

ASTRO3D RESOURCES

ASTRO 3D

PLAYDOUGH MILKY WAY GALAXY

BACKGROUND

To take a photo of our entire galaxy, the Milky Way, we would need to send a camera on a journey that would take 35 billion years. This journey would take it through our galaxy, and beyond, far enough to look back and see all of its stars. As we don't have quite that much time, astronomers study nearby galaxies that we believe look similar to our own.

Even though we don't have a picture of the Milky Way, we know that it is a spiral galaxy. In the middle of every large galaxy, including ours, is a supermassive black hole. Astronomers don't yet know which formed first: the black holes, or the galaxies around them. ASTRO 3D astronomers studied galaxies to find out the answer.

Surrounding the black hole is the galactic bulge, which in the Milky Way, is very bright. This is because the bulge is full of old stars so it looks yellow and puffy.

Spiral galaxies have beautiful spiral arms spreading out from the bulge. In these arms are younger, bluer, hotter stars. There are also clouds of dust and gas that look dark to our eyes. In places where these clouds get very hot and collapse, new stars are born.

Credit ESA/Hubble & NASA
Galaxy NGC2683



MATERIALS

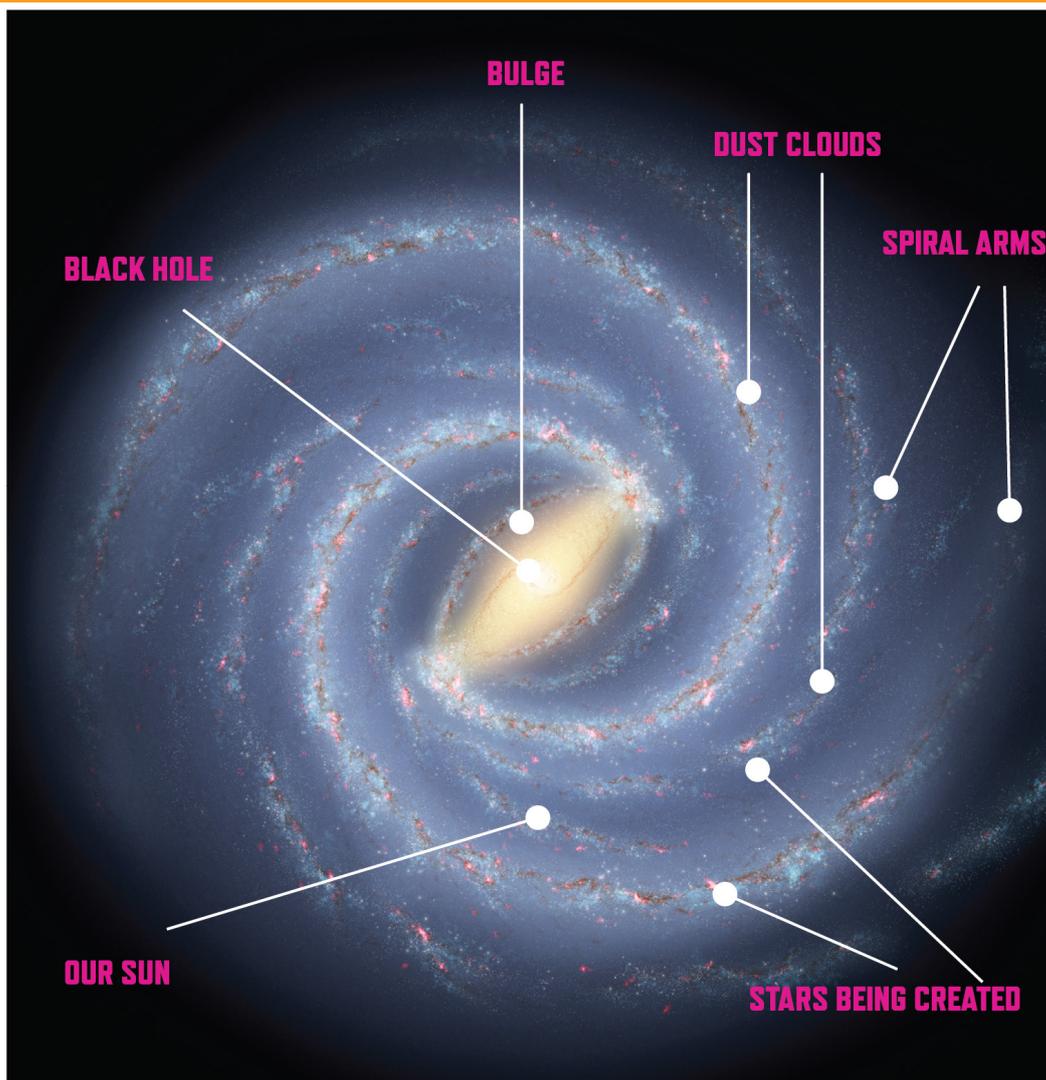
You will need:

- Black playdough
- Yellow playdough
- Blue playdough
- Brown playdough
- Red playdough
- 'Make a galaxy here' sheet of paper

PLAYDOUGH MILKY WAY GALAXY

INSTRUCTIONS

1. Lay your 'Make a galaxy here' sheet of paper on a table.
2. Ensure you have the black, yellow, blue, brown and red playdough.
3. To make a supermassive black hole roll a small circle of black dough in your hands. Place it in the centre of your galaxy.
4. Make a small, fat sausage (about the size of an eraser) using yellow dough. Place it entirely over the black hole to create the galactic bulge. Make sure it bulges out from the page!
5. Roll out two thin blue sausages (the size and width of a pencil) and spiral them around the galactic bulge, squashing them down, to create your spiral arms.
6. Roll out two even skinnier sausages in brown and lay them down the centre of each of your spiral arms, squashing them down, as the molecular clouds.
7. Take tiny pieces of red dough and squash them along the molecular clouds as places where stars are being created.
8. Make a tiny star shape in yellow dough and squash it in a spiral arm near the edge - this is our Sun!



MAKE YOUR GALAXY HERE!

Label the parts of the galaxy.

Look at your galaxy from different angles:

- * Do the spiral arms look different if you turn the page upside down? What if you turn it sideways?
- * Join your galaxy with a friend's, placing them back to back. Put your joined galaxy at eye level. What do you notice about the bulge?

