

# LUCY



The Lucy mission is the first space mission to explore a diverse population of small bodies known as the Jupiter Trojan asteroids . These small bodies are remnants of our early Solar System, now trapped on stable orbits associated with – but not close to – the giant planet Jupiter . The Trojan asteroids orbit in two “swarms” that lead and follow Jupiter in its orbit around the Sun and are thought to be comparable in number to the objects in the Main Asteroid Belt .

Over its 12-year primary mission, Lucy will explore a record-breaking number of asteroids, flying by one main belt asteroid and seven Trojan asteroids . Additionally, Lucy will have three Earth flybys for gravity assists, making it the first spacecraft ever to return to the vicinity of Earth from the outer Solar System .

The Lucy mission is named after the fossilized skeleton of an early hominin (pre-human ancestor) that was found in Ethiopia in 1974 and named “Lucy” by the team of paleoanthropologists who discovered it . And just as the Lucy fossil provided unique insights into human evolution, the Lucy mission promises to revolutionize our knowledge of planetary origins and the formation of the Solar System, including the Earth .

Lucy will be over 52 feet (16 meters) from tip to tip, but most of that is the huge solar panels (each close to 24 feet, or over 7 meters, in diameter) needed to power the spacecraft’s systems as it flies out to the orbit of Jupiter . All the instruments, and the 6.5 ft (2 meters) high gain antenna needed to communicate with Earth, will be located on the much smaller spacecraft body .

- Width: 51.89ft (15.82m)
- Height: 23.89 ft (7.28m) when solar arrays deployed or 12.95ft (3.95m) when Solar panels are stowed
- Depth: 6.57 ft (2.00m)
- Diameter of Solar Panels: 23.9 ft (7.3m)
- Dry Mass (Unfueled): 1700 lbs . (771 kg)
- Wet Mass (Fueled): 3300 lbs . (1500 kg)
- Power: 504 Watts at the farthest encounter

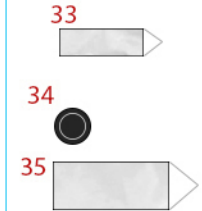
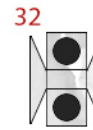
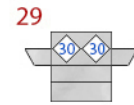
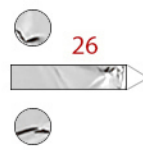
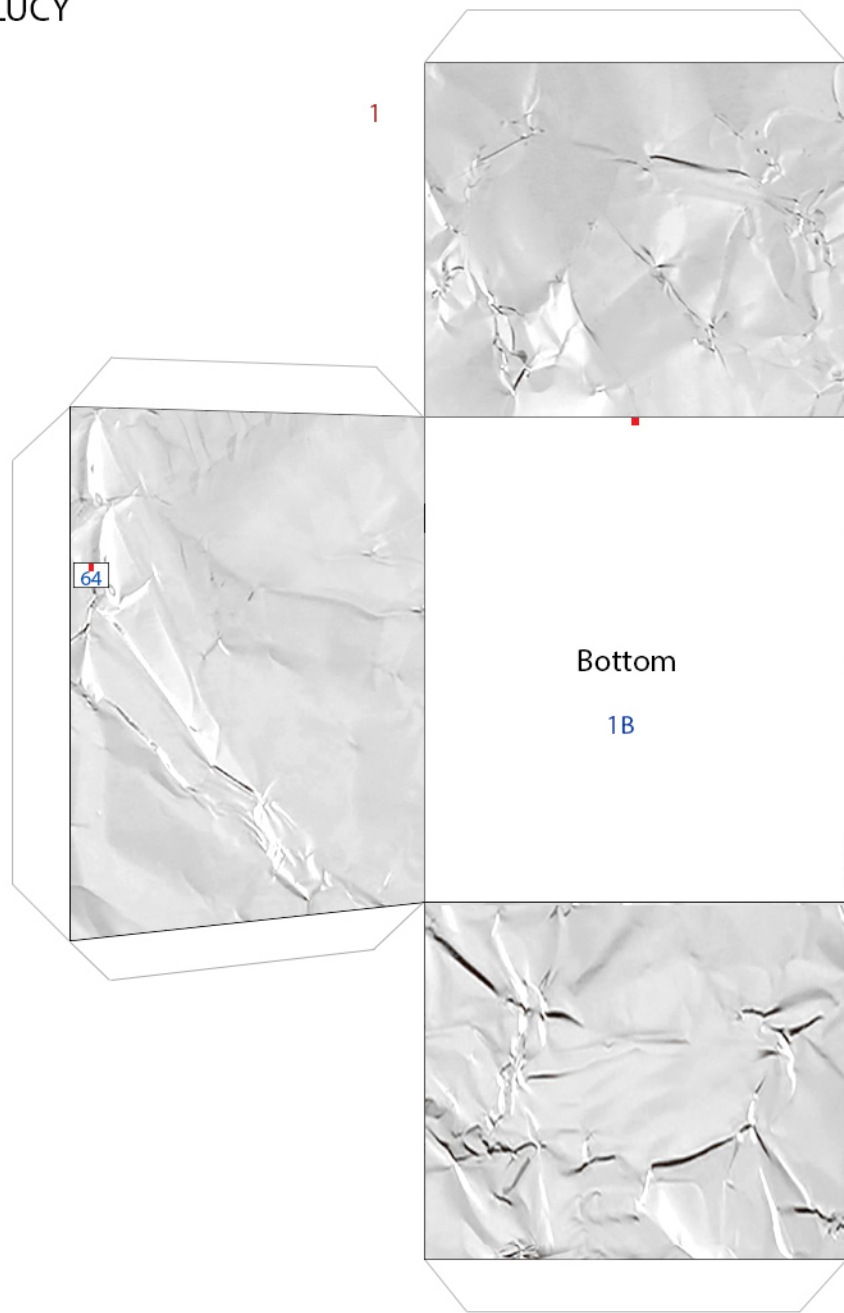
Lucy was launched on 16 October 2021 aboard a United Launch Alliance Atlas V 401 launch vehicle into a stable parking orbit. During the next hour, the second stage reignited to place Lucy on an interplanetary trajectory in a heliocentric orbit on a twelve-year mission to two groups of Sun-Jupiter Trojan asteroids as well as close flybys of main belt asteroids during one of three planned passes through the asteroid belt. If the spacecraft remains operational during the 12-year planned duration, it is likely the mission will be extended and directed to additional asteroid targets.

## Flyby of 152830 Dinkinesh

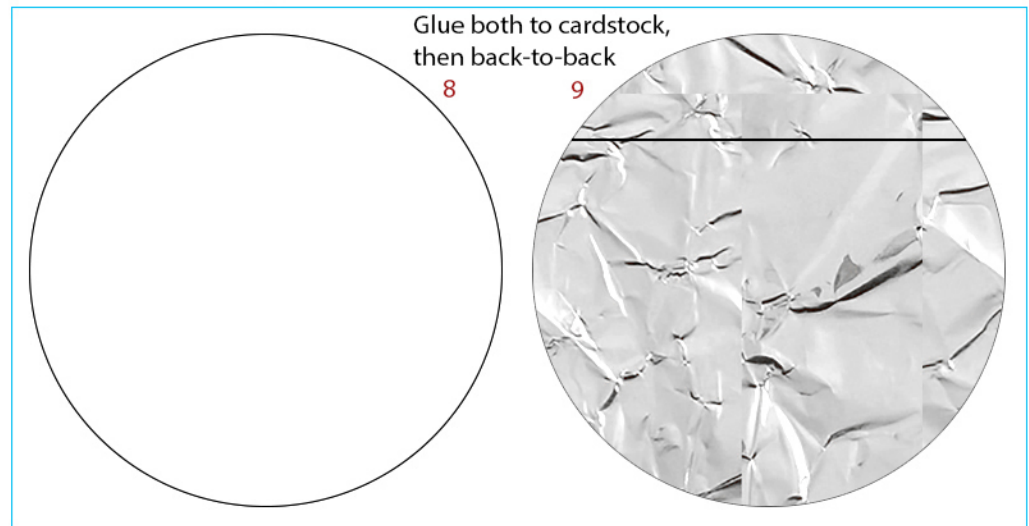
On November 1, 2023, Lucy successfully flew by its first target, the main-belt asteroid 152830 Dinkinesh, at a relative speed of 4.5 km/s (2.8 mi/s). On the following day, NASA released images from the flyby and announced the discovery of a small satellite orbiting Dinkinesh. The first images from the flyby showed that Dinkinesh is approximately 790 m (2,590 ft) in diameter, while the satellite is approximately 220 m (720 ft) in diameter. Later images showed that the satellite was actually two objects in direct contact, known as a contact binary. The discovery of Dinkinesh's satellite brought the total amount of Lucy's planned asteroid visits up to 11.



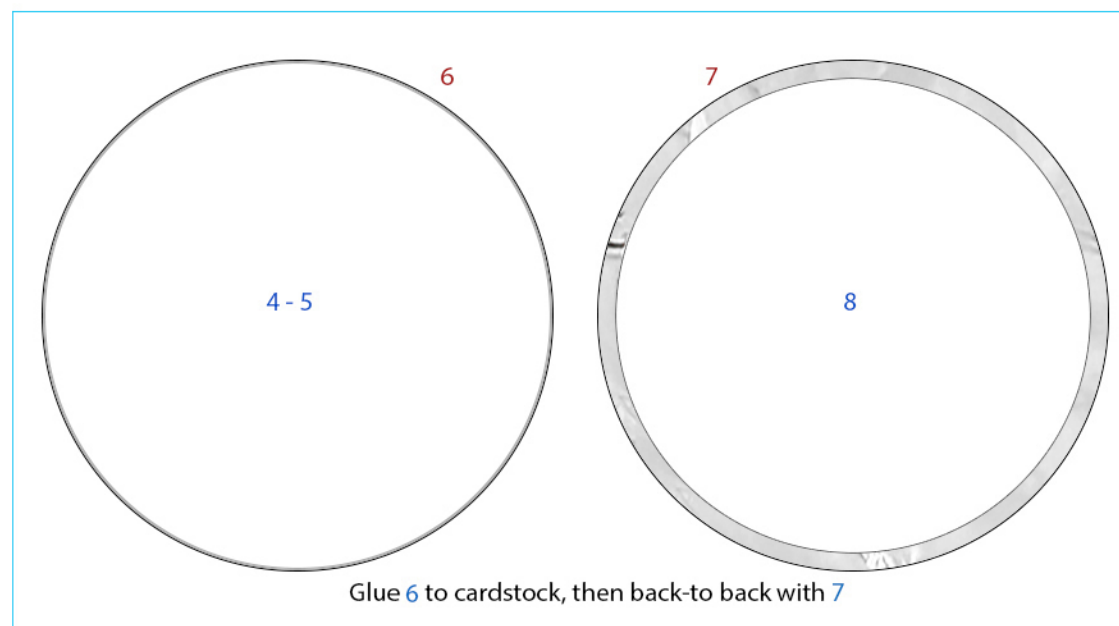
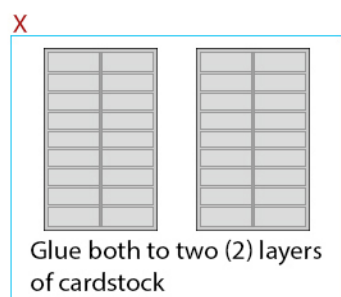
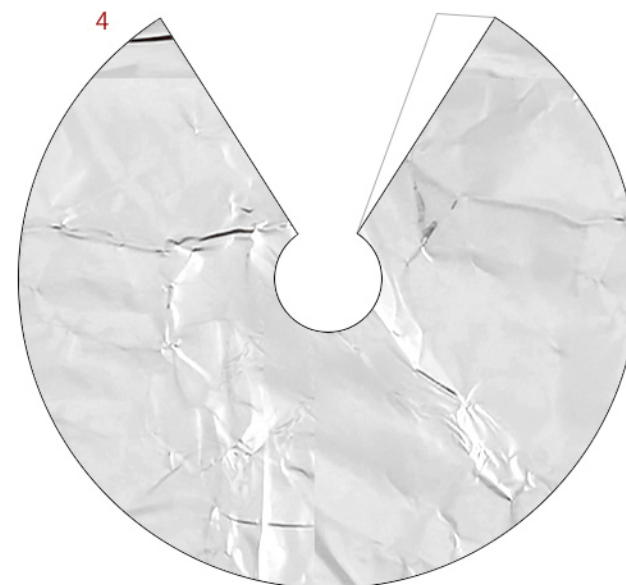
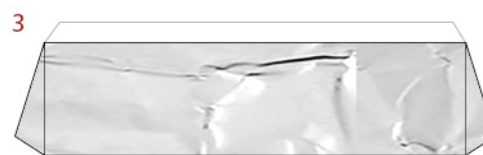
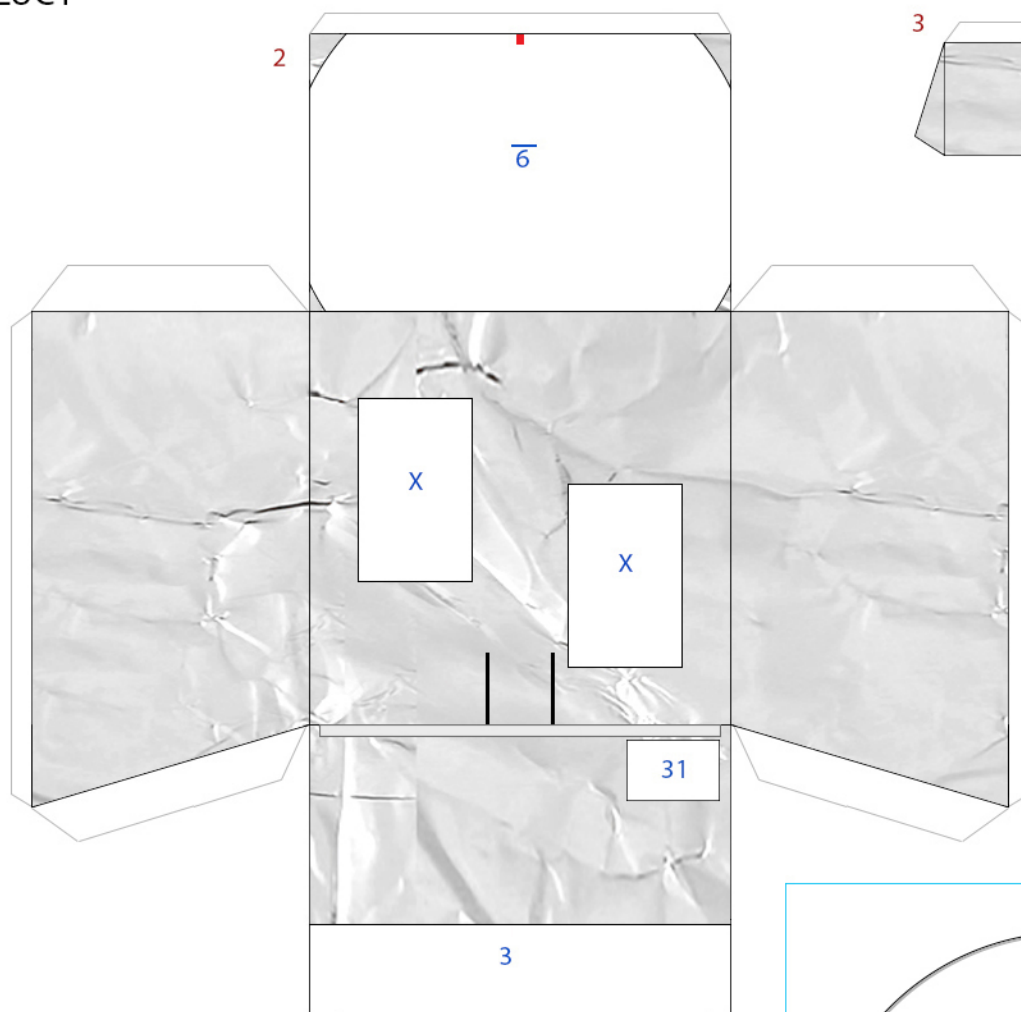
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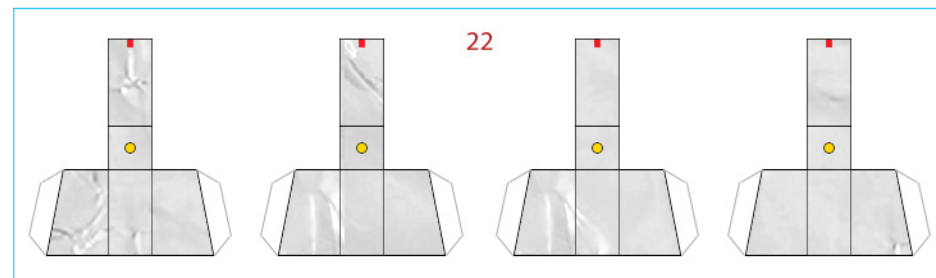
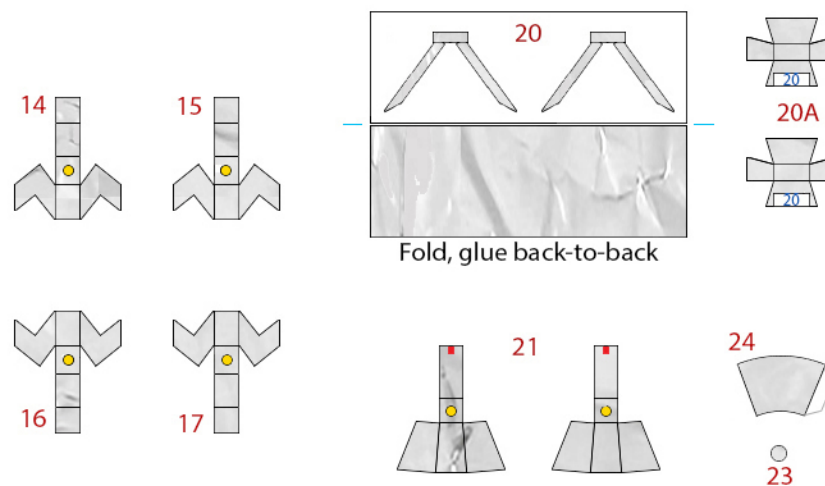
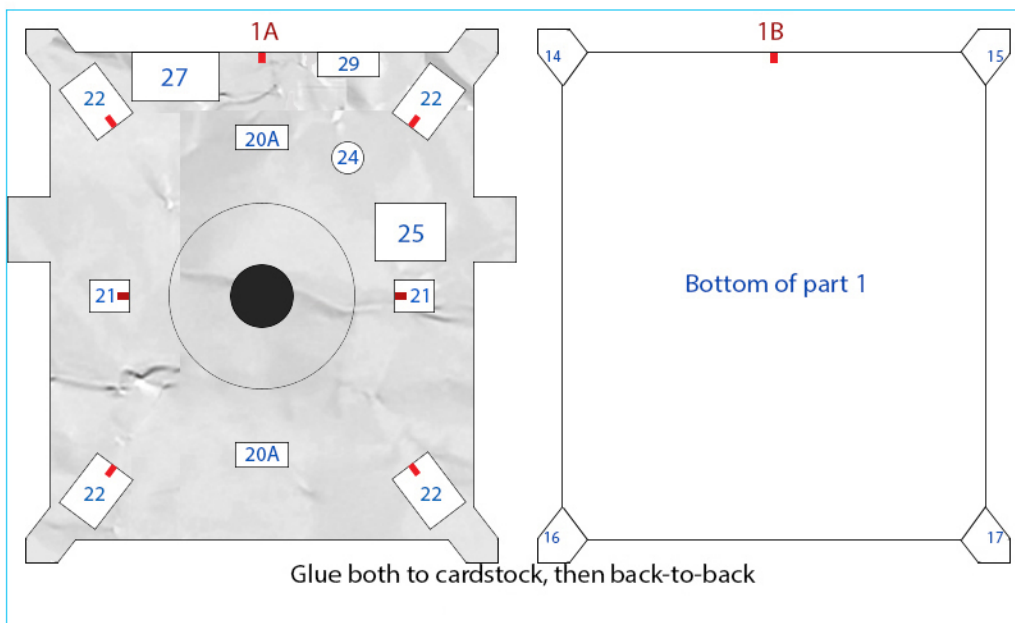
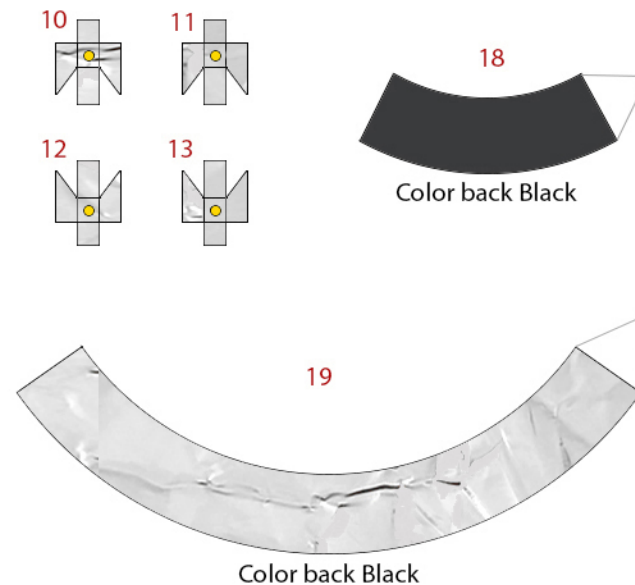
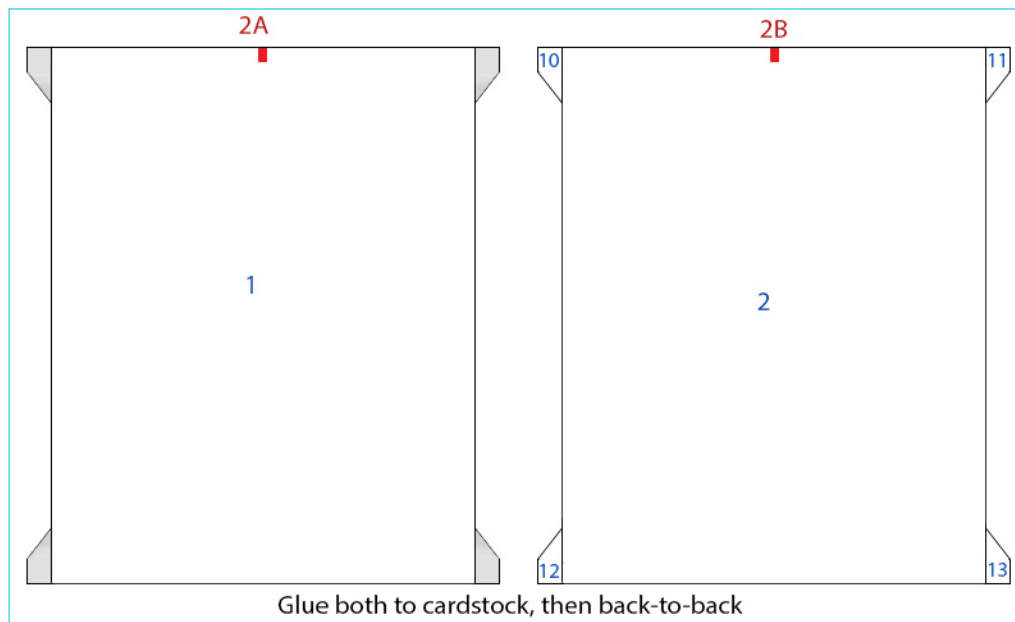
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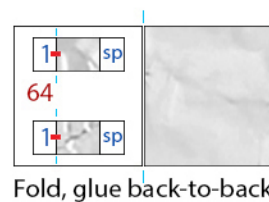
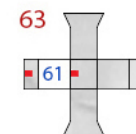
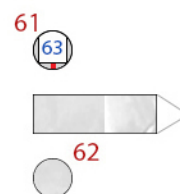
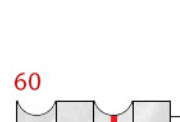
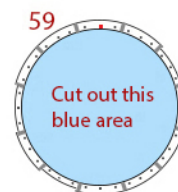
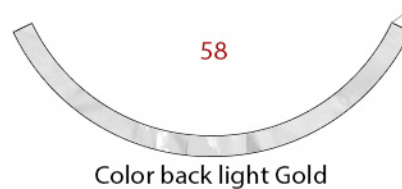
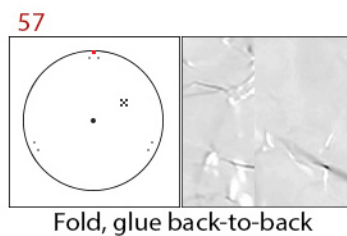
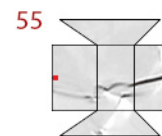
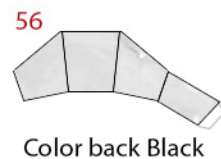
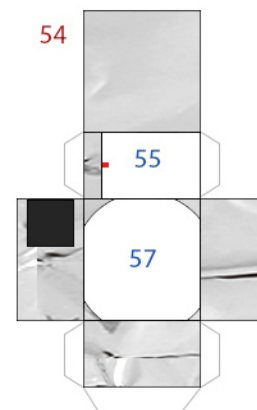
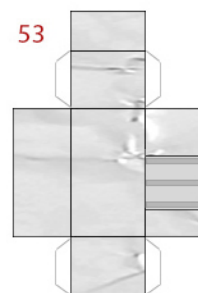
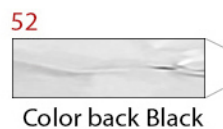
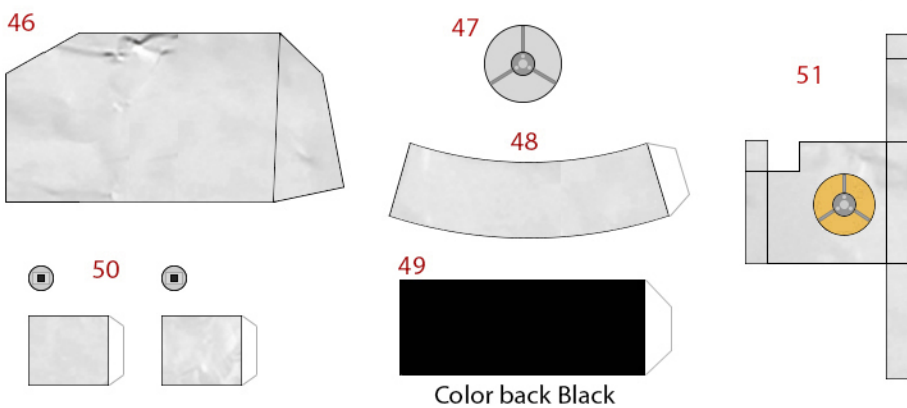
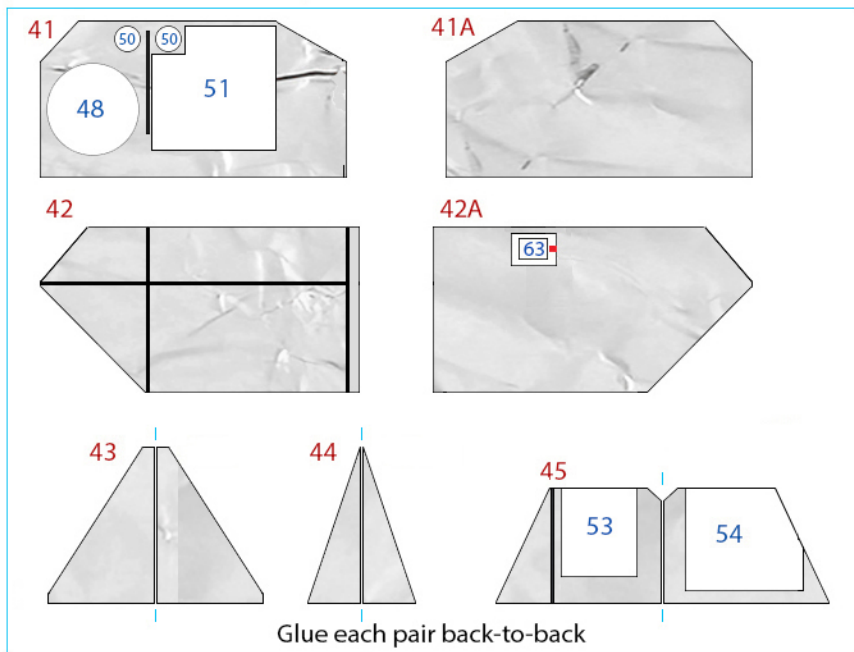
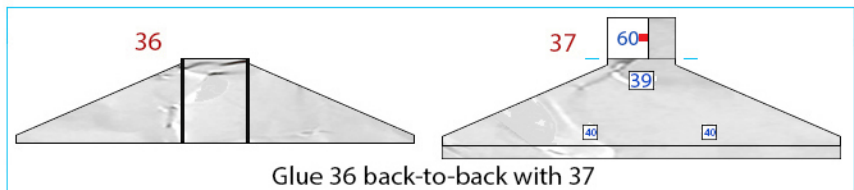


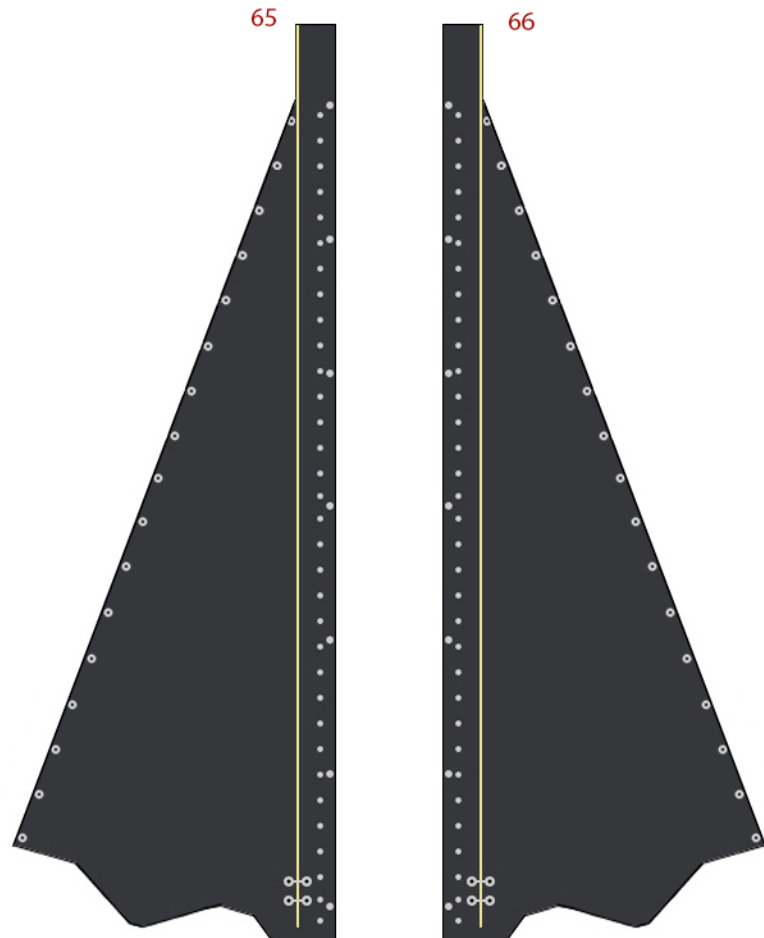
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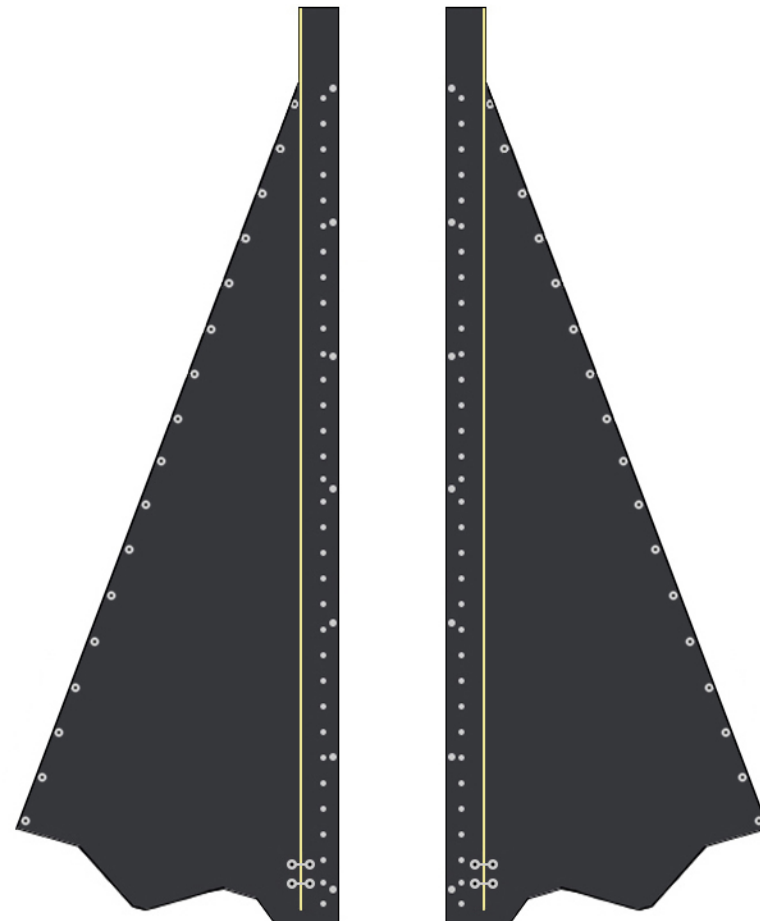


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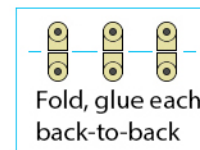
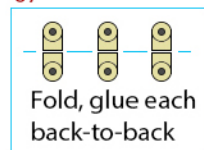


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Glue one to cardstock, then  
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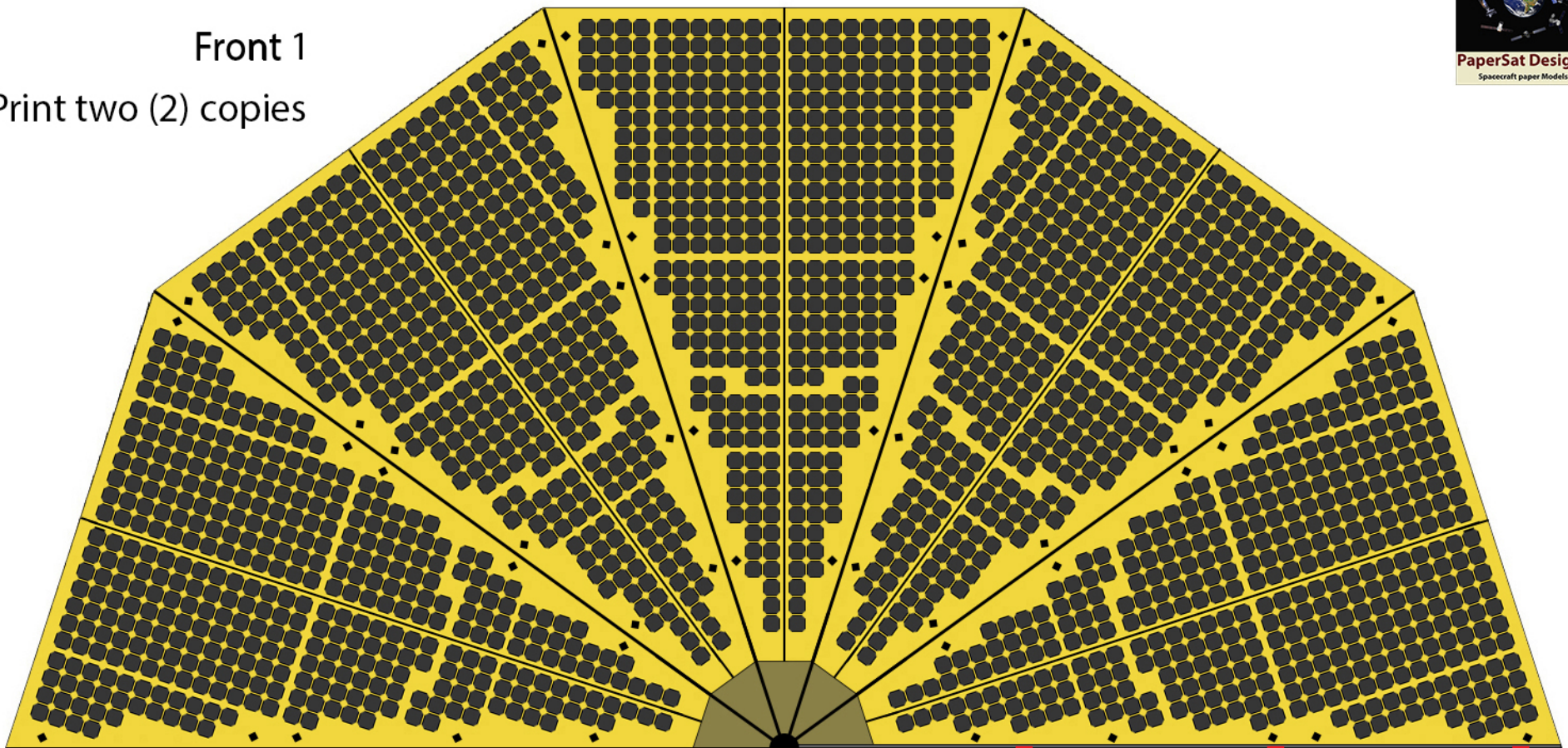


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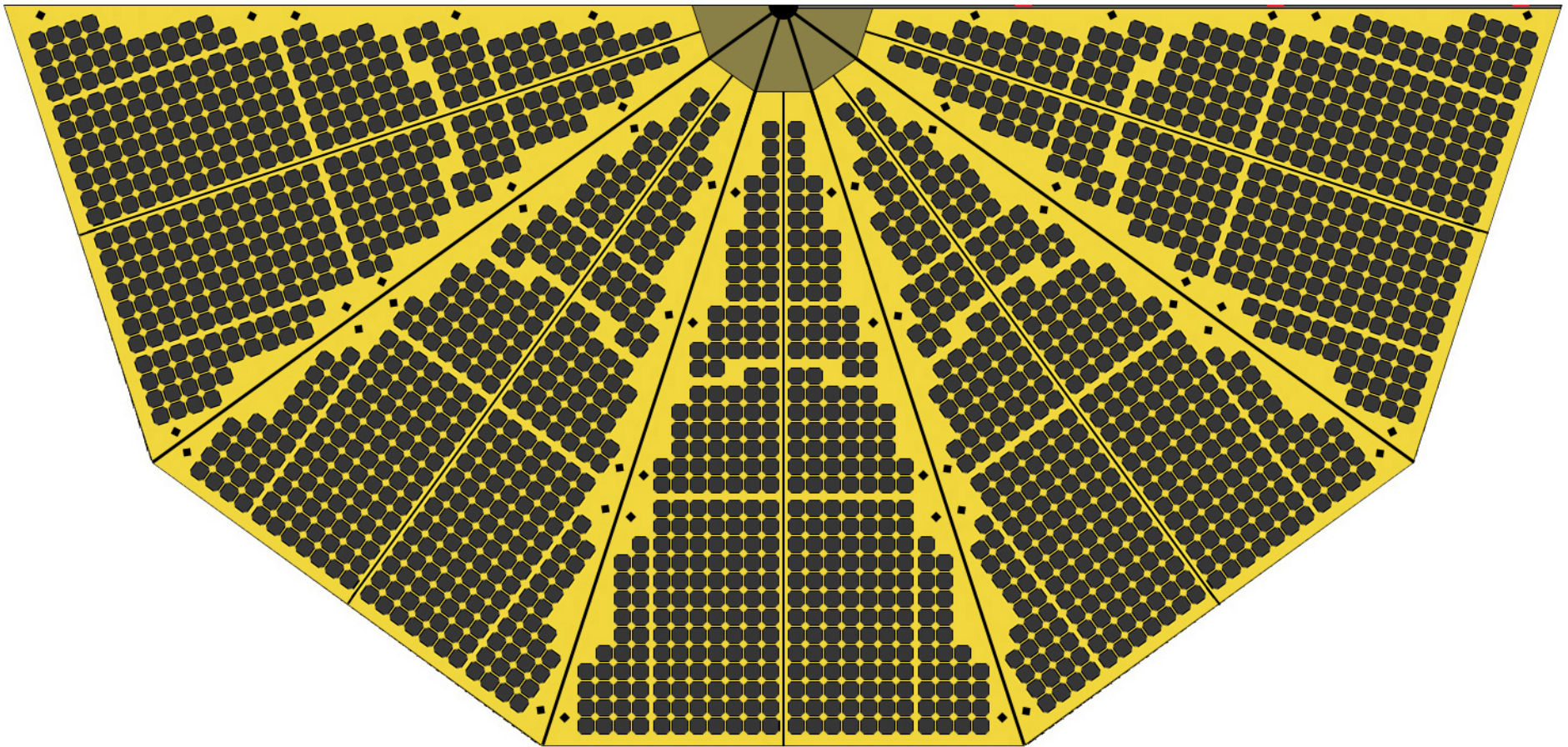
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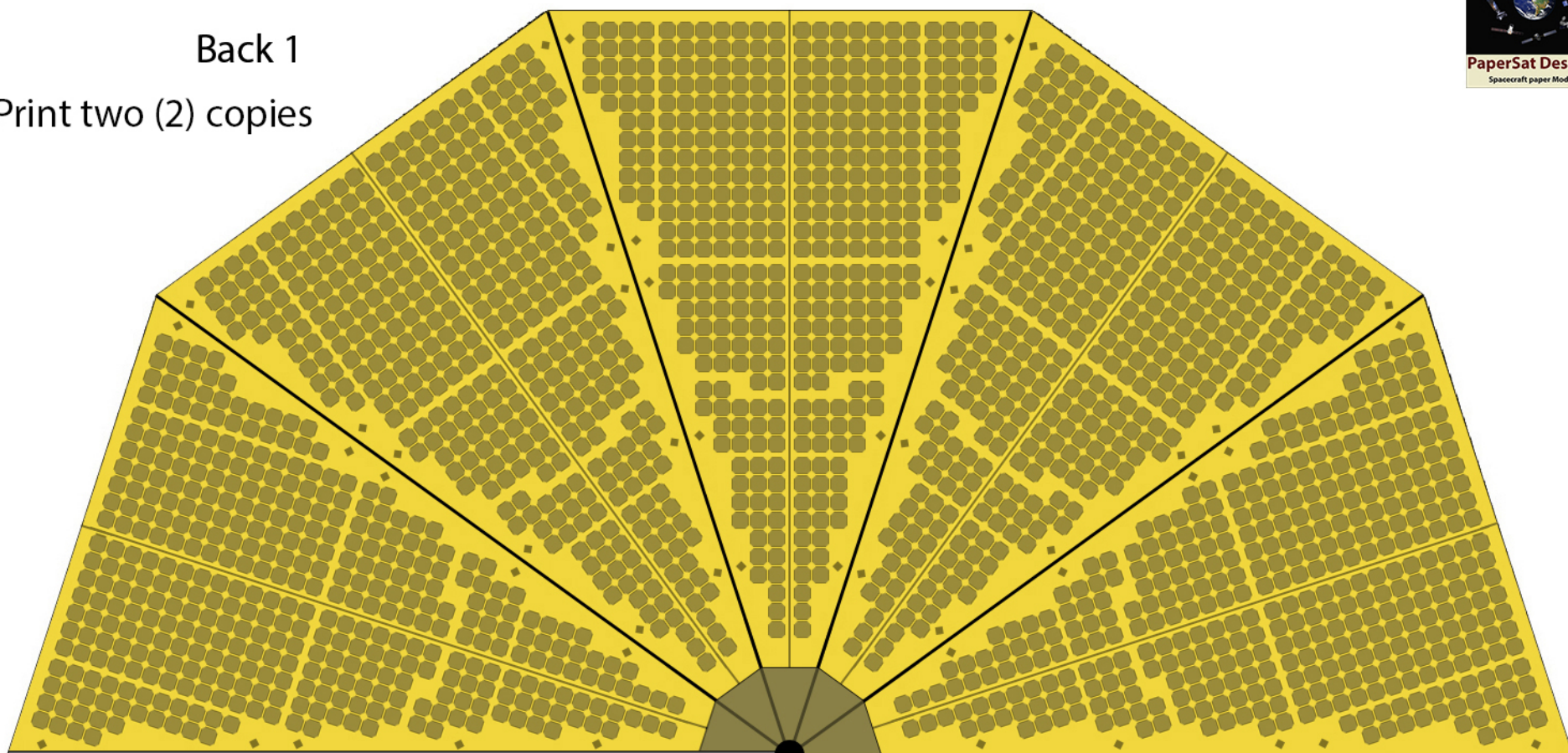




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Back 1

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