Pinwheel Galaxy

ACTIVITY INSTRUCTIONS

Objective

Make a pinwheel from an image of the Pinwheel Galaxy.

Materials

- Pinwheel Galaxy printout
- Chenille stem
- Craft stick
- Scissors
- Single hole puncher
- Optional: an electric fan

Setting

Indoors or outdoors

Suggested Age Range

Ages 8 and up

Activity Duration

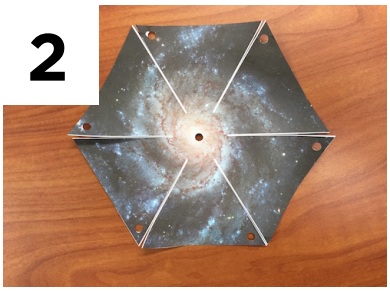
10 minutes

Background Information

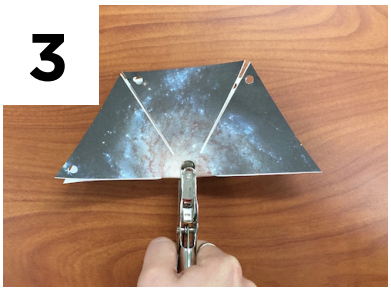
A galaxy is a huge collection of gas, dust, and billions of stars and their solar systems, all held together by gravity. Spiral galaxies have curved arms that make them look like a pinwheel, elliptical galaxies are oval-shaped, and irregular galaxies have irregular shapes. Our solar system is part of the Milky Way, a barred spiral galaxy. This activity depicts the Pinwheel Galaxy (also known as M101), a large spiral galaxy 21 million light-years away in the constellation Ursa Major, above the handle of the Big Dipper. M101 is visible with binoculars from a dark-sky site.

Procedure

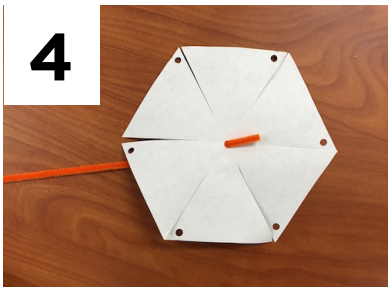
Cut out the hexagonal shape of the Pinwheel Galaxy printout.



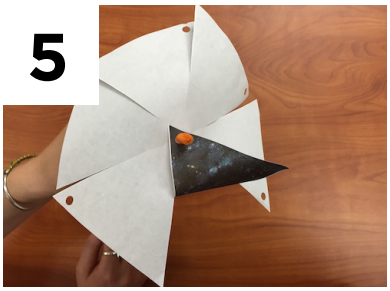
Cut along the white lines. Be careful not to cut all the way across the template.



Punch holes in the white circles: six around the edges, one in the center. You may have to fold the hexagon over to reach the center.



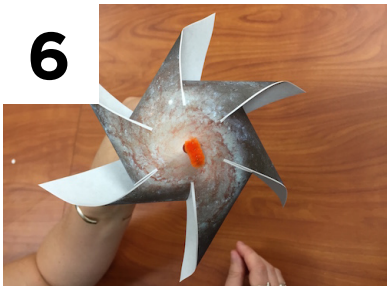
Turn the paper so it's facedown, and thread the chenille stem through the center hole.



Going around the circle, fold each flap so that the chenille stem goes through the hole.

CONTINUED ON BACK

6

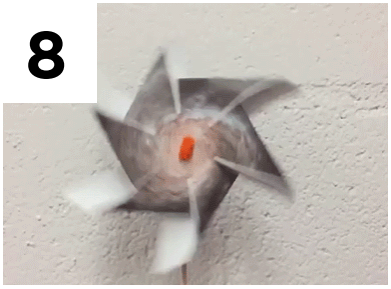


Tie a knot in the chenille stem to secure the front of the pinwheel.

7

Wrap the other side of the chenille stem around a craft stick. Don't make it too tight, or it won't be able to move.

8



Try to get the Pinwheel Galaxy to spin! For example, swing your arm to push the pinwheel through the air and make the blades spin. Or take your pinwheel outside on a windy day. Or use an electric fan to create wind.

Pinwheel not spinning?

Make sure the chenille stem isn't secured so tightly that it doesn't let the paper move. If the paper flaps are hitting the stick, flatten out the pinwheel on a table, then carefully open each point from the front. This will let air in to move the pinwheel.

To connect this activity with current science, you might mention that NASA's James Webb Space Telescope can peer back over 13.5 billion years to see the first stars and galaxies forming. The telescope will help astronomers compare the faintest, earliest galaxies to today's grand spirals and ellipticals, helping us understand how galaxies assemble over billions of years.

RESOURCES

- Learn more about the Pinwheel Galaxy: **https://www.nasa.gov/feature/goddard/2017/messier-101-the-pinwheel-galaxy**
- Learn more about NASA's James Webb Space Telescope: **https://jwst.nasa.gov/**

CREDIT

Adapted from the Make a Pinwheel Galaxy Pinwheel activity at **https://spaceplace.nasa.gov/pinwheel-galaxy**

NORTH CAROLINA SPACE GRANT

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