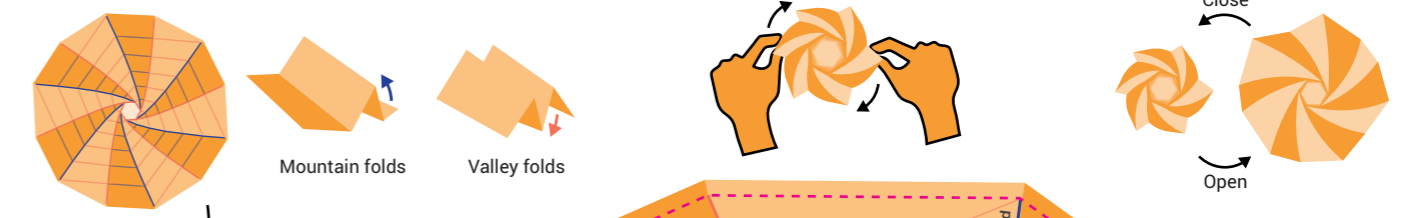
# Shady Business

## POP OUT!

Scientists are assessing the capacity of exoplanets – planets beyond our solar system – to support life. Much like how the Earth orbits the Sun, exoplanets also orbit their own host stars. However, intense starlight from these stars has blinded telescopes back on Earth. NASA has thus designed the starshade, a flower dome-like instrument with huge “petals” to block the overpowering starlight from host stars, allowing scientists to get a better look at exoplanets. Make your own starshade in this activity!

### Instructions:

- 1 Pop out the starshade. Fold along the coloured lines: make a mountain fold for the blue lines and a valley fold for the red lines. Reinforce the mountain folds by pinching them from the centre outward.
- 2 Gather the mountain folds and valley folds, collapsing them into a tight spiral wrap.
- 3 Your starshade is complete. Unfurl it by pulling on two opposite flaps.



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