

Spatter Paint Stars

Topic
Stars

Key Question

How do our spatter paint stars compare to the real stars in the night sky?

Learning Goals

Students will:

- spatter paint to make a model of the stars in the night sky,
- observe there are more stars in the night sky than can be easily counted, and
- recognize that the stars are not scattered evenly.

Guiding Document

Project 2061 Benchmarks

- *There are more stars in the sky than anyone could easily count, but they are not scattered evenly, and they are not all the same in brightness or color.*
- *A model of something is different from the real thing but can be used to learn something about the real thing.*

Science

Earth science
astronomy
stars

Integrated Processes

Observing
Comparing and contrasting
Communicating
Predicting

Materials

Butcher paper (see *Management 1*)
Paint (see *Management 3*)
Toothbrushes
Paint containers (see *Management 4*)
Paint shirts
Night sky picture (see *Management 7*)

Background Information

A star is a massive, glowing ball of gas that is held together by its own gravity. The nearest star to Earth is the sun, which is the source of most of the energy on Earth. There are more stars in the sky than anyone can easily count. Stars are not spread uniformly across the universe, but are normally grouped into galaxies.

Students at this level are able to observe and discuss the objects in the sky, but have yet to develop the ability to understand just how many objects there are. In this lesson, the students will be observing the sky at various times, talking about what they see, and making a model of the stars in the night sky. The ability to understand the moon, sun, stars, and the patterns they form in the sky will come much later. This activity is designed to encourage the observation and discussion that will lead them to these later understandings.

Management

1. You will need a piece of butcher paper large enough to contain all of the children's spatter painting in *Part One*. Use black or dark blue to represent the night sky.
2. Select an area outdoors to do the painting or cover an indoor work area with newspapers to protect it from the paint.
3. Use a water-based paint (like tempera) in several different colors. Stars come in shades from blue to white to red to orange to yellow, so have a variety of colors available.
4. Shallow lids (like the kind from sour cream containers) can be used to hold the paint. You can also cut foil into small (6" x 6") pieces and fold up the sides.
5. Place one or two toothbrushes in each color of paint. Be sure students understand to put each toothbrush back in its designated color.
6. Students will need paint shirts to protect their clothing. You can provide a collection of smocks and old oversize T-shirts, or students can bring their own shirts from home.
7. You will need a picture of the night sky as seen from Earth to use as a comparison to the spatter painting sky. Two pictures are provided on the CD that accompanies this module. These can be printed onto transparency film or projected on a screen using the computer. See *Internet Connections* for additional pictures available online.

Procedure

Part One

1. Have students discuss what they know about the stars.
2. Explain that they will be making a model of the night sky by spatter painting on the big piece of paper.
3. Describe how students will do the spatter painting and model the procedure. Hold the toothbrush in one hand, dip the brush into the paint, hold it about 30 cm (1 ft) above the paper, and hit the handle so that the paint spatters off the bristles onto the paper. Repeat three more times, moving the toothbrush to a new place on the paper each time.
4. Have students put on their paint shirts and remind them that they only get to make four spatters with the paint.
5. Divide the class into groups of two or three for the painting and have the groups rotate through until everyone has had a chance to paint.

Part Two

1. After the paint has dried, display the spattered paint paper and ask what it looks like.
2. Show a picture of the night sky, either on the computer or on the overhead. Have students compare the picture to the painting they made and note similarities and differences.
3. Discuss the key features the model is intended to show—there are more stars in the sky than can be easily counted, and they are not scattered evenly.

Connecting Learning

1. What do you see when you look at the sky on a clear night? [stars, moon, planets]
2. How many stars do you think there are? Could you count them?
3. Look at the picture of the stars in the night sky. How is it like your painting? How is it different?
4. Are the stars scattered evenly in the night sky? ...on your painting?
5. What are you wondering now?

Internet Connections

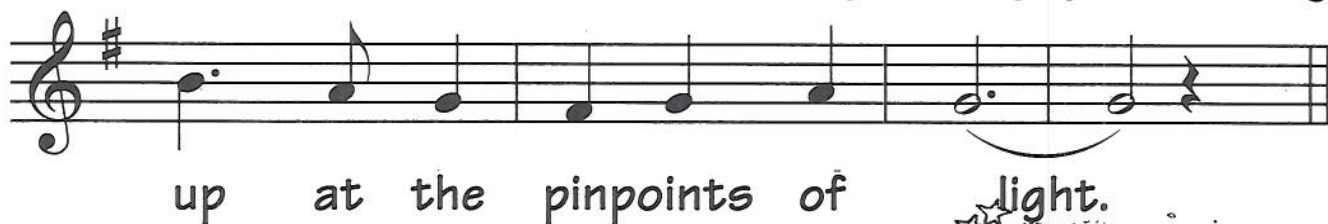
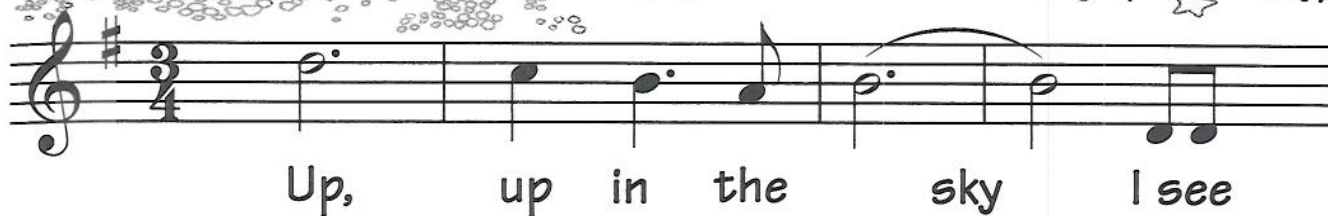
Astronomy Picture of the Day—November 29, 2008
<http://antwrp.gsfc.nasa.gov/apod/ap081129.html>
"Chilean Skyscape." Click on the photograph for a larger view.

Astronomy Picture of the Day—September 29, 2000
<http://antwrp.gsfc.nasa.gov/apod/ap000929.html>
"September Sky." Click on the photograph for a larger view.

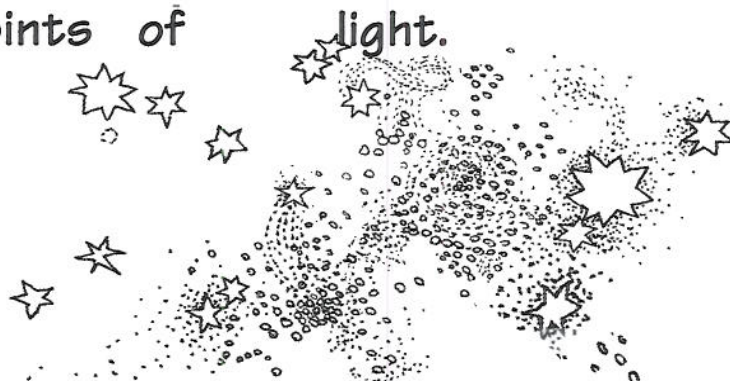
Astronomy Picture of the Day—December 25, 2007
<http://antwrp.gsfc.nasa.gov/apod/ap071225.html>
"Mars and Orion Over Monument Valley." Click on the photograph for a larger view.

Stars in the Sky

Tune: Home on the Range (Chorus only)



I like to study the stars.
At night, I lay watching the skies.
My teacher tells me
There are more than we see
By just looking up with our eyes.



To count all the stars,
Is something that no one
has done.
Astronomers look
And keep records in books,
But they still haven't named
every one.