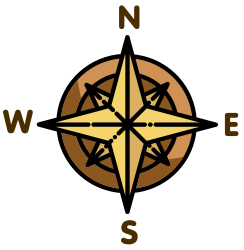
The Compass Rose Family

A resource for students to explore our place in space through art!

by Dr. Deborah Barnhart | edited by Arts Huntsville

Made possible by Council Member Bill Kling for the people of his district
Located between North Rose Drive and South Rose Drive, Huntsville, Alabama 35805
Designed and built by Dr. Deborah Barnhart and installed in 2025



The Rose Park Compass Family installation creates a focal point for a ribbon of park that lies within a historic community of Huntsville, constructed largely in the 1940s and 50s. A deep water swale follows the contour of the park, which boasts many mature trees, benches and a Little Free Library. This art installation complements the park by inviting guests to:

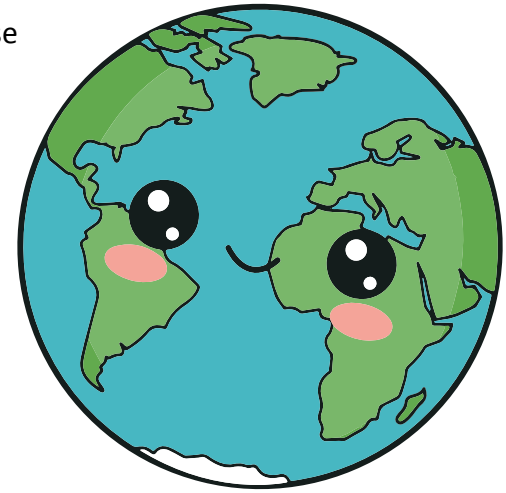
PONDER the location and size of planet Earth in our vast universe

CONSIDER Earth's relationship to our Sun

UNDERSTAND how we specify direction on Earth

REALIZE how the Sun affects time and our seasons

STEP into a human-sized manifestation of a famous artwork.



More importantly, the artwork invites visitors to consider that:

Let's protect Earth – it's our only home!

We share Earth with all living things, and our journeys make us who we are.

Earth travels through space and spins around the Sun each year.

You get to choose your own way and what you want to do in life.

Time keeps ticking, no matter what.

You can make your dreams happen by choosing your actions and direction.

The objective of this art is to more clearly understand our place in life scientifically and personally.

HUNTSVILLE
The Star of Alabama

ARTSHUNTSVILLE
CELEBRATING THE CREATIVE SIDE

AMAZING SPACES
#SPACESHSV

Meet the Earth Sphere!

Approach the Earth sphere and feel the cool black granite. This sphere weighs about 3500 pounds, about 7500 with its base!

Feel the engraving of the continents and locate where you are in North America. Huntsville is shown as a star because of its motto: The Star of Alabama.

Locate the other continents and the approximate location of the North Pole and South Pole. Notice that the North Pole points toward North.

Where are we?

Right now, we're standing on a big, round ball, like the sphere before you, that we call Earth.

Think of Earth as our giant spaceship, zooming through the darkness of space! It travels around a big, bright star called the Sun, like a race car going around a track. The Sun is important because it gives us light and warmth. There are lots and lots of other stars and planets out there too. Together, the planets and other objects racing around the Sun are what we call our solar system, and even bigger groups of planets and stars are called galaxies! So we're on planet Earth, circling the Sun, in a tiny corner of a giant universe!

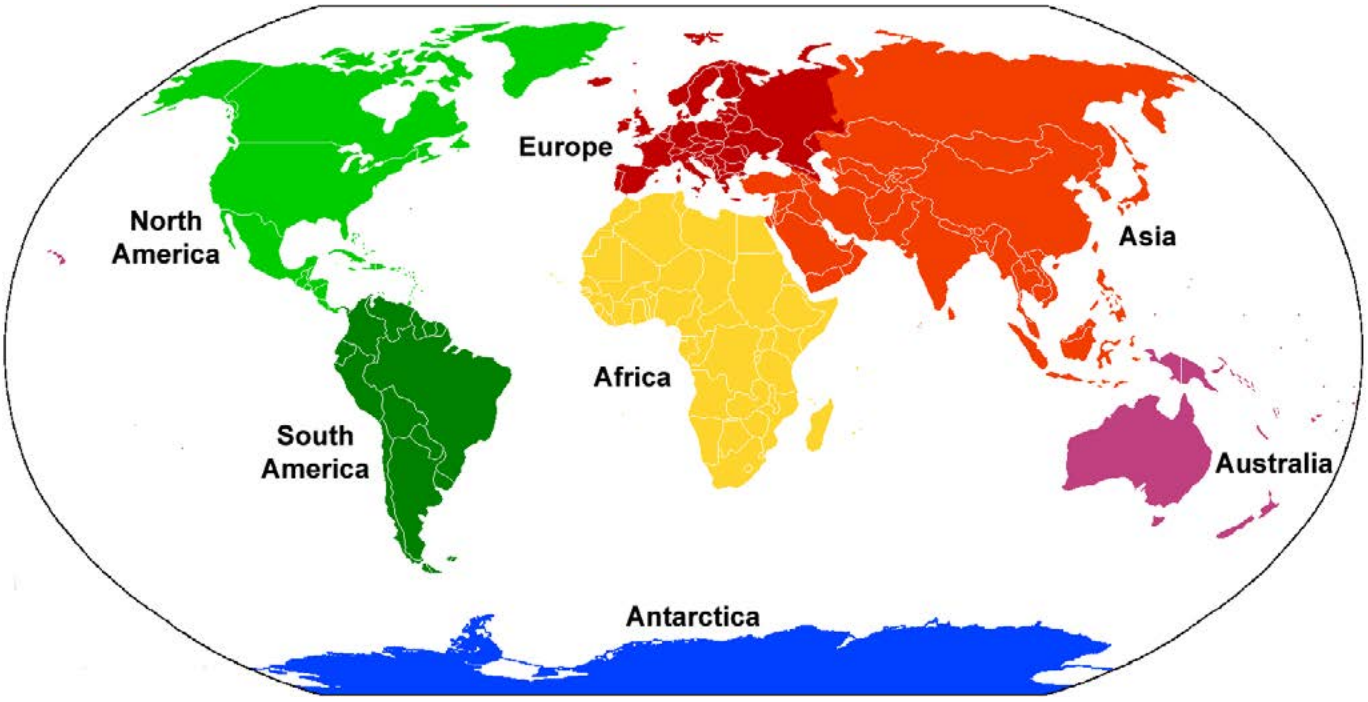
Earth is about 13 million (13,000,000) times larger than this ball!

The word "universe" comes from Latin meaning "combined into one." The quote around the base from Marshall McLuhan shares the idea that we are all part of the one family of Earth, and it is our home and our "spaceship" traveling throughout the universe:

"There are no passengers on spaceship Earth. We are all crew." - Marshall McLuhan

The Seven Continents of Earth

If you imagine the Earth as a giant ball like 'Earth Sphere', also imagine the big pieces of land on it are like puzzle pieces we call continents. People have decided there are seven, and North America is the name of the continent where we are right now!

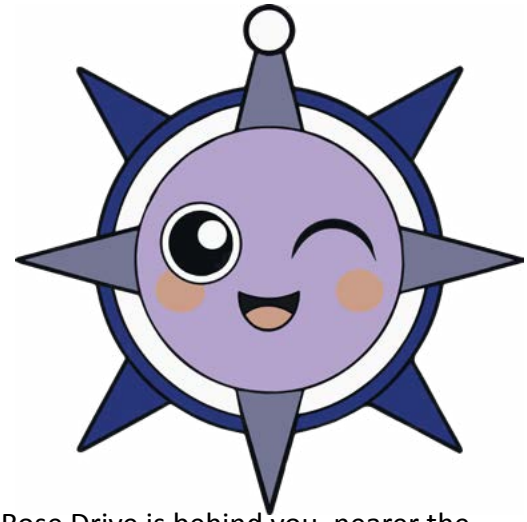


You're in Rose Park, which is in the city of Huntsville, in Alabama, which is part of the United States, all on the continent of **North America.** See if you can find all seven continents on the Earth Sphere.

Our Earth is HUGE! To give you an idea, if you wanted to visit the other continents from here in Huntsville, it would be a very, very long trip!

Europe	**4500-7600 miles**
South America	**3500-4800 miles**
Antarctica	**8600 miles**
Asia	**10,000-15,000 miles**
Australia	**9,000 miles**
Africa	**5000-8000 miles**

Meet the Compass Rose!



The tool we use to determine which way to travel on Earth is called a compass, and the design on its face - and sometimes seen on maps - is a “compass rose.”

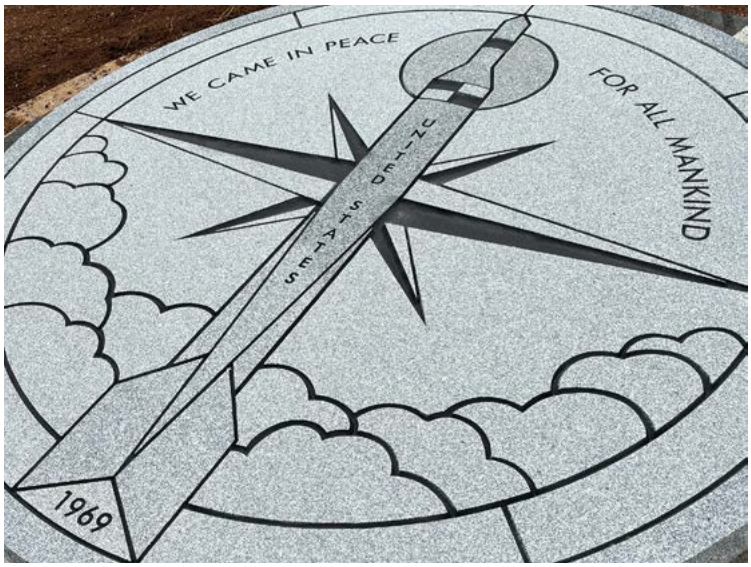
The compass indicates the **cardinal** directions, which are north, south, east, and west, as well as **intercardinal** or ‘in-between’ directions, which are northwest, northeast, southwest, and southeast.

Notice that the pointer of this compass rose is a rocket which points north, so the street in that direction is North Rose Drive. South Rose Drive is behind you, nearer the South direction on the compass.

Step Up on the compass rose. **Walk** around the four directions and feel the engraving of the rocket and the moon with your hands.

Read the inscription: *“We came in peace for all mankind.”*

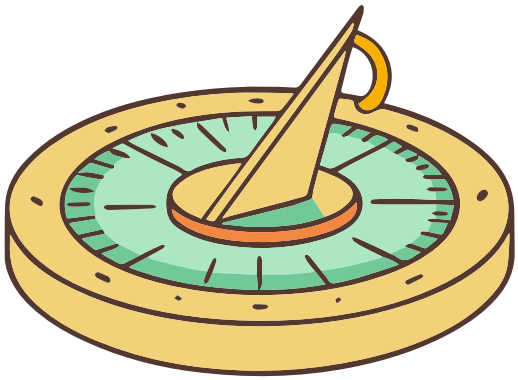
Look in the four directions and notice from what direction the sun is shining on it. Remember that the sun rises from the east each day and sets toward the west. If it is evening, see if you can locate Polaris or the North Star in the direction that the rocket points. Rose Park is well lit, and it may be difficult or impossible to locate Polaris in the Park and interstate lighting.



The pointer on the Rose Park compass is very special—especially for people in Huntsville! Instead of a regular arrow, the pointer is shaped like the Saturn V Moon Rocket (“Saturn Five”).

This rocket was designed and built by people at NASA’s Marshall Space Flight Center, right here in Huntsville! In 1969, the Saturn V took astronauts to the moon for the first time in history—and brought them safely back to Earth. Many people who lived (and still live!) in the Westlawn neighborhood, where Rose Park is, helped make this amazing mission happen. The top of the rocket on the compass points to the moon.

Around the edge of the compass, you can read the same words that were written on a special plaque the astronauts left on the moon. Altogether, Saturn V rockets carried 18 astronauts to or around the moon. On each trip, one astronaut stayed in a space capsule that kept orbiting the moon, while two others went down to the surface in a smaller spacecraft called a lunar lander. In total, 12 men walked on the moon during six different missions. Since then, six other countries have tried more than 35 times to land people on the moon—but none have been able to do it yet.



Become a Human Sundial!

On a sunny day, **Approach** the sundial from the bottom of the calendar which says “SUN DIAL.”

From there, **Walk** forward to the current month and **Stand** as on the spot that matches the current date within that month. For very short month names, stand directly on them.

Depending on your height, raise one arm to cast a clearer shadow for the time.

Reading the Time

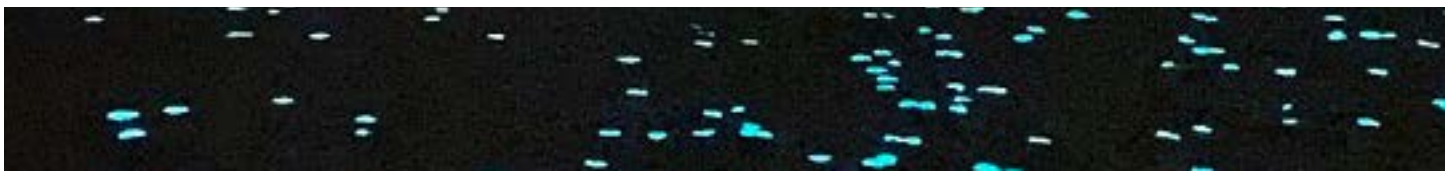
The “NOON” mark indicates local apparent noon. Markers to its left show morning hours (first bar = 11 am, next = 10 am, etc.), and markers to its right show afternoon hours (first bar = 1 pm, second = 2 pm, etc.). During Daylight Saving Time, subtract one hour from the indicated time.

The Science Behind it

Long before clocks, people used sundials as one method for measuring time.

This special sundial in Rose Park, an **analemmatic** sundial, uses a person as its moving “**gnomon**” (Greek for ‘one who knows’). The Earth’s tilt, which you can see on the nearby Earth Sphere, causes the sun’s angle to change throughout the year.

This is why the calendar months (especially June and December) appear smaller – representing the sun’s highest and lowest positions and their effect on shadows. By standing on the correct date, your shadow acts like the gnomon, pointing to the approximate solar time on the elliptical hour markers. Interestingly, these markers also glow at night like a crescent moon, thanks to **phosphorescent** stones that absorb sunlight.



Meet the Vitruvian Astronaut

Look at the three big frames.

Each one shows a circle on top of a square. In the middle frame, there are two astronaut shapes layered on top of each other: one is standing tall with arms straight out, and the other looks like an “X.”

Even though they are standing differently, they are about the same size.

Choose the frame closest to about your own size.

Stand inside it and try both astronaut poses.

Do you fit? Is the frame bigger or smaller than you? Invite a friend or family member to try the other frame. You can create your own astronaut family!

Read the inscriptions on either side of the astronaut.

One says: *E pluribus unum.* That’s Latin and means “Out of many, one.”

It reminds us that people from many places come together to form one country, one community, and even one world. You can also see this motto on some of our money.

The other says: “Don’t give up the ship.” That means don’t give up when things are hard. Think about your goals, dreams, and the things you care for. What do you want to stick with? What is your “ship”?

Find the Animals in the Artwork!

Can you find the horseshoe on the art? It honors horses, who helped build the world by carrying people and goods.

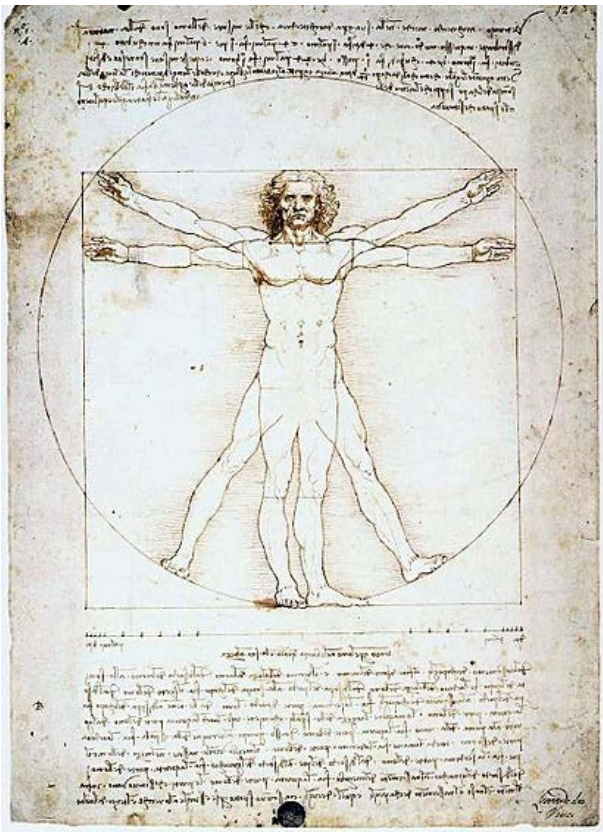
Can you find the dog? Dogs are loyal companions, always with us on life’s journey.

What's Your Journey?

The artwork asks you three big questions:

Where am I?
Where am I from?
Where am I going?

Just like astronauts, we all have a journey. To reach our goals, we need a direction (like a compass) and we need time (like a sundial). You are always learning, growing, and heading toward something important. You can dream big and reach your goals with help, planning, and courage.



DaVinci's Vitruvian Man

This artwork might look familiar because it's based on a famous drawing by an artist named Leonardo da Vinci, called Vitruvian Man!

A long, long time ago, a very smart engineer named Vitruvius thought that people's bodies were really balanced and could fit perfectly inside a circle or a square. He said most people are actually very similar!

About 1500 years later, the famous artist Leonardo da Vinci drew this idea, and it became one of the most well-known drawings ever.

Here in Rose Park, the artwork shows that idea, but also helps us think about how we all work together to reach our goals and find our place in the world. The two empty circle-and-square frames next to the astronauts are for you! An adult, a kid, or someone in a wheelchair can stand inside them. This shows that we are all human and alike, no matter our size or how we move.

Don't give up on the direction of your own mission *and* don't give up on our stewardship of our planet. our spaceship and only home---Earth.

-Deborah Barnhart, Artist

Questions for Further Exploration

I. EARTH SPHERE

Basic

1) What is the name of our home planet?
2) What is the shape of Earth? (square, flat, round?)
3) What color is the Earth as seen from space? Why?
4) Which direction is north on our planet? What direction does the Earth turn?
5) What star does the North Pole point toward?
6) Locate all seven continents on the sphere.

Advanced

1) In what galaxy is planet Earth?
2) What is at the center of our galaxy? How far away is it?
3) As Earth rotated around our sun in a steady path or plane, what is its angle to the perpendicular of that plane?
3) Is our continent constantly pointing at the sun at the same angle?
4) What effect does our angle to the sun create?
5) Describe the size of Rose Park's Earth sphere to the actual size of Earth.

II. COMPASS ROSE

Basic

1) What does a compass tell us?
2) What are the four major or cardinal directions?
3) What does the North arrow point to?
4) Why does this compass have a rocket as a pointer to North?
5) What are the directions called when you go halfway between north, south, east, and west?
6) Is this a real compass? How is it different? How is it similar?

Advanced

1) What force makes a compass work?
2) Why does the pointer always point north?
3) What is the North Star's name?
4) Describe one way to find Polaris in the night sky
5) What effect did the Saturn V Moon Rocket development have on Huntsville's growth?
6) Who owns the moon and why are the words inscribed on the compass important to people on Earth?

III. Sun Dial

Basic

1) How many months are in the year?
2) How many seasons are in the year? Can you name them?
3) How many hours are in the day?
4) Which part of the year has more hours of daylight in Huntsville? Which has fewer?
5) Why doesn't the sun dial work at night or when it's cloudy?

Advanced

1) What causes the seasons to change? Why are seasons different in the Southern Hemisphere?
2) What is a solstice? How many are there, and when?
3) What is an equinox? How many are there, and when?
4) Why does the moon shine?
5) How does a phosphorescent material 'store' light and then later emit it over time?

IV. Vitruvian Astronaut

Basic

1) What are the two figures in the center frame?
2) What two shapes are shown in the frame around them?
3) What circle-square frame would you fit best in?
4) Do you think most people would fit well in one of the 3 frames?
5) Have you ever seen a drawing by Leonardo da Vinci that looks similar to this?
6) What companion does the Vitruvian Astronauts have?

Advanced

1) Who was Vitruvius?
2) Why do we call the art from which this is drawn the "Da Vinci Man?"
3) Do you think most people would fit in one of these frames without much variation?
4) What is the meaning of the phrase "plu?"
5) What are at least 2 meanings of the phrase "Don't give up the ship?"
6) Why do you think a dog was included with the Vitruvian Astronauts?

Rose Park Compass Family Curriculum Standards Discussed

Alabama College and Career Ready Standards for Science 2023 and Alabama 2015 Final Science CGS 10-1-2015

Earth's Place in the Universe

Grade 1

p.26 #3. Observe, describe, and predict patterns of the sun, moon and stars as they appear in the sky

#9. Observe seasonal patterns of sunrise and sunset to describe the relationship between the number of hours of daylight and time of year

Grade 5

p. 39 # 12. Defend the claim that one factor determining the apparent brightness of the sun compared to other stars is the relative distance from Earth

 # 13. Analyze data and represent with graph to reveal patterns of daily changes in length and direction of shadows day and night and the seasonal appearance of some stars in the night sky

Grade 6

p.42 #1. Create and manipulate models to explain the occurrence of day/night cycles, length of year, seasons, tides, eclipses and lunar phases based on patterns of the observed motion of celestial bodies.

#2. Construct models and use simulation to explain the source of gravity in affecting the motion of celestial bodies within galaxies and the solar system.

#3. Evaluate information to compare and contrast past and present views about the structure of the universe and show how these have changed over time.

Grades 9-12

p.67 #2. Engage in arguments from evidence to compare various theories for the formation and changing nature of the universe and our solar system.

#5. Use mathematics to explain the relationship of the seasons to the tilt of the Earth's axis and its revolutions around the sun.

About the Artist

Dr. Deborah Barnhart came to Huntsville like so many others when her father went to work as an engineer at the newly formed NASA Marshall Space Flight Center in 1960. A retired US Navy Captain (0-6), her career began when she was one of the first women selected to serve aboard ships. After serving as boilers officer, navigator, and other roles, she qualified as a Surface Warfare Officer and had five commands in the Navy. Following service, she was an executive in three major aerospace corporations and served for ten years as the CEO of the US Space and Rocket Center in Huntsville. Rose Park was her childhood playground.

Check out *Compass Rose Family* on the Public Art Archive!

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