

## Full product specification

# Goodwill Rock

Lucky Moon Rock 70017

**Cosmic Caboodle**  
THE UNIVERSE IN THE PALM OF YOUR HANDS

**Product Name** Lucky Moon Rock 70017

**Family Member** Moon Rock

**Product Code** MR-70017

### Overview

**Moon rock refers to rocks** found on the Earth's moon. Moon rock has been brought back to Earth by the US Apollo and Soviet Union Luna missions for scientists to study. The six manned Apollo missions brought back the most moon rock with a total of 2,415 samples weighing altogether 382 kg (842 lb). A variety of tools were used to gather the rocks and included: hammers, scoops, tongs, rakes and core tubes.

**The Goodwill Moon Rock** (officially labelled sample 70017) was picked up by astronauts Eugene Cernan and Harrison Schmitt on the last of the Apollo Program moonwalks. They dedicated this special find to the young people of Earth. Back on Earth, President Nixon ordered that this rock be broken into fragments to share with the world. The pieces were mounted onto wooden plaques and presented to 135 foreign heads of state and the 50 US states.

### Physical Properties

#### Composition

The most common type of moon rock is **igneous**, meaning it is a rock formed through the cooling and solidification of magma or lava. There are four types of Moon rock:

- **dark basalt** (formed from rapidly cooling molten rock from massive lava flow)
- **anorthosite** (when lava cools more slowly)
- **breccias** (fragments of different rocks, fused together by meteor impacts)
- **lunar soil** (glass like blobs, possibly created by the heat and pressure from a meteor impact)

#### Chemicals

Moon rock typically contains:

- **refractory elements** (eg: Calcium, Aluminium, Titanium) which have a high melting point
- **silicon** and **oxygen**

Precious metals such as Titanium are valuable and widely used here on Earth. It is added to steel to strengthen it. In powder form it helps fireworks burn brightly. Since it is not toxic to the human body, it is used to make hip ball and sockets for hip reconstructions.



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With so little moon rock here on earth (about 380 kg), it makes this product extremely valuable and a great choice



## DIFFICULTY FACTOR

- Easy - **Two** out of **three** cheeky aliens.
- Requires careful folding and a deep breath to blow up your rock.
- It takes about **10 minutes** to make.

## INSTRUCTIONS

### YOU WILL NEED

1. White paper and printer
2. Scissors
3. Spirit of adventure

### METHOD

1. Print the last page and cut out the two squares.
2. Fold the paper as illustrated below in steps 1 through to 18. (You can also search for a video on the internet by using the key word search 'how to fold an origami cube.')
3. For fun, print different sizes and make a collection of Goodwill rocks.



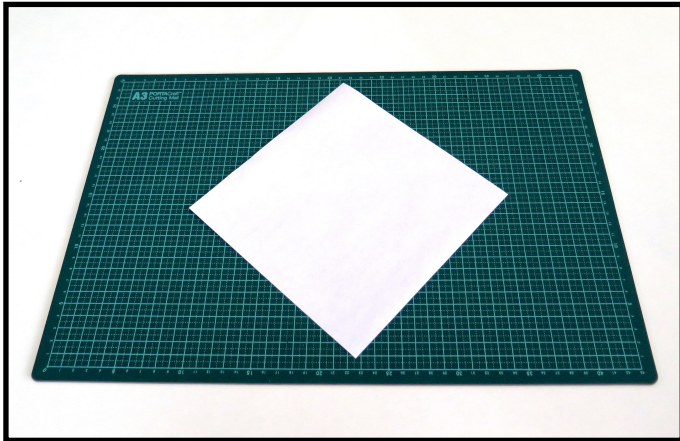


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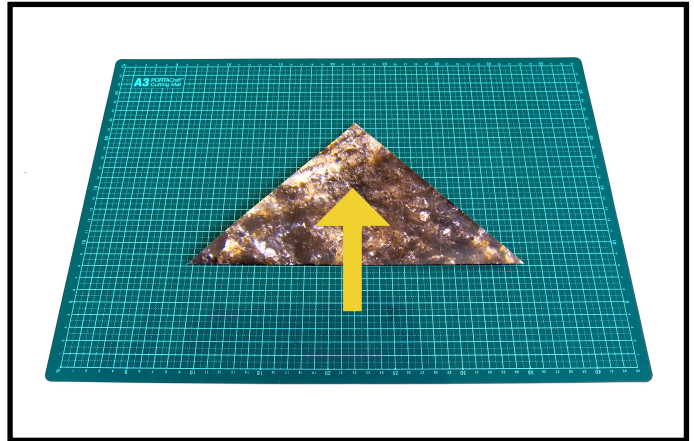
Lucky Moon Rock 70017



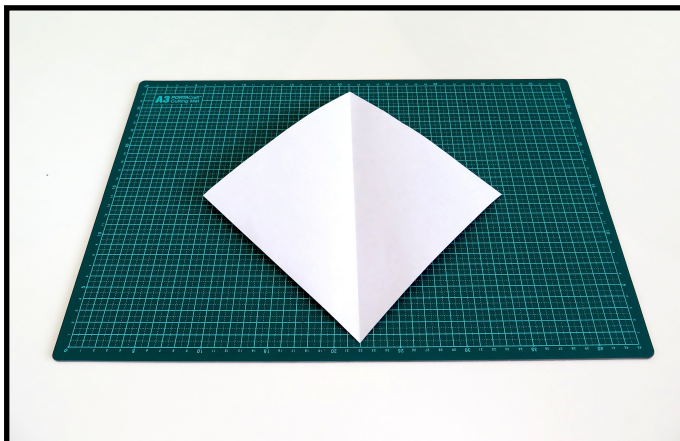
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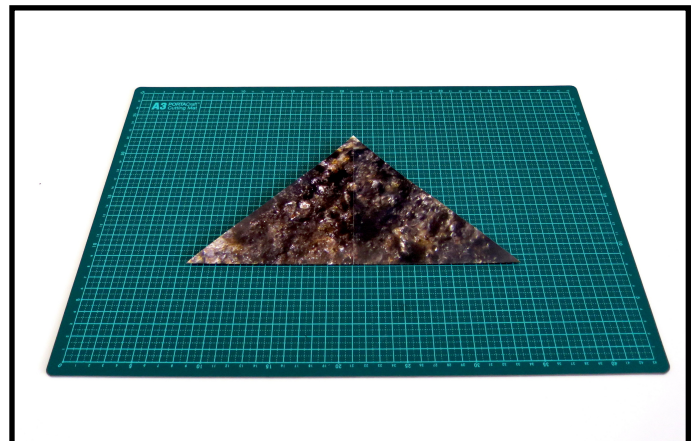
1: Place your cut paper face down as shown.



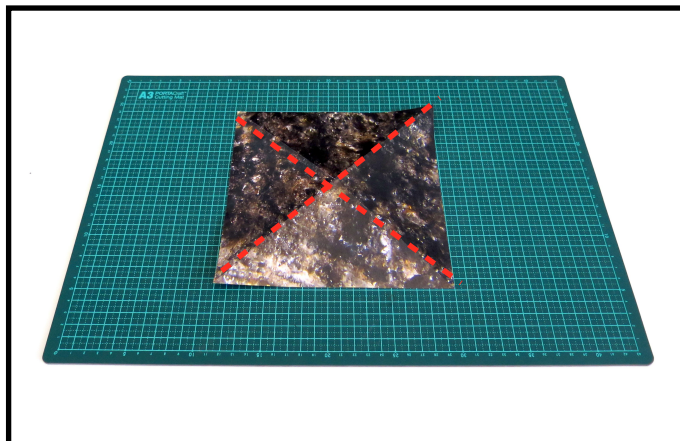
2. Fold bottom corner to the top and then re-open.



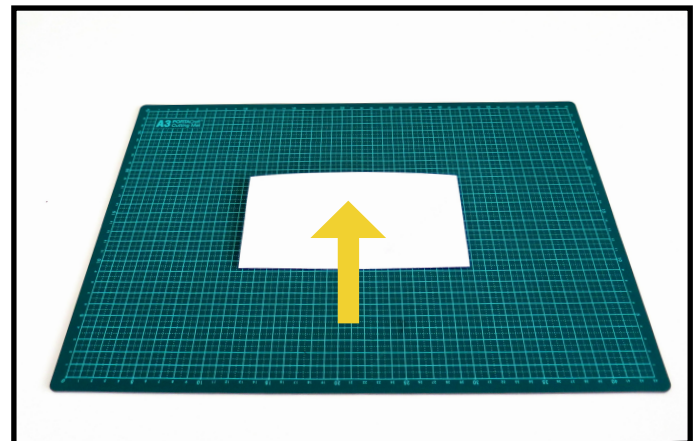
3. Rotate the paper 90 degrees and repeat the same fold of bottom corner to the top.



4. Repeat the same fold of bottom corner to the top (as in step 2) and then re-open.



5. Your square should now have 2 folds, making 4 triangles.



6. Fold the bottom straight edge to the top.

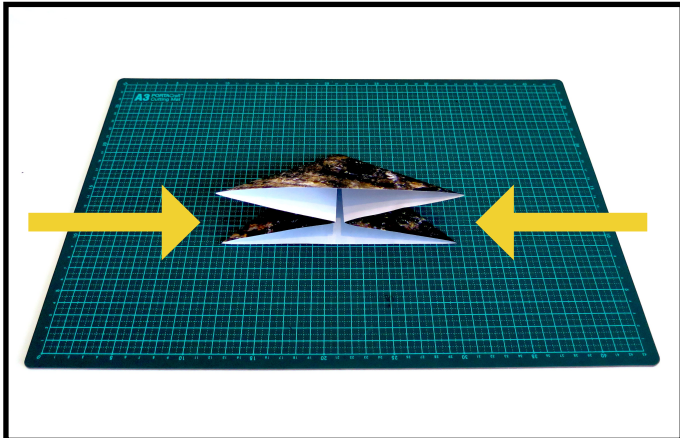


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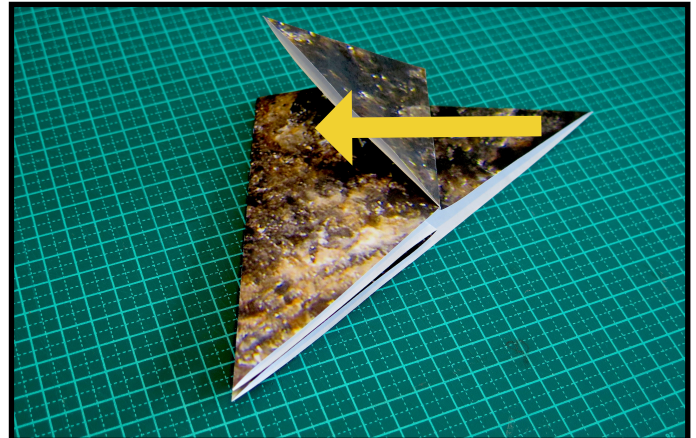
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7. Open and push in the sides to make a triangle



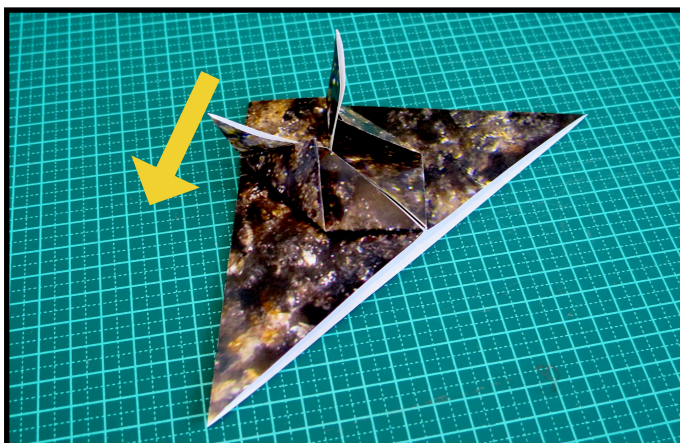
8. Fold the bottom right corner up to the centre point of the triangle.



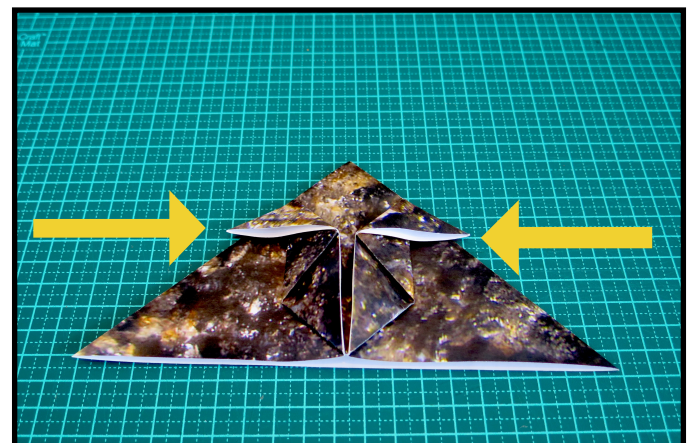
9. Repeat for the left corner.



10. Fold the side points of the newly formed square towards the centre line



11. Fold the top left and right corners down.



12. Your paper should now look like this. Then fold the two points highlighted above in half towards the centre line.

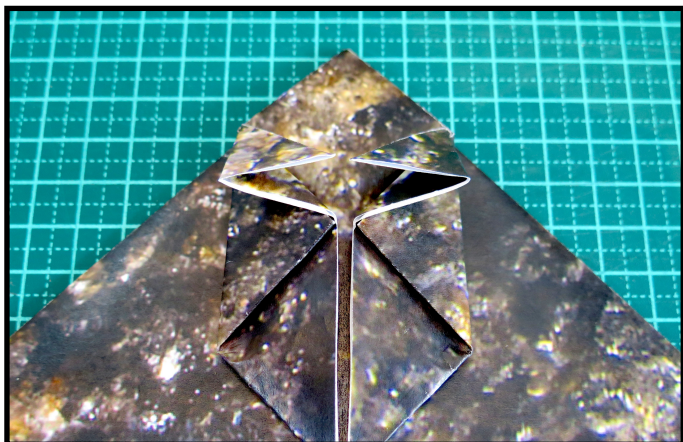


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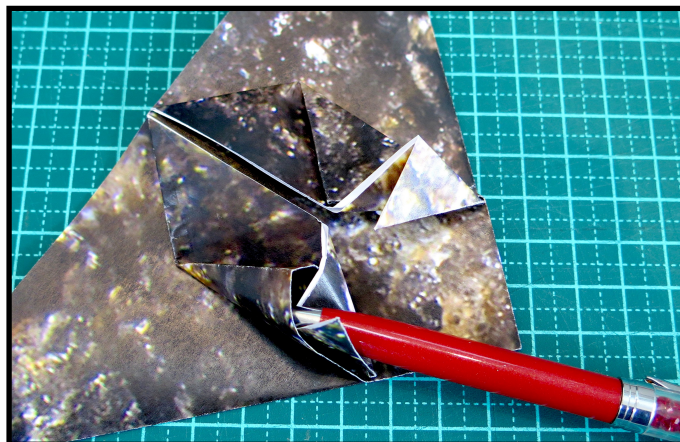
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13. Your folded paper should look like this.



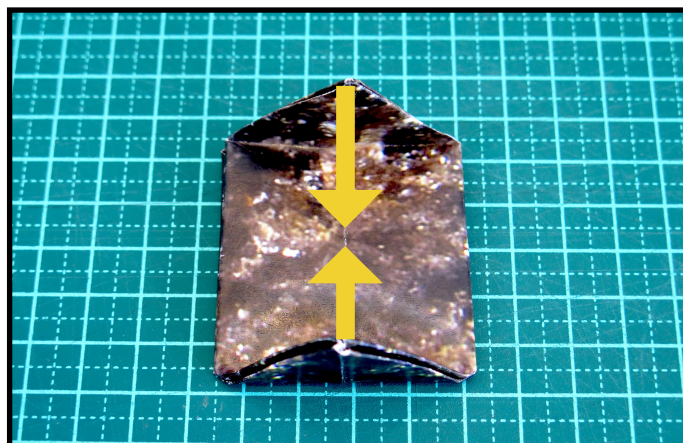
14. Turn the paper around and tuck the flaps into the flattened pocket. Use a pen to help open the pocket.



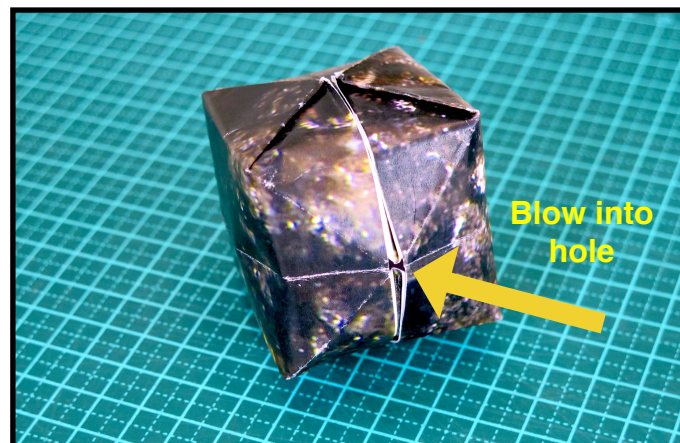
15. Your paper should look like this.



16. Turn your paper over and repeat the folds as highlighted in steps 8 to 15.

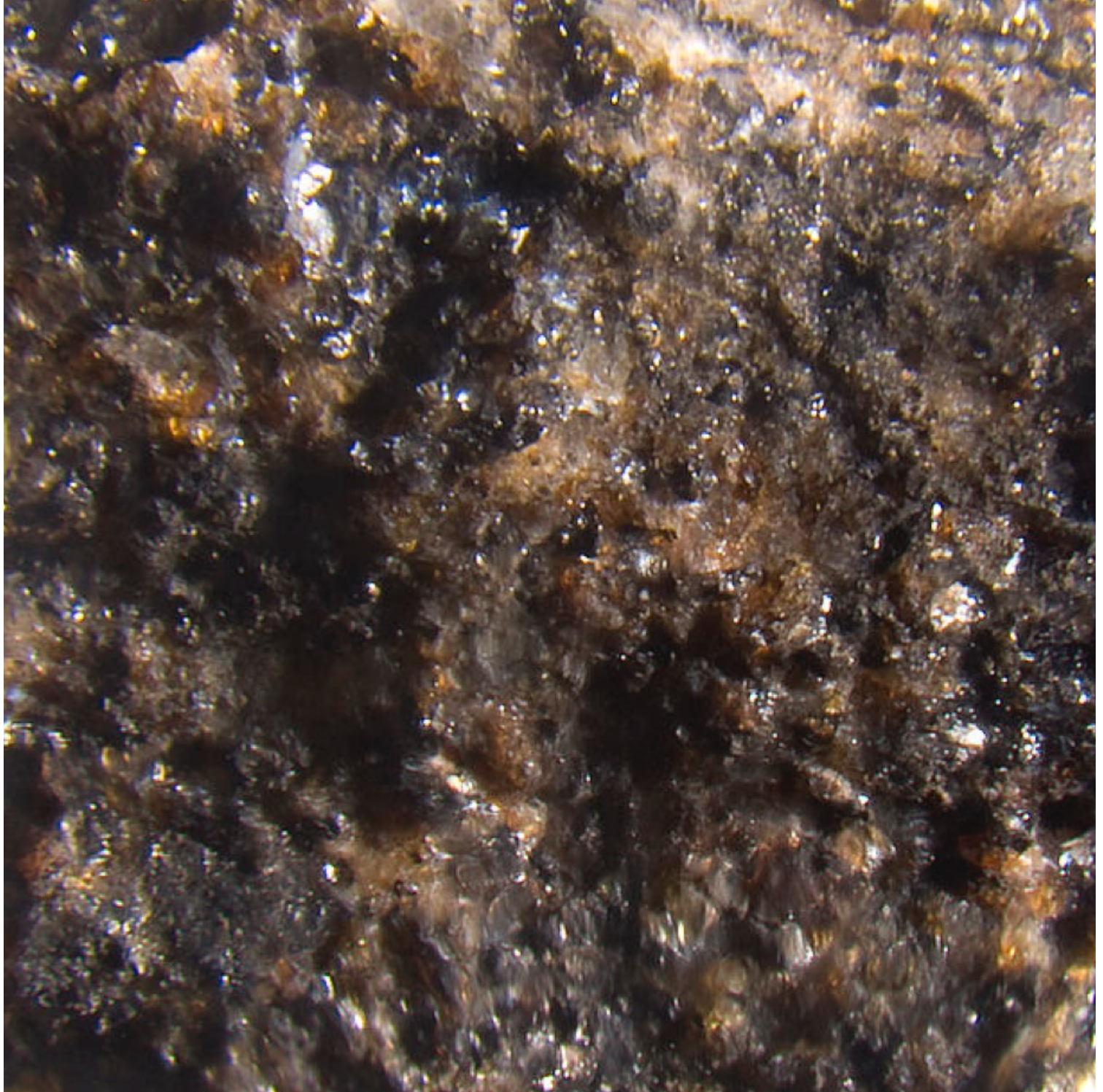


17. Fold the bottom points in to make a square and then re-open. This softened the paper and helps define the sides of the cube.



18. One end of the paper will have a hole into which you can blow up the cube. With your fingers, gently help the sides expand by parting the folds.





**Image:** Close up of the Goodwill moon rock.