

A Little Bit about Galaxies

Question: What is a Galaxy?

Answer: A Galaxy is a huge collection of gas, dust, and billions of stars and their solar systems. All of this is held together by gravity.

Q: What Galaxy is our Solar System in?

A: The Milky Way

Q: What's the most interesting things about the Milky Way Galaxy?

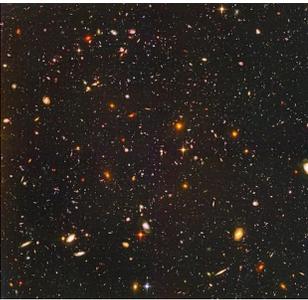
A: It has a supermassive black hole in the middle of it!



Picture of the Milky Way Galaxy that stretches across the sky at Trona Pinnacles National Landmark in CA. Photo by Ian Norman.

Q: How many Galaxies are there in the Universe?

A: There are so many that we can't even count them all! The Hubble Space Telescope looked at a small patch of space for 12 days and found 10,000 galaxies of all sizes, shapes, and colors. Some scientists think there could be as many as One Hundred Billion galaxies in the Universe.



Q: What do Galaxies look like?

A: Galaxies have different shapes. Some are Spiral Galaxies, which have curved arms that make it look like a pinwheel. Others are smooth and oval shaped, called Elliptical Galaxies. There are also galaxies that don't have much of a shape and look like a blob. Scientists call them Irregular Galaxies.



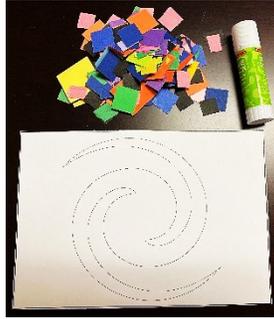
Galaxy Mosaic

Materials

Galaxy Template

Construction Paper Squares

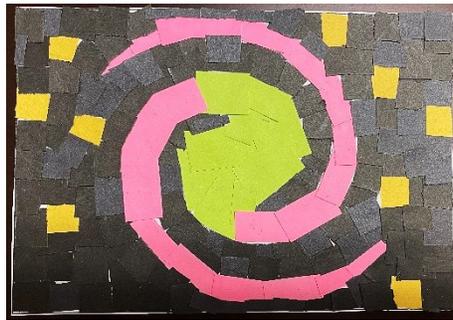
Glue Stick (preferred)/Glue



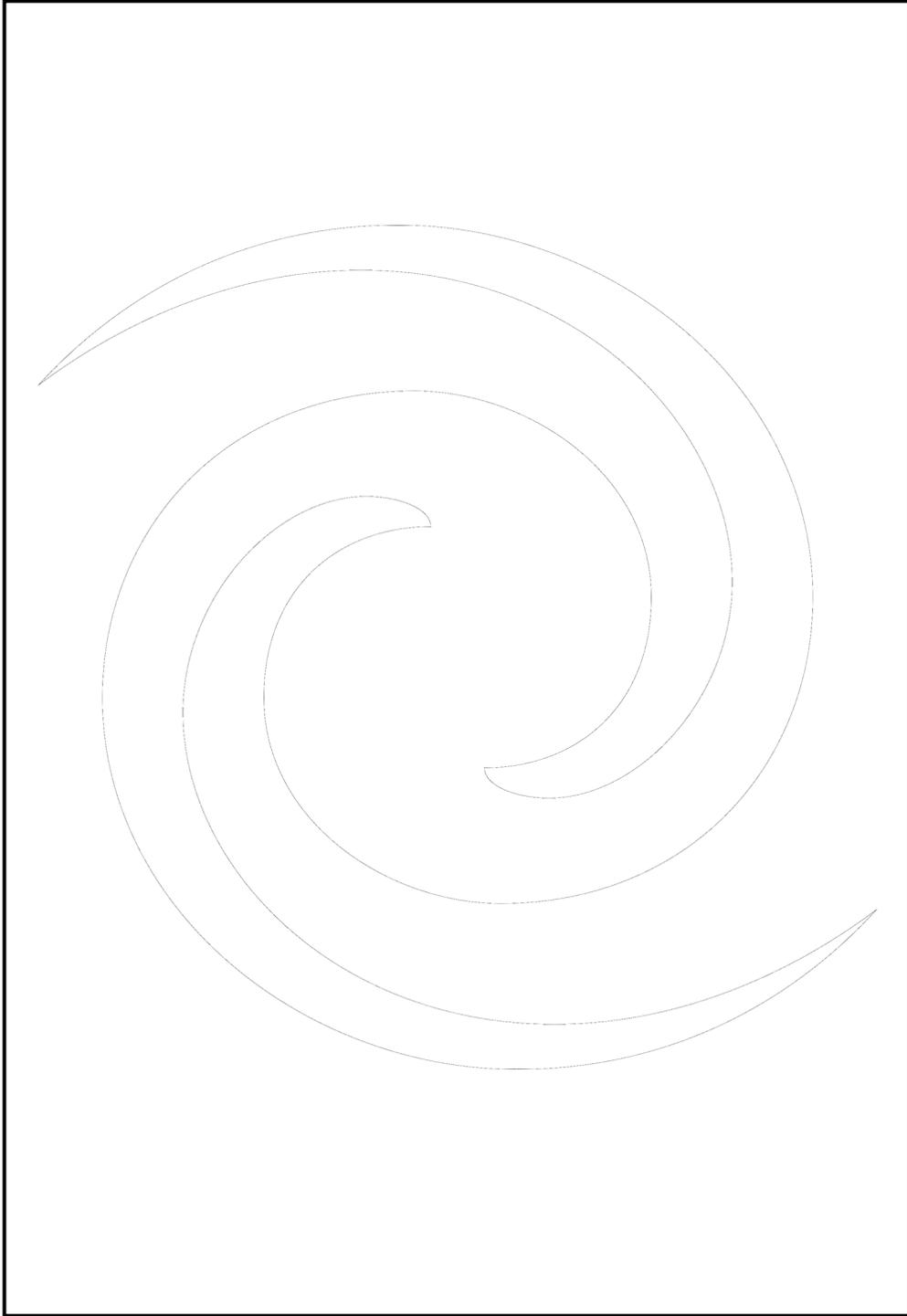
Instructions

Step 1. Start gluing your construction paper squares onto the galaxy template.

Step 2. Continue to glue down the construction paper squares until the image is full. *TIP: It helps if the galaxy is one or two colors, so it is the center of attention on your paper.* Once you have filled up your template your galaxy image is complete!



Galaxy Mosaic Template



Galaxy Yarn Art

****Sewing pins are enclosed in an envelope and are required for this activity. Adult Supervision is NEEDED for safety!! Please lead children for this activity, thank you!****

Materials

Cardboard (glued together)
½ sheet - black construction paper
30 sewing pins
Yarn
Spiral Galaxy Template
Clear Tape
Scissors

Instructions

Step 1: Take the 6x6 cardboard and the ½ sheet of black construction paper and fold the paper around the cardboard like a present. Tape down the sides of the black construction paper. **You can decorate the black construction paper by using a white crayon to create stars if you desire**

Step 2: PARENTS GUIDANCE IS REQUIRED FOR THIS NEXT STEP!

Take the Spiral Galaxy Template and place in the center of the 6x6 square. Take one of the sewing pins and insert it into one of the holes of the template. Push gently down into the cardboard.

TIP: you may have to use something to help you press them into the cardboard to help alleviate the pressure on your fingers. A sewing thimble, small book, or notepad would work to help push the pins down.

Start pushing pins from one end of the spiral, go through the middle, and move to the other end of the spiral.

TIP: Make sure you don't push too hard and poke the sewing pins through the other side! Also, this spiral galaxy only requires 24 pins, but we sent 30 just in case.

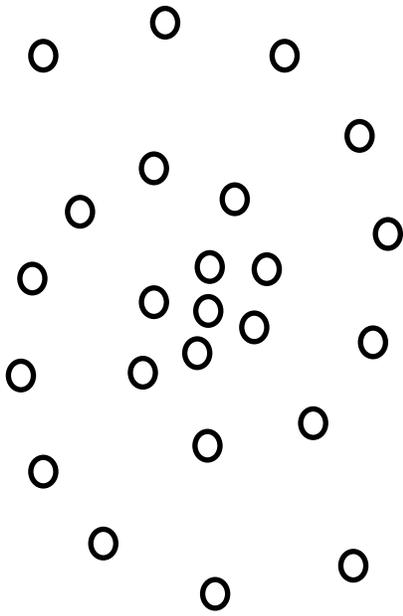
Step 3: After all the pins have been pushed into the cardboard gently start tearing away the spiral galaxy template. Ripping the sheet into pieces will probably be the best way to remove the paper without moving or bending the pins.

Step 4: Take the yarn and tie a knot on one of the sewing pins, preferably the end...not the middle!

Step 5: After you have tied your knot to the pin, you may start threading. Start looping the yarn around each sewing pin. Once the design is complete, tie a knot on one of the sewing pins. Use scissors to cut off any extra yarn.



Yarn Galaxy Template



Spiral Galaxy Template



What the Spiral Galaxy looks like filled in.



Make a Pinwheel Galaxy pinwheel

A galaxy in your hand



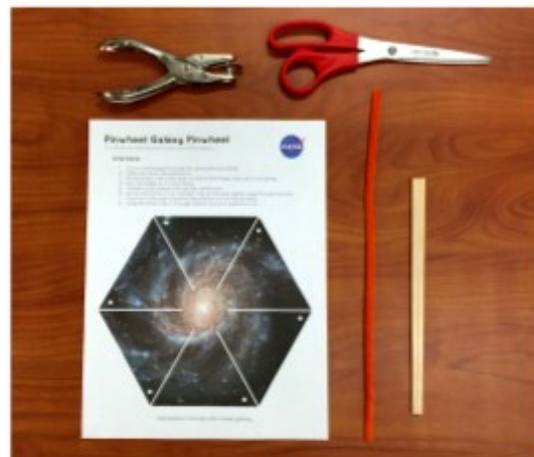
The Pinwheel Galaxy is a spiral-shaped galaxy about 21 million light years away from Earth. Scientists call this swirling galaxy M101.

You can find it in the constellation Ursa Major, or the "Big Dipper," in the Northern Hemisphere. With a nice, dark sky, you can see it with binoculars or a small telescope.

For those of us who can't see it in the night sky, we can have the next best thing: a Pinwheel Galaxy pinwheel!

What you need:

- Pinwheel Galaxy Printout (last page)
- Pipe cleaner
- Popsicle stick or chopsticks
- Scissors
- Single hole puncher



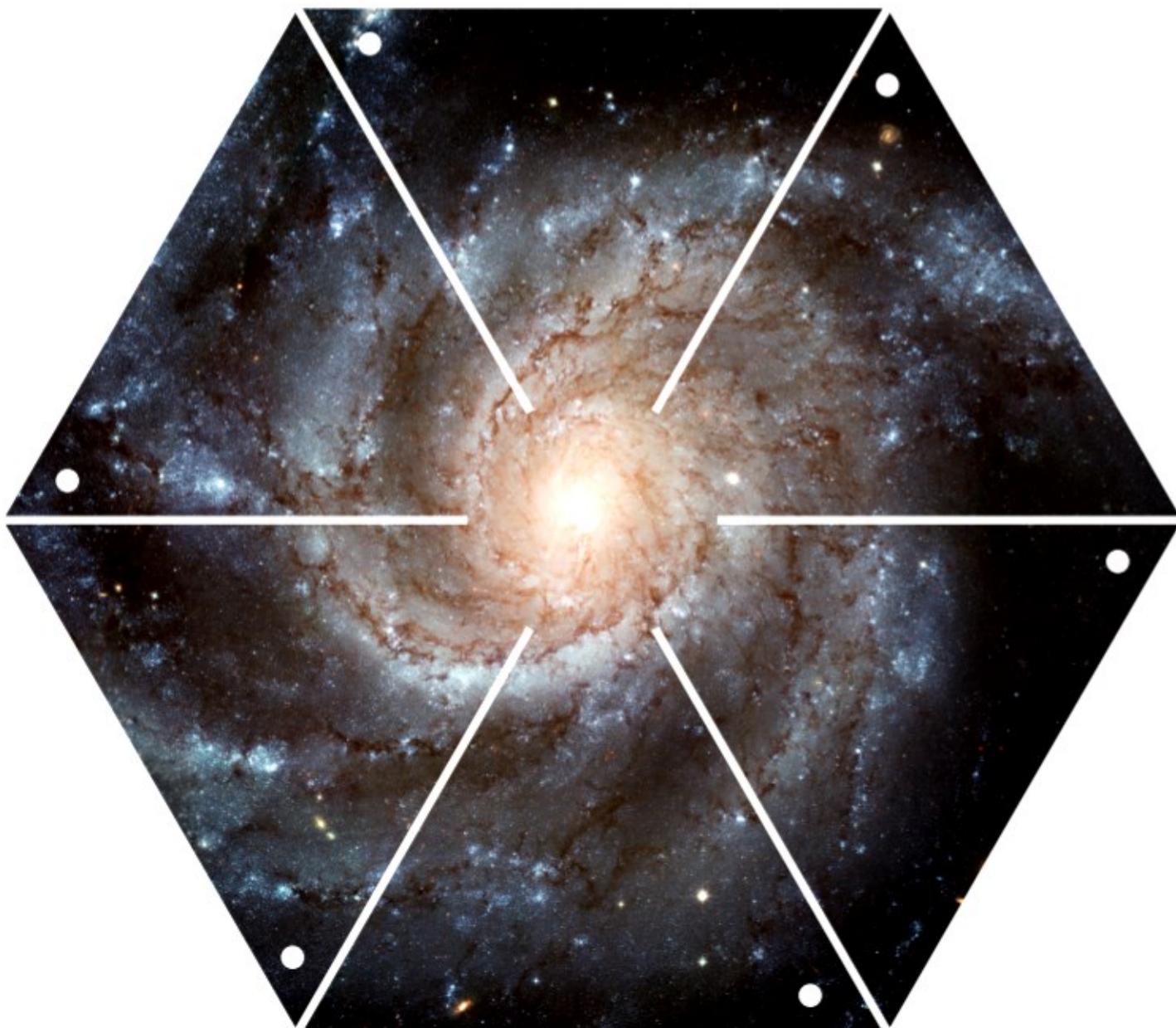
Pinwheel Galaxy Pinwheel

Full directions: spaceplace.nasa.gov/pinwheel-galaxy



Directions:

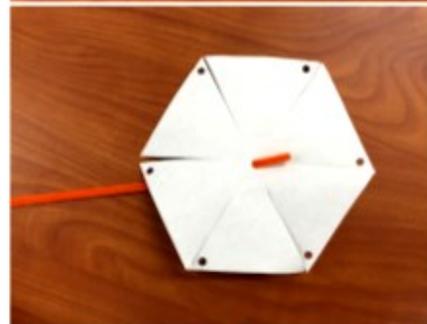
1. Cut out the hexagonal shape for your galaxy pinwheel.
2. Make cuts down the white lines.
3. Punch holes in the white dots: six around the edges and one in the center.
4. Turn the paper so it's face-down.
5. Thread a pipe cleaner through the center hole.
6. Going around the circle, fold each flap so the pipe cleaner goes through the hole.
7. Tie a knot in the pipe cleaner to secure the front of the pinwheel.
8. Wrap the other side of the pipe cleaner around a popsicle stick.



spaceplace.nasa.gov/pinwheel-galaxy

What to do:

1. Cut out the hexagonal shape for your galaxy pinwheel.
2. Cut along the white lines.
3. Punch holes in the white dots: six around the edges and one in the center. You may have to fold the hexagon over to reach the center.
4. Turn the paper so it's face-down and thread the pipe cleaner through the center hole.





5. Going around the circle, fold each flap so the pipe cleaner goes through the hole.



6. Tie a knot in the pipe cleaner to secure the front of the pinwheel.



7. Wrap the other side of the pipe cleaner around a popsicle stick. Don't make it too tight, or it won't be able to move.



8. Blow on it and watch the galaxy spin!

