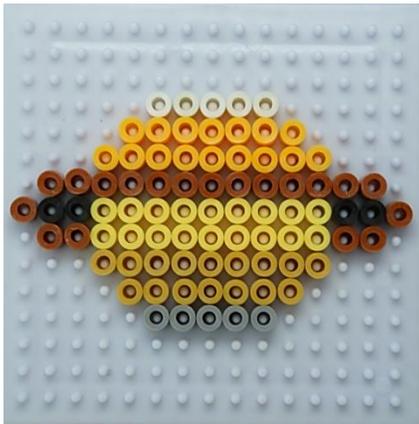


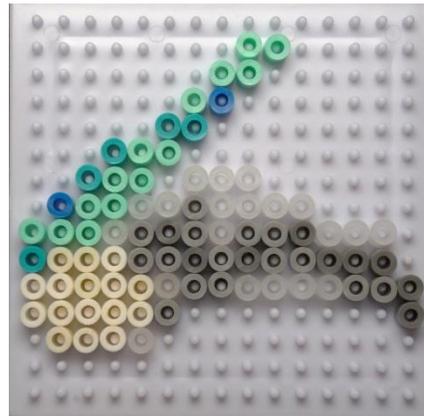
# Saturn & Comet

## Melty Bead Instructions

1. Before you get started, choose with pattern you would like to make first the Saturn or the Comet. Then, gather your materials and find a clear flat area to work on. You may also want to use a few small bowls to hold your beads while you make your design!
2. Following either the Saturn or Comet chart below, place your beads on the reusable bead peg board following the colored pattern.



Saturn

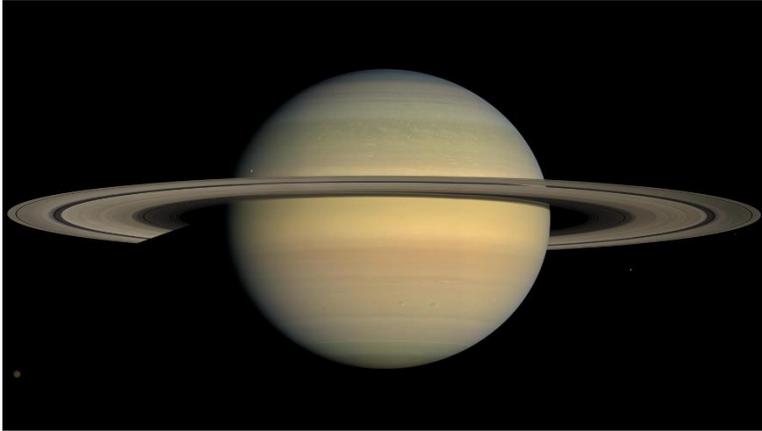


Comet

The Saturn pattern was inspired by a photograph taken by NASA's Cassini spacecraft of Saturn in July 2008 (<https://photojournal.jpl.nasa.gov/catalog/PIA11141>). Saturn is the second largest planet in our Solar System and is known for its icy rings that are visible even through small telescopes. Fun Fact: Saturn is considered a "gas giant" - primarily made of Hydrogen and Helium gases - and if you had a bathtub large enough to hold it, Saturn would float on the water!

The comet pattern was inspired by a NASA image of comet Hale-Bopp ([https://www2.jpl.nasa.gov/ulysses/news/hale\\_bopp.html](https://www2.jpl.nasa.gov/ulysses/news/hale_bopp.html)). Comets are relics from formation of the Solar System and orbit the Sun just like the planets do, primarily out past Pluto in regions called the Kuiper Belt and Oort cloud. Out there, far away from the Sun, comets are large chunks of ices and dust or "dirty snowballs" (actual astronomical term!). Big planets, like Jupiter and Saturn, can give comets a push changing their orbits bringing them closer to the Sun. As comets approach the Sun, they begin to have other parts as pictured below. Their nucleus - the center chunk of the comet - begins to sublimate (the ices or "snow" the comet is made of turns directly to gas without melting first!) and a coma forms. If the comet comes even closer to the Sun, tails will form. The top, blue tail is called the ion or gaseous tail. The bottom, white tail is called the dust tail and it is made of the "dirty" dusty parts of the comet falling away as they separate from

the ices that turned to gas making the Ion tail. Fun Fact: Astronomers have crashed an impactor into a comet to study what comets are made of! Check out the NASA Deep Impact Mission, <https://www.jpl.nasa.gov/missions/deep-impact/>, for more details.



An image of Saturn taken by the Cassini spacecraft, July 2008. *Credit: NASA*



An image of comet Hale-Bopp taken March 1997. *Credit: NASA/JPL*

3. Once you've completed your design, grab an adult!
4. Ask your adult to preheat an iron to its dry, medium heat setting.
5. Once the iron is done preheating, carefully place the ironing paper over your design and have your adult iron the paper on top of your work for 10-20 seconds or until they see the beads have melted together.
6. Let your design cool before peeling the ironing paper off.
7. If you would like both sides of your design to be melted, ask your adult to flip over your work, place the ironing paper on the unmelted side, then iron again following steps 5 & 6.
8. Enjoy your Saturn or Comet!
9. Repeat steps 1-8 for your other design.