

Dear Customer,

Thank You for choosing the Blue Planet™ Globe! I hope you enjoy the display as much as we enjoyed making it for you.

The Blue Planet™ Globe was created in good part from the inspiration of the NASA space explorers, who gave us a view of our home from a distance seldom before imagined or contemplated. The awesome beauty of the planet, in existence from time indefinite, compelled every astronaut to awaken our senses of appreciation for the small bright blue jewel on which we live. As one of them, Donald Williams, said:

*“For those who have seen the Earth from space, and for the hundreds and perhaps thousands more who will, the experience most certainly changes your perspective. The things that we share in our world are far more valuable than those which divide us.”*

I hope you will share the same uplifting impression from viewing this model as though you were seeing the Earth from space.

Let this viewing opportunity of the Earth - a marvelous creation in the wonderful universe - expand your curiosity for knowledge.

In the meantime, if you have any questions or require assistance, please feel free to contact us.

Thank you again,

*Aaron Bell*  
Vice President  
Science First®



# U010 Blue Planet™ Globe

## Instructions The Blue Planet™ Globe - Voyager Model

The Blue Planet™ Voyager Model Globe shows day and night in one minute, and the four seasons in six minutes. Another version, The Blue Planet Discovery Model Globe is synchronous with rotation of the earth.

The Blue Planet Globe is a delicate instrument and great care should be exercised in removing it from the shipping boxes. Remove the globe first, and then the acrylic enclosure, and then the square base plate located in the bottom of the shipping box.

- 1) Check for any possible shipping damage. (If damaged call UPS 800 742-5877). If no damage is apparent, check the operation of the Blue Planet™ Globe by plugging it into a power source. The operation should be smooth and noiseless.
- 2) Try operation of the four-position switch:
  - a) everything OFF
  - b) the light only ON
  - c) the light OFF and the rotation ON
  - d) the light and rotation ON.
- 3) Try the light only ON and rotate the globe by hand. The globe can be manually rotated or stopped, if in rotation mode, due to the slip clutch in the lower electric motor. The slip clutch is provided also for safety reason - in case of seizing of the globe on its axis, or globe's accidental touching of the enclosure wall.

**It should be noted that the Blue Planet™ Globe looks its best in external artificial lighting, and with one or two sides of the enclosure up against the wall. It should not be in direct sunlight, or near the windows. Carefully select external lighting and location for best effects**

### Care and Maintenance for your Blue Planet™ Globe

- The Blue Planet™ is a delicate instrument and should not be moved abruptly.
- For cleaning of the acrylic cover use antistatic plastic cleaner.
- To replace the bulb, remove northern hemisphere as shown on the page 2. The globe needs to be CAREFULLY squeezed, or gently hit with both hands, below the equator until the northern hemisphere pops up loose. The hemispheres are joined and held in place by a groove-and-tang connection. Replace the bulb with 40 watt, blunt or straight tipped clear glass, candelabra base type

**Thank You, and Enjoy the Blue Planet™ Globe Display!**

## The Blue Planet™ 16" Dia. Rotating Illuminated Seasonal Globe



The smoked plexiglass cover makes this unique globe even more special by creating the exact appearance of Earth floating in space. Students of all ages are absolutely transfixed by the sight of their planet, spinning quietly in the darkness. The Blue Planet™ is wonderful for classroom or library and personal discovery - an unmatched 3-D perspective of our world that answers: Why are there seasons? How does the sunlight really change during the year over the globe? How many hours of sunlight does any location receive during the year? What time does sun rise and set at your location today?

The Blue Planet™ takes the concept of a normal globe and transforms it into a marvelous astronomical learning experience. We are certain that this exceptional tool is worth your consideration.

*"The planet Earth drifts through space like a beautiful, bright blue jewel in an endless dark sea... for ever".*

In our search for new ways to bring the excitement of astronomy to everyone, we believe we created the most effective and captivating way to teach people about our home planet and the seasons. The individually crafted full Earth globe is lit from within, yet ingeniously shielded so that only half of the planet is visible as the globe turns, perfectly recreating how the sunlight varies over the surface of the Earth.

The internal robotic mechanism design based on an astronomically true formula, lets you see in 6-minute intervals the changing pattern of the sunlight falling over each hemisphere during the year.

Note: Each globe comes with multi-setting controller allowing lit or unlit rotation or stationary observation. A bright spot represents the position on the Earth where the sun is directly overhead. Plexiglass cover measures 23" h x 18" x 18".



## The Blue Planet™ - The Voyager Model

### Modeling the Reasons for the Seasons

Watch the Blue Planet™ very carefully for a few minutes. Note that as the Earth rotates slowly, the location of the boundary night and day, called the terminator, shifts. Also note that the most intense light falls on different parts of the globe at different times. Why?

#### **Why does the globe spin?**

The model is simulating the daily rotation of Earth. Every 24 hours, Earth completes one full rotation. Of course, the model has been greatly speeded, otherwise you would not have the patience to watch!

#### **Why is the globe illuminated?**

As the Earth rotates, any one location faces the Sun during daylight hours, then that location faces away from the Sun during night time hours. The globe shows when a particular location crosses from day into night and vice versa. Note that for different locations, the portion of rotation during day is different from the portion of rotation during night. Furthermore, if you watch for a few minutes, the location of the terminator shifts, causing day and night to be different lengths in any one location.

#### **Why does the terminator shift over time?**

This globe is simulating Earth's seasons. As you already know, days are much longer in duration during summer, as opposed to the short days of winter. The length of day and night are similar during spring and autumn. For example, try concentrating on Wisconsin; note that for a period of time, Wisconsin rotates through a wider swath of light (summer), while a bit later Wisconsin rotates through a narrower swath of light (winter).

#### **Why do these seasons occur?**

Contrary to popular misconception, the Sun is not closer during summer - in fact, the Sun is further from the Earth during summer! Wisconsin experiences summer as the hottest time of the year because Wisconsin's surface is tilted, closer to the right angle, toward the Sun. Because Earth's axis is tilted, Earth's northern hemisphere is inclined toward the Sun during the summer months. Locations in the northern hemispheres receive larger quantities of sunlight

and rotate through a wider swath of sunlight each day. On the other hand, during the summer months southern hemisphere locations are tilted away from the Sun, and rotate through a narrower swath of sunlight each day. If you lived in Argentina, the month of June, July, August are the coldest times of the year, with the shortest days.

Six months later, the situation is reversed. Now the northern hemisphere is tilted away from the Sun; we experience shorter days and cooler temperatures. Now the southern hemisphere is tilted toward the Sun; days are longer and warmer there now. During autumn and spring, Earth's axis is not tilted much toward or away from the Sun. As a result, days and nights are about the same length across the world. Temperatures are moderate, somewhere in between the cold and warm.

### **How do I know when these seasons occur?**

The date for the point of maximum tilt toward the Sun is Summer Solstice and away from the Sun, Winter Solstice. The dates for the points of no tilt toward/ away from the Sun are Vernal and Autumn Equinoxes.

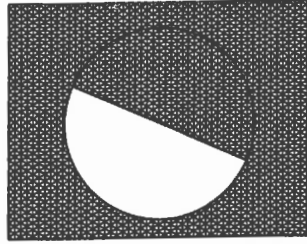
Watch the Blue Planet™ very carefully again. Try to determine the point where the most intense light reaches the highest point above the equator. That will be the Summer Solstice, the time when the northern hemisphere receives maximum sunlight and the longest days. Now watch for the point when the most intense light falls on the equator; this occurs twice a year, during the Vernal Equinox and Autumn Equinox. Finally, note the point where the most intense light reaches the lowest point below the equator. That is the Winter Solstice, the time when the northern hemisphere receives the minimum sunlight and the shortest days.

### **So What?**

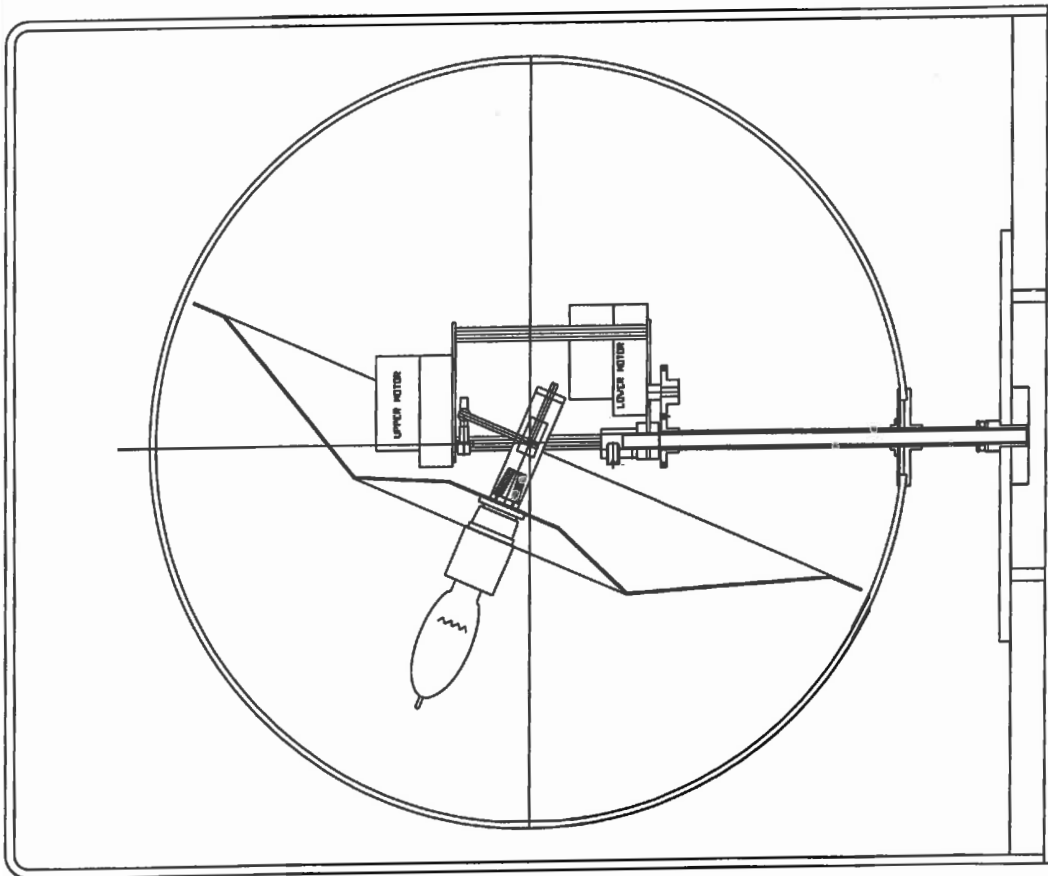
We don't need the Blue Planet™ model to tell us when seasons occur; we have calendars for that! But very few of us understand why temperatures change or why the length of day changes during the year. In the agriculture-based societies that existed more than 150 years ago, everyone was well aware of relationship between the angle of the Sun in the sky and the season of the year. Ancient cultures watched the Sun every day and celebrated on around the day of the Winter Solstice - they knew that every day after, the Sun would rise higher in the sky and the oppressive winter nights would soon grow shorter.

Observe the Blue Planet™ one more time, watching the reasons for the seasons as the sunlight plays across the face of our rotating home. Think about the Sun, the life-sustaining force of our existence. Relate the shift in the terminator to the changes of our seasons. Think about the curious reason why every Babylonian-captive has a break time suspiciously close to the date of the Winter Solstice. Finally, keep on checking up on the Sun; note that during the summer it rises to almost directly overhead at noon, while during the winter the Sun is 47 degrees lower in the sky at noon.





THE BLUE PLANET - VOYAGER MODEL  
DAY REVOLUTION TIME - 1 MINUTE  
YEAR CYCLE TIME - 6 MINUTES



OPENING THE GLOBE TO REPLACE THE BULB

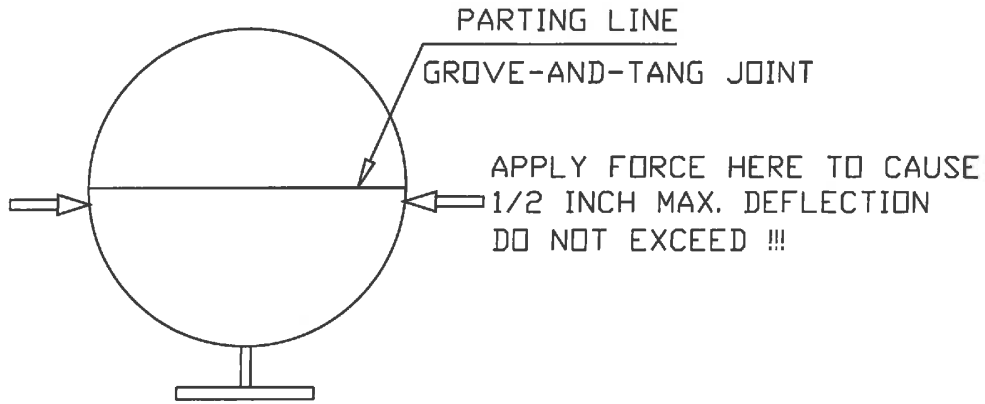


FIGURE 1

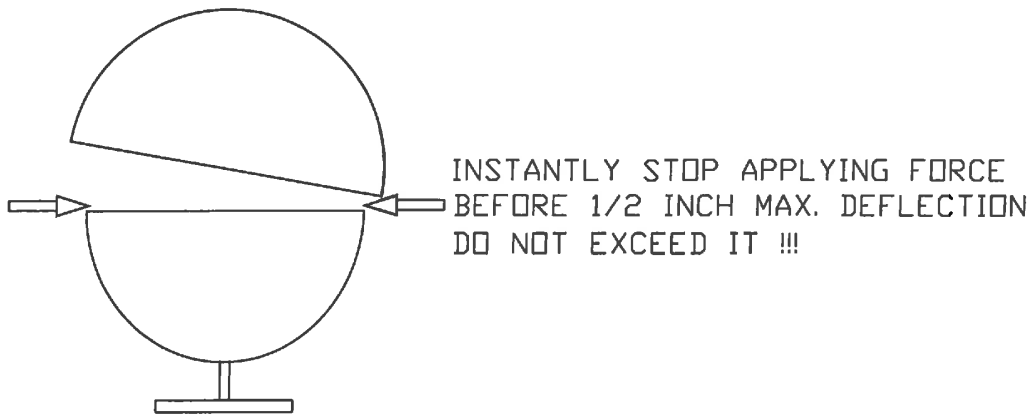


FIGURE 2