

Paper Plate Education

"Serving the Universe on a Paper Plate"

What's New?

Year 2011

January 21	Added to AstroCamp page: AstroCamp is featured on WNIT PBS television show Outdoor Elements (Episode #1003 , Segment #1). Note that former AstroCamp attendee and part-time AstroCamp counselor Sarah is the guest of Episode #2. See http://www.wnit.org/outdoorelements/1000/1003/1003.html
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Year 2010

November 18	Updated links and dates (from 2004 to 2012) for Transit of Venus pages: - Transit of Venus Program - Activity: Transit of Venus Plot - Activity: Transit of Venus Frequency
November 17	Link added to Activity: The Dynamic Solar System: Translation of this activity into Belorussian language, courtesy of Paul Bukhovko.
September 7	Link added to Links page: Foam Plate Glider (FPG-9) from Academy of Model Aeronautics demonstrates basic principles of flight. New page added at AstroCamp2010 : Pictures from the 2010 YMCA AstroCamp and a TV news story convey highlights of the astronomy camp for kids.
September 6	Website relaunched at www.transitofvenus.org , which supports paper plate activities related to the transit of Venus on June 5-6, 2012.
March 18	New example added to Bad Moons Rising . Three images cited from the children's book <i>Why Does the Moon Change Its Shape?</i> For example, while spatial relationships are hard enough for kids, this rendition of lunar eclipse (with sun, earth, and moon in a line) is challenging even for adults.

Year 2009

August 20	Paper plate activities are prominent in AstroCamp video produced by kids of AstroCamp to the music of "Shoulders of Giants". SQM readings by 2009 campers suggest the sky brightness is 20.69 "squims".
August 17	Turtle Hatch activity is recommended in the Let There Be Night podcast for August 17 at http://365daysofastronomy.org .
June 15	New Cosmic Hat II is a succinct reprise for the Cosmic Hats activity. Courtesy of Sydney.
February 13	New Roman Shields activity recreates the scutum, a military device used by the Roman Army; courtesy of Katie Schwertfeger.
February 2	Link added to AstroCamp page: http://www.astromart.com/articles/article.asp?article_id=687 Astronomer-in-Residence Darren Drake writes of his stargazing experiences with AstroCamp kids.
January 14	In the new Turtle Hatch activity students record on a paper plate the fate of sea turtles hatching in the presence of light pollution. Borrowed from Let There Be Night .
January 13	Accendiamo le stelle! (Let's light up the stars) , a YouTube video that shows a demonstration on shielding lights, adapts Paper Plate Education's Light Pollution activity to advocate for dark skies.
January 1	Paper Plate Ed joins the 2009 International Year of Astronomy celebrations.

Year 2008

November 25	New African Masks activity highlights the role of masks for celebrations, courtesy of Lisa Soto Kile.
August 14	Khon Kaen University in Thailand features several paper plate activities in the classroom, astronomy camp, and teacher training program. Images courtesy of Chaiyapong Ruangsuwan.
August 4	AstroCamp 2008 was a fun astronomy camp for kids and counselors alike. Clear skies yielded great stargazing and telescope use. Pictures that reflect the action are emerging at astrocamp2008.htm .
	NASA celebrates its 50th trip around the sun.

Year 2007

December 9	Some changes to the host server have altered navigation bars. Sorry for the inconvenience.
November 8	Added a useful instruction sheet for Oreo® Moon Phases activity , courtesy of Becky Nelson.
September 10	The U.S. supports the International Year of Astronomy 2009 (IYA2009) and features national events at http://www.astronomy2009.us .
September 10	Total lunar eclipses on February 20-21, 2008, is opportunity to try a collection of lunar eclipse activities listed at new lunareclipse2008.htm .
July 21	Total lunar eclipses on August 28, 2007, and on February 20-21, 2008, are opportunities to try a collection of lunar eclipse activities listed at lunareclipse2007-2008.htm .
July 20	At links.htm added six links to paper plate activities posted elsewhere, from paper plate hovercraft to the geometry of gears.
July 15	The AstroCamp 2007 astronomy camp for kids featured paper plate activities, including tracking sunspots and drawing a telescope view and making Moon Finders.
May 30	New Globe at Night activity helps you to be a part of a worldwide observing campaign to determine your limiting magnitude. Draw the stars you see onto a plate with Orion's outline, then compare your plate with the magnitude charts from the <i>Globe at Night</i> program.
February 19	Note added to activities with <i>Follow the Drinking Gourd</i> applications: "Caveat: The historical credibility of <i>The Drinking Gourd</i> folklore is challenged at http://www.followthedrinkinggourd.org/index.htm ."
February 5	Several paper plate activities support the total lunar eclipse on March 3, 2007. Eclipse details and ideas are at eclipse07-03-03.htm .

Year 2006

September 15	Paper Plate Education is featured in the poster "How do you get Big NASA into a Small Dome?" at the Astronomical Society of the Pacific (ASP) Annual Conference in Baltimore, MD, September 15-18, 2006.		
September 14	Activities from the Paper Plate Astronomy videotape/DVD are now available online as free streaming video : <table border="1" data-bbox="519 2022 1964 2663"> <tr> <td> <ul style="list-style-type: none"> ✘ Introduction ✘ Sunrise Sunset ✘ Satellite Tracking Bowl ✘ Sub-Solar Cup ✘ Altitude Measurer ✘ Platisphere ✘ Platisphere for Children </td> <td> <ul style="list-style-type: none"> ✘ Platisphere Tactile ✘ Photographic Plate ✘ Latitude by Polaris ✘ Altitude of the Noon Sun ✘ Moon Finder ✘ Planet Pointer ✘ More paper plate activities </td> </tr> </table>	<ul style="list-style-type: none"> ✘ Introduction ✘ Sunrise Sunset ✘ Satellite Tracking Bowl ✘ Sub-Solar Cup ✘ Altitude Measurer ✘ Platisphere ✘ Platisphere for Children 	<ul style="list-style-type: none"> ✘ Platisphere Tactile ✘ Photographic Plate ✘ Latitude by Polaris ✘ Altitude of the Noon Sun ✘ Moon Finder ✘ Planet Pointer ✘ More paper plate activities
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September 1	Build giant spheres from plates and cups with this fun weekend project by Bre Pettis of Make Magazine.		
	AstroCamp 2006 at YMCA Camp Eberhart features paper plate drawings of solar prominences and sunspots,		

July 3	as seen by kids through solar filters and a hydrogen-alpha telescope.
January 24	The Paper Plate Astronomy DVD is now on sale, in addition to the original VHS videotape version. Order your 70-minute demonstration of nine paper plate activities for only \$17.00 USD, including shipping.
January 20	<i>Paper Plate Education</i> is featured in the Classroom Connect "Connected Newsletter," November 2005, Vol.12, No. 3. Chuck Bueter addresses the background and development of paper plate activities for the "Wired Success Story" on page 14.

Year 2005


August 23	Yarger Observatory Clear Sky Clock anticipates tonight's observing conditions at YMCA Camp Eberhart, home of AstroCamp , in Three Rivers, Michigan.
July 10	AstroCamp 2005 at YMCA Camp Eberhart includes paper plate activities such as the Platisphere for Kids and Telescope View . See images from this fun week of stargazing, telescoping, water rocketing, and more.
June 6	New Themes activity helps students identify and explain a novel's theme, then represent a time when that message would be appropriate. Contributed by Carrie Smith.
February 18	New Light Pollution activity uses a paper plate to demonstrate how easily light pollution can be curbed with simple shielding of a bare bulb. While the pollution decreases, the efficacy of the light fixture increases, thus saving energy and money. Contributed by 8-yr. old student.

Year 2004

September 10	Skywatchers can observe the total lunar eclipse of October 27, 2004 , at the PHM Planetarium and Air/Space Museum in Mishawaka, Indiana, USA. See pveclipse2004.htm for maps, times, and a list of paper plate activities that can accompany a total lunar eclipse. This eclipse occurs at a convenient time for North American observers.
June 17	Images from around the globe (and from space, too) of the transit of Venus are at www.transitofvenus.org/images.htm , with pictures from the transit of Venus celebration in Mishawaka, Indiana, USA, at www.transitofvenus.org/june8.htm .
June 8	Transit of Venus!
May 13	See www.transitofvenus.org/whatsnew.htm for ongoing updates about the June 8, 2004, transit of Venus, which continues to consume our time and energy. We invite you to participate in transit of Venus events occurring in Mishawaka/South Bend, Indiana. See www.transitofvenus.org/roadtrip.htm for details about the art exhibit, public observing, and even <i>Transit of Venus Sunrise Ale!</i>
April 11	Much of our time and energy has been diverted to transit of Venus planning; hence, the delay in updating this website. We encourage you to immerse yourself in www.transitofvenus.org . Also, see the <i>Transit of Venus</i> program at transit.htm for the complete contents of and ordering form for the <i>Transit of Venus</i> DVD/CD set. Look for paper plates in a forthcoming issue of <i>Physics Education</i> , in which the Transit Frequency activity appears.
January 5	The results of the Analemma Project are in, with mixed success. A narrow figure-8 suffers from a few errant points when plotted on a globe.

Year 2003

December 21	We completed plotting the sub-solar point on a globe through one year as part of the Analemma Project . Now we just have to plot the points on the globe to see if they yield an analemma, that figure-8 feature on some globes.

November 8	Teachers create their own day and night plates for the As the World Turns activity.
October 31	At our transit of Venus clearinghouse you can view tentative elements of the <i>Transit of Venus</i> program , including: <ul style="list-style-type: none"> ✘ Contact sheets with thumbnails of the images to be included on both the DVD and the data CD. ✘ The DVD table of contents with suggested chapters, video clips, and music.
October 27	<i>Transit of Venus</i> program debuts at the Great Lakes Planetarium Association (GLPA) Annual Conference.
September 2	On the evening of Saturday, November 8, 2003, after the Notre Dame/Navy football game, go outside and watch the total lunar eclipse, visible shortly after 6:30 p.m. EST. Complement your experience with lunar paper plate activities .
September 1	In taking paper plate art to a higher plane, Bradford Hansen-Smith showcases his Wholemovement creations and philosophy at http://www.wholemovement.com .
July 8	Correction for the Bad Moon's Rising page: The book showing Percy the train being lifted out of the water was erroneously attributed. We apologize to Owain Bell, who was <i>not</i> the illustrator of that book, as we had suggested. We invite you to contact us if you can correct the information on title, author, illustrator, and publisher for that book.
July 5	Gallery: Astrocamp 2003 is added, showing kids at Astrocamp and the objects they saw through the telescopes at YMCA Camp Eberhart . Also see the Telescope View and the Tracking Sunspots activities.
June 2	Optical toys , including paper rocket, made of paper by Georg Egger is added to Links page and Salad Spinner Zoetrope activity. See http://web.inter.nl.net/users/anima/optical/zoetrope/index.htm .
May 15	Observers in the South Bend, IN, area can witness the total lunar eclipse at a family outing . The web page contains a list of related paper plate activities, charts, and links.
May 12	Gene Zajac and Chuck Bueter are awarded a PLATO grant to conduct a workshop at the the 2003 GLPA Conference in October to demonstrate how to make and use modified and economy versions of the Sun Gun , a device for viewing the sun by rear projection.
April 26	The 2003 Dixie® Art of the Plate contest generated terrific artwork for paper plate designs--thousands of entries were submitted. You can view the paper plate artwork at http://www.gp.com/artoftheplate/gallery.html . Site is added to Links page.
April 24	Adapted tables indicate the scale of the solar system in the Dynamic Solar System activity and the Plateful of Planets activity. A few missing digits were found and corrected.
April 19	A simplified Rainbow Finder II activity is a fun way to make a free-standing rainbow that helps you find those colorful arcs on a sunny, rainy day. This new activity combines the Rainbow Turntable and the Rainbow Finder I .
April 18	A typo was corrected to state the transit of Venus is on June 8, 2004. Also, the transit FAQ was modified, for it erroneously suggested the transit is visible for about 50 minutes from all North American locations that see the event. Thank you, Geoff Stray and Walter Nissen, for pointing out the shortcomings, respectively.
March 10	A 2003 Toyota TAPESTRY grant has been awarded to establish a clearinghouse for transit of Venus resources through the Paper Plate Education website. The diverse materials, to appear here as they are developed, will support multiple users, including teachers, planetarians, librarians, and other educators.
February 24	Science-Web-Award kindly gives Paper Plate Education its seal "For Extraordinary Effort."
February 23	Fresh batch of bad moons taken from children's picture books are uploaded to More Faux Phases II page.
February 23	Images show students making and using Paper Moons .
February 1	
January 26	Parade magazine lists Paper Plate Education among the "Sites You'll Like" in Robert Moritz's Gadget Guide column.

January 24	Paper Plate Education is selected as the "Site of the Week" by EduNET Choice Award for the week beginning Monday, January 20, 2003. Thank you, EduNET.
January 23	Links for the transit of Venus have been moved to www.transitofvenus.org , a new website that will be a clearinghouse for transit-related material. The extensive list of annotated links are at http://www.transitofvenus.org .
January 23	Thumbnail images for Bad Moons Rising (with Comments) page now link to larger pictures. (Thank you to readers who pointed out the broken links.) The "story" column is complete for More Faux Phases page.
January 22	The new Lunar Eclipse activity shows how two shadows--the umbra and the penumbra--can fall on the moon during a lunar eclipse. Home plate updated.
January 20	An article about Paper Plate Education appears in the January issue of Voyages , the NASA Office of Space Science Newsletter on Education and Public Outreach.
January 15	Upcoming Events entry added: Mars at its closest approach in thousands of years invites a Telescopic View of the red planet.
January 13	John Beach contributes text to accompany images of his geocentric world demonstrator , a working instrument to illustrate the geocentric system espoused by Ptolemy.
January 13	Home plate updated with new activities: <ul style="list-style-type: none"> ✘ Geocentric vs. Heliocentric--make a model of Ptolemy's geocentric system from stacked cake trays; contribute by John Beach; ✘ Transit Frequency--illustrate the strange periodicity of transits of Venus in this recreation of a race between daughter Venus and mother Earth; ✘ Analemma--trace a figure-8 on a globe using a Sub-Solar Cup; ✘ Flash Plate--practice math tables more effectively with round cards.
January 8	Paper Plate Education's 2003 copyright is declared at the bottom of each page. Educators are still welcome to reproduce the contents of this site for non-profit purposes. Other uses require permission of the respective individuals who have contributed the material. Feel free to contact us if you have any questions. Thank you.
January 8	Happy New Orbit-Around-the-Sun. We open 2003 with the Analemma activity in which the sub-solar point is marked regularly throughout the year to plot the figure-8 analemma on a globe. This variation on the Sub-Solar Cup activity will continue for one Orbit-Around-the-Sun until the December solstice.

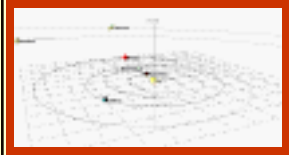
Year 2002 (below)

December 16	Astronomy author and illustrator Jay Ryan clarified the circumstances that create periodic transits (pairs of transits eight years apart that are separated by over a century) in a 1996 article, now linked from the Transit of Venus page with his permission.
December 13	In planning large-scale education programs around the transit of Venus, NASA seeks to touch over ten million people, including over 20,000 teachers. A call for institutional partners, excerpted from an AAS Bulletin abstract, is at the Transit of Venus page.
December 12	Transit of Venus is added to NASA Space Science Portal as Paper Plate Education solicits supporting material related to the June 8, 2004, event .
December 10	Two holiday gift ideas --the <i>Goodnight Moon</i> book and the <i>Paper Plate Astronomy</i> videotape--are suggested with purpose at the Upcoming Events-Winter 2002 page. See how to receive the video in time for the holidays.
December 5	New Flash Plate activity is patterned after intriguing research that suggests young learners fare better with round flash plates instead of the familiar rectangular flash cards. Build a stack of cards on paper plates.
December 4	<ul style="list-style-type: none"> ✘ Photographic plates from the US Naval Observatory Library showing the 1882 transit of Venus are linked from the Transit of Venus page. ✘ Several other websites are added as Transit of Venus links, including an explanation of the "black drop" effect, background on determining the sun-earth distance, an image of Capt. James Cook's view of inner contact, a tutorial on the math of parallax, an explanation about the frequency of Venus

	transits, and information on NASA's <i>Kepler</i> mission to find inhabitable planets by tracking extrasolar planetary transits.
December 2	<ul style="list-style-type: none"> ✘ Though a very good children's story, Bear Shadow suggests no shadow is cast at noon. See the illustration lapse at More Faux Phases. ✘ Excerpts from <i>Papa, please get the moon for me</i> are added to More Faux Phases (for the erroneous illustration) as well as to Good(night) Moons Rising (for accurate illustrations).
November 25	<ul style="list-style-type: none"> ✘ Flat Stanley opens his own Picture Gallery. ✘ New image at Transit of Venus page shows Stanley using proper telescope filter so as not to burn his eyes (or catch himself on fire).
November 24	Celebrate Thanksgiving with these links to an arts and crafts Turkey activity.
November 22	A new Bad Moon Rising sent in by Tim Lyster is added to More Faux Phases .
November 22	<ul style="list-style-type: none"> ✘ Upcoming Events and Home Plate tweaked. ✘ Track the space shuttle as it chases the International Space Station for a crew change and delivery of an ISS girder.
November 21	Final Performance Report gives general summary of AFTAPP program outcomes.
November 20	New Transit of Venus activity tracks the path of the Venus' disk across the surface of the sun during this June 8, 2004, celestial highlight.
November 20	Transit of Venus introduction page modified; 2002 GLPA Conference poster text uploaded; transit of Venus links added.
November 18	Transit of Venus introduction added to Site Map .
November 18	New Publications page lists references for papers and posters relating to paper plate activities, from 1992 to present; is added to Site Map .
November 17	Single images are added to the Dynamic Solar System activity and the Orbit Basics activity.
November 16	Twenty four images of More Faux Phases are added to support the Bad Moons Rising activity.
November 9	The European Southern Observatory is coordinating an observing program for the Transit of Venus .
November 9	The poster text from Bad Moons Rising is reprinted from the <i>GLPA Proceedings</i> , 1997, p. 161.
November 6	Over two dozen books with More Faux Phases portray bad moons rising. Do you have some to add?
November 4	Minor shuffles: Full Circle and Bad Moons Rising added to Site Map page; Griffith Observatory listing added to Links page.
November 1	A picture of Clyde Simpson is added to the Tracking Sunspots activity.
November 1	A link to solar system scale models is added to the Plateful of Planets and Dynamic Solar System activities.
October 27	Children's books often depict moon phases in error. See if you can spot the mistakes at the new Bad Moons Rising activity. Meanwhile, what classic children's book is illustrated with an eye toward astronomical integrity? The new Good(night) Moons Rising activity offers a hint.
October 27	The numbers are out. Our website server reports Paper Plate Education is being visited by over 600 distinct visitors per day, who access over 20,000 html and image files per day! Thank you for your support. We welcome your feedback and input .
October 26	A rare Transit of Venus occurs June 8, 2004. This spectacle has not been witnessed by any human now alive. A poster at the 2002 GLPA Annual Conference includes these excerpted images and links .

August 19	The Perseid meteor shower yields obvious patterns on three plates recorded during the 2002 summer event. Perseids and sporadic meteors alike are displayed, illustrating the radiant.			
August 18	Some fun folks at BobStaake.com consider Paper Plate Education a Way Cool Site .			
August 8	Paper Plate Education appeared as a poster at the International Planetarium Society (IPS) Conference. See the poster displayed at Wichita.			
August 3	Make a planisphere using a CD. Added to the Links page is the Celestial Dome Planisphere by Ken Wilson of the Science Museum of Virginia.			
July 6	Forty new images of AFTAPP participants creating their tiles and making Platispheres are added to the AFTAPP picture gallery .			
July 5	The Meteor Shower activity suggests how observers can track the paths of the Perseid meteors on a paper plate starfield to illustrate the meteor shower's radiant.			
July 4	Happy Fourth of July, USA. Celebrate on the dew of cool grass or in the steam of a hot tub. The Hot Tub Astronomy page suggests some observing activities that hold up well to moisture.			
June 20	<i>Paper Plate Education</i> will exhibit a poster at the 16th International Planetarium Society Conference in Wichita, KS, July 29-August 1, 2002.			
June 14	Satellite Tracking Dish highlighted on Upcoming Events as Dr. Peggy Whitson begins a 4-plus month stint aboard the International Space Station.			
June 6	A separate Awards page allows us to blow our horn so it sounds like music, not noise.			
June 5	To accommodate growth, Site Map outlines the variety of website components; number of navigation buttons reduced.			
May 1	The ultimate paper plate instrument, the Plate-a-tarium , depicts features of the celestial sphere such as the celestial equator and ecliptic; indicates real time positions of the planets and the zodiac in both azimuth and altitude; and illustrates rising and setting position of the sun and planets for any given date.			
April 25	Paper Plate Activities Elsewhere offers links to more activities found off-site yet on the Internet.			
April 17	Text and images (excerpted from the <i>Paper Plate Astronomy</i> videotape) are added: <ul style="list-style-type: none"> ✘ Sunrise Sunset ✘ Satellite Tracking Bowl ✘ Sub-Solar Cup ✘ Altitude Measurer ✘ Platisphere ✘ Latitude by Polaris 			
	This page entitled "What's New?" debuts.			
April 15	Anne K. Brown contributes Physical Fitness activity.			
	Text-only narration for the <i>Paper Plate Astronomy</i> videotape is added.			
April 14	<i>USA Today</i> prints the <i>Paper Plate Education</i> website among its "newsworthy sites."			
April 9	<i>USA Today</i> designates the <i>Paper Plate Education</i> website a "HOT SITE." See the bottom of the Home page.			
April 6	<i>Yahoo!</i> designates the <i>Paper Plate Education</i> website a "Pick of the Week." See the bottom of the Home page.			
April 2	Comet Ikeya-Zhang inspires list of comet activities .			
	A multitude of upgrades and highlights appear in a temporary "New Features" table, below: <p><i>NEW Features!</i></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; height: 20px;"></td> <td style="width: 20%; height: 20px;"></td> <td style="width: 60%; height: 20px;"></td> </tr> </table> <p style="text-align: right;">Witness current celestial events and prepare for upcoming sky highlights with</p>			

[Upcoming Events](#)



paper plate materials. Enjoy a spectacular viewing opportunity as the planets gather for a Spring Dance in April and May, 2002.

[Activities](#)



Recent additions include [Constellation Projector](#), [Drinking Gourd II](#), [Feynman Diagrams](#), [Geocentric vs. Heliocentric](#), [Lunar Surface](#), [Portable Sundial IV](#), and a list of proposed activities.

[Full Circle](#)



In creating exquisite art, Bradford Hansen-Smith advocates the geometric elegance of the circle. Currently available only as a 590 KB MSWord document (.doc).

[AFTAPP](#)



AFTAPP program fuses star lore, urban stargazing, and modern astronomy as the foundation for an art project. The teacher workshop is funded by an IDEAS grant of the Space Telescope Science Institute (STScI).

[Photo Gallery](#)



Pictures of paper plate enthusiasts in action.

March 21

February 24

[Star charts](#) show locations of planets for the Science Olympics state competition.

February 21

[Star charts](#) for seasonal stars aid AFTAPP teachers.

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