

# Modeling Radio Astronomy Instructor Page

Before using the activity introduce your participants to Radio Astronomy. There are a lot of ways to do this but the fastest is to play the short found at this link, <https://live.myvrspot.com/iframe?v=fMjFkMzhhNGM2NWI0YzU1NGMzZTViMmY3ZjE3NjAyN2U>

## Modeling Radio Astronomy Activity

Pass out the student page and go over the following instructions with your group.

**Say:** Today we are going to model Radio Astronomy using umbrellas and ball pit balls. As with any model this is not a perfect representation of how the process works but a good proximity. One member of your group will act as the radio telescope by holding an open umbrella upside down so it resembles a bowl. That person has to stand perfectly still because radio telescopes don't move. You may tilt to one side before the round starts but you have to remain in that position the entire round (demonstrate this posture). One person will be recording the data and the rest of you will be emitting radio waves. Radio waves are emitted or released from objects in space. Those emissions travel toward Earth and a few are collected by radio telescopes. So the emitters will stand behind the line I indicate and gently throw the ball pit ball toward your "telescope". It is OKAY if the balls don't go in, remember telescopes only collect a small amount of the waves. At the end of the round you will only count the balls inside the umbrella. At the end of each round you will switch roles so everyone has the opportunity to do most tasks.

**Ask:** Are there any questions?

Divide participants into groups and pick team leaders. The team leaders will be responsible for keeping their group under control as you move from the classroom to the large space you are using. The team leader is also responsible for carrying the umbrella and the balls. It is best if this activity takes place either outside or in a large indoor space where groups can spread out and nothing will be accidentally broken as student throw balls.

There are six rounds to this activity. Remind students that they should only be counting the balls inside of the umbrellas at the end of a round. When the six rounds are complete have participants clean up all the balls and return to the classrooms. Just like when you left the team leader should be carrying the equipment and keeping their group under control.

Participants finish the activity coloring in the image according to the data they collected.