

Ancestral Astronomy



Earth & Space
La Tierra y el Espacio

Learning objectives

- Many cultures around the world have long traditions of watching the sky, including Indigenous cultures in Mesoamerica.
- Indigenous knowledge and Western science can both contribute to our understanding of the universe.
- Metalwork and other cultural traditions integrate science, technology, engineering, arts, and math (STEAM).

Materials

- 4-inch diameter blank paper coasters or circles cut from cardstock
- Heavy-duty aluminum foil
- Pre-printed paper patterns with Sun, Moon, and star images
- Stencils with decorative motifs related to the skies
- Blank paper
- Pencils
- Embossing stylus set, the type with ball ends (you can substitute dull pencils or bamboo skewers)
- Permanent markers (water-based markers won't work on the aluminum foil)
- Hole punch
- Yarn
- Scissors
- Information sheets:
 - Observing the Sky in Mesoamerica
 - Metalworking, STEAM, and Culture
- Optional: Examples of *hojalata* tin art

Safety

Younger learners will require supervision, especially with scissors, yarn, and permanent markers.

Advance preparation

Cut the foil into squares roughly five inches wide. It may be helpful to have a few premade foil medallions on hand to provide to younger participants.

Notes to the presenter

Aluminum foil can rip if pressed too hard. It's a good idea to warn participants that this may happen. Encourage learners to press lightly with the embossing tool, gradually increasing pressure if needed. They can experiment with different ball ends to get different effects. Small tips can create a sharp line and big tips can fill in larger areas.

Permanent markers will stain clothing and furniture.

Discussion prompts

Start a conversation with participants about the sky:

- What have they observed?
- How does the sky change over time?
- What are some of the things they have seen in the sky that they might want to include on their medallion?

Share that many different cultures around the world have a long tradition of watching the sky:

- Watching the Sun, Moon, planets, and stars can help people understand patterns of change in the natural world (such as seasons and climate patterns), carry out everyday tasks (such as planting and harvesting crops), and find meaning through religion.
- For example, Indigenous Mesoamerican cultures such as the Maya have developed an advanced understanding of astronomy. In ancient times, they built specialized structures to observe the sky. Their knowledge is closely connected to many of their cultural, social, and religious practices.
- Today, we can learn about Earth and space from Indigenous cultures around the world, as well as from European/Western science.

Share that this activity is inspired by different metalworking traditions around the world:

- Many different traditions of metalworking (and other arts and crafts) combine culture, science, technology, engineering, arts, and math (STEAM).
- For example, in Mexico there is a tradition of creating *hojalata* tin art.
- Another example is NASA, which creates special medallions to commemorate missions. Some of these medallions have even flown in space with astronauts!

Background information

The information sheets provide an overview of some connections between Mesoamerican cultures, astronomy, and arts. More about sky-watching in Indigenous Mesoamerica:

https://www.youtube.com/watch?v=-EIS_RUQdgs

Additional resources

This activity can also be connected to other cultures around the world. For example, PBS Learning Media offers useful resources:

- Cultural astronomy: <https://ny.pbslearningmedia.org/resource/cultural-cosmos-a-cultural-astronomers-view-video/cultural-astronomy-northern-nights-starry-skies/>
- Constellations in different cultures: <https://ny.pbslearningmedia.org/resource/what-constellations-mean-different-cultures-video/fate-and-fabled/>

Staff training resources

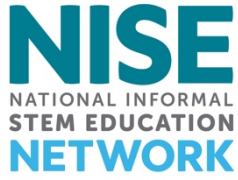
While not an exact match to this activity, the training video for *Voyage through the Solar System: Space Souvenir* may be useful: <https://vimeo.com/836955250>

Credits and rights

Ancestral Astronomy is a variation of a classic activity that is widely available online. NISE Network also has another similar activity called *Voyage through the Solar System: Space Souvenir*: <https://www.nisenet.org/catalog/space-souvenir>

Images

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